Seasoned Equity Offerings in China

Zhongnan Huang

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Department of Financial and Management Studies
School of Oriental and African Studies
University of London

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Abstract

The thesis examines Chinese Seasoned Equity Offerings (SEOs): their practice, motivations, and implications to corporate governance. The sample used in the empirical analysis contains all Chinese SEOs from 1994 to 2009 (excluding the financial sector). The thesis consists of three empirical chapters. Chapters 3&4 use rights issues and public offerings to examine the application of four mainstream theories concerning SEO motivations, namely the trade-off theory, the information asymmetry theory, the agency theory, and the financing under growth theory. The difference between these two chapters is that Chapter 3 examines the impact of SEO motivations on the SEO decision by using firms' pre-issue characteristics, while Chapter 4 examines SEO motivations by checking the use of proceeds from SEOs and firms' post-issue long-term stock and operating performance. Chapters 3&4 document that the mainstream SEO theories in general also apply to Chinese SEOs. In addition Chapter 4 also provides evidence regarding the agency conflict between controlling shareholders and minority shareholders which is particularly relevant to the Chinese stock market. In Chapter 5 we examine the impact of private placements on corporate governance by focusing on firms' shareholder contestability. We show that firms whose shareholder contestability improves to a larger extent due to private placements experience better market reactions to the private placement announcement, suggesting that private placements could help Chinese firms improve corporate governance to reduce the agency conflict between controlling shareholders and minority shareholders. Overall, the thesis contributes to the existing literature by first examining the application of four mainstream theories concerning SEOs in Chinese stock market which is a immature market. We find evidence supporting all four theories, although the agency cost in China is more complicated due to the agency conflict between controlling shareholders and minority shareholders.

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Chapter 1: Introduction

1.1 The motivation of the thesis

In order to finance firms' operation and investment, firms can choose internal sources as well as external sources of funding. Internal sources of funding mainly refer to profit or retained earnings. External sources of funding mainly refer to debt financing and equity financing. In determining firms' financing decision, Modigliani and Miller (1958 and 1963) propose that capital structure (or the choice between equity and debt) is irrelevant to firm value (or investors' wealth). However, this conclusion relies on a set of strong assumptions of a perfect capital market, which implies: for example, (1) firms are ranked according to risk classes and firms among the same risk class have same return. (2) There is no tax, bankruptcy cost, or transaction costs. (3) There is similar lending and borrowing interest rates available to both private investors and corporations. In other words, investors can privately and at no cost mimic any capital structure chosen by a given corporation. However, in reality, interest expenses are tax deductible and debt financing has the benefit of a tax shield, but the cost of distress associated with debt financing will stop firms from completely replacing equity financing with debt financing (Modigliani and Miller 1963; Brennan and Schwartz 1978). In addition to tax shield and financial distress, there are also other costs associated with debt or equity financing such as the cost of information asymmetry and the cost of agency conflict. These costs will also have an impact on firms' financing decision. The cost of information asymmetry exists between the buyer and the seller of any assets including financial assets of debt and equity (Akerlof 1970). Hence, according to the information asymmetry theory, Myers and Majluf (1984) suggest a pecking order theory. The theory suggests that firms should first use internal sources of financing, debt financing as a

second choice, and equity financing as a last resort. This is because equity financing suffers the most severe cost of information asymmetry between firms and their shareholders while internal sources suffer the least. The cost of agency conflict between managers and shareholders may also be more prominent in equity financing. Managers might use equity as a cheap source with less discipline (compared to debt) for their own perquisites, which impair shareholders' value (Jensen 1986). In this case, debt financing bears less cost in terms of agency conflict than equity financing. Hence, there are multiple factors influencing firms' capital structure such as the benefit of a tax shield, the cost of financial distress, the cost of information asymmetry, and the cost of agency conflict.

Empirically, Eckbo and Masulis (1995) show that internal sources have remained the dominant funding source for U.S. nonfinancial corporations for a sample from 1946 to 1991. This phenomenon remains valid for 7 other economies for a sample from 1970 to 1985. Henderson, Jegadeesh, and Weisbach (2005) obtained international evidence from over 50 economies for a period from 1990 to 2001. They show that debt financing is more popular than equity financing. This evidence seems to support the pecking order theory. However, according to Graham and Harvey (2001), managers give value to financial flexibility, but their desire for flexibility is unrelated to the degree of information asymmetry. In other words, authors comment that firms' financing behaviour might be consistent with the behaviour described by the pecking order theory, but the reasoning for each is very different. There are also other empirical work, which provides evidence for the violation of the pecking order theory such as Shyam-Sunder and Myers (1999) and Fama and French (2005). Explicitly, equity issue is more popular than that predicted by the pecking order theory. However, regardless whether equity is the most popular financing channel for firms or not, equity issue is still an important

topic to investigate for firms, regulators, and investors. The internal sources are limited and firms cannot borrow as much as they want. Firms will need to ultimately rely on equity financing after reaching the limit for all other sources of funding. For regulators, helping firms raise equity is an important function of the stock market. Hence, a good understanding of firms' equity financing behaviour would help regulators to facilitate market practice. For investors, they are also concerned with how firms' equity issue would affect their wealth. For example, equity financing could be the result of the agency conflict between managers and shareholders which could impair firms' value. Hence, we think equity financing is an important topic to investigate.

How exactly can a firm raise funds by issuing equity? Initial Public Offering (IPO) is definitely an important event for firms. After the IPO, the nature of the firm changes significantly from a private to a public firm. Firms' share can be publicly traded in the stock exchange after the IPO. At the same time, firms can also raise some equities during the IPO process. To an extent, equity issue may be of greater importance to firms after the IPO. This is because a firm is likely to conduct only one IPO in its life, but might need many more equity issues in its potentially infinite life of listing according to its demand of equity financing. Firms might also have incentives to raise equity after rather than during the IPO, because there is underpricing during the IPO before which firms' information is available to the public (Welch 1996). Hence, we think that equity issues after the IPO deserve as much attention as the IPO. All equity issues after the IPO can be termed as Seasoned Equity Offerings (SEOs), which is the research objective of this thesis. There are three main SEO method including rights issues, public offerings, and private placements. Rights issue refers to when existing shareholders are granted priority subscription to the new shares, and new shares will be allocated to existing shareholders on a pro rata basis; public offering refers to when new shares are directly

issued to public investors; private placement refers to when shares are issued only to a certain group of investors such as institutional investors.

With regards to existing research on SEO studies, one main stream of research considers the change in the wealth of shareholders during SEOs, including short-term market reaction study (which examines the abnormal return in the window period by comparing issuing firms' real return with its hypothetical return predicted by the market model) and post-issue long-term performance study (which examines the difference between the performance of issuing firms and benchmark performance of non-issuing firms). The market reaction to rights issue or public offering announcements is likely to be negative (Asquith and Mullins 1986; Masulis and Korwar 1986; Eckbo and Masulis 1992). The market reaction to private placements is likely to be positive (Wruck 1989). In the long-term, stock and operating performance of issuing firms are likely to be worse than that of non-issuing firms (Loughran and Ritter 1995, 1997; Spiess and Affleck-Graves 1995). The long-term underperformance also holds for the case of private placements (Hertzel, Lemmon, Linck, and Rees 2002). Then, the question is what causes the pattern of market reaction and long-term underperformance of issuing firms? A popular explanation is from the perspective of the signalling effect of the SEO event (Leland and Pyle 1977). This is because there is always information asymmetry between the seller and the buyer of the shares, and firms tend to sell the new shares when the cost of information asymmetry associated with the issue is low. Hence, firms might be able to "time the market" to take advantage of a period of low cost of information asymmetry which is also sometimes called a "window of opportunity" to conduct equity issue. Hence, the negative market reaction might mean that investors believe that the SEO event conveys a message of share overvaluation. On the other hand, the positive market reaction to the private placement announcement could be due

to that private placements could lower the information asymmetry. This is because during the negotiation of new placements, firms could provide potential investors with more inside information about firms which has not been or cannot be released to the market (Hertzal and Smith 1993). Hence, outside investors believe that if (institutional) investors with more investigation and more private information of the issuing firm are still willing to subscribe to the newly issued shares, this willingness could be a signal of the quality of the issuing firm. With regards to long-term stock underperformance, one possible explanation is that investors and analysts are systemically over-optimistic about the future prospect of issuing firms before SEOs (Jegadeesh 2000). This over-optimism is sometimes associated with firms' earnings management before SEOs (Rangan 1998; Shivakumar 2000; Teoh, Welch, and Wong 1998). Accounting for long-term operating underperformance, one possible explanation is that insiders of the issuing firms understand that firms' current earnings perspective is not sustainable, so they take advantage of this information asymmetry to conduct the equity issue before the decline of firms' performance (Kahle 2000; Clark, Dunbar, and Kahle 2004). The long-term underperformance could also be explained by other theories. For example, the equity issue might be the result of agency conflict between managers and shareholders (Jensen and Meckling 1976; Jensen 1986). Managers could use equity as a cheap resource for their own perquisites, whilst the wealth of shareholders will be impaired (Walker and Yost 2008).

When the market reaction and long-term performance studies mentioned above use different theories to explain patterns of performance, in return through these studies, SEO motivations can also be substantiated. Apart from the motivation of information asymmetry and agency conflict mentioned in the paragraph above, in this research we are particularly interested in four mainstream theories behind SEOs. (1) The trade-off

theory which suggests that the firm adjusts its capital structure to an "optimal" level to balance the benefits of tax shield and the costs of financial distress (Modigliani and Miller 1958 and 1963). (2) The information asymmetry theory which proposes that the firm issues equity when the cost of doing so due to information asymmetry is low (Myers 1984; Myers and Majluf 1984). (3) The agency theory which puts forward that the equity issue decision is affected by the agency conflict between managers and shareholders (Jensen and Meckling 1976; Jensen 1986). We will also discuss the impact of another aspect of the agency conflict on the equity issue decision: the conflict between controlling shareholders and minority shareholders (Johnson, La Porta, Lopez-de-Silanes and Shleifer 2000). (4) The financing under growth theory which suggests that firms with growth potential prefer equity financing due to the agency conflict between shareholders and debtholders (Myers 1977; Smith 1970), or, more generally, to avoid future possible financial distress since growth is normally associated with great uncertainty. We will discuss these four theories in more detail in Chapter 3. There is also other empirical research which explicitly focuses on SEO motivations (without focusing on performance). Kim and Weisbach (2008) test the market timing motivation from a perspective of the use of proceeds after SEOs. DeAngelo, DeAngelo, and Stulz (2010) and Jung, Kim, Stulz (1996) test the market timing motivation by using a binominal model to examine the timing of the SEO decision by firms.

Although there is a fair amount of research on the topic of SEOs, these are largely based on mature markets. We think that the Chinese stock market deserves more investigation, because (1) China is an emerging market, but plays an important role in the global economy. After economic reform lasting 30 years, the Gross Domestic Production (GDP) of China surpassed that of Japan after the second quarter of 2010 becoming the second-largest economy in the world. According to Reuters (11 Jan 2011), China

mainland A-share market capitalisation totalled 26.35 trillion RMB ($3,981 billion) at the end of 2010 becoming the second-biggest stock market in the world, which is 12 percent higher than the Japanese stock market. (2) Another important reason is that it might not be appropriate to directly borrow the research results from a mature market and apply it to the Chinese stock market because there are differences. The Chinese stock market (i.e. Shanghai stock market and Shenzhen stock market) was founded in 1990, and was initially used to partially privatise some state-owned enterprises (SOEs). On one hand, the Chinese government wanted to privatise some shares to the public. On the other hand, the government still wanted to firmly control these SOEs. As a result, one important feature of the Chinese stock market is that the nation controls over two-thirds of shares of these SOEs, making these shares non-tradable (before 2005). World widely, state-owned shares seem to be inferior in comparison to private shares in determining firms' performance in terms of productivity, profitability, and market valuation (Megginson and Netter 2001; Djankov and Murrell 2002). In China, state-owned shares are also expected to impair firm value (Sun and Tong 2003; Qi, Wu, and Zhang 2000). This is because state shareholders are not competent to maximise the value of firms, nor do they aim to maximise the value of firms from the beginning due to its other social responsibilities. The second feature of the Chinese stock market is the heavy regulation on market practices. The heavy regulation is largely the result of a lack of market mechanisms to govern the market. For example, firms who want to conduct SEOs need to satisfy certain profitability requirements. The Chinese Securities Regulatory Committee (CSRC) wants to protect minority shareholders by trying to ensure that the new shares, which flow into the stock market through SEOs for (minority) shareholders to buy, come from firms with good profit generating potential and good corporate governance. However, before security companies began to play a role like an investment banking system in a mature market, the CSRC faced with a

substantial number of SEO applications and time constraints did not have the capacity to investigate each application in great detail. Hence, the CSRC imposed the profitability requirement as one of the most important requirements, to try to restrict firms with inferior performance from raising more money from (minority) shareholders. However, the effectiveness of such a heavy regulative measure is controversial. Allen, Qian, and Qian (2005) summarise other features of the Chinese stock market institutional environment including: the lack of trained professionals, the lack of institutional investors, and limited financial markets and products. These lead to weak corporate governance in China, and consequently weak protection of minority shareholders. For example, according to Bai, Liu, Lu, Song, and Zhang (2004), poor Chinese corporate governance could be summarised in the following aspects: (1) the executive compensation scheme is not well designed; (2) financial transparency of firms is low, and information disclosure of firms is inadequate; (3) the ownership structure contains a large proportion of non-tradable shares and state-owned shares which are believed to have a negative impact on corporate governance (before 2005); (4) the corporate control (or takeover) market is nearly absent in China; (5) the legal infrastructure and the protection of minority shareholders are weak. The weak corporate governance might make the agency conflict (between managers and shareholders) particularly important in the Chinese SEO decision. Additionally, as a result of the dominant position of controlling shareholders, the agency conflict between controlling shareholders and minority shareholders (Johnson, La Porta, Lopez-de-Silanes and Shleifer 2000) is also believed to play an important role in the Chinese SEOs, which is neglected in the mature market. Within the context of SEOs, Aharony, Lee, and Wong (2000) suggest that in China, the interests of minority shareholders might be conflictive with the interests of controlling shareholders, who usually are state-owned enterprises (SOE). Controlling shareholders could transfer some benefits exclusively to themselves

at the expense of minority shareholders. Such a transfer could be achieved via, for example, related party transactions. Allen, Qian, and Qian (2005) also provide a few examples of how controlling shareholders could take advantage of minority shareholders. In conclusion, we need more research that focuses on China, as it is interesting and different from a mature market.

The Chinese SEO features mentioned in the paragraph above have inspired some existing literature on China. For example, regarding the effectiveness of heavy regulation, it is argued that the SEO profitability requirement can be achieved through earnings management on one hand (Yu, Du, and Sun 2006). Whilst on the other hand, the SEO profitability requirement seems to be able to distinguish the post-issue performance of firms (Dang and Yang 2007; Chen and Wang 2007). In other words, the SEO profitability requirement might be suitable as a market mechanism to certify issuing firms' corporate governance and quality. Research into Chinese SEOs seems to focus with great interest on the agency conflict between controlling shareholders and minority shareholders (afore mentioned). Empirically, Jian and Wong (2004) find that firms have more related party transactions after Chinese rights issues. The more related party transactions a firm has, (a) the lower the market valuation is; (b) the more negative stock reaction to related party transaction announcements. Other research has suggested that dividends following SEOs might also be the evidence of such an agency conflict (Lee and Xiao 2006). Although the agency conflict is important in China, we believe other theories are also equally as important and deserve attention, because they could affect the value to the shareholder. However, we deem there to be a lack of literature regarding Chinese SEO motivations apart from the two types of agency conflicts. Bo, Huang, and Wang (2011) extend some knowledge of Chinese SEOs by examining the four main theories concerning SEOs mentioned above and provide support to the

information asymmetry theory (or the market timing motivation) and the financing under growth theory. Our research aims to fill a research gap by providing additional evidence with regards to mainstream theories concerned with SEO motivations. Furthermore, an explicit examination into SEO motivations is important (even in a mature market). As mentioned above, the impact of SEOs on shareholder wealth is likely to be negative either in the short-term market reaction or in the long-term stock and operating performance. Hence, the question is that since SEOs tend to lead to the dilution of shareholder wealth whether SEOs generally mean a bad thing for investors, and whether SEOs should be scrutinised or even avoided? There is no straightforward answer by simply examining the change in the wealth of shareholders. We need to go beyond merely analysing performance but explicitly focusing on SEO motivations to provide useful knowledge to Chinese investors and regulators.

This thesis aims to empirically examine Chinese Seasoned Equity Offerings: their practice, motivations, and implications for corporate governance. Our research has two main contributions. Firstly, as mentioned above, our research contributes to existing literature through examining Chinese SEO motivations. It is interesting to see how the theories concerning SEO motivations in mature markets are applied to the Chinese stock market, with features such as heavy regulation, high state ownership, and weak minority shareholder protection. In other words, with the Chinese economy having gone through 30 years of transition, our research contributes to the knowledge that to what extent the Chinese stock market has converged towards or diverged from a mature market. We find evidence supporting all four theories, although the agency cost in China is more complicated due to the agency conflict between controlling shareholders and minority shareholders. Secondly, as far as we are concerned, we are the first to empirically investigate Chinese private placements, which is a recent development of

Chinese SEOs. There exists a gap in research into private placements in China due to its newness in the Chinese stock market. Even though it has a short history, private placements are important and have become the most popular SEO method since its introduction in 2006. In essence, the reason for its popularity could be that private placements are not restricted by the profitability requirement imposed on rights issues and public offerings. Private placements could improve the agency conflict between controlling shareholders and minority shareholders, because in practice, private placements could introduce more block shareholders who could improve not only monitoring over managers but also monitoring over controlling shareholders. Our study will provide evidence on the impact of private placements on shareholder contestability (i.e. substantiate the agency conflict between controlling shareholders and minority shareholders). The impact of private placement on shareholder contestability is a research gap even within mature markets. The Chinese stock market with severe agency conflict between controlling shareholders and minority shareholders provides a unique opportunity to study such a phenomenon.

1.2 Sub-topics chosen for empirical analysis of the thesis

In order to achieve our research objectives, we chose the following three research objectives/topics to constitute this thesis: (1) why do Chinese firms conduct SEOs? (2) How do Chinese firms use proceeds from SEOs? (3) Do private placements improve shareholder contestability in China?

One observation regarding Chinese SEOs is that Chinese SEO activity has been very frequent. 936 firms have conducted 1508 SEOs during the period from 1994 to 2009, while we have 1700 listed firms at the end of 2009. The question is why are there so

many SEOs in China? Different theories could provide different explanations. For example, SEOs are frequently needed because the fast paced growth of the Chinese economy could bring firms large expansion opportunities and external financing is needed to fund these opportunities. SEOs could also be the result of manager incentives due to agency conflict. Hence, we are interested in how these SEOs could reflect SEO motivations. Our first topic of research focuses on SEO motivations from the following perspective: how SEO motivations determine firms' SEO decisions. SEO motivations are considered to be applicable to the Chinese stock market if SEO decisions can be predicted or explained from SEO motivations. More specifically, SEO decisions are taken to mean which types of firms conduct SEOs and in which years. SEO motivations are measured by firms' pre-issue characteristics. For example, the difference between firms' leverage and firms' (estimated) optimal leverage is used to measure firms' incentive to use SEOs to adjust their capital structure, a reflection of the trade-off theory. We will use a binominal model to study the SEO decision, which is similar to DeAngelo, DeAngelo, and Stulz (2010) and Jung, Kim, Stulz (1996).

There is another interesting phenomenon regarding the use of proceeds from Chinese SEOs. From usage information provided within our sample of Chinese SEOs, 31.7% of final real proceeds are identified as general corporate use which is usage excluding investment and debt repayment. The question is why there is such high general corporate use in SEOs? Previous research has shown a negative relationship between general corporate use and firms' post-SEO performance (Jeanneret 2005; Autore, Bray, and Peterson 2009; Walker and Yost 2008). We believe that general corporate use helps to mask SEO motivations, for example, enabling managers (or existing shareholders) to hide their true intentions or SEO motivations such as agency conflict motivation (or information asymmetry motivation) from shareholders (or new shareholders

respectively). In this subtopic, SEO motivations are measured by different kinds of firms' post-issue spending (such as cash, investment, and leverage). We borrow the model by Kim and Weisbach (2008) to examine the relationship between the (general) use of proceeds and post-issue spending. We also make linkages between SEO (general) proceeds and firms' post-issue performance to check whether the value of firms is impaired by the use of proceeds from SEOs (Walker and Yost 2008). Hence, if we could show that general corporate use is in some way reflective of SEO motivations, we might be able to verify and draw conclusions on their application. For example, if we can show that general corporate use has been utilised for related party transactions, we may conclude that one SEO motivation for firms could be the agency conflict between controlling shareholders and minority shareholders. This is because there is evidence to suggest that controlling shareholders use related party transactions to expropriate minority shareholders in China (Jian and Wong 2004).

The first topic is closely related to the second topic: (1) both topics explicitly examine Chinese SEO motivations. Additionally, the empirical design in both topics allows us to test the four theories concerning SEO motivations at the same time. (2) The empirical work in the first topic uses firms' per-issue characteristics to derive SEO motivations, while the empirical work in the second topic uses firms' post-issue information (the use of proceeds from SEOs) to review SEO motivations. (3) With regards to the results, the empirical work in the first topic provides evidence supporting all four theories mentioned above while the empirical work in the second topic provide evidence supporting the information asymmetry theory and the agency theory.

The third topic is related to the first and second topics in two ways. (1) The third topic provides more substantial evidence on the SEO motivation of the agency conflict

between controlling shareholders and minority shareholders. As mentioned above, the agency conflict between controlling shareholders and minority shareholders might be particularly severe in China as a result of the institutional environment. Private placements provide another good opportunity to investigate and verify such an agency conflict. This is because shareholder contestability tends to change after private placements. (2) The SEO sample in the first topic is from 1994 to 2006, and the SEO sample in the second topic is from 1998 to 2003. A recent development in Chinese SEOs is that firms rely heavily on private placements as the main SEO method after their introduction to the Chinese stock market in 2006. According to our data, 209 private placements have been implemented as a financing channel and 181 private placements for other purposes from 2006 to 2009. There have also been 107 rights issues and public offerings made during the same period. Hence, while the sample in the first two topics concentrates mainly on rights issues and public offerings, private placements also deserve our attention.

We are motivated to choose this topic (private placements) due to the following considerations. As far as we know, there has not been research (even in a mature market) which links private placements with shareholder contestability. As mentioned above, in a mature market, the market reaction to SEOs (mainly public offerings in US market) is likely to be negative (Asquith and Mullins 1986; Masulis and Korwar 1986; Eckbo and Masulis 1992). However, the market reaction to private placements is likely to be positive (Wruck 1989). One explanation to this positive reaction is that since new shares are issued to a small number of investors in private placements, they are likely to introduce more block shareholders, which could be good for firms' corporate governance (Shleifer and Vishny 1986; Grossman and Hart 1980). Existing literature only focuses on the agency conflict between managers and shareholders. We, on the

other hand, want to extend analysis to the impact of private placements on the agency conflict between controlling shareholders and minority shareholders in China. The monitoring effect over controlling shareholders from other block shareholders is regarded as the question of shareholder contestability (Burkart, Gromb, and Panunzi 1997; Bennedsen and Wolfenzon 2000). In China, since the establishment of the stock market, the ownership level of controlling shareholders (who is likely to be the state-owned enterprise) has always been quite large compared to the other block shareholders. Hence, low shareholder contestability has always been an impediment to better corporate governance for Chinese firms. Bo, Sun, and Wang (2011) investigate the impact of the split-share reform (which means the reform to transfer non-tradable shares into tradable shares) on shareholder contestability of Chinese firms. During the reform non-tradable shareholders gave shares to tradable shareholders to compensate for their loss of privilege of being tradable before the reform. As a result, ownership by non-tradable shareholders was reduced, and as a consequence, shareholder contestability increased. The results show that firms' value increases due to the increased shareholder contestability. Private placements in China have a significant impact on firms' shareholder contestability because more block shareholders are introduced into firms. For example, in our sample of 209 private placements from 2006 to 2009, the ownership of the largest shareholder as a percentage of the total ownership by the 10 largest shareholders decreased from 66.4% to 55.7%.This figure measures the lack of shareholder contestability. Hence, private placements in China provide us with a unique opportunity to contribute to not only standard literature from a perspective of the relationship between private placements and shareholder contestability, but also to Chinese literature on the evidence of the agency conflict between controlling shareholders and minority shareholders. The relationship between the market reaction to

private placement announcements and shareholder contestability will be examined through empirical means.

1.3 A summary of findings of the thesis

To summarise our main findings in short, Chinese SEO behaviour is similar to that in a mature market, and the severe agency conflict between controlling shareholders and minority shareholders as a result of Chinese institutional environment also plays a role in Chinese SEO behaviour. We will illustrate our main findings from the following three aspects: the results on SEO motivations, the agency conflict between controlling shareholders and minority shareholders, and short-term and long-term SEO performance.

In summary, with regards to the motivations behind Chinese SEOs, we find evidence supporting all four mainstream theories. (1) Regarding the trade-off theory, we show that firms are more likely to conduct SEOs in the years where their leverage is higher compared to the estimated optimal leverage level. This supports the trade-off theory, which predicts that firms could use SEOs to adjust (reduce) their leverage. However, the theory is weakened by evidence that the size of SEOs or general corporate use from proceeds does not have an impact on the leverage of firms after SEOs. (2) Regarding the information asymmetry theory, firms are more likely to conduct SEOs in the years where their pre-issue stock returns are higher than that in other years. This is support for the information asymmetry theory, which predicts that firms are more likely to conduct SEOs in a window of opportunity where there is a low information asymmetry cost. Furthermore, the amount of increase in cash after SEOs is significantly positively related to the amount of general corporate use. In other words, cash creation is one

purpose of general corporate use. We believe this supports the information asymmetry theory or the market timing motivation that predicts when the cost of information asymmetry is low, firms will raise extra money and keep it as cash. (3) Regarding financing under growth theory, we show that firms are more likely to conduct SEOs when their revenue growth is strong. This supports the theory of financing under growth, which predicts that firms prefer equity financing to debt financing when they experience growth. Furthermore, we show that the size of SEOs or general corporate use from proceeds has a significant positive impact on firms' post-issue investment. (4) Regarding the agency conflict (between managers and shareholders), we show that higher ownership concentration (measured in different ways) will lead to lower probability from conducting SEOs. We are inclined to conclude that the agency conflict, which is affected by some corporate governance mechanisms such as ownership concentration, will have an impact on firms' SEO decision. Furthermore, we show that the size of SEOs or general corporate use from proceeds has a significant positive impact on firms' post-issue administrative expenses which is a proxy of managerial perquisites at the expenses of the benefit of shareholders (Bo, Huang, and Wang 2011). In other words, SEOs might be a cheap resource for managerial perquisites, a reflection of the agency conflict. In conclusion, we believe that although the Chinese stock market is immature and under heavy administrative intervention from regulators, firms' SEO behaviour is not hugely different from that of mature markets.

We also provide evidence regarding the relationship between (Chinese) SEOs and the agency conflict between controlling shareholders and minority shareholders. There is very weak evidence to show that general corporate use from proceeds will be used in related party transactions after SEOs (rights issues and public offerings). These are believed to help controlling shareholders to tunnel benefits exclusively to themselves.

We further examine this issue by putting this type of agency conflict into a context of private placements, because shareholder contestability will change significantly in private placements. We show that if shareholder contestability indeed increases during private placements, the market reaction will be better for firms with severe agency conflict represented by the absence of institutional investors within the top 3 shareholders or measured by higher related party transactions. The positive market reaction reflects belief by investors that firms with greater agency conflict will gain more benefit from better corporate governance after SEOs, improving monitoring over controlling shareholders and reducing the incentive of controlling shareholders to use equity as a cheap resource for their "tunnelling". In conclusion, we believe that the agency conflict between controlling shareholders and minority shareholders plays a role in Chinese SEO decisions. Investors are concerned by such an agency conflict, and will react positively if certain SEOs such as private placements reduce such an agency conflict motivated by the improvement in the corporate governance of firms.

Finally, the market reaction and long-term performance of Chinese firms undergoing SEOs is also consistent with that of mature markets. (1) In a sample of 209 private placements from 2006 to 2009, there is a significant positive cumulative abnormal return of 3.6%, 4.8% or 5.5% during an event window of [-5,5], [-10,10], and [-20,20] respectively. We calculate the market reaction for 80 public offerings during the same period. The market reaction to public offerings is not significant for the different event windows. This result is consistent with literature on mature markets, which states that private placements have a better market reaction compared to public offerings. A detailed method of the market reaction calculation will be provided in Chapter 5. (2) Regarding long-term performance, in a sample of 677 rights issues and public offerings from 1998 to 2003, the average pre-issue return on assets (ROA) of issuing firms is

8.8% while the average ROA of a pool of non-issuing firms is 1.2%. In a three-year period after SEOs, the average ROA of issuing firms gradually declines to 1.8%, while the average ROA of non-issuing firms fluctuates in a range of 0.8% to 1.8%. In other words, the performance of issuing firms declines significantly after SEOs, a similar phenomenon to that in a mature market. A detailed method of the post-issue long-term performance calculation will be provided in Chapter 4.

Chapter 2: SEO practice in China

2.1 Introduction to the Chinese stock market

This chapter aims to provide some background to the Chinese stock market and the SEO practice in China. The Chinese financial system is dominated by a large banking system which is lead by four big state-owned banks. Although the size of the Chinese stock market is small compared to that of the banking system, a healthy stock market which could efficiently allocate resources is none-the-less essential for the long-term economic growth of China (Allen, Qian, and Qian 2005). Our research objective is Seasoned Equity Offerings which are an important equity market function to help listed firms raise more equity. Chinese listed firms are traded in either the Shanghai Stock Exchange (SHSE) or the Shenzhen Stock Exchange (SZSE), which are the main components of the Chinese financial market. Table 2.1 is extracted from the Shanghai and the Shenzhen Stock Exchange fact book to show the number of securities traded in the two stock exchanges as at the end of 2009. Both stock exchanges, which were founded in 1990, have 1,700 listed firms in total by the end of 2009. Moreover, by the end of 2010, the Chinese stock market became the world's second largest stock market in terms of market capitalisation. We can also see from Table 2.1 that the Chinese corporate bond market is still much smaller than the Chinese stock market. Our research aims to provide more knowledge about Chinese SEOs, which are the main components of the Chinese financial market and are essential to facilitate Chinese long-term economy growth[1].

[1] Please refer to Section 6.4 and Appendix 1 for information of H shares and American Depository Receipts which may be relevant to this study.

Table 2.1 Number of securities in Shanghai and Shenzhen Stock Exchange 2009

Shanghai Stock Exchange		Shenzhen Stock Exchange	
Stocks (No. of listed company: 870)		Stocks (No. of listed company: 830)	
A-shares	860	Main board A-shares	455
B-shares	54	Main board B-shares	54
		SME	327
		ChiNext	36
Bonds		Bonds	
Treasury Bonds	160	Treasury Bonds	168
Corporate Bonds	183	Corporate Bonds	66
Convertible Bonds	9	Convertible Bonds	3

Data source: Shanghai and Shenzhen Stock Exchange fact book

Most shares in the Chinese stock market are A-shares. A-shares are open to all domestic investors and became open to Qualified Foreign Institutional Investors[2] (QFIIs) in 2006. Compared to A-shares, B-shares were only open to foreign investors until 2001 when domestic investors with a foreign currency account could also trade B-shares. Additionally, B-shares are priced in Chinese currency but traded in foreign currency. Historically, B-shares only played a transitional role for foreign investors to participate in the Chinese stock market. With the development in the Chinese stock market such as QFIIs and the entry to the WTO, to some extent, B-shares are no longer important in the Chinese stock market. The stock return used in this thesis is A-share stock return. There are two special types of shares under A-shares: state-owned shares (owned by, for example, government or government related organisations such as the State Assets Management Bureau and the Minister of Finance) and legal person shares (owned by, for example, state-owned enterprises, non-state-owned enterprises, and financial institutions). These two types of shares constitute about two-thirds of total shares in China, which could not be traded before 2005. The so-called split-share reform began in 2005, which aimed to transform non-tradable shares into tradable shares. Over 50% of listed firms finished their reforms by mid-2006. Although reforms have been completed, it takes up to 5 years for all non-tradable shares to become tradable, because every 6 months only a certain quantity of non-tradable shares (which is equal to 5% of total shares) can actually become tradable. There used to be different rules in relation to the selling of state shares and legal person shares (by auctions and private placements). After all non-tradable shares ultimately become tradable, the different classifications of A-shares to some extent are no longer important in the Chinese stock market. During the split-share reform, state-owned shares and legal person shares as a percentage of

[2] The CSRC aims to select QFIIs as investors who focus on long-term investments rather than short-term speculations. The criteria of QFIIs include institutional investors' size, financial strength, track record, and reputation.

total shares were reduced because the owners of non-tradable shares were required to give some of their shares to the holders of tradable shares to compensate for the loss of their shares' privilege as being tradable. However, in most cases, the split-share reform did not change the ultimate owner of the firms. In other words, to this day, state-owned firms still dominate the Chinese stock market. However, an increasing number of non-state firms have been listed in the stock market in recent years, whilst the number of state-owned firms as a percentage of the total number of listed firms is declining.

What is the difference between main board, SME, and ChiNext? First of all, there is no SME or ChiNext in SHSE. The whole SHSE could also be considered as main board compared to the main board in SZSE. SME which was established in 2004 stands for Small and Medium Enterprise board (*Zhongxiao ban* in Chinese). ChiNext which was established in 2009 stands for China Next, and is also known as Growth Enterprise Market (GEM) (*Chuangye ban* in Chinese). Main board has the strictest listing rule (or IPO rule) such as size and profit of the firm. ChiNext has the least strict listing rule, and SME's rule sits in the middle of main board and ChiNext. The main purpose of SME and ChiNext is to give the opportunities of listing to firms who cannot be qualified to list on the main board. Firms in SME and ChiNext are usually described as small and low profit firms but with high growth opportunities. The role of SME and ChiNext may be comparable to that of the American stock exchange and NASDAQ exchange in the U.S. The establishment of SME and ChiNext reflects the efforts by regulators to further develop the Chinese equity market to facilitate Chinese firms' growth. In this thesis, we do not restrict our SEO sample to any specific exchange or board.

In the rest of this chapter, we will first briefly summarise Chinese SEO activities. Then we will briefly summarise Chinese IPO regulations because both IPOs and SEOs have

the same function of helping firms raise capital from the stock market. After presenting IPO regulations, we will introduce some regulations of Chinese SEOs.

2.2 SEO activities in China

The information on Chinese SEO activities was collected from the China Centre for Economic Research (CCER) database also known as the Sinofin database. The main data includes: basic SEO information (announcement date, proceeds, issue volume etc.), firm-year financial information (profit and loss statement, balance sheet, cash flow statement, ownership structure etc.), and firms' monthly/daily stock return information. We also hand collected some data. For example, for private placements, we required more detailed buyers' information and the first board meeting date when the private placement decision was made. The date provided by the CCER database was used to look up firms' original private placements documents from www.juchao.com, an official website for announcements designated by the CSRC. We hand collected data from these announcement documents.

Table 2.2 summarises SEO activities in China during the period from 1994 to 2009. During this timeframe, there were 539 firms who conducted only one SEO, 257 firms who conducted two SEOs, 111 firms who conducted three SEOs, 23 firms who conducted four SEOs, and 6 firms who conducted five SEOs. In total, we have 936 firms who conducted 1,508 SEOs during the period, while we have 1700 listed firms at the end of 2009. We can see from Table 2.2 that the number of SEOs reduced significantly in 2002 and stayed low thereafter until 2006, though SEO regulations have been relaxed since 1999. There are some possible explanations: (1) Due to the fixed PE

Table 2.2: A summary of SEO activities in China

	Rights issues		Public offerings		Private placements		Total SEOs	
	No. of issues	Capital raised (bn RMB)	No. of issues	Capital raised (bn RMB)	No. of issues	Capital raised (bn RMB)	No. of issues	Capital raised (bn RMB)
1994	66	6.0	-	-	-	-	66	6.0
1995	66	11.3	-	-	-	-	66	11.3
1996	51	10.0	-	-	-	-	51	10.0
1997	111	25.2	-	-	-	-	111	25.2
1998	155	40.2	7	3.0	-	-	162	43.3
1999	121	28.6	5	5.5	-	-	126	34.1
2000	182	58.4	24	22.6	-	-	206	81.0
2001	84	31.2	13	10.4	-	-	97	41.6
2002	20	5.8	31	19.3	-	-	51	25.1
2003	24	6.2	15	9.8	-	-	39	16.0
2004	21	9.9	12	16.1	-	-	33	26.1
2005	-	-	3	26.4	-	-	3	26.4
2006	-	-	7	11.1	42	79.0	49	90.1
2007	7	23.4	32	99.5	136	215.4	175	338.2
2008	8	14.3	27	52.3	106	156.8	141	223.4
2009	13	12.2	15	32.8	104	208.7	132	253.7
Total	929	283	191	309	388	660	1508	1252

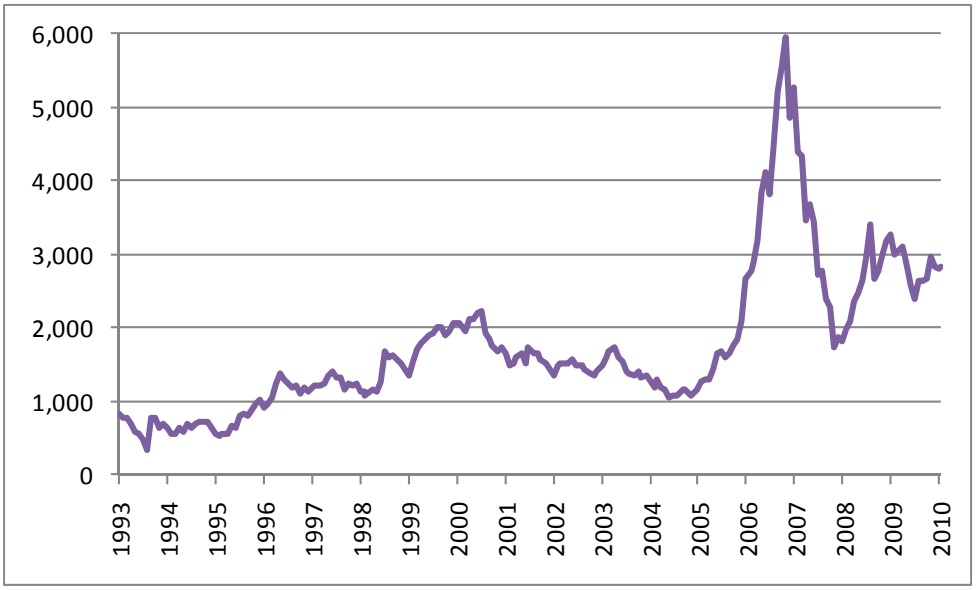
Data source: SEO data from the China Centre for Economic Research (CCER) database

ratio method for the price of the IPO shares before March 1999, firms could be undervalued during the IPO process and might have incentive to conduct SEOs after IPOs when the price adjusted to reflect firms' value. Hence, the firms who conducted their IPOs after March 1999 lacked the incentive mentioned above, and the effect is shown by the reduced SEO activities since 2002[3]. More details will be provided regarding this particular IPO regulation further on in this chapter. (2) Securities firms began to take more responsibilities in both IPOs and SEOs since the introduction of the sponsor system[4] in 2001. Hence, it is possible that after securities firms conducted the due diligence investigations, and they were lead to believe that it was no longer appropriate for some firms to issue more equity. Or, due to the role of securities firms, this may have lead to fewer firms applying for SEOs since 2002. We will provide more details regarding the sponsor system later on in this chapter. (3) Figure 2.1 shows that during the period from 2002 to 2005, the market index return is lower than during the period from 1994 to 2001. The reason for the low return from 2002 to 2005 could be ambiguous. Unlike a mature market, Chinese stock market is sometimes characterised as an irrational market where the whole market could fluctuate without an obvious reason. Some superficial reasons for the fall in the Chinese stock market since 2002 and later 2007 could be related to the collapse in the U.S. market following ".com" bubble and the financial crisis. This is probably because export is an important aspect of Chinese economy and U.S. is one of the main trading partners with China. More details regarding the factors influencing the Chinese stock market in the last 15 years require deeper research which goes beyond the current research. If the information asymmetry

[3] The SEO activity in 2000 and 2001 could be still high even though the removal of fixed PE ratio rule began to have an impact on SEO activity since 1999. The reason is that the SEO activity in 2000 and 2001 could be the result of the IPO firms' activity who conducted their IPOs before 1999. Figure 2.2 shows that the SEO activity for firms who conducted their IPOs in 1999 is significantly reduced compared to firms with IPOs in 1998.

[4] The sponsor system is similar to the investment banking system in a mature market. A sponsor has to conduct due diligence investigation upon issuing firms, and take responsibility on issuing firms' corporate governance and post-issue performance. A sponsor also needs to promote issuing firms to potential investors.

Figure 2.1: Shanghai composite index movement during the period 1994 to 2009



Data source: monthly index return from www.yahoo.com

theory as mentioned in the introduction applies, firms tend to issue less equity during the period from 2002 to 2005. For example, the average SHCI index in 2001 was nearly 2,000, but it stayed just over 1,000 throughout year 2005. Hence, the bear market is particular relevant to be the main reason of low number of SEOs in 2005 (where there were only 3 SEOs in 2005). (4) As shown in Table 2.2, private placements (as the most popular SEO method since it was introduced to the Chinese stock market in 2006) contribute to the high SEO activity from 2006 to 2009.

One possible reason of the popularity of private placements is that they are not subject to profitability requirement. We will discuss SEOs' profitability requirement in more details later on in this chapter. Basically, firms who apply for rights issues or public offerings should achieve a certain level of pre-issue profitability. Firms who cannot satisfy the profitability requirement could turn to private placements to raise capital. There is another reason why the number of private placements remained high from 2006 to 2009. Private placements could be used for state-owned enterprise restructuring in China, but rights issues or public offerings would be inappropriate to serve this purpose. In the following IPO regulation section, we will mention that due to the quota system in IPO regulation a state-owned listed firm could only be part of a state-owned industrial group. For example, in a private placement, a listed firm could issue new shares only to its parent firm. The parent firm uses its assets rather than cash to purchase the newly issued shares from the listed firm which is the subsidiary of the parent firm. The effect of this process is that the listed firm's parent firm (and parent firm's subsidiaries) becomes listed in the stock market as a consequence of private placements. In a mature market, this process is also sometimes known as a "reverse acquisition". (In China, this particular type of reverse acquisition between listed firms and their parent firms is call

zhengti shangshi in Chinese.) In Chapter 5, we will show the further breakdown of private placements statistics.

Table 2.3 Panel A shows the summary statistics of (non-financial) SEO firms based on their pre-issue year-end financial statement[5]. Their profitability is calculated by earnings before interest and taxes divided by total assets. Leverage is measured by total short-term and long-term interest-bearing liabilities divided by total assets. Market-to-book ratio is calculated by firms' market capitalisation[6] divided by the book value of equity. It appears that Chinese SEO firms are high profitable and high growth firms. In Chapter 5, there is a detailed comparison between issuing firms and non-issuing firms.

[5] SEOs in 1994 are excluded because we do not have financial information for firms in 1993.
[6] Market capitalisation is equal to the market price multiplied by total number of shares. In other words, it is not adjusted for the discount of value for non-tradable shares.

Table 2.3: Summary statistics of SEO firms in China 1994 to 2009

Panel A: summary statistics

Profitability is measured by earnings before interest and taxes divided by total assets. Leverage is measured by the total of short-term and long-term interesting-bearing liabilities divided by total assets. Market-to-book ratio is measured by firms' market capitalisation divided by book value of equity.

	Total Assets (bn RMB)	Profitability (%)	Leverage (%)	Market-to-book ratio (x)	Reveune Growth (%)
Mean	3.06	9.08%	22.48%	4.23	29.33%
StDev	7.85	5.52%	13.86%	2.66	38.74%
Median	1.21	8.41%	22.06%	3.59	21.17%

Panel B: industry distribution

Industry code	Industry description	No. of rights issues	No. of public offerings	No. of private placements	Total no. of SEOs	As % of total SEOs	No. of SEO firms	No. of listed firms at 2009	SEO firms as % of average listed firms
A	Agriculture	18	1	10	29	1.9	23	40	57.5
B	Mining	7	2	11	20	1.3	17	34	50.0
C	Manufacturing	487	126	221	834	55.3	545	985	55.3
D	Utility	41	9	13	63	4.2	37	65	56.9
E	Building	17	3	11	31	2.1	22	39	56.4
F	Transportation	25	2	23	50	3.3	33	68	48.5
G	Information Technology	37	11	16	64	4.2	45	116	38.8
H	Wholesale & Retail	121	5	14	140	9.3	79	96	82.3
I	Financials	9	5	7	21	1.4	14	31	45.2
J	Real Estate	41	13	35	89	5.9	50	79	63.3
K	Service	26	4	8	38	2.5	25	53	47.2
L	Media	9	2	2	13	0.9	10	13	76.9
M	Others	91	8	17	116	7.7	63	81	77.8
Total		929	191	388	1508	100.0	963	1700	56.6

Data source: SEO and financial data from the China Centre for Economic Research (CCER) database

Table 2.4: Summary statistics of Chinese listed firms' ownership type

	SEOs					All listed firms				
	State-Owned	Non-State-Owned	Missing data	Total	State-owned as % of total	State-Owned	Non-State-Owned	Missing data	Total	State-owned as % of total
1994	-	-	66	66	-	-	-	287	287	-
1995	-	-	66	66	-	-	-	311	311	-
1996	-	-	51	51	-	-	-	514	514	-
1997	-	-	111	111	-	-	-	720	720	-
1998	11	4	147	162	-	72	8	745	825	-
1999	108	14	4	126	85.7	768	122	33	923	83.2
2000	181	23	2	206	87.9	869	154	37	1060	82.0
2001	74	20	3	97	76.3	928	177	34	1139	81.5
2002	39	11	1	51	76.5	935	235	36	1206	77.5
2003	28	11	-	39	71.8	927	325	14	1266	73.2
2004	30	3	-	33	90.9	938	422	2	1362	68.9
2005	1	2	-	3	33.3	938	426	1	1365	68.7
2006	33	16	-	49	67.3	921	493	4	1418	65.0
2007	107	67	1	175	61.1	928	574	14	1516	61.2
2008	88	51	2	141	62.4	961	605	10	1576	61.0
2009	81	46	5	132	61.4	961	700	39	1700	56.5
Total	781	268	459	1508						

Data source: corporate governance data from the China Centre for Economic Research (CCER) database

Table 2.3 Panel B shows the industry distribution of Chinese SEOs and SEO firms. We can see that over half of SEOs are from firms engaged in manufacturing. This is because over half of Chinese listed firms are manufacturing firms (based on 2009 figure). All industries have been active in SEO activities in term of the SEO firms as a percentage of total number of firms in a sector. For example, 38.8% of firms in the Information Technology sector have conducted at least one SEO, this represents the sector with the lowest SEO activity, while the wholesale and retail sector has the highest percentage (82.3%) of SEO firms.

Table 2.4 shows the distribution of state-owned listed firms. Before an accounting regulation reform in 1998, firms were not required to disclose information such as the nature of their owners or cash flow statements. This is the reason why we do not have the information of firms' ownership type before 1998. We can see from Table 2.4 that state-owned firms dominate the Chinese stock market. With the increasing number of non-state-owned firms that became listed in the stock market, the percentage of state-owned firms reduced to 56.5% in 2009. The percentage of state-owned firms conducting SEOs each year is in line with the total number of state-owned firms as a percentage of the total number of listed firms. In other words, state-owned firms are not particularly more active in the SEO market.

2.2 The Initial Public Offerings (IPOs) regulations in China

Although our research objective focuses on SEO behaviour in the Chinese stock market, we still need to discuss the Chinese IPO process because (1) the Chinese Securities Regulatory Committee's (CSRC's) regulation regarding SEOs has evolved in a way similar to the IPO regulation. Reliance on the market forces within the IPO/SEO

process was the principle of the reform; (2) the pricing of new shares in the IPO process might have influenced firms' SEO decision to avoid massive IPO underpricing prior to 1999; (3) the quota system in the old IPO process could have created the incentive of "tunnelling" (Johnson, La Porta, Lopez-de-Silanes and Shleifer 2000) which will be discussed in more detail in Chapter 3.

The reform of firms' listing process reflects the reform of the Chinese stock market as well as the Chinese economy. The principle of the reform was to build and improve market mechanisms to replace the heavily administration-oriented regulation. During the period from 1993 to 2004, the so-called "quota system" was implemented, but had different implications. During the period from 1993 to 1995, of the shares that were issued, the State Planning Committee allocated them to different provinces and industries to balance the inequality of development between different provinces and industries. The local government below the provincial level and its industry administration departments selected and recommended candidate firms for IPOs. The local government at the provincial level made the final decision and submitted those applications to the central government. The CSRC would then have the final vote on each IPO application. During the period from 1996 and 2000, the quota system was changed to restrict the total number of IPO firms rather than the total number of shares. During the period from 2001 to 2004, the quota of the number of IPO firms was allocated to different "Security Companies". Before this period, the main role of security companies was just to underwrite the shares. With the quota, security companies became responsible for selecting and recommending IPO firms after they received firms' IPO applications. The reputation of security firms began to be linked to the performance of their recommended and underwritten IPO firms, because security companies carry out the due diligence investigation for IPO firms. From 2004 to present,

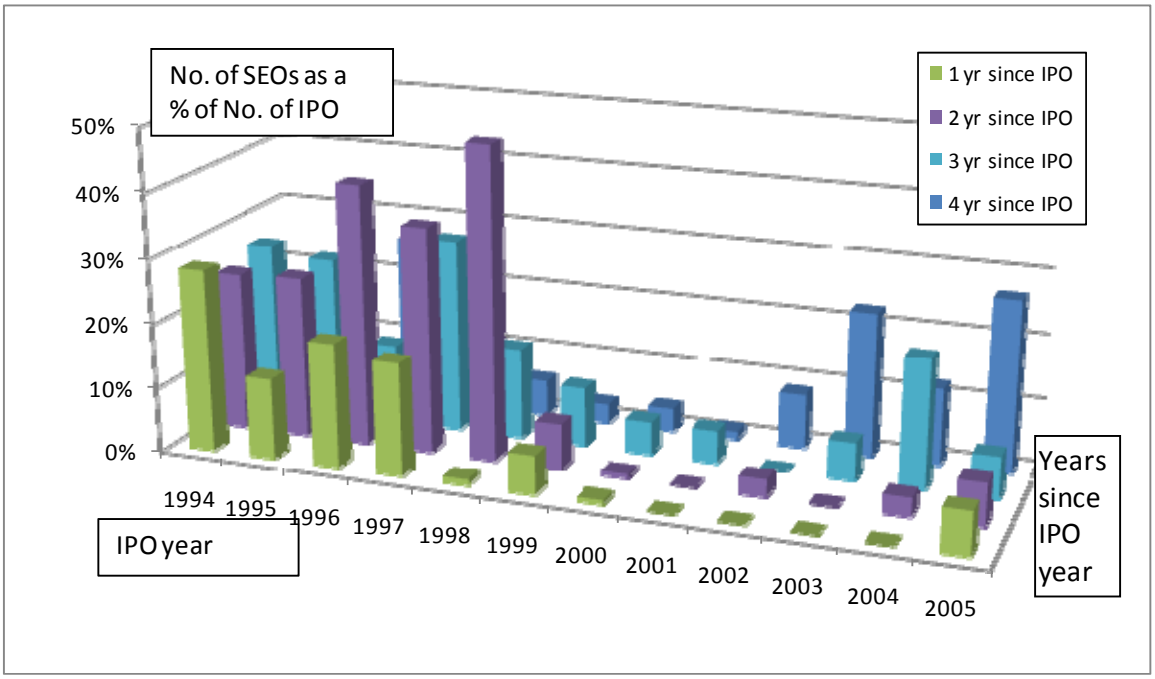
a "sponsor system" has been implemented whilst quota allocation has ceased. The sponsor not only has to underwrite and conduct the due diligence for IPO firms, but also responsible for helping IPO firms improve their corporate governance. Sponsors have to take on the responsibility for firms' post-IPO performance, because this performance influences sponsors' reputation, which is essential to compete for future IPO deals. Since the reform in 2004, sponsors and security firms have become more functionalised as investment banks within the mature market.

The implication of these IPO regulations on SEO practice could be numerous. For example, before 1995, since the number of new shares was restricted, the size of firms going public was also restricted. Hence, it was only possible for a small proportion of a state-owned enterprise/industrial group to become listed. It was possible that only relatively profitable firms within an industrial group would be able to successfully compete for the limited number of IPO quotas. Hence, after firms' IPOs, the parent firm of a listed firm might have a strong incentive to redistribute resources from the better performing listed firm to help its other underperforming divisions (Aharony, Lee, and Wong 2000). Another impact of this partial listing is that these listed firms could later use private placements (after it became available in 2006) to complete the listing of their parent firms and parent firms' subsidiaries (*Zhengti shangshi* in Chinese).

Regarding the pricing of new shares in IPOs, during the period from 1991 to 1995, the CSRC determined all price based on certain formulae. During the period from 1996 to 1999, the price was set to make Price Earnings ratio (PE ratio) (price divided by earnings per share) between 12 and 14. From March 1999 to June 2001, the PE ratio requirement was abandoned. The price was based on a series of bidding by institutional investors. However, the problem was that the PE ratio based on the IPO price in the

primary market was too high, for example, as high as 88 for a utility firm (*MinDongDianLi* case). Hence, from 2001 to 2004, the maximum PE ratio was set to 20 by the CSRC, and the price was determined by bidding. In December 2004, the PE ratio ceiling was removed again, and the price was determined by road play and bidding. The fixed PE ratio before March 1999 might have made many IPO firms' shares heavily underpriced during the IPO process. Therefore, we believe that due to the fixed PE ratio before March 1999, firms who conducted before this time might have had the incentive to raise limited funds during the IPO process to avoid the heavy IPO underpricing, and to raise funds through SEOs in the following years after the market price was adjusted to reflect the value of firms (Welch 1996). Figure 2.2 summarises the number of firms who conducted their SEOs in the following 4 years since their IPOs. For example, the tallest bar (in purple) can be interpreted as: 48.1% of all firms who conducted IPOs in 1998 conducted SEOs in 2000 (2 years after IPOs). The figure shows that SEO activity was more frequent in the years following IPOs for the firms who conducted these between 1994 and 1999, as compared to the firms who conducted their IPOs after that period. The fixed PE ratio could be one of the possible explanations.

Figure 2.2: the analysis of the number of firms who conducted SEOs in the following 4 years since their IPOs



Data source: SEO and IPO data from the China Centre for Economic Research (CCER) database

2.3 SEO regulations in China

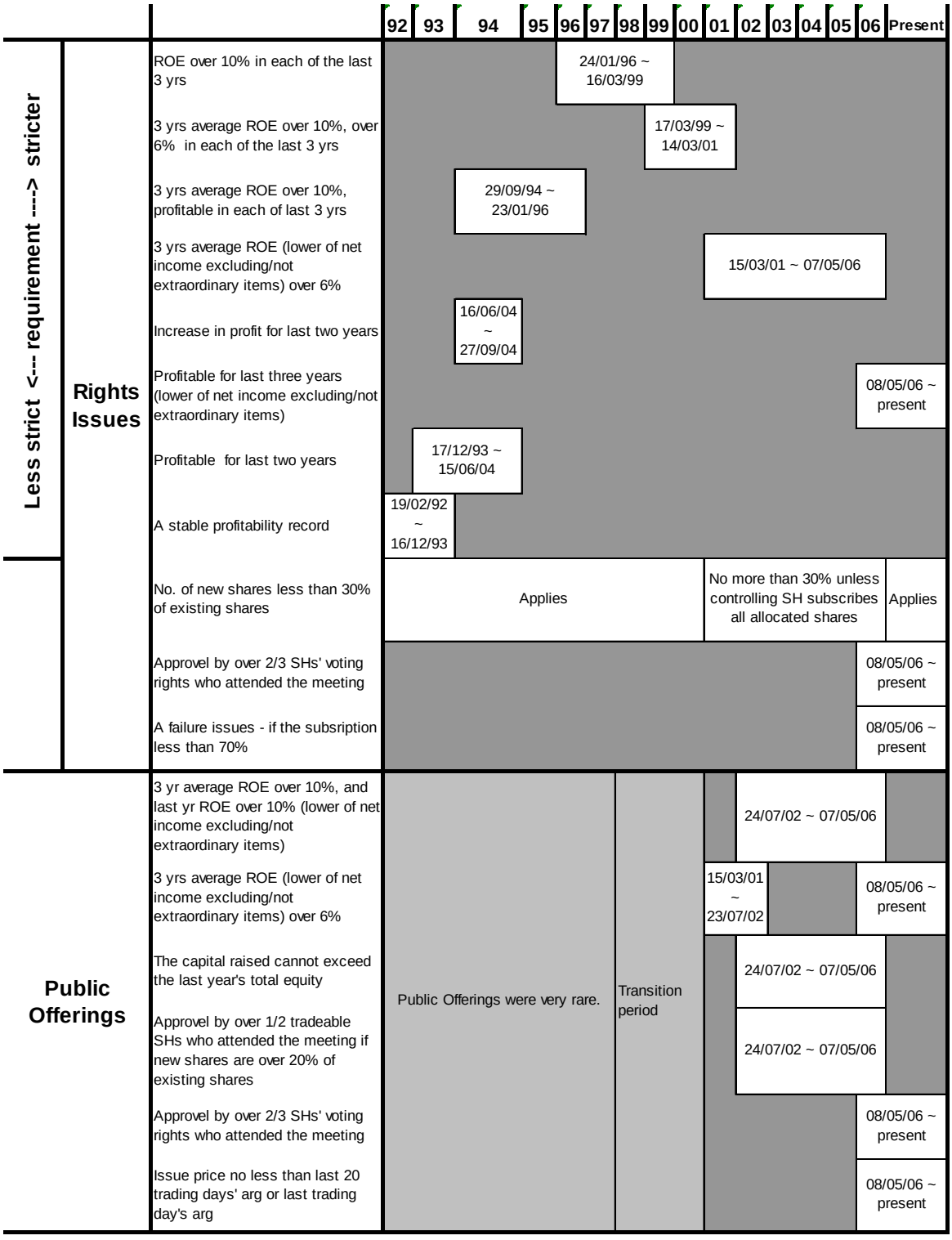
There are similarities and differences between the SEO regulation reform and IPO regulation reform. The similarity is that security companies started to play an important role in the due diligence investigation for SEOs since 2001, and the sponsor system became a compulsory procedure of SEOs since February 2004. The difference is that there is no quota system for SEOs, but a strict and continuously changing profitability SEO requirement instead. The CSRC intends to protect minority shareholders by trying to ensure that the new shares, which flow to the stock market through SEOs, come from firms with profit generating potential and good corporate governance. However, before security companies began to play a role, the CSRC was not capable of investigating each of the applications in great detail. Hence, the CSRC imposed the profitability requirement as one of the most important requirements, trying to restrict firms with inferior performance to raise more money from (minority) shareholders.

Table 2.5 summarises the profitability requirements for SEOs in China from 1992 to 2009. We first take the rights issue regulation as an example, and then go onto discuss public offering regulations. It can be seen in Table 2.5 that the requirement of profitability was 10% of the previous 3 years' average return on equity (ROE) since 1994. Until March 1999, the strictness of regulation for rights issues had been increasing. Since then, there has been a decrease in the strictness, which corresponds to the implementation of more market driven mechanisms such as the sponsor system. The total number of new shares was restricted to 30% of the total number of pre-issue shares throughout this time. Since 2006 new regulation has made it compulsory for controlling shareholders to disclose their subscription information before rights issues (, public offerings, and private placements). If the final subscription rate (by the total of non-

tradable shareholders and tradable shareholders) is lower than 70% then the whole rights issue would be cancelled. The new SEO regulation gives minority shareholders more power in determining the rights issue decision.

The CSRC has been much more prudent towards the regulation of public offerings. Public offerings were very rare before 1998. From 1998 to 2000, the CSRC began to introduce public offerings to the stock market, but only firms who needed funds to reconstruct firms' assets were able to issue equity through public offerings. During the period from May 2000 to June 2001, two additional categories of firms were allowed to conduct public offerings. These included (1) firms with independent intellectual property rights over their research and development of core products as well as having the ability to outperform and outgrow other firms within the industry, (2) firms who issued B shares or shares in a foreign market. Other general requirements associated with public offerings included (1) firms which were profitable in the previous three years; (2) the total number of new shares which constituted to less than 25% of existing shares, or less than 15% of existing shares if the total number of existing shares exceeded 400 million. Since March 2001, public offerings were formally introduced to the stock market. The profitability requirement for public offerings was always higher than (or equal to) that for rights issues. During the period from 2002 to 2006, when the total number of new shares exceeded 20% of existing shares, the public offering decision had to be approved by over half of the non-tradable shareholders who attended the shareholders' meeting for the decision. This regulation was the first to give minority shareholders an equal opportunity to determine the SEO decision as controlling shareholders. However, what caused the CSRC to be more prudent when dealing with public offerings? We think it may be due to two possible reasons: rights issues without

Table 2.5: Summary of the profitability requirement for SEOs in China from 1992 to 2009



SH stands for shareholders
ROE stands for return on equity
Data source: regulation release from www.juchao.com

warrants and issue volume difference between rights issues and public offerings. The next two paragraphs will concentrate in detail on these two reasons.

The direct consequence of rights issues without warrants[7] is that for investors without funds to subscribe to the allocated shares, the best strategy would be to sell shares rather than to continue holding them. Otherwise their wealth would be diluted because other investors are able to buy shares at a (usually heavily) discounted issue price. The impact of this imperfection on non-tradable shareholders (before 2005 when the reform of non-tradable shares began) is significant. If non-tradable shareholders do not have funds, they can do nothing but suffer from the dilution, because their shares are non-tradable. On the other hand, even if they have funds to subscribe to the allocated shares, they would lose wealth regardless. This is due to illiquidity. The price of non-tradable shares is discounted when they are sold through a public auction or a private placement (about 75% to 85% discount according to Chen and Xiong 2002). During a SEO, they have to pay the full price for the shares that are only worth part of their cash payments[8]. Hence, non-tradable shareholders' wealth would be diluted during a rights issue. The discount for new shares in a public offering is low due to its nature of offering to the public. This is because if the issue price is much lower than the market price, existing shareholders will sell their shares and buy the cheaper new shares later. This process will continue until the equilibrium is restored at which issue price is close to the market price. Hence, non-tradable shareholders suffer much less dilution in a public offering than in a rights

[7] In 1992, the Chinese equity market began to issue warrants, mainly call warrants. This warrant could be used in a rights issue to prevent investors from dilution. However, the Chinese investors at that time were not sophisticated enough to understand warrants and their value. Warrant prices collapsed. Hence, the CSRC stopped all warrant issue in the case of rights issue since June 1996.

[8] A special warrant was issued to prevent state-owned shares as non-tradable shareholders from dilution. The rights issue attached with this special warrant (which will be sold to the public rather than the original state-owned shareholders) is called trans-rights issue. Its special feature is that although the allocated shares of state-owned shares are sold to the public, the shares bought through the special warrants remain non-tradable since the original shares are non-tradable. The trans-rights issues started from May 1994, and were stopped in 1998. The total volume (3 bn shares) of these rights issue shares remain small relative to the total equity issue. The implication of this trans-rights issue is that non-tradable shareholders could avoid the dilution to some extent in this case.

issue. Therefore, non-tradable shareholders should have incentive to use public offerings rather than rights issues to raise new funds. The impact of rights issues without warrants may be linked to the phenomenon mentioned above: why the CSRC has been prudent with regards to public offerings. The CSRC tries to avoid equity raised through SEOs becoming a cheap and undisciplined resource as the result of the two types of agency conflict. Being prudent over public offerings implies that if firms with a high proportion of non-tradable shares need more funds but they are not qualified for public offerings, which have stricter issuing criteria than rights issues, they should turn to rights issues. However, non-tradable shareholders could suffer wealth dilution in a rights issue. Being prudent over public offerings should help the CSRC achieve its goal of protecting minority shareholders by turning firms to rights issues and forcing those who want to conduct rights issues to be more precautious about the financing decision: whether the financing decision creates enough value for non-tradable shareholders to at least offset the wealth dilution during a rights issue or whether SEOs are used by managers for their own benefit.

We mentioned that non-tradable shareholders might prefer public offerings to avoid the dilution of their wealth. In this paragraph, we believe that the issue volume difference between rights issues and public offerings might make firms with a larger funding demand choose public offerings. Before public offerings were officially introduced in 2001, rights issue was the only SEO method available[9]. During 2001 and 2005 as shown in Table 2.2, when both methods were available, 33% of SEOs were conducted by public offerings, which constituted 61% of the total amount of funds raised. The lower number of public offerings could have been due to regulatory difference where public offerings suffered stricter profitability requirements than right issue. In other words,

[9] Between 1998 and 2001, certain types of firms were also allowed to conduct public offerings as mentioned above.

firms had to choose rights issues if their profitability could not satisfy public offerings' requirements. The higher amount of funds raised by public offerings might have been to result of two factors. (1) Public offerings' issue price was higher than that of rights issues[10]. Low issue price in rights issues reduced the probability of issue failure (Eckbo and Masulis 1995). Additionally, in rights issues, lower than market price issue price should not affect shareholders' wealth because new shares with low price were allocated on a pro rata basis. For public offerings, lower than market price issue price should dilute existing shareholders' wealth. Hence, public offerings' issue price ought to be set close to the market price. Otherwise, shareholders would sell their shares after the public offerings' announcement and would at a later date expect to buy back the same share in public offerings at a cheaper price. This process would continue until the equilibrium is restored. Like many other countries, Chinese SEO regulation sets a lower issue price boundary for public offerings which is no less than the previous 20 trading days' average or previous trading day's average prior to ex-right date in China. (2) The new shares in public offerings would be issued to the public, while the new shares in rights issues would only be issued to the existing shareholders. Non-tradable shares constitute a large part of Chinese listed firms' total shares (before 2005). When these non-tradable shareholders were allocated with these new shares, they did not necessarily have enough funds to subscribe to all shares[11]. Additionally, according to Chinese rights issues' regulation, the newly issued shares could not be higher than 30% of the existing number of shares, while the restriction for public offerings just stipulates that new capital could not exceed current capital. Hence, the actual number of newly issued shares would be low for rights issues. Plus the lower issue price of rights issues would mean that fund limit raised via rights issues would be much lower than that via public

[10] To give a rough idea regarding Chinese rights issues' issue price, according to 894 rights issues from 1994 to 2004, the average issue price was 61% of the previous month-end price prior to ex-right date.

[11] To give a rough idea regarding non-tradable shareholders' subscription in rights issues, according to 894 rights issues from 1994 to 2004, non-tradable shareholders' average subscription was on average 25.8% of total allocated shares.

offerings. In other words, firms with larger funding demand would need to choose public offerings as the issuing method.

We have described the SEO profitability requirement presented in Table 2.2. The question remaining is whether the profitability requirement is sufficient and effective to distinguish low performance firms from higher performing firms. Firms could respond to the profitability requirement by earnings management to achieve the requirement (Yu, Du, and Sun 2006). To help the listed state-controlled firms owned by local governments to raise more funds through SEOs, local governments might want to facilitate firms' earnings management by fiscal transfer and tax rebate to enhance firms' performance (Chen, Lee, and Li 2003). The earnings management facilitated by local governments or other enterprises as controlling shareholders might induce "tunnelling" (Johnson, La Porta, Lopez-de-Silanes and Shleifer 2000) of some benefits back to controlling shareholders after SEOs. However, earnings management remains only a temporary solution. The error in estimating accrual, provisions, and other liability should be reversed following the earnings management before SEOs. Even worse, if more earnings managements were conducted before previous ones were reversed, the cumulated misrepresentation would become serious accounting fraud. In the case of SEOs in China, for example, the profitability requirement during the period from 1996 to 1999 was the strictest throughout the period: firms' return on equity had to be higher than 10% in each of the three years prior to the SEO applications. If a firm could only produce ROE at 8% each year, it had to "manage" its earnings, increasing 25% for three consecutive years. This kind of earnings management was difficult to achieve without external help or accounting fraud. Dang and Yang (2007) investigate 232 rights issues and 75 public offerings from 2000 to 2004. They find that firms who use the issuing

method (rights issues or public offerings) with a stricter profitability requirement suffer less in the market reaction during the announcement period, and they also experience a higher buy-and-hold abnormal long-term return in the following two years than firms who use the issuing method with a less strict profitability requirement. Such findings suggest that the profitability requirement might be a suitable alternative mechanism to certify firms' quality. Chen and Wang (2007) document similar result of which the market reacts positively to new SEO accounting regulation.

Some other SEO regulations which apply to firms who want to conduct rights issues or public offerings are also worth mentioning: (1) firms or firms' senior managers cannot have any accounting fraud, tax invasion, inside trading, corruption, or other illegal activities for a three-year period prior to the SEO application; (2) in the 12 month period prior to the SEO application, there cannot be any case that controlling shareholders or related parties take control over any listed firms' cash or asset, or make an illegal loan guarantee through the candidate SEOs firms; (3) in the 12 month period prior to the SEO application, there cannot be any case of controlling shareholders or related parties not fulfilling their promises (of any kind) to minority shareholders; (4) the proposed use of the capital raised through the last SEOs cannot be changed unless there is a plausible explanation; (5) the realised return rate for the last equity financed project cannot be significant lower than the proposed rate of return unless there is a plausible explanation; (6) since 2001, one of the new requirements for the SEO application is that firms have to conduct at least one dividend payment for a three-year period prior to SEO applications. Since 2006, the requirement changed to that candidate firms have to pay at least 20% of its prior three years' total profit as dividends in a three-year period prior to the SEO application. It can be seen that all these regulations or requirements aim to protect minority shareholders from dishonest controlling shareholders, or force

controlling shareholders to pay more attention to monitor managers and prevent them from being dishonest to shareholders and consequently undermining the firms' reputation. These regulations could also be used to control the agency conflict in the process of SEOs as mentioned in the introduction: the agency conflict between controlling shareholders and minority shareholders and the agency conflict between managers and shareholders.[12]

[12] Please refer to Appendix 2 as a summary of major Chinese stock market regulation changes mentioned in this Chapter.

Chapter 3: Why do Chinese firms conduct SEOs[13]

3.1 Introduction

As discussed in the introduction of the thesis, we believe that it is worthwhile to explicitly examine firms' SEO motivations to provide investors and regulators with useful knowledge on SEOs. We also mentioned that: (1) The Chinese stock market is not mature and experiencing transition, including the Chinese economy as a whole. For example, minority shareholder protection is generally weak in China. (2) Chinese SEOs are often under some administrative intervention such as the profitability requirement of SEO applications, issue volume and issue method restrictions. Hence, we may be unable to apply research results based on mature markets directly onto the Chinese market. There is a lack of literature, which explicitly focuses on the motivations of Chinese SEOs. The limited research that exists on Chinese SEO motivations focuses on the agency conflict between controlling and minority shareholders. In China, SEOs are believed to provide resources or cash for a wealth transfer or so called "tunnelling" to controlling shareholders (Aharony, Lee, and Wong 2000; Chen, Lee, and Li 2003). We think that the focus should be extended to the other three theories as mentioned in the introduction chapter, which has been overlooked in previous research. Hence, we want to contribute to the literature by discussing the application of the four main motivations of SEOs in China. A comprehensive discussion is essential to provide investors or regulators with useful knowledge. For example, investors should pay attention to SEOs, because SEOs could affect firms' value in many ways. SEOs could help firms to finance good investment opportunities and help them grow. SEOs could also add value to shareholders by way of improving firms' capital structure to an 'optimal' level in order

[13] This chapter is co-authored with Dr. Hong Bo.

to balance the benefits of the tax shield and the costs of financial distress. SEOs might also impair shareholder's wealth if the newly raised funds as a cheap resource are used by entrenched managers for their own benefits at the expenses of shareholders due to the agency conflict between managers and shareholders (Jensen and Meckling 1976; Jensen 1986). Hence, it is important for investors to understand the impact of SEOs on themselves. For regulators, a better understanding of Chinese SEOs will help them enhance the protection of minority shareholders and investors.

In this chapter, we aim to discuss and test the motivation of conducting Seasoned Equity Offerings (SEOs) by Chinese listed firms. In the introduction chapter, we identified four main theories concerned with SEO motivations in a mature market: (1) the trade-off theory suggests that a firm adjusts its capital structure to an 'optimal' level to balance the benefits of tax shield and the costs of financial distress (Modigliani and Miller 1958 and 1963); (2) the information asymmetry theory suggests that a firm issues equity when the cost of issuing equity due to information asymmetry is low (Myers 1984; Myers and Majluf 1984); (3) the agency theory suggests that the equity issue decision is affected by the agency conflict between managers and shareholders (Jensen and Meckling 1976; Jensen 1986); We will also discuss the impact of another aspect of the agency conflict on the equity issue decision: the conflict between controlling shareholders and minority shareholders (Johnson, La Porta, Lopez-de-Silanes and Shleifer 2000); (4) due to the agency conflict between shareholders and debtholders, a firm with growth potential prefers equity financing (Myers 1977; Smith 1970), or, more generally, since growth is associated with great uncertainty, it is to avoid potential future financial distress.

In this Chapter, our empirical models compare firms' non-issuing years' characteristics with issuing years' characteristics, and compare non-issuing firms who have never conducted SEOs between 1994 and 2006 with firms who have at least once during the sample period. Our empirical design is similar to the binominal model used by DeAngelo, DeAngelo, and Stulz (2010) and Jung, Kim, Stulz (1996). The main empirical finding of this is that all four main theories explaining SEOs are applicable to Chinese SEOs. However, we cannot distinguish between the two types of agency theory. Such a differentiation needs further research in the future. More specifically, we find that (1) firms are more likely to conduct SEOs when their leverage is higher than the estimated optimal leverage. (2) Firms are more likely to conduct SEOs when their pre-issue share returns are high. (3) Firms are more likely to conduct SEOs when their growth is high. (4) Higher ownership concentration or higher managerial ownership will reduce the likelihood of SEOs.

This chapter is organised as follows: in Section 2, we review literature in the context of a mature market; Section 3 discusses the impact of Chinese stock market features on SEO decisions; the hypotheses and measurement of variables are summarised in Section 4; Section 5 presents our data, and Section 6 presents the empirical models used in this paper; the results will be discussed in Section 7; Section 8 summarises.

3.2 Literature Review

Four theories of the motivation behind conducting Seasoned Equity Offerings (SEOs) will be discussed in this section: the trade-off theory, the information asymmetry theory, the agency theory, and the financing under growth theory.

3.2.1 The trade-off theory

The trade-off theory suggests that the firm could use equity issue to adjust its capital structure in order to achieve an 'optimal' level of leverage to balance the benefits of tax shield and the costs of financial distress (Modigliani and Miller 1958 and 1963; Brennan and Schwartz 1978; Miller 1977; DeAngelo and Masulis 1980). Shyam-Sunder and Myers (1999) provide a review of the empirical evidence regarding the trade-off theory. Although the trade-off theory is often studied in capital structure studies, some authors provide evidence that the trade-off theory also motivates firms' SEO decisions (Marsh 1982; Hovakimian, Opler, and Titman 2001). Within the context of SEOs, Marsh (1982) uses the logit regression technique to study selected 748 equity/debt issues in UK between 1959 and 1970. An equity issue is defined as one and a debt issue is defined as zero. It is found that firms with higher than target leverage ratios are more likely to issue equity. The estimation of target leverage ratio in the regression includes the firm's ten-year moving average of the leverage ratio and the residuals from a prediction model. Hovakimian, Opler, and Titman (2001) use a similar logit regression to analyse 39,387 firm-year observations in the U.S. between 1979 and 1997. They find similar results to March (1982)'s findings. They define an equity (debt) issue as an over 5% increase in the book value of equity (debt). The estimation of target leverage ratio in the regression includes the industry average leverage ratio and the residuals from a prediction model.

3.2.2 The information asymmetry theory

In the Akerlof (1970) framework, the buyers of the second hand car tend to pay somewhere between the value of good cars ("cherries") and bad cars ("lemons"), because they do not know the (true) value of the car. In the financial market, investors tend to pay less for the shares than their true value claimed by the firm since there is

information asymmetry between investors and the issuer. Hence, Myers (1984) and Myers and Majluf (1984) propose a "Pecking Order Theory" which states that the order of the firm's financing choice should be firstly self-financed (internal cash flow or retained earnings), risk-free debt, risky debt, and, as a last resort, equity. The reason is that equity suffers the most severe information asymmetry problem or the highest cost of information asymmetry. In some literature, the phrase "market timing" is used to describe the behaviour when firms issue new equity when the cost of information asymmetry is low.

Within the context of SEOs, in brief, the cost of information asymmetry (C_{IA}) in an equity financing case could be largely measured by the true value of the firm (or its true value per share) V_{true} minus its market capitalization (or its share price) V_{market} which is the value investors would like to pay for the firm. Hence, $C_{IA} = V_{true} - V_{market}$. The information asymmetry theory is supported by four streams of empirical study: (1) In the study of the stock market reaction to the SEO announcement, Asquith and Mullins (1986), Masulis and Korwar (1986), and Eckbo and Masulis (1992) use the pre-issue stock return as the proxy of the information asymmetry theory, because they believe that C_{IA} is low when the pre-issue stock return is high. The significant negative market reaction to the SEO announcement provides evidence supporting the signalling effect due to information asymmetry. In addition, Jung, Kim, and Stulz (1996) and De Jong, and Veld (2001) find that pre-issue stock return is higher before SEOs compared to that before debt issues. All five studies confirm the positive relationship between pre-issue stock return and the likelihood of the SEO decision. (2) In the study on the impact of business cycle (Hot/Cold market), Bayless and Chaplinsky (1996) and Choe, Masulis, and Nanda (1993) find more equity issues compared with debt issues in the expansionary phases than that in the contractionary phases of the business cycle. They

conclude that the difference in SEO activities results from the difference in C_{IA} during the different periods, because the expansionary period is associated more with investment and growth opportunities which lead to a less adverse selection situation. (3) Loughran and Ritter (1995, 1997), Spiess and Affleck-Graves (1995), and Hertzel, Lemmon, Linck, and Rees (2002) provide evidence supporting the decline in long-term operating and stock performance following SEOs. Two of the possible explanations for this phenomenon include: (a) investors and analysts are systemically over-optimistic about the issue firms' future prospect before SEOs, and issuers take this window of opportunity to issue equity (evidence for this explanation: Jegadeesh 2000; evidence against this explanation: Brous, Datar, and Kini 2001); (b) issuers manage their earnings before SEOs to enhance the share price (Rangan 1998; Shivakumar 2000; Teoh, Welch, and Wong 1998). The explanations of the overoptimistic investors and the earnings management by issuers are motivated by the information asymmetry theory. (4) In the study of the time-varying information asymmetry, Dierkens (1991), Korajczyk, Lucas, and McDonald (1991, 1992), and Guo and Mech (2000) argue that the information asymmetry between outside investors and business insiders (managers) continually accumulates before a sharp decrease associated with any firms' major announcement, such as financial results, dividend policy, or the plan of new projects. Hence, they predict that SEOs should happen immediately after any firms' major announcements rather than before. They find evidence supporting the information asymmetry theory. Finally, in the survey study of 392 CFOs, Graham and Harvey (2001) find that one out of two of the most important factors in the SEO decision is the pre-issue stock appreciation.

3.2.3 The agency theory

Jensen and Meckling (1976) suggest that the choice of equity or debt in a decision to raise new capital depends on the agency costs of equity and debt at that time. Managers in the agency theory models tend to over-invest after all profitable projects have been undertaken to build their own empires. There is an agency conflict between managers and shareholders. Hence, Jensen (1986) suggests that managers tend to avoid debt so as to avoid the discipline of debt. For the shareholders' benefit, debt financing is the most efficient way to take "Free Cash Flow" from managers' hands to prevent over-investment. Debt financing increases firms' value simply by forcing managers to pay more attention to their investment decisions. Empirically, Walker and Yost (2008) find that regardless of the proposed use of funds (before SEOs), firms change the use of funds to capital expenditure, research and development expenditure. The level of long-term debt also increases after SEOs even though the proposed use of funds is debt pre-payment. The authors conclude that the change in the use of proceeds in SEOs might reflect the motivation of the agency theory where managers tend to over-invest to expand the business quickly.

Another agency conflict, the conflict between controlling shareholders and minority shareholders, has been suggested as a motivation behind SEOs in China. Within the context of SEOs, there does not seem to be any theoretical or empirical work on mature markets that suggests this is a kind of agency conflict has any standing. The agency conflict between controlling shareholders and minority shareholders means that controlling shareholders tend to expropriate minority shareholders' wealth by transferring the wealth exclusively to themselves. Johnson, La Porta, Lopez-de-Silanes and Shleifer (2000) define "Tunnelling" as "the transfer of resources out of a company to its controlling shareholder". This tunnelling can be achieved through a variety of

methods, such as the expropriation of corporate opportunities, transfer pricing issue, using a low price for deprived assets, and loan guarantees. Huang's (2007) dissertation provides a good review on the effect of expropriation by large shareholders.

3.2.4 The theory of financing decision under growth

A firm facing growth opportunities prefers equity financing. The argument was initially explained by the increased agency costs of equity issue due to debtholder-shareholder conflict during the growth period (theoretical work: Myers 1977; Smith 1970; Myers and Smith 1987; empirical work: Smith and Watt 1992; Gaver and Gaver 1993). Myers (1977) suggests an underinvestment problem, which under the condition that the debt of the firm is risky, the firm might want to give up positive net present value (NPV) projects (needing external financing). This is due to the agency cost between shareholders and debtholders. If the new project is financed with debt, it is actually the shareholders who bear nearly all the cost involved when the project fails because debtholders have senior claim over the entire firm's value. On the other hand, the value of debt will increase if the project succeeds since the debt becomes less risky. To prevent the wealth transfer from shareholders to debtholders, relinquishing of positive NPV investment, or using equity financing could be options to consider. However, the value of the firm will also decrease because of high agency cost reflected by giving up on a profitable investment. Hence, the new project should be financed by equity. The problem is particularly serious when the firm is under growth which means the firm needs more external financing for investment.

The argument has been largely extended to the more general case of growth. The uncertainty is associated with the growth. The uncertainty (of firms' future earnings) could also be interpreted as the future risk of earnings. If a firm's earning is very

unstable, the firm tends to use equity finance since the firm suffers high cost of financial distress, which is induced by a greater chance of default on the annual payment imposed by the debt (the trade-off theory). Hence, the prediction is that growth firms will have a greater likelihood of issuing equity. Empirically, within the context of SEOs, Pilotte (1992) and Denis (1994) provide empirical evidence supporting the positive relationship between investment opportunities and the market reaction to SEOs by using a variety (ten) of proxies for investment opportunities. Harjoto and Garen (2003) find the firm's unanticipated growth (within four years after IPO), measured by the firm's stock return drift and annual net income growth, increases the firm's likelihood of conducting SEOs and increases the relative size of a SEO.

3.3 Literature on Chinese SEOs

As mentioned in the introduction of the thesis, the features of the Chinese stock market include a large portion of state-owned shares, heavy administrative regulations, and weak minority shareholder protection. In this sub-section, we will discuss whether and in what way these Chinese features affect SEO motivations.

3.3.1 The trade-off theory and the stock Chinese market

There are some literatures suggesting that the trade-off theory applies to the Chinese stock market[14]. For example, Huang and Song (2006) find that a firm facing a 33% corporate tax rate has 1.6% more debt than a firm facing a 15% corporate tax rate, ceteris paribus. In other words, the evidence is consistent with the prediction made by the trade-off theory that firms will borrow more when the marginal benefit of tax shield

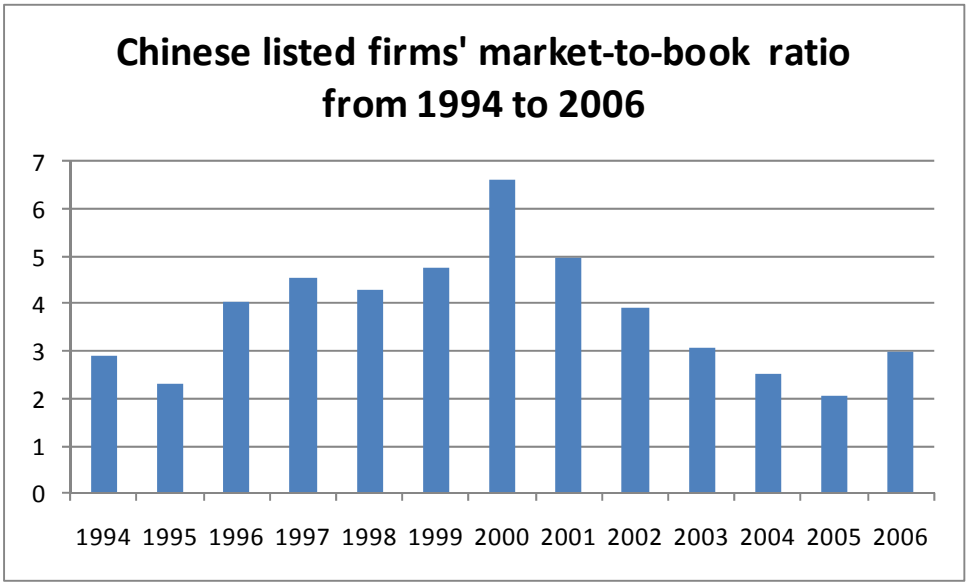
[14] The capital structure studies for the Chinese listed firms include: Chen (2004), Zou and Xiao (2006), and Huang and Song (2006). These studies put the leverage ratio on the left hand side of the regression, and the independent variables are proxies for the theories explaining firms' capital structure choice.

is higher than the marginal cost of financial distress. The benefit of tax shield in China is not very different from that in a mature market because similar to that in a mature market, interest expenses are tax deductible in China as well. The Chinese features might affect the costs of financial distresses more. The cost of financial distress might be expected to be relatively low in the Chinese market, compared with that in a mature market, especially for the State-Owned Enterprises (SOEs). The main reason for the low costs of financial distresses is SOEs' low possibility of bankruptcy due to the special relationship between SOEs and the commercial banks in China which are also state-owned. For example, non-performing loans (NPLs) in state-owned banks granted to SOEs is a well-known phenomenon in China's banking system to prevent SOEs from going bankrupt. Generally, SOEs have better access to bank loans than non-SOEs, with these loans becoming non-performing later on (Wei and Wang 1997). According to the agreement with the WTO, China's state-owned banks should stop NPLs to SOEs by 2000, but it is believed that SOEs continued to gain access to NPLs until 2003 (Xu and Lin 2007). Zou and Xiao (2006) make a similar point that for social and political reasons, the Chinese government (national and local) tries to prevent SOEs from going bankrupt. On the other hand, Chen (2004) argues that the cost of financial distresses is high, because (1) company law is ambiguous about debtholders' rights, and debtholders are not given any control rights in liquidation; (2) bankruptcy which involves SOEs and state-owned banks can become inefficient, and the costs associated with this inefficiency could be high.

3.3.2 Information asymmetry theory in the Chinese market

First of all, there is a lack of literature regarding the information asymmetry theory or market timing motivation in the Chinese stock market. We hope our research can fill the gap in this field.

Figure 3.1: Chinese listed firms' market-to-book ratio from 1994 to 2006



Data source: financial and share price data from the China Centre for Economic Research (CCER) database

In general, the market valuation in China is high. For example, the market-to-book ratio averaged around 3.78 from 1994 to 2006. The high valuation may motivate Chinese listed firms to conduct SEOs. Figure 3.1 shows the average market-to-book ratio in different years. Compared to the SEO activity, the period with higher valuation is also the period with more active SEO practice. This phenomenon is also consistent with the prediction made by the information asymmetry theory that firms conduct SEOs when the valuation is high. How do Chinese features affect the application of the information asymmetry theory in China? Controlling shareholders in China who are in many cases state-owned or state-related may not have an incentive to time the market for low information asymmetry cost because their shares are non-tradable (before 2005) and they may not be competent enough to maximise their share value.

3.3.3 Agency theory in the Chinese stock market

Generally speaking, corporate governance is poor in China. According to Bai, Liu, Lu, Song, and Zhang (2004), poor Chinese corporate governance can be summarised in the following aspects: (1) the executive compensation scheme is not well designed; (2) firms' financial transparency is low, and firms' information disclosure is inadequate; (3) Ownership structure contains a large proportion of non-tradable shares and state-owned shares which are believed to have a negative impact on corporate governance; (4) corporate control (or takeover) market is nearly absent in China; (5) the legal infrastructure and protection of minority shareholders remain weak. Within the context of the SEO decision, the agency conflict between managers and shareholders mentioned above applies. Apart from this, it is suggested that another aspect of agency conflict also exists in China: the conflict between controlling shareholders and minority shareholders.

In this sub-section, we will elaborate more on the impact of these two types of agency conflict on the SEO decision.

In the Chinese stock market, a large proportion of shares (over 65%) were non-tradable, prior to 2005. The non-tradable shareholders mainly consisted of two types of shareholders: state shares which were owned by the State Asset Management Bureau (SAMB) or local governments, and legal person shares which were owned by institutional investors or other firms including State-Owned Enterprises (SOEs). However, in our discussion, the shares owned by SOEs were believed to have a similar impact on the agency conflicts as state shares. Hence, the state-owned shares in the following discussion include the shares owned by the SAMB, local governments, and SOEs. According to Megginson and Netter (2001) and Djankov and Murrell (2002), state-owned shares seem to be inferior to private shares in determining the firms' performance in terms of productivity, profitability, and market valuation[15].

In a mature market, higher ownership concentration is theoretically expected to reduce the agency conflict between managers and shareholders through stronger monitoring. Empirically, while researchers can easily find the negative relationship between ownership concentration and agency conflict, sometimes they may also find a positive one (Morck, Shleifer, and Vishny 1988; McConnell and Servaes 1990). In China, high ownership concentration is largely the result of the high proportion of state-owned shares. Theoretically, high ownership concentration or a high proportion of state-owned shares can expect to increase the agency conflict in China, because (1) profit or loss due to management competency cannot be distinguished from the profit or loss influenced

[15] In China, research on the relationship between state-owned firms and firm performance (mainly measured by Tobin's Q) has provided mixed results. For instance Sun and Tong (2003) and Qi, Wu, and Zhang (2000) find a negative relationship; Xu and Wang (1999), no relationship; Wei, Xie, and Zhang (2005) a U-shaped relationship; and Sun, Tong, and Tong (2002), an inverse U-shaped relationship.

by policy[16]. Therefore there is ineffective monitoring over managers (Lin, Cai, and Li 1998). (2) The SAMB workforce is not competent in the role as board of directors (Mi and Wang 2000). In addition, their salary as well as incentives are low. (3) The political-connected CEOs in state-controlling firms are not competent (Fan, Wong, and Zhang 2004). (4) Sometimes, local governments and their officials are responsible for the monitoring/voting rights over a firm, but all dividends go to the Ministry of Finance, so they do not have the incentive to monitor the firm. On the other hand, being SOEs may also reduce the agency conflict, because (1) highly political-connected CEOs have political constraints to behave in a disciplined manner on behalf of the organisation that appoint them. (2) Being SOEs also means that there is a high ownership concentration, which creates the incentive for controlling shareholders to monitor, a situation similar to that in a mature market. Therefore, the relationship between agency conflict and state ownership as well as ownership concentration is not clearly determined in China.

In China, it is suggested that SEOs can be considered as "tunnelling" because SEOs provide the resources for future tunnelling. There are three main reasons why large/controlling shareholders who tend to be state-share holders in China have incentives to expropriate. (1) Because of the previous quota system mentioned in Chapter 2, the listed firm has assets, which are relatively superior within a group of industrial firms controlled by one parent firm. Hence, the parent firm needs to retrieve some benefits from its listed subsidiary to help its other subsidiary firms to operate (Aharony, Lee, and Wong 2000). (2) To maintain a level of profitability to meet the SEO profitability requirement or to avoid being delisted, the parent firm or other related parties might use related party transactions to improve the listed firm's financial

[16] An example of loss created by the policy is that the petrol price in domestic China is much lower than that in other countries. The state-owned petrol refinement and distribution firm, Petrol China, makes a loss due to the policy. On the other hand, compared to private sector, state-owned firms are likely to be privileged to gain contract or business from the nation.

situation. After the success in issuing equity or avoiding being delisted, the parent firm might want to retrieve the benefits back (Chen, Lee, and Li 2003). Empirically, Jian and Wong (2004) find that firms have more related-party transactions after rights issues. The more related party transactions a firm has, (a) the lower the market valuation is; (b) the more negative stock reaction to the related-party transaction announcement. (3) For state-owned shareholders, apart from selling a small amount of shares with permission from the SAMB, the only way to realise return is to receive dividends. In China, there is 20% personal tax and 33% corporate tax on dividends, while there is no capital gain tax. Hence, minority shareholders who are likely to be tradable-share holders prefer a no dividend policy, while non-tradable shareholders prefer cash dividends. In this conflict of interest, large shareholders (non-tradable shareholders) pay dividends without considering minority shareholders' preference. Cheng, Fung, and Leung (2006) show that the holders of non-tradable shares prefer cash dividends to no dividends. Hence, it is argued that paying dividends is also a way of expropriation. Both Lee and Xiao (2006) and Chen, Jian, and Xu (2009) find that firms increase dividend payouts after rights issues, arguing that non-tradable shareholders use dividends as a way to tunnel. Higher ownership concentration will lead to higher dividend payouts[17].

3.4 Hypotheses and measurement of variables

In this section we shall summarise our hypotheses and measurement of variables used in this research.

H1: higher leverage (compared to optimal level leverage) will increase the likelihood of SEOs.

[17] Other studies concerning this motivation include Liu and Lu (2004) and Lin, Chiou, and Chen (2007).

According to the trade-off theory, the firm whose leverage ratio is higher than its optimal level tends to issue equity to adjust its leverage ratio. The firm whose leverage ratio is lower than its optimal level tends not to issue more equity, because it can borrow more to take advantage of the benefits of tax shield. In this Chapter, we shall proxy the trade-off motive by comparing the difference between the firms' leverage and their estimated optimal leverage. The optimal leverage is measured by the GICS 4-digit industry average leverage or the residuals from a prediction model (i.e. the actual leverage minus predicted leverage). The leverage is measured by the total interesting-bearing liability divided by total assets.

H2: higher pre-issue stock return will increase the likelihood of SEOs.

According to the information asymmetry theory, firms issue equity when the cost of information asymmetry is low. The high stock return will create a window of opportunity of the low cost of information asymmetry as discussed in the literatures above. In this Chapter, we shall proxy the market-timing motive by the firms' pre-issue stock market returns. Pre-issue stock return (PSR) is measured by the pre-issue six month's cumulative return. For non-issuing years, the measurement is the accumulative return of the second half year. The alternative measurement of non-issuing years' return is the geometric half year return of annual return for non-issuing years.

H3: if there is a significant relationship (positively or negatively) between corporate governance mechanisms and the SEO decision, we tend to conclude that these corporate governance mechanisms have an impact on the firms' agency conflicts and the agency conflicts have an impact on the firms' SEO decisions.

We use ownership structure (including ownership concentration and managerial holding) as the proxy for corporate governance mechanisms. The reason why we cannot predict the relationship (positively or negatively) between ownership structure and the SEO decision is that ownership structure can influence the agency conflict in different ways. For example, regarding the agency conflict between managers and shareholders, theoretically, (1) high ownership concentration can reduce the agency conflict by stronger monitoring (Shleifer and Vishny 1986; Grossman and Hart 1980). (2) High managerial holdings can reduce the agency conflict by goal congruence (Berle and Means 1932; Jensen and Meckling 1976). (3) However, when the managerial holding is beyond a certain point, managers tend to have more control and are less effectively controlled and monitored (Stulz 1988 management entrenchment). Empirically, Morck, Shleifer, and Vishny (1988) and McConnell and Servaes (1990) find non-linear relationships between ownership concentration and market valuation, and between managerial holding and market valuation. The relationships between managerial holding and firm performance also include: positive (Kim and Lyn 1988; Leech and Leachy 1991), U-shape (Short and Keasey 1999), inverse U-shape (Chen, Hexter, and Hu 1993), and no relationship (Himmleberg, Hubbard, and Palia 1999).

Regarding the agency conflict between controlling shareholders and minority shareholders, Claessens, Djankov, and Lang (2000) find that higher concentration of cashflow (vote) rights can lead to higher (lower) market valuation in East Asian (excluding China) where the separation of control rights and cashflow rights is quite common. Meaning, higher dispersion between cashflow rights and voting rights lead to lower market valuations. On the contrary, Cheung, Rau, and Stouraitis (2006) find that the abnormal returns to the announcement of related party transactions are more negative for higher percentage holdings by the largest shareholders in the Hong Kong

market. In other words, higher ownership concentration gives large shareholders greater tunneling ability.

The measures of ownership concentration include the largest shareholder's holding (LH), ten largest shareholders' holding (TH), and the percentage of non-tradable shares (NTH). The measures of managerial holding include the board of directors' holding (BoDH), the chairman's holding (CH), and the CEO's holding (CEOH).

H4: firms facing growth opportunities tend to conduct SEOs.

In this Chapter, the growth opportunity is measured by firms' pre-issue revenue growth (RevG).

In this Chapter, we also include some other factors in our model which can influence firms' SEO decision. These control variables include size, tangibility, time dummy, years since last equity issue, profitability and a state dummy variable. Size (*size*) is measured by natural log of a firm's total assets. Large firms are more diversified and have more a stable income stream, so large firms are capable of possessing more debts, and have a reduced probability of issuing equity. Tangibility (*TANG*) of assets is measured by the net book value of fixed assets divided by total assets (Williamson 1988). Firms with lower tangibility, such as pharmaceutical firms and hi-tech firms, tend to use equity financing since their assets are intangible or not deployable. A time dummy variable (*TIME*) is one if the year is during the period from 1994 to 2001 and zero if the year is during the period from 2002 to 2006 in reflection of the diminished amount of SEO activity in the second period due to possible reasons as mentioned above. The number of years since last equity issue including IPOs and SEOs (*YrEI*) is

an ordinal variable. The fewer the years since last equity issue, the less likely firms are to conduct additional equity financing or another equity issue. Profitability (*profit*) is measured by the earnings before interest and taxes (*EBIT*) divided by total assets. Regarding the relationship between profitability and the SEO decision, the Pecking Order Theory (Myers 1984; Myers and Majluf 1984) predicts that firms with high profitability will have low incentive to issue equity, because the firm has the ability to generate more internal cash. The negative relationship between profitability and the SEO decision can also be explained by the fact that higher profitability means higher exposure to tax. The profitable firm should have more debt to increase the benefit of tax shield. At the same time, profitability also reduces the cost of financial distresses. Profitability also means greater "free cash flow" (Jensen 1986), so the firm should have more debt to reduce the agency conflict[18]. On the other hand, in China, the relationship between profitability and the SEO decision may be positive because of the profitability requirement, which means only profitable firms, or firms during their profitable years are able to conduct SEOs. Additionally, in China, we think being a state-controlled firm may also have an effect on the financing decision (Huang and Song 2006; Zou and Xiao 2006). Hence, in our research, we have a state-owned/state-controlled dummy variable (*SD*). This dummy variable takes the value of one if the controlling shareholder of the firm is the state. According to the Chinese annual report disclosure regulation, a shareholder is defined as the controlling shareholder, if he/she, an institution, an enterprise, or any organisation satisfies one of the following conditions: (1) is the largest shareholder unless a contradictory situation applies; (2) has the most voting rights; (3) controls over 30% of the voting rights (through pyramid and cross holding) unless a contradictory situation applies; (4) has the control of the appointment over 50% of the board members; (5) is considered as the controlling shareholder by the CSRC.

[18] The negative relationship between profitability and leverage ratio is supported by empirical studies: Rajan and Zingales (1995), Wald (1999), and Titaman and Wessels (1988).

3.5 Data

The data is retrieved from the China Centre for Economic Research (CCER) for all Chinese listed firms during the period from 1994 to 2006. The financial service sector is excluded from the regression analysis. We have a sample of 12,288 firm-year observations (excluding financial sectors). The information regarding the ownership structure only became available after 1998 following the new accounting reporting regulation, but 90% of the data regarding the type of controlling shareholders is still missing in 1998. Please refer to Chapter 2 for the summary statistics of SEO activities during this period. Table 3.1 shows the summary statistics of Chinese listed firms from 1994 to 2006 (excluding financial sectors). On average 85.1% of the listed firms are described as state-controlled firms in the period from 1998 to 2001, and on average 71.1% of the listed firms are described as state-controlled firms in the period from 2002 to 2006. Ownership concentration (measured by *LH, TH, NTH*) decreases and managerial ownership (measured by *BoDH, CH, CEOH*) increases from the 1998-2001 period to 2002-2006 period. We exclude top and bottom 1% of observations in each variable as outliers[19].

[19] Please refer to Appendix 3 for the definition of variables in this Chapter and Chapter 4 and 5. Please refer to Appendix 4 for the structure of data in this Chapter and Chapter 4 and 5.

Table 3.1: Summary statistics of Chinese listed firms from 1994 to 2006

Tangibility (*TANG*) of asset is measured by the net book value of fixed assets divided by total assets. Leverage (*Lev*) is measured by the total interesting-bearing liability divided by total assets. Profitability (*profit*) is measured by the earnings before interests and tax (EBIT) divided by total assets.

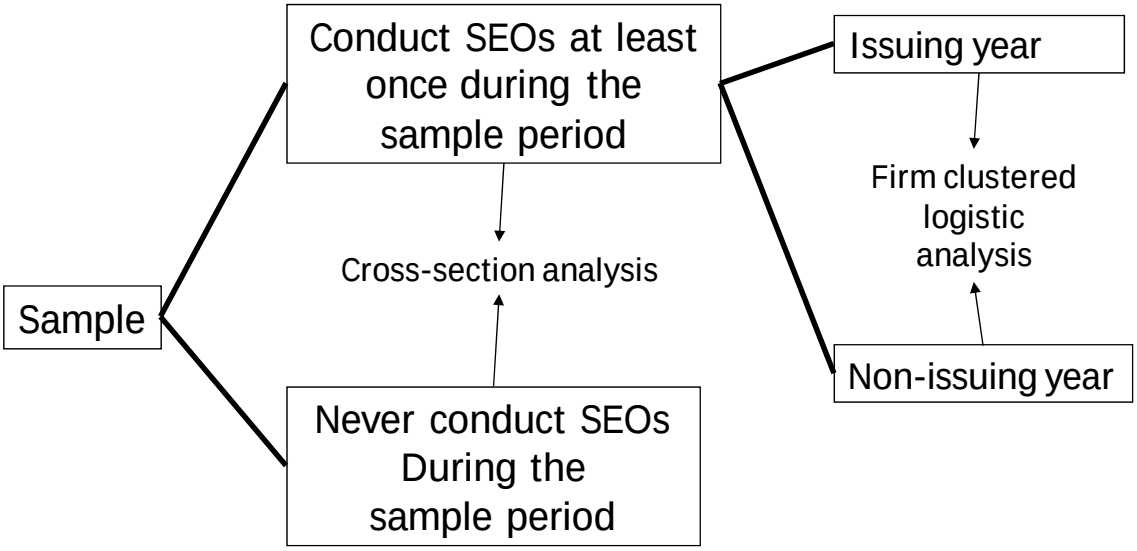
	94-97		98-01		02-06		Total	
	Mean	StDev	Mean	StDev	Mean	StDev	Mean	StDev
Ln(Total Assets) *(SIZE)*	20.4	0.9	20.8	0.9	21.2	1.0	20.9	1.0
Tangibility *(TANG)*	22.2%	15.3%	28.3%	16.2%	31.4%	18.0%	29.0%	17.4%
Leverage ratio *(Lev)*	21.4%	13.6%	21.6%	14.1%	23.8%	15.4%	22.7%	14.7%
Profitability *(profit)*	6.5%	5.9%	4.3%	7.3%	2.5%	7.9%	3.7%	7.6%
Revenue Growth *(RevG)*	21.3%	78.8%	18.0%	60.3%	21.8%	59.6%	20.5%	62.3%
State-owned dummy *(SD)*	-	-	85.1%	35.6%	71.1%	45.3%	75.6%	43.0%
Largest shareholder's holding *(LH)*	-	-	44.9%	17.8%	40.8%	16.7%	42.3%	17.2%
Top 10 shareholders' holding *(TH)*	-	-	61.9%	13.1%	60.1%	13.3%	60.8%	13.2%
Non-tradable shares *(NTH)*	-	-	63.0%	12.4%	58.1%	12.9%	59.9%	12.9%
Board of directors' holding *(BoDH)*	-	-	0.054%	0.528%	0.272%	1.922%	0.190%	1.554%
Chairman of BoD holding *(CH)*	-	-	0.013%	0.225%	0.090%	0.770%	0.061%	0.624%
CEO holding *(CEOH)*	-	-	0.006%	0.027%	0.018%	0.163%	0.013%	0.130%

Data source: financial and corporate governance data from the China Centre for Economic Research (CCER) database

3.6 Empirical models

We use two empirical models in this Chapter. (1) For firms who conducted SEOs at least once during the period from 1994 to 2006, we want to compare firms' characteristics in issuing years (defined as one in the dependent variable in logistic regression) with the characteristics in non-issuing years (defined as zero). We use the firm clustered logistic regression (Chamberlain 1980) for this comparison. (2) We also want to compare the difference in firms' characteristics between those who have conducted at least one SEO (define as one) and firms who have never conducted SEOs (defined as zero). For this, we use cross-section logistic regression with an industry dummy. Figure 3.2 summarises our empirical strategies. We believe that the two comparisons complement each other very well. The cross-section regression has an advantage in testing, for example, the agency theory. We will test the relationship between corporate governance mechanisms and the SEO decision. Corporate governance is a firm's qualitative feature and cannot be measured easily by quantitative proxies. For a single firm during a period, even if the variation of the proxies for corporate governance is big enough for empirical studies, such as ownership structure, we cannot explain that the firm's "corporate governance" changes significantly during the period. This is because corporate governance is a set of economic, legal, political, and cultural processes. The difference in corporate governance is more significant between different firms than between different years within one firm. On the other hand, the firm clustered logistic regression has advantages in testing time-varying information, such as the leverage ratio, the information asymmetry theory measures, and growth.

Figure 3.2: Information compared by different empirical models in Chapter 3



3.6.1 Model 1: firm clustered logistic model

For the firm clustered model, firms that have conducted at least one SEO during 1994 to 2006 constitute the sample. If t is the year of the SEO announcement, independent variables are extracted from firms' $t-1$ annual report. We use the lagged information because the information on the annual report for year t becomes the actual result of SEOs (because SEOs happen during the year). We delete two years: the IPO year and the year after the SEO year. The main reason why we exclude those two years is that by regulation firms cannot conduct SEOs in the IPO year and the year after a SEO[20]. The model is estimated by firm clustered regression.

$$y_{it} = \beta_1 TIME_i + \beta_2 YrEI_{it} + \beta_3 size_{it-1} + \beta_4 profit_{it-1} + \beta_5 Lev\_indus_{it-1} + \beta_6 PSR_{it-1} + \beta_7 \mathrm{Re}vG_{it-1} + \varepsilon_{it} \quad (3.1)$$

$y_{it} = 1$ if the firm i conducts a SEO within year t, and 0 otherwise.

$TIME_i$ = 1 if the year is before 2002, and 0 if the year is during 2002 and 2006 to reflect the diminished amount of SEO activity in the second period.

$size_{it-1}$ = the natural log of the firm's total assets.

$YrEI_{it}$ = years since the firm's last equity issue which includes the IPO and SEOs.

$profit_{it-1}$ = earnings before interest and taxes ($EBIT$) divided by total assets.

Lev_indus_{it-1} = the firm's leverage minus (GICS 4-digit or 2-digit) industry average;

Lev_{it-1} = the firm's leverage. Leverage is measured by interest-bearing (short/long-term) loans divided by total assets.

[20] The second restriction was removed from May 2006.

PSR_{it-1} = six-month share returns prior to the SEO. If there is no SEO during a year for a firm, this measure is the previous year's second half year's return.

$\mathrm{Re}vG_{it-1}$ = the percentage change in operating revenue.

In the above model 3.1, we use Lev_indus_{it-1} to proxy the trade-off theory. The alternative proxy of the trade-off theory is Lev_pred_{it-1} which is equal to the residuals from a leverage prediction model, ε_{it-1}. The leverage prediction model is used to provide an alternative and perhaps more accurate way than the industry average to estimate the optimal leverage level for each firm in each year. However, we acknowledge that this methodology is likely to cause a generated variable bias. There are many factors which can determine a firm's leverage level. We have chosen four factors, which could influence firms' leverage: size (*size*), tangibility (*TANG*), profitability (*profit*), and the percentage of non-tradable shares (*NTholding*) (Huang and Song 2006; Zou and Xiao 2006).

$$Leverage_{it} = \alpha + \beta_1 size_{it} + \beta_2 TANG_{it} + \beta_3 profit_{it} + \beta_4 NTholding_{it}$$

0.026	0.030	-0.758	-0.056
(19.24)***	(3.89)***	(-44.56)***	(-5.56)***

$$+ \beta_5 YearD_{it} + \beta_6 IndustryD_{it} + \varepsilon_{it} \qquad (3.2)$$

By pooled OLS we are able to estimate model 3.2. After obtaining all the coefficients, we are able to calculate the estimated leverage. The residual ε_{it} is obtained by using actual leverage minus predicted leverage. All four coefficients are very significant and the R-square is 0.20. The result confirms previous studies that: larger firms will have higher leverage; firms with more tangible assets will have higher leverage; higher

profitability will lead to lower leverage; ε_{it}, the residuals from the prediction model, will be used as the deviation from the target leverage ratio in our firm clustered models.

3.6.2 Model 2: cross-section logistic model

We do not have the data of ownership structure before 1998. Hence, the sample period in this model is from 1998 to 2006. We divide the sample into two sub-samples for cross-section regression. One sub-sample period is from 1998 to 2001, and the other is from 2002 to 2006. The reason we divide our sample in such a way is because we observe that SEO activities are low from 2002 to 2006. Furthermore, there are three events during the period from 2002 to 2006: (1) the introduction of public offerings in 2001, (2) the introduction of the sponsor system in 2001, (3) the low stock market return since 2001. The dependent variable is equal to one if a firm has conducted at least one SEO during the sub-sample period, and to zero if a firm has never conducted SEOs after 1994 (the year from when the data is available) or for its life of listing (but the firm age has to be larger than or equal to 3). Regarding the independent variables, we take the average of the independent variables across all years during the sub-sample period for firms who are included in the sub-sample period. Hence, our cross section model is:

$$\begin{aligned} y_i &= \alpha + \beta_1 size_{i,avg} + \beta_2 profit_{i,avg} + \beta_3 TANG_{i,avg} + \beta_4 Lev\_indus_{i,avg} \\ &+ \beta_5 PSR_{i,avg} + \beta_6 \mathrm{Re}vG_{i,avg} + \beta_7 SD_{i,avg} + \beta_8 OwnCon_{i,avg} \\ &+ \beta_9 ManHold_{i,avg} + \beta_{10} IndustryD + \varepsilon_i \end{aligned} \qquad (3.3)$$

$y_i = 1$ if the firm has conducted at least one SEO during the sub-sample period, and 0 if the firm with the age of more than three has never conducted SEOs since 1994.

$size_{i,avg}$ = the average of the natural log of the firm's total assets

$profit_{i,avg}$ = the average of earnings before interest and taxes ($EBIT$) divided by total assets.

$TANG_{i,avg}$ = the average of total fixed assets divided by total assets[21]

$Lev\_indus_{i,avg}$ = the average of the difference between firms' leverage and their industry average leverage.

$PSR_{i,avg}$ = the average of annual stock return

$\mathrm{Re}vG_{i,avg}$ = the average of revenue growth

$SD_{i.avg}$ = 1 if the firm is a state-controlling list firm and 0 otherwise[22].

$OwnCon_{i.avg}$ = average ownership concentration. This variable includes the largest shareholder's holding (LH), the sum of top 10 shareholders' holding (TH), and non-tradable shares (NTH).

$ManHold_{i,avg}$ = average managerial holding. This variable includes the holding of board of directors (BoDH), the chairman's holding in board of directors (CH), and the CEO's holding (CEOH).

$IndustryD$ = GICS 2-digit industry dummy.

3.7 Results

Firstly, we estimate equation (3.1). In this estimation we check whether the proxies for the three SEO theories (the trade-off theory, the information asymmetry theory, and the

[21] The TANG variable included in equation (3.3) is not included in equation (3.1). this is because the purpose of Equation (3.1) is to examine firms' time variant effect, while tangibility is more suitable to measure firms' business nature which is more distinct between different firms rather than different years within one firm.

[22] It is possible that some category variables might change their category during the sample period. For example, a state-controlled firm becomes a non-state-controlled firm. If this is the case, we use the more frequent category as the category for the whole (sub-) sample period.

theory of financing under growth) are able to predict the likelihood of the year conducting SEOs. The results are reported in Table 3.2. The results concerning control variables are in line with our prediction in all estimated regressions: (1) the positive significant coefficient of *TIME* dummy reflects the fact that there are more SEO activities before 2002. (2) The positive significant coefficient of the variable *YrEI* means that the longer period since last equity issue implies that firms have more financing demand, so are more likely to conduct SEOs. (3) The positive significant coefficient of the profitability means that years with more profit can lead to a higher chance of equity issue. This may be the result of regulation on the SEO profitability requirement. i.e. only firms in their profitable years are able to conduct SEOs. Columns 2 to 5 in Table 3.2 corresponds to each of the three theories mentioned explaining the motivation of SEOs. In columns 6 to 9 in Table 3.2 we combine two of the mentioned theories in one estimated equation and in columns 10 and 11 in Table 3.2 we combine three of the mentioned theories in one estimated equation due to concern over that proxies for different theories may be correlated with each other and hence carry the effect of other theories. As we can see from Table 3.2, the estimated coefficient of Lev_indus_{it-1} or Lev_pred_{it-1} is significantly positive in columns 2, 6, 7, 10 and columns 3, 8, 11 respectively. This means that firms are more likely to issue equity when their leverage is higher than the optimal level. The result is consistent with trade-off theory's prediction. Regarding the information asymmetry theory, the estimated coefficient of $PSR\_\sec$ is significantly positive in columns 4, 6, 9, 10, 11. Firms' behaviour in terms of pre-issue share return is consistent with the prediction made by the information asymmetry theory: firms are more likely to issue equity when their pre-issue share returns are high. Regarding the growth opportunity theory, the significant positive coefficient of firm's revenue growth in columns 5, 7, 8, 9, 10, 11 means that

Table 3.2: Results for firm clustered logistic regression

$y_{it} = 1$ if the firm i conducts a SEO within year t, and 0 otherwise. $TIME_i$ = 1 if the year is before 2002, and 0 if the year is during the period from 2002 and 2006 to reflect the decreased amount of SEO activities in the second period. $YrEI_{it}$ = years since firm's last equity issue which includes the IPO and SEOs. $size_{it-1}$ = the natural log of firm's total assets. $profit_{it-1}$ = earnings before interests and tax (*EBIT*) divided by total assets. Lev_indus_{it-1} = the firm's leverage minus (GICS 4-digit) industry average. Leverage is measured by interest-bearing (short/long-term) loans divided by total assets. Lev_pred_{it-1} = the firm's leverage minus the residuals from the prediction model. PSR_{it-1} = six-month share returns prior to the SEO. If there is no SEO during a year, this measure is the previous year's second half year's return. $RevG_{it-1}$ = the percentage change in operating revenue.

	1	2	3	4	5	6	7	8	9	10	11
Time	2.535	2.403	2.365	2.161	2.516	1.990	2.392	2.354	2.149	1.985	1.930
	(16.53)***	(15.48)***	(15.02)***	(13.20)***	(16.40)***	(11.96)***	(15.42)***	(14.97)***	(13.13)***	(11.94)***	(11.46)***
YrEI	0.361	0.362	0.346	0.282	0.351	0.282	0.354	0.340	0.276	0.278	0.258
	(10.57)***	(10.45)***	(9.81)***	(7.84)***	(10.18)***	(7.72)***	(10.14)***	(9.58)***	(7.66)***	(7.57)***	(6.89)***
Size	-0.228	-0.445	-0.337	-0.496	-0.304	-0.762	-0.517	-0.394	-0.540	-0.799	-0.687
	(-2.32)**	(-4.28)***	(-3.06)***	(-4.52)***	(-3.05)***	(-6.37)***	(-4.88)***	(-3.54)***	(-4.86)***	(-6.62)***	(-5.38)***
profit	14.011	15.535	16.397	15.553	13.299	17.292	14.778	15.671	15.127	16.819	16.957
	(12.05)***	(12.63)***	(12.18)***	(12.14)***	(11.38)***	(12.71)***	(11.97)***	(11.50)***	(11.76)***	(12.30)***	(11.29)***
Lev_indus		3.215				3.703	3.145			3.645	
		(6.38)***				(6.58)***	(6.21)***			(6.46)***	
Lev_pred			4.090					3.956			4.388
			(7.28)***					(7.01)***			(7.06)***
PSR_sec				1.347		1.376			1.339	1.370	1.375
				(9.43)***		(9.46)***			(9.31)***	(9.36)***	(9.11)***
RevG					0.501		0.484	0.355	0.316	0.297	0.144
					(5.05)***		(4.76)***	(3.25)***	(2.96)***	(2.67)***	(1.21)
Number of obs	5,542	5,505	5,360	5,203	5,542	5,171	5,505	5,360	5,203	5,171	5,033
LR chi square	1,063	1,096	1,117	1,344	1,088	1,381	1,118	1,127	1,352	1,388	1,384
Log likelihood	-1,224	-1,199	-1,141	-1,009	-1,211	-982	-1,188	-1,136	-1,004	-979	-934

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial and share return data from the China Centre for Economic Research (CCER) database

firms are more likely to issue equity when their growth is high. The result is consistent with the financing under growth theory's prediction. In sum, we find support for all three of the theories (the trade-off theory, the information asymmetry theory, and the growth theory) we set out to test in this model.

Secondly, we estimate equation (3.3) for the two difference periods: the period from 1998 to 2001 and the period from 2002 to 2006. In this estimation we check whether the proxies for the agency theory are able to predict the likelihood of the firm conducting SEOs. The results are reported in Table 3.3 and 3.4. Our main interest in this model lies in the corporate governance mechanism variables, because the average of the different years' information is taken to eliminate possible time-varying effects which is confirmed by the results in Table 3.2. When we include the managerial holding variables into the estimation, we also include the ownership concentration variables to control for the effect of the ownership concentration on the SEO decision. The results concerning control variables deliver the following information: (1) more profitable firms are more likely to conduct SEOs. This may be again due to the SEO profitability requirement. In other words, only profitable firms are able to conduct SEOs. (2) Firms with higher stock market return are more likely to conduct SEOs. This may also be in support of the information asymmetry theory. However, these results concerning firms' stock return only hold for the period from 1998 to 2001. During 2002 to 2006, only the variable of profitability is consistently positively significant. Regarding corporate governance mechanisms, the results show that (1) in both periods, there is a significant negative relationship between ownership concentration and likelihood of SEOs (columns 3 to 5 in both tables). (2) The relationship between managerial holding and the likelihood of SEOs is not significant in the period from 1998 to 2001, but becomes negatively significant during the period from 2002 to 2006 except CEO holding

Table 3.3: Results for cross-section logistic for the period 1998 to 2001

$y_{it} = 1$ if the firm has conducted at least one SEO during the sub-sample period, and 0 if the firm has never conducted SEOs since 1994 or its entire life of listing. All independent variables are the average of years during the sub-sample period. The new variables apart from Table 3.2 include: $SD_{i.avg}$ = 1 if the firm is a state-controlling list firm and 0 otherwise. $OwnCon_{i.avg}$ = ownership concentration measure. This variable includes the largest shareholder's holding (LH), the sum of top 10 shareholders' holding (TH), and non-tradable shares (NTH). $ManHold_{i,avg}$ = managerial holding. This variable includes the holding of board of directors (BoDH), the chairman's holding in board of directors (CH), and the CEO's holding (CEOH).

	1	2	3	4	5	6	7	8
Size	0.477	0.477	0.611	0.561	0.421	0.557	0.560	0.558
	(4.24)***	(4.20)***	(5.13)***	(4.75)***	(3.61)***	(4.72)***	(4.74)***	(4.73)***
profit	14.337	14.338	15.068	15.583	17.375	15.556	15.565	15.608
	(6.13)***	(6.13)***	(6.32)***	(6.42)***	(6.95)***	(6.41)***	(6.42)***	(6.43)***
TANG	0.192	0.192	0.213	0.337	0.590	0.323	0.311	0.322
	(0.32)	(0.32)	(0.35)	(0.54)	(0.95)	(0.52)	(0.50)	(0.52)
Lev_indus	-0.088	-0.088	-0.107	-0.191	0.429	-0.254	-0.234	-0.218
	(-0.13)	(-0.13)	(-0.16)	(-0.27)	(0.61)	(-0.37)	(-0.34)	(-0.31)
PSR	3.050	3.050	3.132	3.115	2.880	3.091	3.085	3.097
	(7.49)***	(7.48)***	(7.57)***	(7.43)***	(6.94)***	(7.36)***	(7.35)***	(7.39)***
RevG	0.437	0.437	0.297	0.297	0.196	0.334	0.348	0.337
	(1.52)	(1.52)	(1.02)	(1.01)	(0.66)	(1.13)	(1.17)	(1.14)
SD		0.004	0.145	0.077	0.096	0.052	0.039	0.048
		(0.02)	(0.63)	(0.33)	(0.42)	(0.23)	(0.17)	(0.21)
LH			-1.702					
			(-3.26)***					
TH				-4.919		-4.941	-4.919	-4.903
				(-6.50)***		(-6.53)***	(-6.49)***	(-6.48)***
NTH					-6.284			
					(-6.64)***			
BoDH						-52.869		
						(-1.21)		
CH							-117.864	
							(-0.80)	
CEOH								-122.833
								(-0.66)
Constant	-11.118	-11.117	-13.148	-9.834	-6.147	-9.695	-9.770	-9.764
	(-4.75)	(-4.75)	(-5.41)	(-4.09)	(-2.48)	(-4.03)	(-4.06)	(-4.06)
Number of obs	844	844	837	842	844	842	842	842
LR chi square	180.21	180.21	196.36	226.92	231.73	229.00	229.06	228.85
Log likelihood	-485.769	-485.769	-472.312	-461.005	-460.008	-459.966	-459.935	-460.042

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table 3.4: Results for cross-section logistic for the period 2002 to 2006

$y_{it} = 1$ if the firm has conducted at least one SEO during the sub-sample period, and 0 if the firm has never conducted SEOs since 1994 or its entire life of listing. All independent variables are the average of years during the sub-sample period. The new variables apart from Table 3.2 include: $SD_{i.avg}$ = 1 if the firm is a state-controlling list firm and 0 otherwise. $OwnCon_{i.avg}$ = ownership concentration measure. This variable includes the largest shareholder's holding (LH), the sum of top 10 shareholders' holding (TH), and non-tradable shares (NTH). $ManHold_{i,avg}$ = managerial holding. This variable includes the holding of board of directors (BoDH), the chairman's holding in board of directors (CH), and the CEO's holding (CEOH).

	1	2	3	4	5	6	7	8
Size	0.771	0.793	0.871	1.009	0.806	0.974	0.987	0.983
	(6.65)***	(6.66)***	(7.02)***	(7.64)***	(6.48)***	(7.37)***	(7.46)***	(7.45)***
profit	3.090	3.030	4.174	8.760	7.577	9.558	9.270	9.465
	(1.18)	(1.16)	(1.56)	(2.98)***	(2.67)***	(3.20)***	(3.11)***	(3.19)***
TANG	-0.047	-0.011	-0.110	0.031	-0.377	-0.157	-0.171	-0.029
	(-0.07)	(-0.02)	(-0.17)	(0.04)	(-0.54)	(-0.23)	(-0.25)	(-0.04)
Lev_indus	-0.075	-0.113	-0.283	-0.175	0.219	-0.041	-0.062	-0.134
	(-0.09)	(-0.14)	(-0.35)	(-0.20)	(0.25)	(-0.05)	(-0.07)	(-0.15)
PSR	0.183	0.180	0.076	0.253	0.019	0.538	0.570	0.311
	(0.53)	(0.53)	(0.22)	(0.70)	(0.05)	(1.38)	(1.43)	(0.86)
RevG	0.234	0.224	0.217	0.129	-0.035	0.010	0.017	0.092
	(0.61)	(0.59)	(0.56)	(0.30)	(-0.08)	(0.02)	(0.04)	(0.22)
SD		-0.194	-0.040	-0.035	-0.032	-0.265	-0.252	-0.147
		(-0.87)	(-0.17)	(-0.15)	(-0.14)	(-1.08)	(-1.03)	(-0.61)
LH			-1.928					
			(-2.84)***					
TH				-8.075		-8.103	-8.082	-8.126
				(-8.17)***		(-8.10)***	(-8.11)***	(-8.15)***
NTH					-8.133			
					(-7.67)***			
BoDH						-7.772		
						(-2.33)**		
CH							-16.736	
							(-2.07)**	
CEOH								-20.329
								(-1.64)
Constant	-18.107	-18.439	-19.287	-18.437	-13.966	-17.391	-17.701	-17.742
	(-7.43)	(-7.45)	(-7.64)	(-6.92)	(-5.36)	(-6.50)	(-6.61)	(-6.64)
Number of obs	802	802	797	801	802	801	801	801
LR chi square	88.07	88.82	97.18	167.97	158.48	178.13	178.08	172.45
Log likelihood	-351.110	-350.737	-344.053	-310.946	-315.908	-305.868	-305.891	-308.705

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

(columns 6 to 8 in both tables). (3) The state ownership dummy is not significant in all estimated regressions for both periods. In conclusion, a significant negative relationship between ownership structure and the SEO decision implies that ownership structure as a corporate governance mechanism has an impact on firms' agency conflict and the agency conflict further affects firms' SEO decision. In other words, the agency conflicts may play a role in firms' SEO decision, so agency conflicts are one of the SEO motivations applicable in China.

How can we explain the negative relationship between ownership concentration and the SEO decision? There are actually three ways to explain such a relationship. (1) A higher ownership concentration may improve corporate governance by enhancing manager monitoring. Managers understand that they cannot succeed in using SEOs as a cheap resource for their own perquisite, so the SEO likelihood is reduced (Friend and Lang 1988). (2) A higher ownership concentration (as a result of state-owned shares in China) may lead to worsened corporate governance. (Controlling) shareholders in firms understand that they cannot effectively monitor managers, so they reduce the likelihood of SEOs to prevent more "free cash flow" (Berger, Ofek, and Yermack 1997). (3) Regarding the agency conflict between controlling shareholders and minority shareholders, a high ownership concentration may align controlling shareholders' interest with minority shareholders' interest, meaning controlling shareholders are less likely to use SEO for the purpose of tunnelling. However, we cannot identify which type of agency conflict dominates the negative relationship or whether both of them apply.

Regarding the negative relationship between managerial holding and the SEO decision, although such a negative relationship does not apply in the period from 1998 to 2001,

we cannot conclusively say that the agency conflict between managers and shareholders does not apply in this period. This is because there is a possibility that managerial holding may not be effective as a corporate governance mechanism, especially in China. For the period from 1998 to 2001, firms' average managerial holding in terms of board of directors' holding (BoDH), the chairman's holding (CH), and the CEO's holding (CEOH) is 0.054%, 0.013%, and 0.006%, respectively. These figures increase to 0.272%, 0.090%, and 0.018% respectively during the period from 2002 to 2006. In other words, during the first period, managerial holding may be too low to be effective as a corporate governance mechanism. Along with the Chinese stock market's transition and increased level of managerial holding, it began to align managers' interests with shareholders' interest. Hence, managers are less likely to conduct SEOs for their own perquisites.

Regarding model performance, the likelihood ratio test is significant in all regressions. We conduct further estimations to check the robustness of the results. Appendix 5 shows the results of a revised leverage prediction model which includes the regional dummy and uses fixed-effect estimation. In the literature, DeAngelo, DeAngelo, and Stulz (2010) use a pooled logistic model rather than a firm clustered logistics model for the model similar to equation (3.1). Appendix 6 shows the result of robustness test to equation (3.1) or Table 3.2. The model in Table 3.2 is estimated by firm clustered regression. The differences between the model in Table 3.2 and the model in appendix 6 include: (1) we first use pooled logit and probit estimation, and also use fixed-effect logit, random-effect logit, and random-effect probit in appendix 6. We also report the marginal effect of these estimations which is used to show the economic significance of the coefficients associated with the independent variables. (2) In appendix 6, the residual of the optimal leverage prediction model (using pooled OLS and fixed-effect

panel estimation respectively) in appendix 5 is used to measure firms' deviation from their optimal leverage. The model in appendix 6 also includes the regional dummy if it is possible. The fundamental message from appendix 6 does not change. An alternative estimation for our cross-section model for two periods (equation 3.3) is to estimate one single regression where each regressor is interacted with a dummy equal to one in the first period, and zero otherwise; and a dummy equal to one in the second period and zero otherwise. The fundamental message from such a specification for equation (3.3) as shown in Appendix 7 does not change either.

3.8. Conclusion

In this Chapter, we discussed how the four theories concerning SEO motivations could be applied to the Chinese stock market. It is important to discuss and test the SEO theories in China, because there is a lack of literature on this topic. Additionally, the Chinese stock market is not a mature market, so we may not be able to directly borrow the research results from a mature market. Empirically, we find evidence supporting the trade-off theory. The firm will issue equity to reduce the leverage when it deviates from the industry average. We also find that the firm tends to issue equity when the pre-issue share returns are high, which supports the information asymmetry theory. Firms choose SEOs when their growth is high. Regarding the agency theory, we find that there is a strong negative relationship between the SEO decision and the firm's corporate governance in terms of ownership structure. Hence, we argue that the agency theory plays an important role in the SEO decision of Chinese listed firms. However, we need future research to explicitly distinguish between the agency conflict between managers and shareholders and the agency conflict between controlling shareholders and minority

shareholders. In short, our results support that all four theories concerning SEO motivations are applicable in China.

Chapter 4: How do Chinese firms use proceeds from SEOs[23]

4.1 Introduction

In the introduction of this thesis, we highlighted the importance of SEO motivation research in China. In Chapter 3, we investigated the motivations of Chinese Seasoned Equity Offerings (SEOs) by examining firms' pre-SEO characteristics. The theories concerned with the motivation of SEOs included the trade-off theory, the information asymmetry theory, the agency theory, and the financing under growth theory.

In this Chapter, we aim to continue with an explicit examination on these four theories. To complement the study in Chapter 3, we want to move our focus from firms' pre-issue characteristics to firms' post-SEO characteristics. Looking at a sample of 523 SEOs in China over the period from 1998 to 2003, a phenomenon can be observed such that on average 67.7% of the actual proceeds have been used in investments; 0.6% of the actual proceeds have been used in debt repayment; 31.7% of the actual proceeds have been left as general corporate use which is any use other than investments and debt repayments. The question is why Chinese SEO firms display so much general corporate use, which is unspecified and ambiguous for investors? Where do firms spend this general corporate usage of proceeds? Could the use of proceeds from SEOs be the result of SEO motivations? Hence, if we can show that general corporate use has been used in a way, which could to some extent reflect SEO motivations, we might be able to provide evidence and draw conclusions on SEO motivations.

[23] This chapter is co-authored with Dr. Hong Bo.

There is some existing literature on the use of proceeds from SEOs. Kim and Weisbach (2008) examine the impact of SEO proceeds on firms' post-SEO investment, debt prepayment, and cash holding in a sample of 13,142 SEOs from 38 countries (excluding China) during the period from 1990 to 2003. They show that the primary use of proceeds have been in investment and cash holding, but not debt prepayment. Further to this, they show that higher firm valuation before SEOs lead to a greater cash holding increase after SEOs. Their conclusion is that investment and market timing motivate the use of SEO proceeds. However, the authors do not explicitly examine the impact of SEO use on firms' post-issue performance. Regarding the post-issue performance study, Jeanneret (2005) examines the long-term stock performance following 232 rights issues in the French market during the period from 1984 to 1998. The author classifies the planned use of proceeds documented in issuing reports into two categories: to finance new investments, or to adjust firms' capital structure. The author finds that rights issues used to adjust firms' capital structure do not experience significant long-term share price underperformance, while rights issues used to finance new investment suffer significant long-term underperformance. The author interprets the long-term underperformance of "financing new investment" by issuers as an over-valuation of investment payoffs and persistent over-optimism through time. In other words, it is possible that managers try to make investors over-optimistic and use the SEO proceeds for over-investment as a result of manager-shareholder agency conflict. Autore, Bray, and Peterson (2009) investigate 880 public offerings made in the U.S. from 1997 to 2003. Proceeds are classified into three categories: investment, debt repayment, and general corporate use. They also find that the planned use of debt repayment and general corporate use suffer worsened post-issue long-term stock and operating performance. They interpret the results as such because debt repayment and general corporate use might indicate that firms do not have profitable investment projects at the

time of SEOs. This lack of investment shows that firms might raise funds for other purposes such as market timing motivation (which is motivated by the information asymmetry theory). In other words, if firms have profitable investments, they would disclose the investment project and the use of proceeds. Both Jeanneret (2005) and Autore, Bray, and Peterson (2009) deploy pre-issue stated use of proceeds to construct their analysis.

Walker and Yost (2008) link the stated use of proceeds prior to SEOs to those after SEOs with changes to some accounting variables. The sample consists of 438 public offerings made during the period from 1997 to 2000 in the U.S. market. The planned uses of proceeds are classified into three categories: investment, debt repayment, and general corporate use. The authors show that firms' investment significantly increases after SEOs for all three categories, and firms' leverage also increases even if the stated use is to repay the debt. This could be evidence of changes in the use of proceeds after SEOs. Further to this, the authors show that in comparison to other categories, general corporate use suffers worse post-issue operating performance in terms of operating cash inflow. Similarly, the authors argue that if firms have profitable investments, they would disclose investment project and use of proceeds. As the authors do not find evidence of market timing motivation in terms of an excessive increase in cash after SEOs (Greenwood 2005; Kim and Weisbach 2008), they argue that SEOs with adjustments from general corporate use to investment might contain over-investment problems due to the agency conflict between managers and shareholders. Fu (2010) tests the role of over-investment after SEOs further by using a sample of 2,873 U.S. SEOs dating from 1980 to 1999. Post-issue over-investment is measured by the difference between the issuing firms' investments and the investment of the matched non-issuing firms. Over-investment due to the agency conflict between managers and

shareholders is supported by a negative relationship between over-investment and post-issue operating performance.

The literature mentioned in the two paragraphs above is summarised as follows: (1) Regarding the SEO motivations, Kim and Weibach (2008), Walker and Yost (2008), and Fu (2010) show that investments are an important use of the SEO proceeds. Both Kim and Weibach (2008) and Autore et. al. (2009) interpret their empirical results to support the market timing motivation (or the information asymmetry theory). Walker and Yost (2008) interpret their empirical results to support the agency conflict between managers and shareholders. Fu (2010) explicitly focuses on the agency conflict between managers and shareholders by providing evidence of over-investment after SEOs. The trade-off theory receives no support from the research mentioned in the two paragraphs above. However, none of the above studies mention the agency conflict between controlling shareholders and minority shareholders as a SEO motivation, which could be important in the Chinese stock market. (2) Both Autore et. al. (2009) and Walker and Yost (2008) explicitly focus on general corporate use and show how it can impair firms' value. However, both deploy planned pre-issue use of proceeds, though Walker and Yost (2008) provide some evidence in changes to SEO use of proceeds.

Hence, how does our research fit into and contribute to existing literature? We do so in three ways. (1) In our sample, as mentioned above, general corporate use and investment use make up 31.7% and 67.7% of actual proceeds respectively. However, only 6% and 93.5% of planned proceeds[24] are stated as general corporate use and investment use before SEOs. In other words, much planned investment usage has been

[24] The final actual proceeds can deviate from the planned proceeds. Although the denominator of the percentage of general corporate use before or after SEOs is different, the difference does not change the message that much planned investments have changed to general corporate use.

altered to general corporate use. This change along with a high level of general corporate use after SEOs has two implications for us. (a) The general corporate use poses a question for investors, which is why Chinese SEO firms display a high level of unspecified and ambiguous general corporate use? What SEO motivations are behind these general corporate uses? Whether managers (or existing shareholders) can hide their true SEO motivation from shareholders (or new shareholders) by general corporate use? By answering these questions, we can provide evidence to SEO motivations. (b) This phenomenon of change to SEO use is also similar to what Walker and Yost (2008) document in their research. To include the possible change in the use of proceeds, our research focuses on the actual general corporate use rather than planned general corporate as used in previous research (Walker and Yost 2008; Autore et. al. 2009). (2) We borrow Kim and Weibach's (2008) model (KW model here after) to examine the impact of SEO proceeds on firms' post-issue investment, leverage, and cash holding. However, we extend the KW model in three ways. (a) We examine not only the impact of proceeds as how the KW model does, but also examine the impact of general corporate use to investigate where it has been used. (b) We also examine firms' post-issue administrative expenses, related party transactions, and the interaction item between firms' post-issue investment and growth opportunity. In other words, we aim to examine more types of SEO use to test the four theories (discussed in the previous Chapter). (c) We finish the KW model with a further test on the impact of general corporate use on firms' post-issue stock and operating performance. This complements the KW model because the impact on post-issue performance may also reflect firms' SEO motivations. (3) To our knowledge, we are the first to deploy the use of proceeds as a tool to study SEO motivations in China. As discussed in the introduction of this thesis, the Chinese stock market is huge and active, but also distinct compared to a mature market. Hence, we cannot directly borrow the research results from a mature

market and apply them to the Chinese stock market, which has a lack of literature on SEO motivations. Our research fills the gap in Chinese SEO motivation research. In our study, we also examine the agency conflict between controlling shareholders and minority shareholders, which is neglected in mature markets within the context of SEOs. However it is of particular importance in immature markets like the Chinese stock market.

Our empirical results show that investments are still the primary destination of SEO proceeds. Nearly 70% of actual announced use in investments has a significant positive impact on firms' post-issue investment. Also on average, issuing firms' total assets almost double in the three years after SEOs, while non-issuing firms' total assets only grow by 28%. General corporate use has a significant positive impact on the increase in cash after a SEO. This evidence gives support to the information asymmetry theory that firms raise cash to time the market even when there are no good investment opportunities. General corporate use is also spent on administrative expenses. Administrative expenses are financial sources that can easily be manipulated by mangers, so managers might use administrative expenses for their private benefits of control (Bai, et al. 2004; Bo et. al. 2011). Hence, we have evidence of manager-shareholder agency conflict where managers use general corporate use to benefit themselves. Our further examination into investments from general corporate use shows that such a change is not associated with post-SEO change in investment opportunities. Hence, it is possible that the investments from general corporate use may include over-investment, support for the agency conflict between managers and shareholders. With regards to the agency conflict between controlling shareholders and minority shareholders, only very weak evidence is obtained. This evidence points to the facilitating role of general corporate use where related party transactions may be used

by controlling shareholders to tunnel some benefits exclusively to themselves. Regarding the trade-off theory, we could not find general corporate use having any significant impact on the change in leverage after SEOs. Finally, a significant negative relationship is found between general corporate use and firms' post-issue long-term operating and stock performance. This negative relationship confirms that unwise usage of general corporate use is prevalent. In conclusion, we believe that investments, information asymmetry theory and the agency conflict play important roles in SEO motivation.

This chapter is organised as the followings: Section 2 is the hypothesis development; Section 3 presents our data; Section 4 examines the impact of proceeds as well as general corporate use on the change in some accounting variables; Section 5 links the general corporate use with the post-issue long-term operating and stock performance; Section 6 is the conclusion.

4.2 Hypotheses development

In this section, we will discuss how different theories of SEO motivations explain the use of proceeds and long-term performance. Please refer to the previous chapter for a detailed literature review regarding each SEO theory.

4.2.1 Financing under growth

A firm facing growth opportunities would prefer equity financing to debt financing to reduce the agency conflict between debtholders and shareholders. The other reason why equity financing is preferred during growth is because equity financing is better at dealing with the increased uncertainty of firms' earnings during the growth period

(Smith 1970; Myers and Smith 1987; Smith and Watt 1992). Within the context of SEOs, Pilotte (1992) and Denis (1994) provide empirical evidence supporting the positive relationship between investment opportunities and market reaction to the SEO announcement by using a variety (ten) of proxies for investment opportunities. Hence, our hypotheses are:

H1: if financing under growth theory motivates SEO proceeds/investment use/general corporate use, they will have a positive impact on post-SEO increases in investments.

H2: if financing under growth theory is the SEO motivation, more SEO proceeds/investment use/general corporate use will lead to better post-issue stock performance.

However, as documented by Walker and Yost (2008), general corporate use might also be used for over-investments. In other words, if there is a positive relationship between general use and firms' investments after SEOs, we might not be able to identify whether the investments from general use is because of over-investments or good investment opportunities. We attempt to distinguish between over-investment and good investment opportunity by examining whether general corporate use is associated with a change in growth opportunities.

H3: if the investments from general use are due to good investment opportunities, there should be a positive relationship between changes in investment opportunities and general corporate use. If we cannot find such a positive relationship, investments from general use are probably due to over-investments.

4.2.2 Agency conflict

In the agency conflict between managers and shareholders, managers tend to use free cash flow for managerial perquisites. Equity becomes preferential compared to debt, because equity is free from the pressure of constant interest payments (Jensen and Meckling 1976; Jensen 1986). Within the context of SEOs, the SEO decision may be driven by managers' desire to raise more free cash flow. We believe that general corporate use in SEOs can help managers hide their true intention of free cash flow from shareholders. Post-issue administrative expenses are chosen as a proxy for managerial perquisites, because this item may include managers' spending for their own benefits (Bai, et al. 2004; Bo et. al. 2011). Hence, if we can show that administrative expenses have come from general corporate use, we are inclined to conclude that the agency conflict between managers and shareholders may be a SEO motivation for firms. As mentioned in H3, general corporate use might also contain an element of over-investment, if investment has resulted from general corporate use and this switch in use is not associated with changes in growth opportunities. General corporate use as the result of the agency conflict may also impair firms' post-issue stock/operating performance due unwise use of funds (Jeanneret 2005; Walker and Yost 2008). Hence, our hypotheses are:

H4: if the agency conflict between managers and shareholders motivates general corporate use, then general corporate use may have a positive impact on the increase in administrative expenses after SEOs.

H5: if the agency conflict between managers and shareholders motivates general corporate use, then greater general corporate use may lead to worsened post-issue stock/operating performance.

As discussed in the introduction and in Chapter 3, the agency conflict between controlling shareholders and minority shareholders can also be an important motivation for the Chinese SEO decision. Related party transaction is one way for controlling shareholders to tunnel some benefits to themselves at the expenses of minority shareholders (Berkman et. al. 2010). Furthermore, it is argued that SEOs can provide resources for such tunnelling behaviour in China. For example, Jian and Wong (2004) show that there are increased related party transactions after SEOs. Hence, if we can show that general corporate use has been used for related party transactions, we are inclined to conclude that the agency conflict between controlling shareholders and minority shareholders may be a motivation for firms' SEO.

H6: if the agency conflict between controlling and minority shareholders motivates general corporate use, then general corporate use will have a positive impact on the increase in related party transactions after SEOs.

H7: if the agency conflict between controlling and minority shareholders motivates general corporate use, then greater general corporate use will lead to worsened post-issue stock/operating performance.

4.2.3 Information asymmetry

The incentive for the market timing behaviour suggests that firms tend to issue equity when the cost of information asymmetry of equity issue is low (Myers and Majluf 1984). Within the context of SEOs, Greenwood (2005) and Kim and Weibach (2008) argue that if firms conduct SEOs to time the market, they will hold excessive amounts of cash after SEOs. Greenwood (2005) demonstrates that investors are not convinced by the

conclusion that the purpose of SEOs is for investment, because share price does not react positively to SEOs until firms actually begin their investments. Kim and Weibach (2008) examine the impact of an interaction variable between market valuation before SEOs and the proceeds from the increase in cash after SEOs. They find the impact of pre-SEO proceeds with higher market valuation on increases in cash after SEOs is higher than that of pre-SEO proceeds with lower market valuation. Hence, an examination into the impact of general corporate use on increases in cash will be conducted. We believe, if firms are motivated by market timing, they may have incentives to hide their true motivation from new investors by masking the true use of proceeds as general corporate use, and holding the proceeds as cash. Furthermore, if firms take advantage of information asymmetry through earnings management before SEOs (Rangan 1998; Shivakumar 2000; Teoh, Welch, and Wong 1998), their post-issue operating performance may decline. This is because firms understand that current levels of profitability may be unsustainable. An underperformance will be the result of an inferior performance compared to pre-issue unsustainable high performance. Similarly, firms with stronger information asymmetry will have worse post-issue stock return. This is not because the information asymmetry directly impairs firms' daily operation, but because of an overvaluation of firms' current share price (for example due to earnings management). An underperformance will be the result of a fairer valuation[25]. Hence, our hypotheses are:

H8: if information asymmetry motivates general corporate use, then general corporate use will have a positive impact on increases in cash.

[25] Evidence that more market timing motivation leads to worsened post-issue stock performance includes Kahle (2000) who finds that SEOs with more insider (manager) stock selling before SEOs will have worse post-issue stock performance. Similarly, Clarke, Dunbar, and Kahle (2004) find that secondary SEOs by insiders (managers) will have worse post-issue stock and operating performance, compared to secondary SEOs without selling from insiders. The rationale behind both findings is that managers understand that the current high share price or high operating performance cannot be sustainable, so they sell their shares when the price is high and SEOs reflect the marketing timing motivation.

H9: if the market timing motivates general corporate use, then more general corporate use will lead to worsened post-issue stock and operating performance.

4.2.4 Trade-off theory

Under the trade-off theory, firms can use SEOs to adjust their capital structure towards an optimal level (Modigliani and Miller 1958 and 1963). The adjustment of capital structure towards an optimal level should add value for shareholders. Hence, our hypotheses are:

H10: if the trade-off theory plays a role in the motivation of SEOs, general corporate use will have an impact (positively or negatively) on firms' borrowing after SEOs.

H11: if the trade-off theory plays a role in the motivation of SEOs, more general corporate use will lead to better post-issue stock performance.

4.3 Data

Our data is retrieved from the CCER/Sinofin database, which tracks firms' announcements regarding post-issue use of proceeds. We have information of use for 523 SEOs for the period from 1998 to 2003, a period containing 681 SEOs in total. Table 4.1 provides the summary statistics of SEO use during our sample period. (For more detailed summary statistics of SEO activities, please refer to the table in Chapter 2). With the available data in China, for each SEO we identify different types of proceeds use as a percentage of the total proceeds. The planned use is a percentage of planned total proceeds. The real use is a percentage of actual proceeds. In our regression

Table 4.1: Use of proceeds from SEOs: breakdown categories

USE^{Invest} stands for SEO proceeds actually used in investment; USE^{Debt} stands for SEO proceeds actually used in repaying debt; $USE^{General}$ stands for SEO proceeds actually used for corporate general purposes. Planned ratio is the ratio of SEO proceeds planned to be used in each type to total proceeds planned to be raised from SEOs. Real ratio is the actual SEO proceeds used in each type as a proportion to total actual proceeds from SEOs. Both ratios are in percentage.

	No. of SEOs	No. of available use of proceeds info.	USE^{Invest}		USE^{Debt}		$USE^{General}$	
			Planned	Real	Planned	Real	Planned	Real
1998	162	65	92.3	50.5	0.6	0.7	7.0	48.8
1999	126	108	92.7	65.3	0.5	0.4	6.9	34.3
2000	206	175	92.3	66.8	0.8	0.9	6.9	32.3
2001	97	90	94.6	75.2	0.0	0.0	5.4	24.8
2002	51	47	97.2	68.6	0.7	0.9	2.1	30.5
2003	39	38	95.6	89.7	0.7	0.0	3.7	10.3
Total	681	523	93.5	67.7	0.6	0.6	6.0	31.7

Data source: SEO use data from the China Centre for Economic Research (CCER) database

analysis, we use the real use rather than the planned use. To be consistent with previous literature, we classify the use of proceeds into the following three categories: investments (on average 93.5% of planned proceeds and 67.7% of real proceeds), debt repayment (on average 0.6% of planned proceeds and 0.6% of real proceeds), and general corporate use (on average 6.0% of planned proceeds and 31.7% of real proceeds). General corporate use is any use other than investments and debt repayment, which also includes any unreported use after SEOs. We can see a transformation to general corporate use (or no disclosure regarding the final use) has occurred to a great proportion of planned investment use. We are interested in the destination of this increase in general corporate use.

Table 4.2 shows the summary statistics of alternations to some accounting variables after SEOs. To control for the common shock during the sample period, for each year non-issuing firms are defined as firms who do not issue equity three years prior to or after the current year. In other words, accounting variable alternations in issuing firms may be due to both the impact of SEOs and the impact of changes in the economic environment and capital market. Accounting variable alterations in non-issuing firms during the same period only shows the impact of changes in the economic environment and capital market. Hence the comparison between issuing firms and non-issuing firms reveals the true impact of SEOs on accounting variable alterations. These accounting variables include the three components of the cash flow statement (i.e. net cash flow from operations, net cash flow for investment (*CapExp*), and net cash flow from financing activities), cash (*Cash*)(and marketable securities), working capital (which is current assets excluding cash minus current liabilities excluding current interest-bearing liabilities), fixed assets, total borrowings (*Debt*)(which is the total of short-term and long-term interest bearing borrowings), administrative expenses (*AE*), the volume of

Table 4.2: Summary statistics for the change in accounting variables after SEOs

Non-issuing firms are defined as for each year firms who do not conduct any equity issue three years before and after the current year. Cash flow information is the amount of cash flow of certain year rather than the cumulative information till time t. Working capital is current assets excluding cash minus current liabilities excluding current interest-bearing liabilities. Total borrowings are the total of short-term and long-term interest bearing borrowings. All figures except size are in percentage of total assets at year t.

	Issuing firms					Non-issuing firms				
	As a % of total asset at t					As a % of total asset at t				
	-1	SEO yr	+1	+2	+3	-1	0	+1	+2	+3
Net cash flow from operations	6.0	3.9	4.4	4.6	4.5	3.8	4.1	4.2	4.6	4.9
Net cash flow for investments	-8.8	-9.6	-9.2	-7.1	-6.2	-3.5	-3.3	-3.2	-3.1	-3.0
Net cash flow from financing activities	2.8	16.1	4.2	3.4	2.7	0.1	0.1	-0.2	-1.2	-1.7
Cash	11.6	17.1	15.0	14.7	14.1	11.2	11.5	11.9	11.9	12.0
Cash and marketable securities	12.6	18.5	16.0	15.6	14.8	12.1	12.3	12.4	12.2	12.1
Working capital	19.6	18.0	17.0	15.4	13.8	18.2	15.0	12.1	8.9	6.9
Fixed assets	29.4	28.2	29.6	31.1	32.1	30.4	32.0	32.3	32.3	31.6
Total borrowings	20.8	18.8	21.6	23.6	24.8	26.2	27.9	28.5	28.5	27.8
Adminitrative costs	3.5	3.3	3.9	4.2	4.7	5.2	6.1	6.6	7.0	6.9
Related party transactions	14.8	13.5	15.7	17.2	20.3	13.1	15.1	18.9	22.3	25.6
Total assets (growth from t-1 yr)		32.7	52.0	74.2	96.4		4.5	11.2	18.9	27.9
Mean of total assets (bn RMB)	1.48	1.98	2.31	2.63	2.97	1.62	1.70	1.81	1.93	2.10
Median of total assets (bn RMB)	0.98	1.39	1.60	1.82	2.02	0.95	0.98	1.00	1.03	1.05

Data source: SEO, related party transactions, and financial data from the China Centre for Economic Research (CCER) database

related party transactions (RPT) and total assets (TA). Each variable is scaled by total assets. We exclude top and bottom 1% of observations in each variable as outliers. We can see that issuing firms' total assets on average increase by 96% in three years after SEOs, while non-issuing firms' total assets grow by only 27.9% for the same period. Issuing firms' investment activities which are measured by cash flow for investments are also higher than non-issuing firms both before and after SEOs. Although we cannot directly link issuing firms' investment activities with the use of proceeds, we can see that the event of SEOs can trigger higher growth compared to non-issuing firms.

The information asymmetry theory predicts that firms have incentives to raise more funds than needed to take advantage of their high valuation. Previous studies believe that cash (or cash and marketable securities) and working capital are the channels in which to store these additional funds (Greenwood 2005; Kim and Weibach 2008). Table 4.2 shows that issuing firms' cash as well as cash and marketable securities increases significantly after SEOs while non-issuing firms' cash stays relatively stable. In other words, we show that issuing firms hold more cash after SEOs. This supports the information asymmetry theory.

The leverage, administrative expenses, and related party transactions of issuing firms' all increase after SEOs. However, all three figures increase for non-issuing firms as well. Hence, further investigation is required to find the impact of SEO proceeds on the change in these three variables.

4.4 The use of proceeds

4.4.1 The Kim and Weibach (2008) model

As mentioned in our hypotheses, to understand firms' SEO motivations, we need to examine the impact of proceeds as well as general corporate use on the change in some accounting variables mentioned in our hypotheses. We borrow the KW model to examine the relationship between proceeds as well as general corporate use and changes in investments, administrative expenses, related party transaction, cash, and leverage. The standard KW model examines the relationship between the cash inflow and cash outflow (or how cash inflow affects cash outflow) by setting various cash inflow as the independent variables, and setting cash outflow as the dependent variable. The dependent variables in the standard KW model include the change in total assets, inventory, and cash holding, and the sum of accumulated capital expenditures, acquisitions, R&D, and reduction in long-term debt since equity issue. Each variable in the KW model has log transformation of one plus the original variable to minimise the effect of outliers. The regression is estimated by heteroskedasticity-consistent standard errors clustered by industry code. The standard KW model is:

$$Y_i = \beta_0 + \beta_1 \ln(TA_{i,-1}) + \beta_2 \ln\left(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}} + 1\right) + \beta_3 \ln\left(\frac{proceeds_i}{TA_{i,-1}} + 1\right) + \beta_4 yeardummy + \varepsilon_i \quad (4.1)$$

t_0 is the SEO year; t=-1, 0, 1, 2, 3; TA is the total assets; Proceeds are the total actual proceeds; other sources of funds is equal to the sum of net cash flow from operations, cash inflow from investment, and cash inflow from financing activities excluding proceeds from current SEOs. Regarding dependent variables, for balance sheet items,

the dependent variable is constructed as the log of one plus the change in each variable normalized by total assets prior to SEOs, For the income statement and the cash flow statement items, the dependent variable is constructed as the log of one plus the accumulation in each variable since SEOs, normalised by total assets prior to SEOs. Hence, for our research, the dependent variables corresponding to our hypotheses are:

$Y_i = \ln\left[\left(\left(V_{i,t} - V_{i,-1}\right)/ total\_assets_{i,-1}\right)+1\right]$ for V = cash ($Cash$) or borrowings ($Debt$)

$= \ln\left[\left(\sum_{i=0}^{t} V_{i,t} / total\_assets_{i,-1}\right)+1\right]$ for V = capital expenditures ($CapExp$), administrative expenses (AE), or related party transactions (RPT)

To be more specific, for H1 and H3, the dependent variable is $Y_i = \ln(\frac{\sum_{i=0}^{t} CapExp_i}{TA_{i,-1}} + 1)$. For H4, the dependent variable is $Y_i = \ln(\frac{\sum_{i=0}^{t} AE_i}{TA_{i,-1}} + 1)$. For H6, the dependent variable is $Y_i = \ln(\frac{\sum_{i=0}^{t} RPT_i}{TA_{i,-1}} + 1)$. For H8, the dependent variable is $Y_i = \ln(\frac{Cash_{i,t} - Cash_{i,-1}}{TA_{-1}} + 1)$. For H10, the dependent variable is $Y_i = \ln(\frac{Debt_{i,t} - Debt_{i,-1}}{TA_{i,-1}} + 1)$.[26]

To examine the impact of the general corporate use on post-issue change in these accounting variables, we replace $\ln(\frac{proceeds_i}{TA_{i,-1}} + 1)$ with $\ln(\frac{USE^{General}{}_i}{TA_{i,-1}} + 1)$. The rest of the model remains the same as the original KW model with the exception of where capital expenditure is the dependent variable. Since announced investment use is a large

[26] Please refer to Appendix 8 for the correlation table of dependent variables in KW model.

part of actual proceeds, we expect that announced investment use should also have an impact on firms' post-issue capital expenditure. Hence, announced investment use $\ln(\frac{USE^{Invest}{}_i}{TA_{i,-1}}+1)$ should be included in equation (4.1) to control for its impact on capital expenditure:

$$\ln(\frac{\sum_{i=0}^{t} CapExp_i}{TA_{i,-1}}+1)=\beta_0+\beta_1\ln(TA_{i,-1})+\beta_2\ln(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}}+1)+\beta_3\ln(\frac{USE^{Invest}{}_i}{TA_{i,-1}}+1)$$
$$+\beta_4\ln(\frac{USE^{General}{}_i}{TA_{i,-1}}+1)+\beta_5 yeardummy+\varepsilon_i \quad (4.2)$$

As mentioned in H3, we want to examine whether investment from general corporate use (if this is the case) is the result of change in firms' growth opportunities. We add an interaction item between general corporate use and the change in growth to equation (4.2). The change in growth is measured by the change in the growth rate of revenue $(Growth_t - Growth_{t-1})$.

$$\ln(\frac{\sum_{i=0}^{t} CapExp_i}{TA_{-1}}+1)=\beta_0+\beta_1\ln(TA_{i,-1})+\beta_2\ln(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}}+1)+\beta_3\ln(\frac{USE^{Invest}{}_i}{TA_{i,-1}}+1)$$
$$+\beta_4\ln(\frac{USE^{General}{}_i}{TA_{i,-1}}+1)+\beta_5\ln(\frac{USE^{General}{}_i}{TA_{i,-1}}+1)\times ChangeGrowth_i+\beta_6 yeardummy+\varepsilon_i \quad (4.3)$$

4.4.2 Results

Table 4.3 reports the results of estimating the empirical model (4.1) when accumulated capital expenditure after SEOs is the dependent variable. In this model, we want to check whether total proceeds from SEOs and general corporate use have been used in firms' investments after SEOs. Columns (1)-(4) in Table 4.3 show the results when total proceeds from SEOs (*Proceeds*) are used as the independent variable. The estimated coefficient for total SEO proceeds (*Proceeds*) is highly positively significant in columns (1)-(4) in Table 4.3. This result suggests that SEO proceeds are used in capital

Table 4.3: The KW model: Capital expenditures

This table presents results of estimating the KW model for capital expenditures. The results are obtained by using heteroskedasticity-consistent standard errors clustered by industry. The sample period is from 1998 to 2003. We define t=0 as the SEO year. The model specifications are:

$$Y_i = \beta_0 + \beta_1 \ln(TA_{i,-1}) + \beta_2 \ln(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}} + 1) + \beta_3 \ln(\frac{proceeds_i}{TA_{i,-1}} + 1) + \beta_4 yeardummy + \varepsilon_i$$

$$Y_i = \beta_0 + \beta_1 \ln(TA_{i,-1}) + \beta_2 \ln(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}} + 1) + \beta_3 \ln(\frac{USE^{Invest}{}_i}{TA_{i,-1}} + 1) + \beta_4 \ln(\frac{USE^{General}{}_i}{TA_{i,-1}} + 1) + \beta_5 yeardummy + \varepsilon_i$$

The dependent variable is $Y_i = \ln(\frac{\sum_{i=0}^{t} CapExp_i}{TA_{i,-1}} + 1)$

$CapExp$ indicates the net cash outflow for capital expenditure. $Size$ is measured as the logarithmic total assets of the firm. $other\_sources$ is equal to the sum of net cash flow from operations, cash inflow from investment, and cash inflow from financing activities excluding current proceeds. $proceeds$ is the total actual proceeds from SEOs. USE^{Invest} is the amount of use for investment announced after SEOs. $USE^{General}$ stands for SEO proceeds in the category of corporate general purposes.

	$Y_i = \ln(\frac{\sum_{i=0}^{t} CapExp_i}{TA_{i,-1}} + 1)$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	t(0)	t(1)	t(2)	t(3)	t(0)	t(1)	t(2)	t(3)
Size	-0.001	-0.018	-0.015	-0.011	-0.001	-0.023	-0.016	-0.010
	(-0.31)	(-3.31)***	(-1.28)	(-0.63)	(-0.34)	(-4.06)***	(-1.90)*	(-0.70)
other _ sources	0.251	0.352	0.380	0.431	0.245	0.364	0.382	0.432
	(11.48)***	(18.53)***	(22.37)***	(28.00)***	(8.55)***	(24.01)***	(26.78)***	(17.37)***
proceeds	0.469	0.518	0.607	0.590				
	(11.59)***	(6.30)***	(9.11)***	(8.05)***				
USE^{Invest}					0.506	0.565	0.643	0.664
					(18.67)***	(7.47)***	(8.19)***	(7.83)***
$USE^{General}$					0.217	0.199	0.345	0.286
					(5.70)***	(1.74) *	(2.67)**	(2.21)*
constant	0.028	0.346	0.279	0.187	0.032	0.443	0.327	0.174
	(0.37)	(3.79)***	(1.27)	(0.56)	(0.46)	(3.90)***	(1.92)*	(0.64)
Number of obs	613	596	580	571	481	468	456	450
R-squared	0.403	0.520	0.547	0.559	0.420	0.533	0.554	0.564

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, SEO use, and financial data from the China Centre for Economic Research (CCER) database

expenditures from the SEO year to three years after the SEO year. On the other hand, as mentioned in the hypotheses development section, we are more interested in the destination of general corporate use, which could reveal the true motivations behind SEOs. Columns (5)-(8) in Table 4.3 show the results when general corporate use ($USE^{General}$) is used as the independent variable. We also control for the acknowledged use of SEO proceeds in investment USE^{Invest} since USE^{Invest} as the known ultimate use of SEO proceeds should contribute to the accumulation of post-SEO capital expenditures. The estimated coefficient for both USE^{Invest} and $USE^{General}$ is positively significant in all columns (5)-(8) in Table 4.3. These results suggest that general corporate use ($USE^{General}$) has been used on capital expenditures. This result seems to support the financing for investment theory.

Based on the results from Table 4.3, we know that one destination of general corporate use is capital expenditures. The question is that if the firm spends some unspecified use of SEO proceeds within the category of general corporate use on investment, why does not the firm announce the use of general corporate use as investment use? According to Walker and Yost (2008), firms should have incentives to display investment use rather than hide it within the category of general corporate use, because the market reaction to investment use is better. However, it is possible that the firm may use additional SEO proceeds on investment due to emerging investment opportunities. Hence, we want to check whether the spending on investment which comes from the fund of general corporate use is related to the change in investment opportunities. The change in investment opportunities is measured by the firm's change in annual growth rate in revenue $\left(ChangeGrowth_t = Growth_t - Growth_{t-1}\right)$. We then add the interactive term between $ChangeGrowth$ with $USE^{General}$ to the estimations shown in Table 4.3. If the

Table 4.4: The KW model for capital expenditures with the growth interaction

This table presents results of estimating the KW model for capital expenditures. The results are obtained by using heteroskedasticity-consistent standard errors clustered by industry. The sample period is from 1998 to 2003. We define t=0 as the SEO year. The model specifications are:

$$Y_i = \beta_0 + \beta_1 \ln(TA_{i,-1}) + \beta_2 \ln(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}} + 1) + \beta_3 \ln(\frac{\text{Pr}oceeds_i}{TA_{i,-1}} + 1) + \beta_4 \ln(\frac{proceeds_i}{TA_{i,-1}} + 1) \times ChangeGrowth_i + \beta_5 yeardummy + \varepsilon_i$$

$$Y = \beta_0 + \beta_1 \ln(TA_{i,-1}) + \beta_2 \ln(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}} + 1) + \beta_3 \ln(\frac{USE^{Invest}{}_i}{TA_{i,-1}} + 1) + \beta_4 \ln(\frac{USE^{General}{}_i}{TA_{i,-1}} + 1) \times ChnageGrowth_i + \beta_5 yeardummy + \varepsilon_i$$

The dependent variable is $Y_i = \ln(\frac{\sum_{i=0}^{t} CapExp_i}{TA_{i,-1}} + 1)$

$CapExp$ indicates the net cash outflow for capital expenditure. $Size$ is measured as the logarithmic total assets of the firm. $other\_sources$ is equal to the sum of net cash flow from operations, cash inflow from investment, and cash inflow from financing activities excluding current proceeds. $\text{Pr}oceeds$ is the total actual proceeds from SEOs. USE^{Invest} is the amount of use for investment announced after SEOs. $USE^{General}$ stands for SEO proceeds in the category of corporate general purposes.

$ChangeGrowth_i$ is the changes in the growth rate of sale $\left(ChangeGrowth_{i,t} = Growth_{i,t} - Growth_{i,t-1}\right)$.

	$Y_i = \ln(\frac{\sum_{i=0}^{t} CapExp_i}{TA_{i,-1}} + 1)$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	t(0)	t(1)	t(2)	t(3)	t(0)	t(1)	t(2)	t(3)
Size	0.003	-0.008	-0.008	-0.005	0.002	-0.013	-0.011	-0.013
	(0.85)	(-0.81)	(-0.58)	(-0.24)	(0.41)	(-1.53)	(-1.11)	(-0.78)
other_sources	0.135	0.218	0.221	0.276	0.140	0.224	0.228	0.287
	(9.16)***	(6.28)***	(6.19)***	(6.94)***	(6.80)***	(9.86)***	(8.11)***	(10.79)***
proceeds	0.431	0.515	0.579	0.538				
	(9.04)***	(8.04)***	(9.89)***	(7.39)***				
USE^{Invest}					0.499	0.622	0.667	0.650
					(7.84)***	(7.59)***	(7.60)***	(7.66)***
$USE^{General}$					0.162	0.132	0.060	-0.143
					(2.65)**	(1.98)*	(0.53)	(-1.43)
$\text{Pr}oceeds \times$	0.048	-0.019	0.032	0.032				
ChangeGrowth	(1.12)	(-0.31)	(0.50)	(0.30)				
$USE^{General} \times$					0.166	0.056	-0.237	0.207
ChangeGrowth					(2.35)**	(0.33)	(-0.84)	(1.36)
constant	-0.076	0.131	0.145	0.068	-0.050	0.225	0.223	0.238
	(-1.05)	(0.69)	(0.54)	(0.17)	(-0.58)	(1.44)	(1.13)	(0.70)
Number of obs	557	574	567	556	448	453	443	440
R-squared	0.283	0.328	0.316	0.310	0.347	0.405	0.356	0.371

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, SEO use, and financial data from the China Centre for Economic Research (CCER) database

estimated coefficient for this interactive term between *ChangeGrowth* with $USE^{General}$ is positively significant, then we are able to claim that the firm uses $USE^{General}$ to meet the demand for investment financing due to changes in the firm's growth opportunity, which should be in line with the interest of shareholders. However, if the estimated coefficient for the interactive term is negatively significant or not significant, then the investment from general corporate use is not related to the change in the firm's growth opportunity. Therefore, this type of investment could be unprofitable to the firm and the true purpose of this type of investment could possibly be the result of agency problems. In other words, this type of investment could be over-investment due to the agency conflict between managers and shareholders. Table 4.4 shows the results when the interactive terms are added to the model used in Table 4.3. The estimated coefficient for the interactive term between *ChangeGrowth* with $USE^{General}$ is only positively significant in column (5) of Table 4.4, while it is not significant in columns (6)-(8). In addition, the estimated coefficient for the interactive term between *ChangeGrowth* with *proceeds* is not significant in columns (1)-(4) of Table 4.4. These results indicate that the firm may use general corporate use in investment due to emerged investment opportunities immediately after SEOs. However, in the longer term, the investment from general corporate use is not related to the firm's investment opportunity. As mentioned in the hypotheses development section, one possible explanation to the investment from general corporate use where there is no emerging investment opportunity is the over-investment due to the agency conflict between managers and shareholders.[27]

Tables 4.5 and 4.6 show the results when administrative expenses (*AE*) and related party transactions (*RPT*) is the dependent variable respectively. As discussed in the

[27] Please refer to Appendix 11 for the inclusion of individual variables in the interaction model.

Table 4.5: The KW model: Administrative expenses

This table presents results of estimating the KW model for capital expenditures. The results are obtained by using heteroskedasticity-consistent standard errors clustered by industry. The sample period is from 1998 to 2003. We define t=0 as the SEO year. The model specifications are:

$$Y_i = \beta_0 + \beta_1 \ln(TA_{i,-1}) + \beta_2 \ln(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}} + 1) + \beta_3 \ln(\frac{proceeds_i}{TA_{i,-1}} + 1) + \beta_4 yeardummy + \varepsilon_i$$

$$Y_i = \beta_0 + \beta_1 \ln(TA_{i,-1}) + \beta_2 \ln(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}} + 1) + \beta_3 \ln(\frac{USE^{General}{}_i}{TA_{i,-1}} + 1) + \beta_5 yeardummy + \varepsilon_i$$

The dependent variable is $Y_i = \ln(\frac{\sum_{i=0}^{t} AE_i}{TA_{i,-1}} + 1)$

AE stands for administrative expenses. $Size$ is measured as the logarithmic total assets of the firm. $other\_sources$ is the sum of net cash flow from operations, cash inflow from investment, and cash inflow from financing activities excluding current proceeds. $Proceeds$ is the total actual proceeds from SEOs. USE^{Invest} is the amount of use for investment announced after SEOs. $USE^{General}$ stands for SEO proceeds in the category of corporate general purposes.

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	$Y_i = \ln(\frac{\sum_{i=0}^{t} AE_i}{TA_{i,-1}} + 1)$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	t(0)	t(1)	t(2)	t(3)	t(0)	t(1)	t(2)	t(3)
Size	-0.003	-0.006	-0.017	-0.032	-0.005	-0.012	-0.023	-0.039
	(-1.80)	(-1.93)*	(-2.79)**	(-3.82)***	(-3.33)***	(-3.77)***	(-3.69)***	(-5.06)***
other_sources	0.010	0.022	0.040	0.050	0.008	0.016	0.038	0.048
	(2.59)**	(3.32)***	(4.47)***	(5.32)***	(1.72)	(1.97)*	(4.62)***	(4.97)***
proceeds	0.037	0.100	0.127	0.155				
	(3.57)***	(4.49)***	(3.24)**	(3.20)**				
$USE^{General}$					0.025	0.090	0.128	0.158
					(2.19)*	(3.52)***	(2.73)**	(2.62)**
constant	0.091	0.196	0.456	0.812	0.135	0.327	0.587	0.952
	(2.67)**	(2.86)**	(3.45)***	(4.54)***	(4.22)***	(4.24)***	(4.19)***	(5.77)***
Number of obs	608	588	576	567	479	463	454	448
R-squared	0.066	0.101	0.118	0.145	0.042	0.072	0.112	0.131

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, SEO use, and financial data from the China Centre for Economic Research (CCER) database

Table 4.6: The KW model: Related Party Transactions (RPT)

This table presents results of estimating the KW model for capital expenditures. The results are obtained by using heteroskedasticity-consistent standard errors clustered by industry. The sample period is from 1998 to 2003. We define t=0 as the SEO year. The model specifications are:

$$Y_i = \beta_0 + \beta_1 \ln(TA_{i,-1}) + \beta_2 \ln(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}} + 1) + \beta_3 \ln(\frac{proceeds_i}{TA_{i,-1}} + 1) + \beta_4 yeardummy + \varepsilon_i$$

$$Y_i = \beta_0 + \beta_1 \ln(TA_{i,-1}) + \beta_2 \ln(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}} + 1) + \beta_3 \ln(\frac{USE^{General}{}_i}{TA_{i,-1}} + 1) + \beta_5 yeardummy + \varepsilon_i$$

The dependent variable is $Y_i = \ln(\frac{\sum_{i=0}^{t} RPT_i}{TA_{i,-1}} + 1)$

RPT is the total value of related party transactions. *Size* is measured as the logarithmic total assets of the firm. $other\_sources$ is the sum of net cash flow from operations, cash inflow from investment, and cash inflow from financing activities excluding current proceeds. P*roceeds* is the total actual proceeds from SEOs. USE^{Invest} is the amount of use for investment announced after SEOs. $USE^{General}$ stands for SEO proceeds in the category of corporate general purposes.

	$Y_i = \ln(\frac{\sum_{i=0}^{t} RPT_i}{TA_{i,-1}} + 1)$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	t(0)	t(1)	t(2)	t(3)	t(0)	t(1)	t(2)	t(3)
Size	0.050	0.081	0.087	0.106	0.042	0.070	0.062	0.085
	(3.43)***	(2.71)**	(1.88)*	(1.95)*	(2.35)**	(2.43)**	(1.36)	(1.62)
other _ sources	-0.014	0.008	0.088	0.186	0.007	0.044	0.127	0.224
	(-0.43)	(0.16)	(1.03)	(1.99)*	(0.20)	(1.32)	(1.27)	(2.08)*
proceeds	0.193	0.292	0.623	0.612				
	(3.09)**	(2.61)**	(3.29)***	(2.67)**				
$USE^{General}$					0.283	0.257	0.682	0.555
					(1.62)	(1.16)	(2.26)*	(1.64)
constant	-0.929	-1.410	-1.577	-1.951	-0.754	-1.215	-1.089	-1.566
	(-3.12)**	(-2.41)**	(-1.73)	(-1.80)	(-2.03)*	(-2.00)*	(-1.23)	(-1.52)
Number of obs	610	592	578	570	480	466	455	449
R-squared	0.039	0.036	0.053	0.067	0.038	0.037	0.057	0.073

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, SEO use, and financial data from the China Centre for Economic Research (CCER) database

hypotheses development section, administrative expenses could reflect the agency conflict between managers and shareholders, and related party transactions could reflect the agency conflict between controlling shareholders and minority shareholders. Column (5)-(8) in Table 4.5 show that the estimated coefficient for $USE^{General}$ is positively and significantly related to administrative expenses (AE) from the SEO year to three years after the SEO year. This result suggests that managers may use general corporate use for their own perquisites which are hidden under administrative expenses. This result supports the agency conflict between managers and shareholders as a SEO motivation. Column (5)-(8) in Table 4.6 show that the estimated coefficient for $USE^{General}$ is only positively and significantly related to related party transactions (RPT) in the second year after the SEO year, but not in the rest three columns or years. Hence, the evidence that the firm may use general corporate use ($USE^{General}$) to facilitate related party transactions (RPT) is weak. This result suggests that the agency conflict between controlling shareholders and minority shareholders may only play a weak role in the SEO decision. It is important to notice that the estimated coefficient for total proceeds is highly positively significant in both Tables 4.5 and 4.6.

Table 4.7 reports the results when the change to cash holding after SEOs is the dependent variable. Cash is considered to be the place where the firm can store their SEO proceeds as a result of the market timing motivation. The estimated coefficient for both total proceeds (column (1)-(4)) and general corporate use ($USE^{General}$) (column (5)-(8)) is always positively significant. This result is in line with the results of previous studies mentioned in the hypotheses development section with regards to the market timing motivation. If firms aim to take advantage of overvalued stock market returns, they would conduct SEOs and stockpile cash. We believe this result supports for the market timing motivation or the information asymmetry theory.

Table 4.7: The KW model: Cash holding

This table presents results of estimating the KW model for capital expenditures. The results are obtained by using heteroskedasticity-consistent standard errors clustered by industry. The sample period is from 1998 to 2003. We define t=0 as the SEO year. The model specifications are:

$$Y_i = \beta_0 + \beta_1 \ln(TA_{i,-1}) + \beta_2 \ln(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}} + 1) + \beta_3 \ln(\frac{proceeds_i}{TA_{i,-1}} + 1) + \beta_4 yeardummy + \varepsilon_i$$

$$Y_i = \beta_0 + \beta_1 \ln(TA_{i,-1}) + \beta_2 \ln(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}} + 1) + \beta_3 \ln(\frac{USE^{General}{}_i}{TA_{i,-1}} + 1) + \beta_5 yeardummy + \varepsilon_i$$

The dependent variable is $Y_i = \ln(\frac{Cash_{i,t} - Cash_{i,-1}}{TA_{i,-1}} + 1)$

Cash stands for cash stock. *Size* is measured as the logarithmic total assets of the firm. *other _ sources* is the sum of net cash flow from operations, cash inflow from investment, and cash inflow from financing activities excluding current proceeds. Pr*oceeds* is the total actual proceeds from SEOs. USE^{Invest} is the amount of use for investment announced after SEOs. $USE^{General}$ stands for SEO proceeds in the category of corporate general purposes.

	$Y_i = \ln(\frac{Cash_{i,t} - Cash_{i,-1}}{TA_{i,-1}} + 1)$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	t(0)	t(1)	t(2)	t(3)	t(0)	t(1)	t(2)	t(3)
Size	-0.014	-0.008	-0.024	-0.026	-0.056	-0.043	-0.045	-0.038
	(-3.34)***	(-1.36)	(-3.78)***	(-1.80)	(-9.95)***	(-8.39)***	(-3.62)***	(-1.94)*
other _ sources	0.174	0.134	0.133	0.168	0.187	0.145	0.142	0.197
	(8.84)***	(6.97)***	(5.31)***	(6.58)***	(7.70)***	(6.54)***	(5.70)***	(10.15)***
proceeds	0.587	0.545	0.401	0.354				
	(10.47)***	(7.52)***	(6.13)***	(5.33)***				
$USE^{General}$					0.350	0.367	0.264	0.261
					(5.75)***	(2.72)**	(2.71)**	(2.03)*
constant	0.181	0.056	0.465	0.509	1.149	0.875	0.930	0.787
	(1.96)*	(0.45)	(2.94)**	(1.55)	(9.71)***	(7.73)***	(3.37)***	(1.75)
Number of obs	613	596	582	575	481	468	458	454
R-squared	0.450	0.421	0.325	0.332	0.250	0.235	0.239	0.279

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, SEO use, and financial data from the China Centre for Economic Research (CCER) database

Table 4.8 displays the results when the change to debt after SEOs is the dependent variable. The estimated coefficient for total SEOs proceeds $(proceeds)$ is only positively significant in columns (1)-(2). This result suggests that SEOs could influence firms' debt policy for the SEO year and the first year after the SEO year. However, the estimated coefficient for $USE^{General}$ is not significant in column (5)-(8). In other words, general corporate use which is the only unknown part of total proceeds excluding investment use and debt prepayment is not used to prepay debt. Hence, our study does not find evidence supporting the trade-off theory. Please refer to Appendix 9 for a discussion of economic significance of the coefficients reported in Table 4.3 to Table 4.8.

To summarize the results we have obtained so far, it is clear that unspecified SEO proceeds ($USE^{General}$) in the category of general corporate use is used in (a) capital expenditures; (b) administrative expenses; (c) related party transactions (but the evidence is weak); (d) cash holding. Therefore, both the financing for investment theory and the agency conflict between managers and shareholders receive some support. However, the investment from general corporate use seems not to be related to emerging investment opportunities. This result weakens the financing under growth theory and shows the possibility of over-investment which is the result of the agency conflict between managers and shareholders. There is weak evidence on the agency conflict between controlling shareholders and minority shareholders, which predicts that the firm will use SEO proceeds or general corporate use to facilitate related party transactions in order to exploit minority shareholders. In addition, the change to cash holding is positively related to the size of total proceeds and general corporate use. This result supports the market timing motivation or the information asymmetry theory. The sample firms do not show the evidence that general corporate use is used to repay debt.

Table 4.8: The KW model: Debt

This table presents results of estimating the KW model for capital expenditures. The results are obtained by using heteroskedasticity-consistent standard errors clustered by industry. The sample period is from 1998 to 2003. We define t=0 as the SEO year. The model specifications are:

$$Y_i = \beta_0 + \beta_1 \ln(TA_{i,-1}) + \beta_2 \ln(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}} + 1) + \beta_3 \ln(\frac{proceeds_i}{TA_{i,-1}} + 1) + \beta_4 yeardummy + \varepsilon_i$$

$$Y_i = \beta_0 + \beta_1 \ln(TA_{i,-1}) + \beta_2 \ln(\frac{\sum_{i=0}^{t} other\_sources_i}{TA_{i,-1}} + 1) + \beta_3 \ln(\frac{USE^{General}{}_i}{TA_{i,-1}} + 1) + \beta_5 yeardummy + \varepsilon_i$$

The dependent variable is $Y_i = \ln(\frac{Debt_{i,t} - Debt_{i,-1}}{TA_{i,-1}} + 1)$

Debt stands for total debt which is the sum of short-term and long-term interest bearing borrowings;. *Size* is measured as the logarithmic total assets of the firm. *other _ sources* is the sum of net cash flow from operations, cash inflow from investment, and cash inflow from financing activities excluding current proceeds. P*roceeds* is the total actual proceeds from SEOs. USE^{Invest} is the amount of use for investment announced after SEOs. $USE^{General}$ stands for SEO proceeds in the category of corporate general purposes.

	$Y_i = \ln(\frac{Debt_{i,t} - Debt_{i,-1}}{TA_{i,-1}} + 1)$							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	t(0)	t(1)	t(2)	t(3)	t(0)	t(1)	t(2)	t(3)
Size	-0.016	-0.031	-0.031	-0.050	-0.026	-0.054	-0.043	-0.058
	(-3.28)**	(-3.83)***	(-2.13)*	(-2.70)**	(-3.94)***	(-6.47)***	(-3.53)***	(-3.68)***
other _ sources	0.148	0.304	0.341	0.396	0.113	0.306	0.366	0.426
	(4.47)***	(9.81)***	(13.37)***	(17.37)***	(3.55)***	(7.74)***	(10.61)***	(14.80)***
proceeds	0.099	0.265	0.331	0.266				
	(1.99)*	(2.33)**	(1.59)	(1.46)				
$USE^{General}$					-0.003	0.012	0.369	0.267
					(-0.04)	(0.12)	(1.00)	(0.80)
constant	0.347	0.555	0.500	0.803	0.568	1.028	0.730	0.922
	(3.19)**	(3.22)**	(1.45)	(1.82)	(4.35)***	(6.68)***	(2.55)**	(2.50)**
Number of obs	613	596	582	575	481	468	458	454
R-squared	0.099	0.288	0.355	0.436	0.071	0.268	0.337	0.426

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, SEO use, and financial data from the China Centre for Economic Research (CCER) database

4.5 Post-issue long-term performance

To summarise the results in the previous section, we show that investment remains the main SEO use. According to our hypotheses, the positive relationship between investment increase and general use might be due to over-investment (because investment from general corporate use is not related to investment opportunities). We also have support for the agency conflict and market timing theory, but not for the trade-off theory. If our conclusion is correct, general corporate use as a result of both market timing motivation and agency conflict will lead to worsened post-issue operating and stock performance. Hence, studies in long-term performance may provide more evidence and robustness to our conclusion.

4.5.1 Matching firms and the definition of abnormal return

Matching firms are important in long-term performance to control for common shock in the market such as changes to a country's economy situation. The principle of matching for operating performance is to find a matching non-issuing firm, which has the same or similar performance to the issuing firm, and if the issuing firm has not conducted its SEO. Loughran and Ritter (1997) (L&R hereafter) choose their matching non-issuing firms based on similar size, profitability, and industry, so that they are able to compare operating performance. This builds a hypothetical situation, which allows the issuing firms' performance to be examined whilst it has yet to conduct the SEO. In L&R (1997), non-issuing firms are matched in such a way: a group of non-issuing firms that are in same industry as the target issuing firm is selected. Within this industry group, a group of non-issuing firms, which have total assets ranging from 25% to 200% of the target issuing firm's total assets, is selected. Finally, within this industry-size group, the non-issuing firm with the most similar prior issue operation income before depreciation and

amortisation (OIBS) over total assets is selected. However, the L&R (1997) method is not actually achievable in China, because the number of non-issuing firms is very low in the early years from when our sample is taken. Another reason as shown in Table 4.9 is the difference in EBIT/TA (ROA) between issuing firms and non-issuing firms' industry average. This difference is huge and significant due to regulation in China that only profitable firms are allowed to conduct SEOs. In other words, the final step of profitability matching in the L&R (1997) model may not be achieved properly because of the huge profitability gap. Hence, if we use the L&R (1997) method, we will end up with many issuing firms matched with one non-issuing firm and their pre-issue ROA being very different, a situation that may lead to bias associated with non-issuing firms' possible abnormal change to their accounting information. Therefore, we use non-issuing firms' industry average EBIT/TA as the benchmark. Table 4.9 shows the summary statistics of post-SEO long-term operating performance. In China, the phenomenon of post-SEO operating performance is that issuing firms' profitability decreases radically, but may still remain higher than average performance of non-issuing firms. This phenomenon is distinctly different from a mature market where SEO firms actually underperform non-issuing firms. To control for the difference in pre-issue performance, the abnormal operating return will further exclude the difference in pre-issue abnormal operating return between issuing firms and non-issuing firms. Hence, the calculation of abnormal return for post-issue operating performance is issuing firms' ROA minus non-issuing firms' industry average ROA minus the difference between issuing firms' pre-issue ROA and non-issuing firms' pre-issue industry average ROA:

$$Abnormal\_return_{operating} = (RoA_{t,issuing} - RoA_{t,non-issuing-industry}) - (RoA_{-1,issuing} - RoA_{-1,non-issuing-industry})$$

With regards to stock market performance, the principle of matching is to find a matching non-issuing firm, which has the same stock performance as the issuing firm if

the issuing firm has not conducted its SEO. According to Fama and French's (1993) three-factor model, size, market-to-book ratio, and market return accounts for over 95% of stock return. Since market return is identical for issuing firms and non-issuing firms during the same period, size and market-to-book ratio become the most popular factors within the selection process. In Loughran and Ritter (1995), a non-issuing firm with the highest comparable market capitalisation to the target-issuing firm is selected as its matching firm. Spiess and Affleck-Graves (1995) extend the size matching by size-industry and size-book-to-market matching. In other words, size matching takes place within the same industry of the issuing firm. Lee and Loughran (1998) split non-issuing firms into 25 quintiles based on their market-to-book ratio, and within each quintile, size is then used for matching. Again, due to the small sample size of non-issuing firms in China, we decide to adopt the method used by Lee and Loughran (1998), but we only divide our non-issuing firms into three equal quintiles[28] according to their market-to-book ratio[29]. Table 4.9 shows that both issuing firms and non-issuing firms have negative stock performance following (matched) SEO years. This is consistent with Figure 2.1 which shows that Chinese listed firms' stock index had decreased since the peak time in 2000 till 2006, while the post-issue performance in our sample mainly covers the period from 1999 to 2006. However, contrary to that in a mature market, issuing firms in China actually slightly outperform non-issuing firms both before and after SEOs rather than underperform. This is possibly because even with the decrease in issuing firms' operating performance, issuing firms' operating performance is still higher than that of non-issuing firms, resulting in a better stock performance. Hence, the abnormal stock return used in this research is defined as:

[28] Fama and French (1993) use three quintiles for market-to-book ratio in their analysis.
[29] The market capitalisation is the total number of shares multiplied by prior SEO year-end market price. It is not adjusted for any non-tradable shares discount.

$$Abnormal\_return_{stock} = [\prod_{t=1}^{12,24,36}(R_{t,issuing}+1)-1]-[\prod_{t=1}^{12,24,36}(R_{t,non-issuing-matched}+1)-1]$$

The alternative benchmark for issuing firms' post-issue stock performance is the index return. We also use market return (Shanghai Composite Index) as an alternative benchmark for performance.

$$Abnormal\_return_{stock} = [\prod_{t=1}^{12,24,36}(R_{t,issuing}+1)-1]-[\prod_{t=1}^{12,24,36}(R_{t,SHCI}+1)-1]$$

4.5.2 Model of long-term post-issue operating and stock performance

According to our hypotheses, we need to understand the relationship between post-issue operating/stock performance and general corporate use. We have defined our post-issue operating/stock performance above. We also need some control variables to control other factors which could potentially determine performance. Hence, our model is:

$$\begin{aligned} Abnormal\_return_{i,0} &= \beta_0 + \beta_1 Size_{i,-1} + \beta_2 MtoB_{i,-1} + \beta_3 pre-op_{i,-1} + \beta_4 pre-stock_{i,-1} \\ &+ \beta_5 EIdumB_{i,-1} + \beta_6 EIdumA_{i,t} + \beta_7 proceeds/TA_{i,-1}(or\_\beta_7 General/procceds_i) \\ &+ \beta_8 yeardummy + \beta_9 industrydummy + \varepsilon_i \end{aligned} \quad (4.4)$$

The key independent variable is proceeds over total assets and general corporate use as a percentage of proceeds. We choose the following control variables to control for some other determinants of the abnormal returns. *Size* is the natural log of total assets at the year-end prior to SEO. *MtoB* is the natural log of issuing firms' market capitalisation divided by book value of equity at the year-end prior to the SEO. Pre-issue operating performance (*Pre-op*) is issuing firms' EBIT over total assets (ROA) at the year-end prior to the SEO. The sign of this control variable is the net effect of the two impacts. (1) As the result of information asymmetry, firms might use earnings management to

enhance their stock price before SEOs. Hence, more earnings management may lead to lower post-issue performance (Rangan 1998; Shivakumar 2000; Teoh, Welch, and Wong 1998). (2) According to the CSRC, better ROA might lead to improved post-issue performance, because the profitability requirement is used to distinguish between "good"/"bad" firms. Both Dang and Yang (2007) and Chen and Wang (2007) argue and prove that firms who satisfy the stricter profitability requirement have better post-issue performance. Furthermore, firms with good corporate governance, good industrial environment, and other favourable conditions may have higher profitability as a result. Hence, it is possible that better pre-issue profitability will lead to better post-issue operating performance. Pre-issue stock performance (*Pre-stock*) is the issuing firms' 12-month return preceding their SEOs. Higher pre-issue stock performance may mean higher market timing incentives (Asquith and Mullins 1986; Masulis and Korwar 1986; and Eckbo and Masulis 1992). Hence, we expect that higher pre-issue stock performance will lead to worsened post-issue stock performance.

EIdumB is a dummy variable measuring whether firms conduct SEOs/IPOs in the three years prior to SEOs. *EIdumAt* is a dummy variable measuring whether firms conduct further SEOs in period (*t*) after the current SEO. The period (*t*) depends on the length of post-issue long-term performance as examined in different regressions[30]. These control variables help to control the situation where previous post-issue underperformance might have affected the current post-issue underperformance. In literature regarding mature markets, these overlapping samples are normally excluded. Table 4.9 shows the summary statistics for these control variables.

[30] This variable is not applicable for the year following the SEO year, because during the sample period, firms are not allowed to conduct another SEO in the next calendar year following the current SEO.

Table 4.9: Summary statistics for post-issue long-term performance

Non-issuing firms are defined as for each year, firms that do not conduct any equity issue three years before and after the current SEO year. The return on assets is EBIT divided by the total assets. The sample all 681 SEOs from 1998 to 2003.

Panel A: operating performance

	t-1	SEO yr	t+1	t+2	t+3
Issuing firms' RoA					
Mean	8.8%	6.4%	4.8%	3.4%	1.8%
StDev	4.0%	3.3%	4.7%	5.5%	7.5%
Median	7.9%	6.0%	4.9%	4.1%	2.9%
Non-issuing firms' average RoA					
Mean	1.2%	0.8%	1.4%	1.6%	1.8%
StDev	2.0%	2.3%	2.1%	2.5%	2.7%
Median	1.2%	0.7%	1.0%	0.9%	1.9%

Panel B: stock performance

	-12m	12m	24m	36m
Issuing firm stock return				
Mean	8.7%	-4.7%	-16.6%	-29.2%
StDev	32.6%	32.0%	39.0%	40.2%
Median	4.0%	-10.8%	-26.8%	-37.7%
Benchmark non-issuing firm stock return				
Mean	1.2%	-9.0%	-21.8%	-33.6%
StDev	30.5%	30.8%	37.6%	38.6%
Median	0.3%	-15.2%	-29.0%	-41.0%

Data source: SEO, financial, and share return data from the China Centre for Economic Research (CCER) database

Regarding the independent variables, *Size* is the natural log of total assets at the year-end prior to SEOs. *MtoB* is the natural log of issuing firms' market capitalisation divided by book value of equity at the year-end prior to SEOs. Pre-issue operating performance (*Pre-op*) is issuing firms' return on total assets (RoA, and return is measured as EBIT) at year-end prior to SEOs. *Pre-stock* is firms' 12 month stock return prior to SEO month. *EIdumB* is a dummy variable whether firms conduct SEOs/IPOs in three years prior to SEOs. *EIdumAt* is a dummy variable whether firms conduct another SEO in a period *(t)* after the current SEO. The period *(t)* depends on the length of post-issue long-term performance (+2, or +3 years). *Proceeds/TA* is the total actual proceeds from the current SEOs divided by pre-issue total assets. $USE^{General}$ is the total general corporate use divided by the total actual proceeds.

Panel C: independent variables

	Mean	StDev	Median
Size	20.745	0.817	20.698
MtoB	1.381	0.401	1.360
Pre-op	0.089	0.046	0.079
Pre-stock	0.095	0.359	0.040
EIdumB	0.815	0.388	1
EIdumAt+2	0.115	0.319	0
EIdumAt+3	0.207	0.405	0
Proceed/TA	0.308	0.295	0.235
$USE^{General}$	0.317	0.281	0.246

Data source: SEO, financial, and share return data from the China Centre for Economic Research (CCER) database

4.5.3 Results

Table 4.10 reports the results of estimating the empirical model (4.4) for long-term abnormal operating performance. Apart from size and constant, pre-issue operating performance and the dummy variable of equity issue after SEOs are the only two significant control variables. The negative estimated coefficient for pre-issue operating performance is in line with the results of previous studies with regards to earnings management. In other words, the high pre-issue profitability is not sustainable. The positive estimated coefficient for the dummy variable of equity issue after SEOs may reflect regulations in China that only profitable firms are able to conduct further SEOs. After controlling for other factors which could determine the firm's abnormal operating performance, the estimated coefficient for total proceeds from SEOs ($proceeds\ /TA$) is not significant in columns (1)-(3) in Table 4.10. In other words, the size of SEO proceeds does not have a significant impact on firms' post-issue operating performance. However, we are more interested in impact of general corporate use ($USE^{General}$) for the purpose of our research. The estimated coefficient for general corporate use ($USE^{General}$) is negatively significant columns (4)-(6) in Table 4.10. This result suggests that general corporate use has been used in a way which impairs firms' operating profits. This result is in line with the results we obtained in the previous section: general corporate use is motivated by the information asymmetry theory, the agency conflict between managers and shareholders, and weakly by the agency conflict between controlling shareholders and minority shareholders. All of these three motivations are expected to impair firms' value.

Table 4.11 presents the results for post-issue long-term stock performance when the matched non-issuing firm's stock returns are used as the benchmark. Apart from size

and constant, pre-issue stock performance is the only consistently significant control variable. The negative estimated coefficient for pre-issue stock performance is in line with the results of previous studies with regards to pre-issue stock overvaluation. In other words, firms take advantage of pre-issue stock overvaluation. The estimated coefficient for total SEO proceeds ($proceeds / TA$) is only weakly negatively significant in column (1) in Table 4.11. The estimated coefficient for $USE^{General}$ is negatively significant in columns (4)-(6) in Table 4.11. This result is consistent with the result in Table 4.10. In other words, the size of SEO proceeds does not have a (strong) significant impact on firms' post-issue stock performance, and general corporate use has a strong negative significant impact on firms' post-issue stock performance. Very similar result is also obtained from Table 4.12 when Shanghai Composite Index returns are used as the benchmark. These strong results support the conclusion we drew in the previous section that if general corporate use is motivated by either agency problems or market timing concerns, more general corporate use will lead to worse post-issue long-term stock performance. Please refer to Appendix 10 for a discussion of economic significance of the coefficients reported in Table 4.10 to Table 4.12.

Table 4.10: the impact of the general corporate use of proceeds on the 1, 2, and 3 year post-issue operating performance

This table presents results of estimating the empirical model (4.4). The results are obtained by using heteroskedasticity-consistent standard errors. The sample period is from 1998 to 2003. We define t=0 as the SEO year. The model specifications are:

$$Abnormal\ \mathrm{Re}turns_{i,0} = \beta_0 + \beta_1 Size_{i,-1} + \beta_2 MtoB_{i,-1} + \beta_3 \mathrm{Pr}eop_{i,-1} + \beta_4 \mathrm{Pr}estock_{i,-1} + \beta_5 EIdumB_{i,-1}$$
$$\beta_6 EIdumA_{i,t} + \beta_7 USE^{General}{}_i + \beta_8 yeardummy + \beta_9 industrydummy + \varepsilon$$

The abnormal return for the post-issue operating performance is issuing firms' ROA minus non-issuing firms' industry average ROA:

$$Abnormal\ \_return_{operating} = (RoA_{t,issuing} - RoA_{t,non-issuing-industry}) - (RoA_{t-1,issuing} - RoA_{t-1,non-issuing-industry})$$

Independent variables are defined in Table 4.9.

	(1) SEO +1yr	(2) SEO +2yr	(3) SEO +3yr	(4) SEO +1yr	(5) SEO +2yr	(6) SEO +3yr
Size	-0.003	0.007	0.010	-0.001	0.010	0.012
	(-0.83)	(2.00)**	(2.44)**	(-0.25)	(2.68)***	(2.64)***
MtoB	0.003	0.008	0.008	0.005	0.011	0.011
	(0.48)	(1.18)	(0.88)	(0.73)	(1.36)	(1.11)
Pre-op	-0.680	-0.659	-0.765	-0.640	-0.636	-0.698
	(-10.02)***	(-10.78)***	(-9.44)***	(-7.91)***	(-8.90)***	(-7.74)***
Pre-stock	0.004	0.002	-0.005	-0.001	-0.003	-0.006
	(0.65)	(0.22)	(-0.44)	(-0.18)	(-0.39)	(-0.52)
EIdumB	0.007	0.003	-0.004	0.007	0.001	0.000
	(1.35)	(0.50)	(-0.42)	(1.26)	(0.14)	(-0.04)
EIdumAt		0.017	0.034		0.020	0.033
		(2.87)***	(4.90)***		(2.56)**	(3.89)***
Proceed/TA	0.006	0.003	-0.005			
	(0.81)	(0.45)	(-0.52)			
$USE^{General}$				-0.032	-0.024	-0.028
				(-3.97)***	(-2.39)**	(-1.82)*
constant	0.059	-0.164	-0.260	0.022	-0.237	-0.314
	(0.88)	(-2.26)**	(-2.86)***	(0.27)	(-2.78)***	(-3.02)***
Number of obs	641	640	637	494	490	485
F-value	9.52	12.30	12.84	7.57	11.25	9.21
R-squared	0.310	0.302	0.253	0.332	0.316	0.235

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial, and share return data from the China Centre for Economic Research (CCER) database

Table 4.11: the impact of the general corporate use of proceeds on the 12, 24, and 36 month post-issue stock performance

This table presents results of estimating the empirical model (4.4). The results are obtained by using heteroskedasticity-consistent standard errors. The sample period is from 1998 to 2003. We define t=0 as the SEO year. The model specifications are:

$$Abnormal\ \mathrm{Re}turns_{i,0} = \beta_0 + \beta_1 Size_{i,-1} + \beta_2 MtoB_{i,-1} + \beta_3 \mathrm{Pr}eop_{i,-1} + \beta_4 \mathrm{Pr}estock_{i,-1} + \beta_5 EIdumB_{i,-1}$$
$$\beta_6 EIdumA_{i,t} + \beta_7 USE^{General}{}_i + \beta_8 yeardummy + \beta_9 industrydummy + \varepsilon$$

Abnormal stock return is defined as issuing firms' buy and hold monthly returns minus matched non-issuing firms' buy and hold monthly returns.

$$Abnormal\ \_return_{stock} = [\prod_{t=1}^{12,24,36}(R_{t,issuing} + 1) - 1] - [\prod_{t=1}^{12,24,36}(R_{t,non-issuing-matched} + 1) - 1]$$

Independent variables are defined in Table 4.9.

	(1) +12m	(2) +24m	(3) +36m	(4) +12m	(5) +24m	(6) +36m
Size	-0.018	-0.082	-0.095	-0.024	-0.059	-0.070
	(-0.89)	(-3.61)***	(-3.78)***	(-1.03)	(-2.43)**	(-2.49)**
MtoB	0.005	-0.044	0.001	0.022	-0.020	0.014
	(0.11)	(-0.87)	(0.02)	(0.47)	(-0.36)	(0.22)
Pre-op	0.481	-0.266	-0.535	0.443	0.029	0.109
	(1.56)	(-0.65)	(-1.30)	(1.26)	(0.06)	(0.24)
Pre-stock	-0.071	-0.154	-0.131	-0.170	-0.232	-0.174
	(-1.74)	(-2.79)***	(-2.41)**	(-3.71)***	(-3.91)***	(-2.73)***
EIdumB	-0.004	-0.009	0.016	-0.017	-0.004	0.004
	(-0.09)	(-0.18)	(0.28)	(-0.39)	(-0.07)	(0.06)
EIdumAt		0.125	0.089		0.149	0.047
		(1.80)*	(1.63)		(1.53)	(0.69)
Proceed/TA	-0.086	-0.068	-0.036			
	(-1.65)*	(-1.01)	(-0.65)			
$USE^{General}$				-0.104	-0.189	-0.222
				(-1.82)*	(-2.68)***	(-2.80)***
constant	0.416	1.853	1.947	0.548	1.367	1.361
	(0.90)	(3.67)***	(3.50)***	(1.03)	(2.50)**	(2.19)**
Number of obs	639	631	596	490	483	455
F-value	2.13	3.47	3.05	2.66	3.43	3.72
R-squared	0.057	0.091	0.082	0.083	0.125	0.118

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial, and share return data from the China Centre for Economic Research (CCER) database

Table 4.12: the impact of the general corporate use of proceeds on the 12, 24, and 36 month post-issue stock performance (SHCI as benchmark)

This table presents results of estimating the empirical model (4.4). The results are obtained by using heteroskedasticity-consistent standard errors. The sample period is from 1998 to 2003. We define t=0 as the SEO year. The model specifications are:

$$Abnormal\ \mathrm{Re}turns_{i,0} = \beta_0 + \beta_1 Size_{i,-1} + \beta_2 MtoB_{i,-1} + \beta_3 \mathrm{Pr}eop_{i,-1} + \beta_4 \mathrm{Pr}estock_{i,-1} + \beta_5 EIdumB_{i,-1}$$
$$\beta_6 EIdumA_{i,t} + \beta_7 USE^{General}{}_i + \beta_8 yeardummy + \beta_9 industrydummy + \varepsilon$$

Abnormal stock return is defined as issuing firms' buy and hold monthly returns minus market buy and hold monthly returns for the same period. Market return is Shanghai Composite Index.

$$Abnormal\ \_return_{stock} = [\prod_{t=1}^{12,24,36}(R_{t,issuing} + 1) - 1] - [\prod_{t=1}^{12,24,36}(R_{t,market} + 1) - 1]$$

Independent variables are defined in Table 4.9.

	(1)	(2)	(3)	(4)	(5)	(6)
	+12m	+24m	+36m	+12m	+24m	+36m
Size	-0.071	-0.082	-0.059	-0.060	-0.043	-0.020
	(-3.95)***	(-4.38)***	(-3.00)***	(-2.94)***	(-2.12)**	(-0.94)
MtoB	-0.101	-0.094	-0.091	-0.080	-0.062	-0.065
	(-3.05)***	(-2.43)**	(-2.23)**	(-2.14)**	(-1.46)	(-1.38)
Pre-op	0.106	-0.436	-0.446	0.204	-0.162	0.071
	(0.40)	(-1.30)	(-1.33)	(0.67)	(-0.46)	(0.18)
Pre-stock	-0.096	-0.122	-0.131	-0.153	-0.123	-0.135
	(-2.68)***	(-2.95)***	(-3.26)***	(-3.78)***	(-2.92)***	(-2.88)***
EIdumB	0.006	0.002	0.001	0.006	0.001	-0.011
	(0.17)	(0.05)	(0.03)	(0.16)	(0.04)	(-0.23)
EIdumAt		0.134	0.116		0.088	0.096
		(2.65)***	(2.99)***		(1.26)	(2.05)**
Proceed/TA	-0.070	-0.072	-0.030			
	(-1.33)	(-1.04)	(-0.50)			
$USE^{General}$				-0.056	-0.162	-0.148
				(-1.26)	(-3.18)***	(-2.51)**
constant	1.368	1.394	0.773	1.058	0.565	-0.032
	(3.44)***	(3.38)***	(1.75)*	(2.30)**	(1.28)	(-0.07)
Number of obs	621	609	634	476	465	486
F-value	4.23	6.89	7.63	3.88	4.69	5.97
R-squared	0.117	0.190	0.184	0.130	0.191	0.168

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial, and share return data from the China Centre for Economic Research (CCER) database

4.6. Conclusion

We investigated the use of proceeds of 523 Seasoned Equity Offerings in China from 1998 to 2003. We focused on the general corporate use of proceeds, which constitutes 31.7% of total proceeds. Our results have shown that nearly 70% of announced use in investment have a highly significant positive impact on firms' post-issue investment. Our results have shown that general corporate use with an unspecified destination has been spent on investments, administrative expenses, related party transaction (although the evidence is very weak), and increase in cash holding. Our results have shown further that investment from general corporate use was not associated with the change in growth opportunities. Hence, we believe that the investment from general corporate use could contain an element of over-investment motivated by the agency conflict between managers and shareholders, a result which is consistent with Walk and Yost (2008). The announced use for debt repayment was only less than 1% of actual proceeds. Furthermore, we did not find a significant relationship between changes in borrowing and general corporate use. Hence, we do not believe that the trade-off theory is an important motivation for the SEO decision. The positive impact of general corporate use on administrative expenses and related party transactions were also evidence supporting the agency conflict between managers and shareholders and the agency conflict between controlling shareholders and minority shareholders. The positive impact of general corporate use on the increase in cash indicated market-timing motivation for firms, a result which was consistent with Kim and Weibach (2008). In conclusion, we have found evidence for the agency conflict, marketing timing theory, and financing under growth theory as SEO motivations. Finally, the negative relationship between the post-issue long-term operating and stock performance and general corporate use confirmed

that the market timing theory and the agency theory, which impair firms' performance, were the motivations behind SEOs.

Chapter 5: Do private placements improve shareholder contestability in China[31]

5.1 Introduction

In the previous two Chapters, we explicitly examined SEO motivations in China from the perspectives of firms' pre-issue and post-issue characteristics. In this Chapter, we aim to examine the relationship between Chinese shareholder contestability and Chinese private placements. This Chapter is linked to the previous two Chapters in two ways. (1) The issue of shareholder contestability is taken to mean the ability to monitor controlling (or largest) shareholders by non-controlling shareholders. The issue of shareholder contestability is important in China, because as mentioned in the previous Chapters, state-related shareholders as controlling shareholders in China may have the incentive and ability to tunnel some benefits exclusively to themselves. Monitoring over such a tunnelling behaviour by the other (large) shareholders is weak in China. In other words, shareholder contestability is a corporate governance mechanism used to control the agency conflict between controlling shareholders and minority shareholders, which is a SEO motivation mentioned in the previous Chapters. In this Chapter, we provide further evidence regarding this SEO motivation. (2) The sample period in this Chapter is from 2006 to 2009. Since the introduction of private placements in 2006, it has fast become the most popular SEO method in China. One of the reasons for its popularity is that unlike public offerings and rights issues, private placements are not restricted by the profitability requirement. An examination into private placements will aid our thesis and provide a better and more complete knowledge of Chinese SEOs.

[31] This chapter is co-authored with Dr. Hong Bo.

One of the distinctions between private placements and public offerings is that in private placements new shares are issued to a limited number of investors while in public offerings new shares are open to all investors in the stock market. There are two streams of studies which explain the difference between private placements and other types of SEOs in two ways. From an agency conflict perspective, private placements have a tendency to introduce more block shareholders or higher ownership concentration into firms which could strengthen firms' corporate governance by stronger monitoring over managers (Shleifer and Vishny 1986; Grossman and Hart 1980). As a result, the market reaction to private placements is likely to be positive (Wruck 1989), which is better than the negative market reaction to public offerings (Asquith and Mullins 1986; Masulis and Korwar 1986). On the other hand, private placements can also help to reduce information asymmetry in the issue process, because potential investors in private placements are given private information on firms, which is confidential and not public knowledge (Hertzel and Smith 1993). Investments from investors who hold more information may create a signalling effect for the prospective of firms (Leland and Pyle 1977). As a result, the market reaction to private placements may be (more) positive due to this signalling effect (Wruck and Wu 2009; Barclay, Holderness, and Sheehan 2007). However, all of the above literature focuses on the U.S. market where the ownership structure is dispersed. Potential research could shift to where ownership structure is more concentrated. Cronqvist and Nilsson (2005) consider controlling shareholders' incentive in a choice of issuing methods between rights issues and private placements in the Swedish market. They find that private placements are avoided if controlling shareholders' control over firms is threatened by new block shareholders introduced by private placements. The new block shareholders introduced by private placements not only threaten controlling shareholders' control over the firm, but also increase monitoring over controlling shareholders. The (non-controlling) block

shareholders' ability to monitor over controlling shareholders is considered as shareholder contestability (Burkart, Gromb, and Panunzi 1997; Bennedsen and Wolfenzon 2000). In other words, shareholder contestability can help to reduce the agency conflict between controlling shareholders and minority shareholders (Johnson, La Porta, Lopez-de-Silanes and Shleifer 2000). Within a context of private placements, there is a lack of literature concerning either shareholder contestability or the agency conflict between controlling shareholders and minority shareholders.

The aim of this Chapter is to provide more evidence regarding the role of the agency conflict between controlling shareholders and minority shareholders within the context of private placements in China. To be more specific, by using the market reaction as a tool, we want to examine whether shareholder contestability can be improved by private placements, which could reduce firms' agency conflict between controlling shareholders and minority shareholders. The Chinese stock market provides a good opportunity to study this topic. In the Chinese stock market, shares are highly concentrated in the hands of one or two shareholders who are often state-owned enterprises. The interests of controlling shareholders associated with the state may deviate from the interests of minority shareholders (Aharony, Lee, and Wong 2000; Sun and Song 2003). Therefore, in China block shareholding introduced by private placements can not only increase ownership concentration leading to stronger monitoring over managers, but also increase the monitoring over controlling shareholders. Hence, our hypothesis is that firms will have a better market reaction to private placement announcements if they already have severe agency conflict between controlling shareholders and minority shareholders. In addition to this, firms may experience an improvement in shareholder contestability during the private placement process.

In a sample of 209 private placements from 2006 to 2009, we find that there is a significant positive cumulative abnormal return of 3.6%, 4.8% or 5.5% during an event window of [-5,5], [-10,10], and [-20,20] respectively. Market reaction for public offerings are also calculated during the same period. The market reaction to public offerings is not significant for the different event windows. This result is consistent with literature on mature markets, that private placements have a better market reaction compared to public offerings. The top 10 shareholders' total shareholding as a measure of ownership concentration increases from 56.2% to 59.2%. The largest shareholders' holding as a percentage of the top 10 shareholders' total shareholding as a measure of shareholder contestability decreases from 66.4% to 55.7%. In other words, shareholder contestability increases after private placements. Our regression analysis also shows that the value of firms increase if those with severe agency conflict between controlling shareholders and minority shareholders improve their shareholder contestability during the private placement process. In conclusion, we find evidence to support the notion that private placements can improve firms' shareholder contestability.

This Chapter is constructed as follows: Section 2 is the literature review; Section 3 introduces private placement practice in China; Section 4 describes our data and provides some summary statistics; Section 5 shows our empirical model and results including the construction of event study; Section 6 is the conclusion.

5.2 Literature review

There is some literature concerned with how private placements can improve the corporate governance of firms. The main channel presented by literature on this improvement focuses on reduced manager-shareholder agency conflict through stronger

monitoring after private placements (Shleifer and Vishny 1986; Grossman and Hart 1980; Morck, Shleifer, and Vishny 1988). This is because when a large amount of shares are issued to a small number of investors, new block shareholders or more concentrated block shareholders are created. For example, in China, regulation restricts the number of investors that can buy new shares issued in private placements to ten. Wruck (1989) studies 128 private placements from 1979 to 1985 in the U.S. market. The author shows that private placements are associated with a positive 4.5% market reaction to the issue announcement, while ownership concentration increases from an average of 31% to an average of 37%. The author defines ownership concentration as the total ownership of managers, directors, and shareholders with more than 5% ownership. The relationship between the increase in ownership concentration and the market reaction is on average positive, support for the stronger monitoring effect as a result of private placements. Wruck and Wu (2009) find further support for the channel of private placement monitoring effect by studying 1,976 private placements in the U.S. market from 1980 to 1999. They find that positive market reaction to private placements is mainly driven by private placements which create new (governance-related) business relationship. The new relationship is defined as: managerial appointment, new key business partnership, director appointment, and a creation of a new block shareholder with more than 5% ownership. Private placements with new business relationship constitute nearly half of the sample size, and are followed by better post-issue stock operating performance. Barclay, Holderness, and Sheehan (2007) find similar results in their sample of 594 U.S. private placements from 1979 to 1997. Private placements are classified as active placements or inactive placements. Active placement is defined as where buyers appear in issuing firms' public news within two years after the current placement. In other words, issuers actively participate in firms' operations. They find that active placements where buyers play a more active role in monitoring have better

market reactions and post-issue stock performance. However, they cast doubt on the monitoring motivation because active placements only account for 12% of the sample.

The above literature mainly focuses on the U.S. market where ownership structure is dispersed. High ownership concentration in a mature market is likely to lead to better monitoring over managers. However, in a market where ownership is already concentrated, a higher ownership concentration might mean giving them even more power to make decisions for their own benefit and at the expenses of minority shareholders. For example, in order to gain such power to expropriate minority shareholders, new block shareholder might need to pay a premium rather than receive a discounted market price when they buy a large amount of a firm's shares. This premium is used by Barclay and Holderness (1989) as a measurement of the private benefit of control. Dyck and Zingales (2004) provide a comprehensive review over the concept of the private benefit of control. Johnson, La Porta, Lopez-de-Silanes and Shleifer (2000) discuss in more detail about how controlling shareholders "tunnel" benefits or resources out of the company exclusively to themselves. This tunnelling can be achieved through a variety of methods, such as the expropriation of corporate opportunities, transfer pricing issue, using low price for deprived assets, and loan guarantees. From the perspective of corporate governance mechanisms, there is (theoretical) literature arguing that the existence of multiple block shareholders or a more equal distribution of votes among block shareholders can improve monitoring over block shareholders helping to minimise their expropriation activities (Burkart, Gromb, and Panunzi 1997; Bennedsen and Wolfenzon 2000; Bloch and Hege 2001). Empirically, Maury and Pajuste (2005) examine 136 Finnish listed firms during 1993-2000. They show that a more equal distribution of votes among large block shareholders has a positive effect on firm value. Gutierrez and Pombo (2009) show a similar positive relationship between shareholder

contestability and firm value in a sample of 233 Colombian listed firms during 1996-2004. Bo, Sun, and Wang (2011) provide evidence regarding shareholder contestability in the Chinese stock market. The authors investigate the impact of the split-share reform (which is the reform to transfer non-tradable shares into tradable shares) on Chinese firms' shareholder contestability. This is because during the reform, non-tradable shareholders give shares to tradable shareholders to compensate for their loss of privilege of being tradable before the reform. As a result, non-tradable shareholders' holding are reduced significantly, and shareholder contestability increases. The results show that firms' value increases due to increased shareholder contestability.

5.3 Private placements in China

Private placements were introduced to the Chinese stock market in 2006 following the release of relevant private placement regulations. Since then, private placements have become the most popular Seasoned Equity Offerings (SEOs) method in China.

The focus of this paper is not to examine the reasons behind private placement popularity. However, it is still worthwhile to briefly mention some institutional settings, which make firms choose private placements to conduct SEOs. For example, private placements are not restricted by the profitability requirement which is imposed on rights issues and public offerings. In other words, if firms' profitability cannot meet the requirements necessary to conduct rights issues and public offerings, they can turn to private placements. The profitability requirement has been imposed since the beginning of SEO practice in China. The Chinese Securities Regulation Committee (CSRC) tries to protect minority shareholders by ensuring that new shares which flow into the stock market through SEOs for purchase by minority shareholders come from firms with

profit generating potential and good corporate governance. However, in the absence of market mechanisms such as the certification role of investment banking, and faced with a large amount of SEO applications, the CSRC is not capable of investigating each of the applications in great detail under the time constraint. Hence, the CSRC imposes the profitability requirement as one of the most important requirements, to try and restrict firms with inferior performance raising more money [32] from (minority) shareholders. The profitability requirement has been strict up until the late 1990s, and has since been relaxed after the introduction of the sponsor system to the Chinese stock market in 2001. The sponsorship system plays a similar role to the investment banking system within a mature market. Private placements' exemption from the profitability requirement also reflects the intention of regulators for investors to investigate firms in depth themselves, by doing so the profitability requirement may no longer be necessary. In other words, private placements may help to reduce information asymmetry and filter out firms with bad corporate governance.

We will use the market reaction to private placements in China as our empirical evidence, so it is important to understand the process of conducting private placements. In the board meeting, the board of directors approve the private placement proposal. The board's approval along with details of the private placement such as the use of proceeds, the lower bound of the issue price[33] and the higher bound of issue volume are announced to the market within two working days after the board meeting date. This is the date when the private placement plan first becomes available to the public[34].

[32] Both Dang and Yang (2007) and Chen and Wang (2007) show that firms who could satisfy the stricter profitability requirement will have better post-issue performance.
[33] According to the regulation, the issue price cannot be lower than 90% of the average of 20 days' market price prior to a "price setting date". The price setting date could be boarding meeting date, shareholder meeting date, or a date set by the security firm after CSRC's approval. In most of our samples, the price setting date is board meeting date.
[34] According to the regulation from 2005, in SEOs controlling shareholders need to disclose the number of newly issued shares they will buy.

Shareholders in a shareholder meeting would then approve the proposal. After shareholder approval, the private placement application would then be submitted to the CSRC. After the CSRC's approval, a security firm, which has a similar role of certification to an investment bank in a mature market, would begin to find potential investors for the issuing firm. All potential investors would then make an offer of price and volume for the newly issued shares. Then a highest possible price (issuing the lowest possible volume of new shares) would be determined to raise enough funds as planned. There is a final announcement, which would provide the full details and a summary of the whole private placement process including the details of buyers and their quantity of subscription.

5.4 Data

A list of private placements' final announcement date[35], firms' daily share returns, and firms' financial information (total assets, revenue growth, and related party transactions) dating from 2006 to 2009 were retrieved from CCER/Sinofin database. We then used this date to search and download firms' original announcement documents from www.juchao.com, an official website for announcements designated by the CSRC. From these documents, we hand collected the following variables: first board meeting date, the nature of private placements (we classified the sample into four categories according to the nature of private placements), the nature of the buyers, the top 10 shareholders' holding before and after private placements, and the dummy variable whether any of the pre-issue top 3 shareholders count as financial institutional investors.

[35] This refers to the announcement date when all buyers' details and a summary of the whole private placement are released to the market.

Table 5.1 shows the summary statistics of SEO activities in China from 2006 to 2009. We further classify private placements (PP) into four categories: private placements without controlling shareholders' participation, private placements with (but not solely to) controlling shareholders' participation, private placements only issued to controlling shareholders, and other private placements. Private placement only issued to controlling shareholders is a feature of Chinese private placements. In many cases the controlling shareholder is the only investor in the private placement and it uses its assets rather than cash to subscribe to the newly issued shares. Within 114 private placements only issued to controlling shareholders, assets/shares account for the subscription to the newly issued shares of 103 private placements. Because of the previous quota system in IPOs, the listed firm has assets which are relatively superior within a group of industrial firms controlled by one parent firm (Aharony, Lee, and Wong 2000). In other words, under one parent firm, there are subsidiaries which are listed in the stock market as well as subsidiaries which are not listed. The parent firm could use the private placement to make all their assets listed in the stock market. This process is also known as a reversed acquisition from a listed firm's perspective. We exclude this type of private placements from our empirical analysis because the purpose of this type of private placements is different from the purpose of a normal private placement, which is to raise more funds (or cash). The other private placement category includes the use for: acquisitions that involve the exchange of shares (with outsiders), the restructuring of SOEs, and the cases of missing data. The other private placement category shall also be excluded from our analysis, because the market reaction to these private placements might include the reaction to some other corporate decisions separate to a standard SEO-activity. Hence, our analysis has a sample of 209 private placements[36] where the main objective is to raise cash via equity financing. 209 private placements with 259 bn of proceeds make

[36] All of our sample 209 private placements happened after their issuing firms' reform of transferring non-tradable shares into tradable shares.

private placements the most popular SEO method during the period from 2006 to 2009, as compared to 109 rights issues and public offerings raising 245 bn of proceeds during the same period.

We exclude top and bottom 1% of observations in each variable as outliers. Table 5.2 shows some corporate governance characteristics of private placement firms. As shown in Panel A of Table 5.2, 62% (130/209) of private placement firms are state-owned. Table 2.4 in Chapter 2 shows that during the period from 2006 to 2009, of all listed firms there are around 60% which are state-owned. Hence, we can see that the percentage of state-owned firms conducting private placements each year is in line with the total number of state-owned firms as a percentage of the total number of listed firms. In other words, state-owned firms are not particularly more active in the private placement market. Panel B of Table 5.2 shows the subscription by different types of investors to the number of new shares in private placements. Foreign investors who on average subscribe to 2.4% of new shares are still very rare in Chinese private placements. There are two types of foreign investors: foreign financial investors who participate in Chinese private placements as Qualified Foreign Institutional Investors (QFII) and foreign enterprises who make strategic investment (such as strategic alliance) in Chinese firms via private placements. On average 5.8% of new shares are subscribed under the name of individuals. These individual investors include both wealthy individuals who simply want to use private placements as a method to invest into a firm and current top management in the issuing firm. In general, state-owned enterprises' participation (15%) in private placements is low. The 31.7% subscription by state-owned enterprises shows that state-owned enterprises only occasionally participate in private placements when they are controlling shareholders of issuing firms.

Table 5.1: Summary statistics of private placements in China from 2006 to 2009

We classify private placements (PP) into four categories: private placements without controlling shareholders' participation, private placements with (but not solely to) controlling shareholders' participation, private placements only issued to controlling shareholders, and other private placements. Other private placements are used for: acquisitions where involves the exchange of shares, the restructuring of SOEs, and the cases of missing data.

Number of issues:

	Rights issues	Public offerings	PP - no controlling SH participation	PP - controlling SH participation	PP - only controlling SH participation	PP - other
2006	-	7	25	4	10	3
2007	7	32	49	33	30	24
2008	8	27	20	23	38	25
2009	13	15	39	16	36	13
Total	28	81	133	76	114	65

Funds raised in billion RMBs:

	Rights issues	Public offerings	PP - no controlling SH participation	PP - controlling SH participation	PP - only controlling SH participation	PP - other
2006	-	11	21	3	37	18
2007	23	100	59	44	60	52
2008	14	52	16	34	65	42
2009	12	33	61	20	107	21
Total	49	196	157	102	269	134

Data source: SEO data from the China Centre for Economic Research (CCER) database; firm announcement from www.juchao.com

Table 5.2: Corporate governance characteristics of private placement firms

Panel A: Ownership type

	PP - no controlling SH involved	PP - controlling SH involved	Total
State-Owned	71	59	130
Non-State-Owned	60	17	77
Missing data	2	-	2
Total	133	76	209

Data source: SEO data from the China Centre for Economic Research (CCER) database; firm announcement from www.juchao.com

Panel B: Shares subscribed by different types of buyers as a percentage of total new shares

	PP - no controlling SH involved	PP - controlling SH involved	Total
Foreign enterprises	2.8%	1.6%	2.4%
Individuals	5.8%	5.8%	5.8%
SOE	5.5%	31.7%	15.0%
Non-financial institutions	14.9%	16.2%	15.4%
Financial institutions	71.0%	44.6%	61.4%
Total	100.0%	100.0%	100.0%

Data source: firm announcement from www.juchao.com

Panel C: Change in ownership structure after private placements

Top1/total Top10 is Top1 shareholder's holding as a percentage of the total of top 10 shareholders' holding. The rest holdings are scaled by the total number of shares.

	Before private placements			After private placements		
	PP - no controlling SH involved	PP - controlling SH involved	Total	PP - no controlling SH involved	PP - controlling SH involved	Total
Top1 SH's holding	38.0%	37.5%	37.8%	32.5%	35.8%	33.7%
Top2 SH's holding	7.4%	7.0%	7.3%	8.0%	7.5%	7.8%
Top3 SH's holding	3.5%	2.6%	3.2%	4.5%	3.9%	4.3%
Top4 SH's holding	1.6%	1.3%	1.5%	3.0%	2.5%	2.8%
Top5 SH's holding	2.1%	1.7%	2.0%	2.5%	2.1%	2.4%
Top6 SH's holding	1.3%	1.0%	1.2%	2.3%	1.9%	2.2%
Top7 SH's holding	1.1%	0.9%	1.0%	1.9%	1.6%	1.8%
Top8 SH's holding	0.9%	0.8%	0.9%	1.7%	1.4%	1.6%
Top9 SH's holding	0.8%	0.7%	0.8%	1.5%	1.3%	1.4%
Top10 SH's holding	0.7%	0.6%	0.7%	1.4%	1.1%	1.3%
Total of top 10 SHs' holding	57.4%	54.1%	56.2%	59.3%	59.2%	59.2%
Total of SHs' holding over 5%	45.4%	43.4%	44.7%	42.3%	43.8%	42.9%
Top1/total Top10	65.7%	67.6%	66.4%	54.0%	58.7%	55.7%

Data source: firm announcement from www.juchao.com

The participation by Chinese non-financial firms in private placements (15.4%) is also low. Finally, we can see that Chinese financial institutions subscribe to a large amount financial institutional investors. Hence, we can see that investors in private placements (most of which are institutional investors) have the incentive and the ability to monitor controlling shareholders and are helpful for firms to improve shareholder contestability.

Panel C of Table 5.2 shows the change in ownership structure after private placements. We can see that before private placements the largest shareholder holds on average 37.8% of firms' shares, and there is a large gap between the largest shareholder and second largest to the top10 shareholders. On average the largest shareholder's holding is 66.4% of the top 10 shareholders' total holding. From the perspective of shareholder contestability, the largest shareholder may face little challenge and monitoring from other block shareholders. After private placements, the total of top 10 shareholders' holding as a measure of ownership concentration increases by 3% to 59.2%, but the total of shareholders with more than 5% ownership as another measurement of ownership concentration actually decreases by 1.8%. This means that in China the size of private placements may not be big enough to generate many new block shareholders with more than 5% ownership. If existing shareholders do not subscribe to newly issued shares, existing shareholders with more than 5% ownership would experience dilution due to the increased total number of shares. However, the concept of ownership concentration should not be restricted to the number of shareholders with more than 5% ownership. In China, the alternative proxy of ownership concentration could be the total holding of the top 10 shareholders. Additionally, even with a decrease in the largest shareholder's holding to 33.7%, the holding is still far greater than the other block shareholders. The message is that private placements may not fundamentally change the situation of a highly concentrated ownership structure in China, or the situation of the

largest shareholders' dominating position. However, by slightly increasing the second largest to the tenth largest shareholders' holdings, the largest shareholder's holding as a (61.4%) of new shares in private placements. Even when state-owned enterprises as controlling shareholders participate, financial institutions still subscribe to the highest level of new shares (44.6%) among all types of percentage of the top 10 total holding decreases by 10.7% to 55.7%. This decease may signify an increase in shareholder contestability where other block shareholders have more incentive and power to monitor the controlling/largest shareholder in China, resulting in better corporate governance.

5.5 Empirical model and results

5.5.1 Market reaction

We choose the market reaction to private placement announcements as a tool to construct our empirical evidence because the market can give an immediate assessment to the private placement decision regarding issuing firms' prospective future. The event study of market reaction relies on the assumption of the semi-strong form of the market efficiency hypothesis. This means that the current share price should reflect all past and new public information. The challenge is that in the Chinese stock market the semi-strong form market efficiency model might not hold. For example, both Groenewold et.al. (2004) and Ma (2004) demonstrate that there is some predictability of share return in the Chinese stock market. This is evidence against even weak form market efficiency where the current price reflects all past public information. However, both Groenewold et.al. (2004) and Ma (2004) comment that there are improvements to the Chinese stock market efficiency. For example, Ma (2004) shows that some predictability power has disappeared with time. Additionally, Ma (2004) also finds that there are significant market responses to some corporate announcements. This is evidence supporting semi-

strong form market efficiency. In conclusion, if we can find a significant market reaction to private placement announcements, and a significant relationship between market reaction and corporate governance proxy, we are inclined to conclude that the event study of market reaction is a reliable tool in private placement announcement studies.

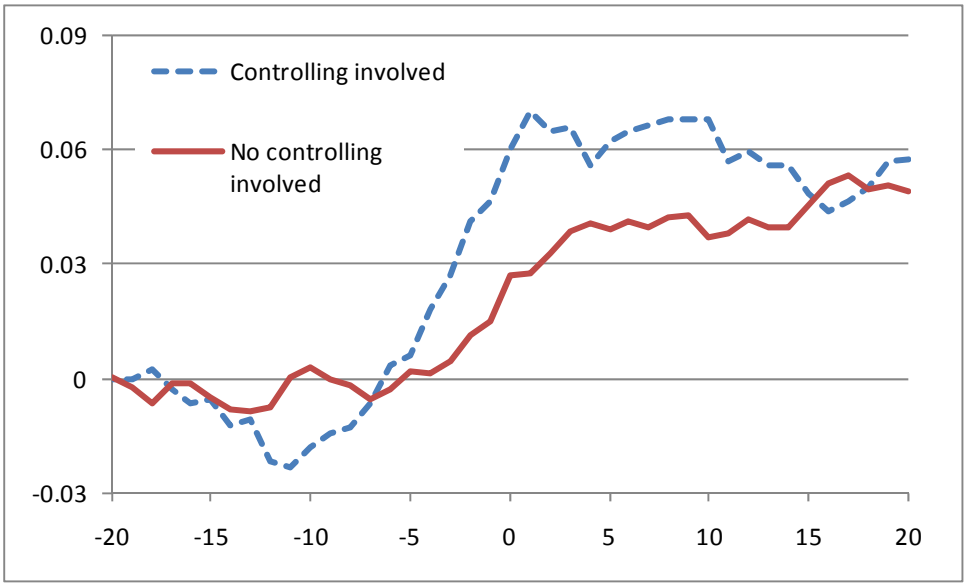
For the market reaction study, we follow the Wruck (1989) method which is also the standard model[37]. We first estimate the market model by OLS for each SEO announcement based on the estimation period from day -200 to -60[38] (the announcement day is day 0). The market model is a statistical model which relates the return of any given security to the return of the market portfolio. For any security *i* the market model is: $R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it}$. We use the Shanghai Composite Index as market return. *t* is from -200 to -60 prior to the announcement date. We obtain the coefficients for the market model: $\hat{\alpha}_i$ and $\hat{\beta}_i$. We then can calculate the predicted daily return for the event window (which is within [-20,20]) by using the market model with the coefficients obtained from the OLS estimation of the market model ($\hat{\alpha}_i$ and $\hat{\beta}_i$) which is based on the daily return [-200,-60] for each SEO event. The abnormal return (AR) for each stock during the event window is defined as daily return minus the predicted return derived from the market model.

$AR_{i\tau} = R_{i\tau} - \hat{\alpha}_i - \hat{\beta}_i R_{m\tau}$ $\sigma^2(AR_{i\tau}) \approx \sigma^2(\varepsilon_i)$ when the estimation period is large.

The cumulative abnormal return (CAR) from τ_1 to τ_2 for each stock is the sum of the daily abnormal returns. $CAR_i(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} AR_{i\tau}$ $\sigma_i^2(\tau_1, \tau_2) \approx (\tau_2 - \tau_1 + 1)\sigma^2(\varepsilon_i)$ when the estimation period is large.

[37] Please refer to MacKinlay (1997) for a comprehensive review of the event study method.
[38] The window period of [-200,-60] is also used by Wruck (1989) and MacKinlay (1997).

Figure 5.1: Cumulative abnormal return to private placement announcements during day -20 to 20



Data source: SEO and daily share return data from the China Centre for Economic Research (CCER) database; firm announcement from www.juchao.com

Table 5.3: Market reaction to the private placement announcement

	CAR [-5,5]	CAR [-10,10]	CAR [-20,20]
PP - no controlling SH involved	3.06%	3.76%	5.19%
Z statistics	2.70***	2.49***	3.06***
PP - controlling SH involved	4.60%	6.69%	5.98%
Z statistics	3.73***	4.31***	2.68***
All placements	3.58%	4.81%	5.46%
Z statistics	4.17***	4.30***	4.32***
Public offerings	-0.51%	-0.99%	-4.01%
Z statistics	-0.35	-0.51	-1.50

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO and daily share return data from the China Centre for Economic Research (CCER) database; firm announcement from www.juchao.com

Figure 5.1 shows the CAR from day -20 to 20. We can see a clear upward shift of share price during the event window. Table 5.3 shows the statistics of different event windows. Private placements have a significant positive market reaction of 3.6%, 4.8% or 5.5% during an event window of [-5,5], [-10,10], and [-20,20] respectively[39]. Additionally, market reactions to private placements in which controlling shareholders subscribe are slightly better than private placements without controlling shareholders' participation. This supports the possible role of information asymmetry in private placements. In other words, investors believe that controlling shareholders' participation is a good signal for firms' prospective future since controlling shareholders have more information. The market reaction for public offerings is also calculated for the same period. The market reaction to public offerings is not significant for the different event windows. This result is consistent with literature on mature markets that private placements have a better market reaction compared to public offerings.

5.5.2 Empirical model

To examine the relationship between the market reaction and the change in contestability, we also control for other possible factors which might influence the market reaction:

$$\begin{aligned} Market\_reaction_i &= \beta_0 + \beta_1 Ln(TA_{i,-1}) + \beta_2 PSR_i + \beta_3 Controlling\_dum_i \\ &+ \beta_4 Agency_{i,-1} \times LoSC_{i,+ve} + \beta_5 Agency_{i,-1} \times LoSC_{i,-ve} + \beta_6 year\_dum \\ &+ \beta_7 Indus\_dum + \varepsilon \end{aligned} \tag{5.1}$$

[39] The reaction in a window of [-30,30] is no longer significant.
There is a reason why we might not be able to use a short event window such as [-3,0] or [-1,1]. This is because in China firms' stocks might stop trading around the announcement date of important corporate decision under the guidance from the CSRC. We exclude the samples where non-trade days are more than half of the length of the event window. If we use a short event window, we will lose many samples, and the result might be biased.

Market reaction is equal to [-5,5], [-10,10], or [-20,20] CAR. The natural log of total assets prior to private placements ($Ln(TA)$) is used to control firms' size. In the study of the stock market reaction to the SEO announcement, Asquith and Mullins (1986), Masulis and Korwar (1986), and Eckbo and Masulis (1992) use the pre-issue stock return as the proxy for the information asymmetry theory. They show that higher pre-issue stock return will lead to worsened market reaction to the SEO announcement. PSR is firms' 6 month share return prior to the board meeting date. According to Barclay, Holderness, and Sheehan (2007) and Wruck and Wu (2009), private placements that involve "active" buyers and "pre-issue governance related" buyers (respectively) can create a signalling effect due to information asymmetry and would have a better market reaction. Hence, we choose controlling shareholders' subscription to control for this signalling effect. Controlling shareholder subscription dummy ($Controlling\_dum$) is equal to one if controlling shareholder subscribes to new shares in the private placement, and zero otherwise. Year dummies and industry dummies are used. The model is estimated by heteroskedasticity-consistent standard errors OLS.

As mentioned in the introduction, our hypothesis is that firms will have a better market reaction to their private placement announcements if firms have more severe agency conflict between controlling shareholders and minority shareholders. Firms should experience an improvement of shareholder contestability during the process of private placement. For our hypothesis, we choose an interaction term ($Agency \times LoSC$) between the pre-issue agency conflict ($Agency$) and two dummy variables of the improvement of shareholder contestability ($LoSC_{+ve}$ and $LoSC_{-ve}$). $LoSC_{+ve}$ is equal to one if firms' lack of shareholder contestability increases after private placement (i.e. a positive change in the measurement means a worse shareholder contestability after

private placements), and zero otherwise. $LoSC_{-ve}$ is equal to one if firms' lack of shareholder contestability decreases after private placement (i.e. a negative change in the measurement means a better shareholder contestability after private placements), and zero otherwise. The lack of shareholder contestability is measured in two ways: the largest shareholder's holding divided by the second largest to tenth largest shareholders' total holding ($Top1/Top2to10$) and the traditional Herfindahl index measurements of difference (HI_diff). HI_difference = $(Vote1-Vote2)^2+(Vote2-Vote3)^2$. In other words, the Herfindahl index measurements of difference is the sum of the square of the difference between the largest shareholder' holding and the second largest shareholder's holding and the square of the difference between the second largest shareholder' holding and third largest shareholder's holding.[40]

Regarding the pre-issue agency conflict between controlling shareholders and minority shareholders, it is measured by firms' pre-issue related party transactions and the dummy variable of an absence of financial institutional investors in the largest three shareholders. It was mentioned in the previous Chapter that related party transactions could be used by controlling shareholders to tunnel some benefits exclusively to themselves (Berkman et. al. 2010; Jian and Wong 2004). We use the total amount of related party transactions scaled by total assets in the year prior to private placements (RPT) as the proxy for the level of the agency conflict faced by firms. The higher the measurement, the worse the agency conflict between controlling shareholders and minority shareholders. The absence of financial institutional investors in the largest three shareholders ($AoFII$) is a dummy variable and is equal to one if there are no financial institutional investors in the top 3 shareholders, and zero otherwise. The

[40] Please refer to Appendix 12 for a summary statistics of independent variables.

absence of financial institutional investors indicates worsened agency conflict between controlling and minority shareholders (Bo, Sun, and Wang 2011).

Hence, according to our hypothesis, we expect the coefficient of $Agency \times LoSC_{-ve}$ to be significant positive. In other words, if firms facing more severe agency conflict between controlling and minority shareholders experience an improvement in shareholder contestability during private placements, this will add more value to firms than lower agency conflict firms. On the other hand, we expect a significant negative coefficient (or a non-significant coefficient) for $Agency \times LoSC_{+ve}$.

5.5.3 Results

Table 5.4 reports the results from estimating the empirical model (5.1) when pre-issue related party transaction is used as a proxy of firms' pre-issue agency conflict between controlling shareholders and minority shareholders. Regarding the control variables, the significant negative relationship between market reaction and firms' pre-issue stock return in all columns in Table 5.4 is consistent with previous literature stating that firms may want to time the market when the cost associated with information asymmetry is low, and investors react negatively to such behaviour. On the other hand, controlling shareholders' participation in China does not have a significant impact on the market reaction in all columns in Table 5.4. In other words, controlling shareholders' participation does not have a signalling effect, which could reduce information asymmetry. Columns (1)-(3) in Table 5.4 show the results when the largest shareholder's holding divided by the second largest to tenth largest shareholders' total holding ($Top1/Top2to10$) is used as the measurement for the lack of shareholder contestability. As we can see, the estimated coefficient for the interaction term

Table 5.4: The impact of the interaction term between pre-issue related party transactions and the change in shareholder contestability on the market reaction

$$Market\_reaction_i = \beta_0 + \beta_1 Ln(TA_{i,-1}) + \beta_2 PSR_i + \beta_3 Controlling\_dum_i$$
$$+ \beta_4 Agency_{i,-1} \times LoSC_{i,+ve} + \beta_5 Agency_{i,-1} \times LoSC_{i,-ve} + \beta_6 year\_dum + \beta_7 Indus\_dum + \varepsilon$$

Market reaction is equal to [-5,5], [-10,10], or [-20,20] CAR as our dependent variable. $Ln(TA)$ = the natural log of total assets prior to private placements; PSR = firm's 6 month share return prior to board meeting date; $Controlling\_dum$ = a dummy variable of whether controlling shareholders will participate private placements; $LoSC_{pre-issue}$ =pre-issue the top1 shareholder's holding divided by the total of top2 to top10 shareholders' holding ($Top1/Top2to10$) or the traditional Herfindahl index measurements of difference (HI_diff); $LoSC_{+ve}$ is equal to one if firms' lack of shareholder contestability increases after private placement and zero otherwise; $LoSC_{-ve}$ is equal to one if firms' lack of shareholder contestability decreases after private placement and zero otherwise; The lack of shareholder contestability is measured by related party transactions (RPT); Year dummies and industry dummies are used. The model is estimated by heteroskedasticity-consistent standard errors OLS.

	(1)	(2)	(3)	(4)	(5)	(6)
	CAR[-5,5]	CAR[-10,10]	CAR[-20,20]	CAR[-5,5]	CAR[-10,10]	CAR[-20,20]
$Ln(TA)$	0.019	0.022	0.040	0.019	0.023	0.041
	(2.080)**	(1.720)*	(2.040)**	(2.060)**	(1.800)*	(2.070)**
PSR	-0.043	-0.076	-0.090	-0.043	-0.076	-0.090
	(-2.020)**	(-2.830)***	(-2.150)**	(-2.020)**	(-2.850)***	(-2.160)**
$Controlling\_dum$	0.002	0.028	0.006	-0.002	0.030	0.010
	(0.110)	(0.870)	(0.130)	(-0.110)	(1.030)	(0.230)
RPT	0.105	0.187	0.127			
$\times Top1/Top2to10_{+ve}$	(1.180)	(1.550)	(0.880)			
RPT	0.126	0.108	0.119			
$\times Top1/Top2to10_{-ve}$	(3.180)***	(1.860)*	(1.320)			
RPT				0.177	0.119	0.070
$\times HI\_diff_{+ve}$				(1.530)	(0.640)	(0.400)
RPT				0.118	0.113	0.126
$\times HI\_diff_{-ve}$				(3.070)***	(2.160)**	(1.420)
Constant	-0.371	-0.418	-0.847	-0.359	-0.439	-0.855
	(-1.840)*	(-1.480)	(-2.000)**	(-1.820)*	(-1.580)	(-2.040)**
Number of obs	179	179	179	179	179	179
F-value	9.78	2.05	2.81	9.88	1.98	2.63
R-squared	0.172	0.106	0.108	0.175	0.104	0.109

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial, and daily share return data from the China Centre for Economic Research (CCER) database; firm announcement from www.juchao.com

($RPT \times Top1/Top2to10_{-ve}$) is positively significant in columns (1) and (2) in Table 5.4. Columns (4)-(6) in Table 5.4 show the results when the Herfindahl index measurements of difference (HI_diff) is used as the measurement for the lack of shareholder contestability. As we can see, the estimated coefficient for the interaction term ($RPT \times HI\_diff_{-ve}$) is positively significant in columns (4) and (5) in Table 5.4. The results in Table 5.4 suggest that the firm with severe agency conflict between controlling shareholders and minority shareholders benefit from private placements when they are able to improve the firm's shareholder contestability.

Table 5.5 reports the results of estimating the empirical model (5.1) when the absence of financial institutional investors in the largest three shareholders ($AoFII$) is used as a proxy for firms' pre-issue agency conflict between controlling shareholders and minority shareholders. Regarding the control variables, the negative relationship between the market reaction and firms' pre-issue stock return is only significant in column (2), (3), and (5) in Table 5.5. Controlling shareholders' participation in China is still not significant for market reaction in all columns in Table 5.5. Columns (1)-(3) in Table 5.5 show the results when the largest shareholder's holding divided by the second largest to tenth largest shareholders' total holding ($Top1/Top2to10$) is used as the measurement for the lack of shareholder contestability. As we can see, the estimated coefficient for the interaction term ($AoFII \times Top1/Top2to10_{-ve}$) is only positively significant in column (3) of Table 5.5. Columns (4)-(6) in Table 5.5 show the results when the Herfindahl index measurements of difference (HI_diff) is used as the measurement for the lack of shareholder contestability. As we can see, the estimated coefficient for the interaction term ($AoFII \times HI\_diff_{-ve}$) is only positively significant in column (6) of Table 5.5. The result is weaker when $AoFII$ is used to measure firms'

Table 5.5: The impact of the interaction term between pre-issue absence of financial institutional investors and the change in shareholder contestability on the market reaction

$$Market\_reaction_i = \beta_0 + \beta_1 Ln(TA_{i,-1}) + \beta_2 PSR_i + \beta_3 Controlling\_dum_i$$
$$+ \beta_4 Agency_{i,-1} \times LoSC_{i,+ve} + \beta_5 Agency_{i,-1} \times LoSC_{i,-ve} + \beta_6 year\_dum + \beta_7 Indus\_dum + \varepsilon$$

Market reaction is equal to [-5,5], [-10,10], or [-20,20] CAR as our dependent variable. $Ln(TA)$ = the natural log of total assets prior to private placements; PSR = firm's 6 month share return prior to board meeting date; $Controlling\_dum$ = a dummy variable of whether controlling shareholders will participate private placements; $LoSC_{pre-issue}$ =pre-issue the top1 shareholder's holding divided by the total of top2 to top10 shareholders' holding ($Top1/Top2to10$) or the traditional Herfindahl index measurements of difference (HI_diff); $LoSC_{+ve}$ is equal to one if firms' lack of shareholder contestability increases after private placement and zero otherwise; $LoSC_{-ve}$ is equal to one if firms' lack of shareholder contestability decreases after private placement and zero otherwise; The lack of shareholder contestability is measured by the absence of financial institutional investors ($AoFII$); $AoFII$ is a dummy variable and is equal to one if there is no financial institutional investors in top 3 shareholders, and zero otherwise. Year dummies and industry dummies are used. The model is estimated by heteroskedasticity-consistent standard errors OLS.

	(1) CAR[-5,5]	(2) CAR[-10,10]	(3) CAR[-20,20]	(4) CAR[-5,5]	(5) CAR[-10,10]	(6) CAR[-20,20]
$Ln(TA)$	0.017	0.024	0.048	0.017	0.024	0.049
	(1.700)*	(1.740)*	(2.290)**	(1.730)*	(1.800)*	(2.460)**
PSR	-0.033	-0.066	-0.072	-0.033	-0.064	-0.064
	(-1.590)	(-2.580)**	(-1.880)*	(-1.550)	(-2.470)**	(-1.640)
$Controlling\_dum$	0.011	0.047	0.031	0.010	0.049	0.040
	(0.490)	(1.550)	(0.740)	(0.480)	(1.600)	(0.940)
$AoFII$	-0.007	-0.030	-0.014			
$\times Top1/Top2to10_{+ve}$	(-0.120)	(-0.390)	(-0.180)			
$AoFII$	0.024	0.035	0.127			
$\times Top1/Top2to10_{-ve}$	(1.270)	(1.260)	(2.800)***			
$AoFII$				0.004	-0.035	-0.094
$\times HI\_diff_{+ve}$				(0.090)	(-0.500)	(-1.010)
$AoFII$				0.023	0.037	0.141
$\times HI\_diff_{-ve}$				(1.210)	(1.320)	(3.140)***
Constant	-0.290	-0.429	-1.023	-0.293	-0.438	-1.054
	(-1.360)	(-1.440)	(-2.260)**	(-1.380)	(-1.500)	(-2.410)**
Number of obs	184	184	184	184	184	184
F-value	26.65	2.55	10.86	28.34	2.60	10.27
R-squared	0.097	0.092	0.148	0.096	0.093	0.165

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial, and daily share return data from the China Centre for Economic Research (CCER) database; firm announcement from www.juchao.com

agency conflict between controlling and minority shareholders. This is probably because *AoFII* is a discrete variable which may be less able to capture the variation of dependent variable compared to a continuous variable such as *RPT*. The results in Table 5.5 also suggest that firm with server agency conflict between controlling shareholders and minority shareholders benefit from private placements when they are able to improve the firm's shareholder contestability.[41]

5.6 Conclusion

In this Chapter, we first provide evidence regarding the market reaction to private placements. We show that there is a significant positive reaction to private placements while the reaction to public offerings is not significantly different from zero. Our result is consistent with literature on mature markets, which also show a better market reaction to private placements. Literature on mature markets tends to use the information asymmetry theory and the agency conflict between managers and shareholders to explain the better market reaction to private placements. As discussed in the previous Chapters, the agency conflict between controlling shareholders and minority shareholders may be severe in China due to the institutional environment of dominant state shareholders. We hypothesise that private placements may bring more block shareholders into firms who can help monitor controlling shareholders and their tunnelling behaviour. In other words, private placements can improve firms' shareholder contestability. Our empirical results show the evidence of firms with more severe agency conflict between controlling shareholders and minority shareholders can gain in firm value (i.e. a better market reaction) if they experience an improvement in

[41] For robustness test, please refer to Appendix 13 for the inclusion of interaction variable for Table 5.4 and Table 5.5 as well as the economic significance of independent variables. Please refer to Appendix 14 for a nested RPT and AoFII model for Table 5.4 and 5.5 as well as the economic significance of independent variables. Please refer to Appendix 15 for an alternative measurement of firms' pre-issue agency conflict between controlling and minority shareholders. The results of three robustness tests do not change our conclusion.

shareholder contestability during private placements. In conclusion, we show that Chinese investors are concerned with the agency conflict between controlling shareholders and minority shareholders. More generally, we are also able to fill a research gap in the relationship between private placements and the agency conflict between controlling and minority shareholders.

Chapter 6: Summary of the thesis

6.1 Summary of results

In this thesis, we completed three empirical works regarding Chinese SEOs. The aim of the thesis was to empirically examine Chinese SEOs' practice, motivations, and their implications to corporate governance. In the following paragraphs, we will briefly summarise the method and results of these three empirical works.

Chinese SEOs as a financing activity have been very frequent in the last 15 years. The existing literature focuses on using the agency conflict between controlling and minority shareholders to explain the popularity of SEOs in China. In other words, controlling shareholders are motivated to use SEOs as cheap resource to raise some funds which will be used for controlling shareholders' benefits later. This argument of SEO motivation could be valid because as mentioned in the introduction chapter, the Chinese stock market has features of high state ownership, heavy regulations, and unsound market mechanisms and a weak legal system to protect minority shareholders. Our research is particularly interested in the question that apart from the agency conflict between controlling shareholders and minority shareholders, whether there are other theories, which can explain SEO motivations. After a literature review, we became interested in four mainstream theories, which presented explanations to SEO motivations. These four theories are the trade-off theory, the information asymmetry theory, the agency theory, and the financing under growth theory. In Chapter 3, we test these four theories by investigating how they determine firms' SEO decision. If the four theories are proven to have an impact on firms' SEO decision, we have evidence that these four theories can be applied in the Chinese stock market. Firms' SEO decision is

empirically measured in two ways in Chapter 3: (1) at what time firms conduct their SEOs; (2) which type of firms conduct SEOs and which types do not conduct any SEOs. The two measurements of firms' SEO decision are used in two separate logit models. All issuing firms (who have conducted at least one SEO from 1994 to 2006) are used as the sample used in the first logit model. The issuing year is defined to be one as the dependent variable and the non-issuing year is defined as zero. The regression results show that compared to non-issuing years, firms are more likely to conduct SEOs when (1) their pre-issue leverage is higher than their optimal leverage ratio; (2) their pre-issue stock return is high; (3) their revenue growth is high. The results are consistent with the predictions made by the trade-off theory, the information asymmetry theory, and the financing under growth theory respectively. All issuing firms (who have conducted at least one SEO from 1998 to 2006) and non-issuing firms (who have never conducted any SEO from 1994 to 2006) are used as the sample in the second logit model. The issuing firm is defined to be one as the dependent variable and the non-issuing firm is defined as zero. The regression results show that firms with higher ownership concentration and higher managerial ownership are less likely to conduct SEOs. Based on the assumption that ownership concentration and managerial ownership as corporate governance mechanisms have an impact on firms' agency conflict, we are inclined to conclude that the agency conflict has an impact on firms' SEO decision. However, we cannot identify the channel of impact of the agency conflict on the SEO decision. There are three possible ways to explain the negative relationship between SEO likelihood and ownership concentration as well as managerial holding. (1) A higher ownership concentration reduces the agency conflict between managers and shareholder, and SEOs as a result of managers' rent-seeking behaviour are reduced. (2) A higher ownership concentration as a result of state ownership in China may lead to worsened monitoring over managers. As a result, SEO likelihood is reduced to prevent free cash flow from

managers. (3) Higher ownership concentration aligns controlling shareholders' interest with minority shareholders' interest, and controlling shareholders are less likely to use SEOs for the purpose of tunnelling. In conclusion, the empirical work in Chapter 3 shows evidential support for all four theories concerning SEO motivations.

In Chapter 4, we start our research from another interesting phenomenon of Chinese SEOs. Within a sample of 523 SEOs taken from 1998 to 2003, 31.7% of actual proceeds have remained as general corporate use. This encompasses all use other than investments and debt repayments. The feature of general corporate use is that the destination of proceeds remains unclear and unknown. Our question is, where have these proceeds gone? Why do firms have such a large percentage of proceeds as general corporate use? Is there a relationship between general corporate use and SEO motivations? For example, regarding the agency conflict between controlling and minority shareholders, related party transactions are considered as a way for controlling shareholders to tunnel some benefits exclusively to themselves at the expenses of minority shareholders. All other things being equal, if it can be proven that general corporate use is employed in related party transactions, it provides supporting evidence that the agency conflict between controlling shareholders and minority shareholders exists. We are interested in testing the same four theories concerning SEO motivations as in Chapter 3. The following potential destinations of general corporate use reflecting firms' SEO motivations are chosen after a literature review: the movement in cash as a reflection of the information asymmetry theory (Greenwood 2005; Kim and Weibach 2008), administrative expenses as a reflection of the agency conflict between managers and shareholders (Bai et al. 2004; Bo et al. 2011), related party transactions as a reflection of the agency conflict between controlling shareholders and minority shareholders (Jian and Wong 2004), Capital expenditure as a reflection of the financing

under growth theory, and the movement in leverage as a reflection of the trade-off theory. Empirically, we borrow Kim and Weibach's (2008) model to examine the destination of general corporate use. The regression results show that general corporate use are spent in investments, cash, administrative expenses, and very weakly in related party transactions. In a further investigation on the impact of general corporate use on investments, we show that the change of investments use from general corporate use is not due to the change in the investment opportunity. Hence, it is possible that investments from general corporate use contain over-investment, which is the reflection of the agency conflict between managers and shareholders (Walker and Yost 2008). In conclusion, in Chapter 4 we find evidence supporting the information asymmetry theory and the agency conflict between managers and shareholders, and very weak evidence supporting the agency conflict between controlling shareholders and minority shareholders. Furthermore, we investigate the relationship between general corporate use and firms' post-issue long-term stock and operating performance. The significant negative impact of general corporate use on both firms' long-term stock and operating performance confirms that the utilisation of general corporate use impairs firms' value which may be motivated by the information asymmetry theory and the agency theory.

Private placements have become the most popular SEO method in the Chinese stock market since its introduction in 2006, which is the focus of Chapter 5. A study on such a popular SEO method is essential to provide a more complete knowledge of Chinese SEOs. A distinct feature of private placements is that the number of investors of new shares is low. For example, in Chinese private placements, the number of investors of new shares is capped to ten investors by regulations. As a result, issuing firms have more block shareholders or more concentrated ownership structure after private placements. We identify a research gap not only in the Chinese stock market, but also in

mature markets. In mature markets, private placements are considered to improve the agency conflict between managers and shareholders by introducing more block shareholders or more concentrated ownership structure. However, there is no research concerning how private placements could affect the agency conflict between controlling shareholders and minority shareholders. This is probably because in mature markets, minority shareholder protection is already relatively well addressed and ownership structure is dispersed. In the Chinese stock market, ownership structure is concentrated. Additional (non-state) block shareholders can improve monitoring over not only managers but also controlling shareholders who are in many cases the state. In other words, private placements can improve firms' shareholder contestability (Burkart, Gromb, and Panunzi 1997; Bennedsen and Wolfenzon 2000), which is beneficial to improve the agency conflict between controlling shareholders and minority shareholders. The relationship between private placements and shareholder contestability is our research objective in Chapter 5. Data from firms' private placement announcements is hand collected. We first show that the market reaction to private placement announcements is significantly positive while the market reaction to public offering announcements is not significantly different from zero. The result of a better market reaction to private placements is consistent with literature in connection to mature markets. We then use the market reaction to private placement announcements as a tool to investigate shareholder contestability. Our empirical results show that the market reaction is better for firms with more severe pre-issue agency conflict and those who experience an improvement in shareholder contestability during the private placement process. The volume of firms' pre-issue related party transactions and a dummy variable of the pre-issue absence of institutional investors in the firms' top 3 shareholders measure the pre-issue agency conflict. In conclusion, our results show that the agency conflict between controlling shareholders and minority shareholders is an important

concern among investors in China. Private placements can improve firms' shareholders contestability, which is beneficial to improve firms' agency conflict between controlling and minority shareholders.

6.2 Implications of the thesis

We are able to make contributions to the existing literature by testing four standard theories concerning the SEO motivation in China and examining Chinese private placements. The fundamental message from this thesis is that Chinese listed firms' SEO behaviour is not hugely different from that of firms in a mature market, although there are still some distinctions. The similarity between the Chinese stock market and a mature stock market is that the mainstream theories concerning SEO motivation in a mature market also apply in China. Other similarities include SEO firms' post-issue long-term underperformance and better market reaction to private placements than public offerings. Regulators and investors should understand that SEOs could be beneficial for firms' value if SEOs are motivated by, for example, growth and/or capital structure optimisation. Similarly to that in mature markets, SEOs should always be under scrutiny because firms' value will be impaired if SEOs are motivated by, for example, the agency conflict. The difference between the Chinese stock market and a mature stock market is that due to the Chinese institutional environment, the agency conflict between controlling shareholders and minority shareholders plays a role in the SEO decision while such an agency conflict is not a concern in mature market SEOs. The agency conflict between controlling shareholders and minority shareholders is an important issue in some eastern European and eastern Asian countries where ownership structure is concentrated (La Porta, et al., 1999; Claessens et al., 2002). The concentrated ownership could be the result of family control or state control which is

the case in China. Hence, this discrepancy means that the agency conflict between controlling shareholders and minority shareholders might not be severe in a mature market, but could be an important issue in some countries like China.

One implication from our empirical work in Chapter 3 is that managerial shareholding as a corporate governance mechanism has an impact on firms' SEO decision from 2002 to 2006 but does not have an impact from 1998 to 2001. In other words, the development or the increase in managerial holding might improve firms' corporate governance in China over the years. However, managerial holding in China is still very low. For example, from 2002 to 2006, the average holding by board of directors, chairman, and the CEO is represented by 0.27%, 0.09%, and 0.02% respectively. Hence, regulators and society should continually encourage managerial holding in the future.

Our empirical work in Chapter 4 shows that general corporate use is motivated by the information asymmetry theory and the agency theory, and is negatively related to firms' post-issue long-term performance. We think that general corporate use may help managers (or existing shareholders) hide their agency conflict motivation (or the market timing motivation). In other words, investors and regulators should scrutinise either general corporate use before SEOs or the announcement to increase general corporate use after SEOs. As a matter of fact, the current regulation already mentions that firms cannot change the use of proceeds without appropriate and plausible explanation. Hence, regulators need to strengthen the implementation of this regulation in the future.

Our empirical work in Chapter 5 shows that the market reaction to private placement announcements is significant positive on average. Private placements can help to improve firms' shareholder contestability by introduction of more (non-state) block

shareholders. The result justifies regulators' release over the exemption of private placements from profitability requirement. In other words, heavy administrative regulations are not required for private placements, which are better investigated by institutional investors. In the future, regulators and society should not only continuously encourage private placements but also other alternative mechanisms to strengthen corporate governance and due diligence by firms.

6.3 Future research

There is a phrase, which is used to describe the Chinese economic reform since 1978: "crossing the river by groping for stones". We think that the regulators' behaviour on SEOs is consistent with the idea of gradualism behind this phrase. For example, the conduction of SEOs could only be completed through rights issue at the start. After a trial period for public offerings, it became officially introduced in 2001, and then in 2006, the launch of private placement occurred after the split-share reform.

Regarding the profitability requirement, it can be seen that public offerings suffer the most severe profitability requirement, whilst private placements are exempt from the profitability requirement. The strictness of the overall profitability requirement has been reduced with time. Therefore, the first aspect of future research could be SEO regulations. Questions asked could include: whether the profitability requirement was effective as a corporate governance mechanism in the last decade? Whether the profitability requirement remains a necessity? And if a profitability requirement is still required, if so, what other approaches could regulators adopt in order to remove the rigorous requirement in the near future? Dang and Yang (2007) and Chen and Wang (2007) provide an example to examine the issue of the suitability of the profitability

requirement as an alternative mechanism for firm quality certification. The sample period of Chen and Wang (2007) and Dang and Yang (2007) is from 1996 to 1998 and from 2000 to 2004 respectively. The impact of recent developments in Chinese stock market such as the implementation of the sponsor system in 2004, the split-share reform, and private placements are of particular interest to us. The question is whether the empirical result will be different from that in Dang and Yang (2007) and Chen and Wang (2007). If the result shows that the quality of firms is indistinguishable by the profitability requirement then this probably means that the profitability requirement may no longer be necessary. If the result shows that the profitability requirement still plays a role, we could probably extend the research method to more qualitative research such as a case study and survey to find what could be done to remove the profitability requirement. Interviewing a reasonably large number of managers, shareholders, and security firms may provide useful information and suggestions to regulators. It may help to shape their SEO policy in the future to achieve a trade-off between heavy or administrative regulations and market mechanisms in order to facilitate a flexible SEO process while maintaining an essential level of corporate governance.

Another aspect of future research could be on the topic of private placements. Private placements are not negligible in mature markets. This is because private placements are considered to be more capable of reducing agency conflict and information asymmetry compared to public offerings or rights issues. Our research adds new evidence to private placement literature from the perspective of private placement impacts on the agency conflict between controlling shareholders and minority shareholders. Future research could focus more on whether Chinese private placements can reduce information asymmetry compared to other issuing methods. In China, private placements (introduced in 2006) are relatively new to the market. Since its introduction, it has

become the most popular SEO method. One possible reason of this popularity is that private placements are exempt from the profitability requirement. Future research could test whether the popularity of private placements is really the result of the profitability requirement. More generally, we also want to understand what other reasoning is given behind the popularity of private placements apart from the profitability requirement. Economically, we want to understand the rational behind private placements and whether it is out of firms' choice. For example, is it out of the need to reduce information asymmetry cost or to improve corporate governance that firms choose private placements or whether it is the profitability requirement that has forced firms to conduct private placements? If we can provide evidence that firms do not passively choose private placements but proactively decide to conduct private placements over their concern for information asymmetry and agency conflict, we are able to say that Chinese SEO behaviour is converging to that of a mature market. Additionally, if private placements are able to help firms improve corporate governance, we would expect the long-term stock or operating performance of private placements to be better than that of rights issues or public offerings.

6.4 Limitations of the study

The first limitation of the study is in relation to H shares in the Hong Kong stock market and American Depositary Receipts (ADRs)[42]. H share firms contain two types of firms: (1) firms which are incorporated in China mainland and conduct their IPOs in the Hong Kong stock market; (2) firms which are incorporated in China mainland and conduct their IPOs in the China mainland stock exchanges but raise more equity through SEOs in the Hong Kong stock market. Chinese ADR stocks also contain two types of firms: (1) firms which are incorporated in China mainland and conduct their IPOs in the U.S.

[42] Special thanks to Dr Yothin Jinjarak for comments on H shares and ADRs.

stock exchanges; (2) firms which are incorporated in China mainland and conduct their IPOs in the China mainland stock exchanges but raise more equity through SEOs in the U.S. stock exchanges. Unfortunately, we have limited data access to Chinese firms' H shares and ADRs. We admit that these China mainland listed firms who raise more equity or conduct SEOs in the Hong Kong stock market and U.S. stock market could be particularly relevant to our research. The study on H shares and ADRs is a limitation of this research but could be an interesting topic of future research.

Secondly, we acknowledge that there could be endogeneity problem in our estimations[43]. An independent variable is considered to be endogenous if it is correlated to the error term. Without considering endogeneity problem, we may not be able to safely conclude a causal relationship between independent variables dependent variables. The main causes of endogeneity which could be relevant to our estimations in the thesis include the followings. (1) Endogeneity is caused by omitted variables. This means even though we find a significant relationship between independent variables and dependent variable, we may not be able to safely conclude a causal relationship. This is because there could be an omitted variable which affects both independent variables and dependent variable. In other words, the true causal relationship could be between the omitted variable and dependent variable. (2) Endogeneity is caused by simultaneity. This means that dependent variable and independent variables are jointly determined. An example of this is price and quantity in supply and demand model.

In panel data models with a continuous dependent variable, endogeneity can be dealt with the Arellano and Bond's (1991) Generalized Method of Moments (GMM) first-difference estimator or Blundell and Bond's (1998) system-GMM estimator.

[43] Special thanks to Professor Alessandra Guariglia for comments on endogeneity.

Unfortunately, none of our main estimation has a panel data structure with a continuous dependent variable. In Chapter 3, our dependent variable is binary which is the SEO decision. Our estimations in Chapter 4 and 5 are all cross-sectional estimations. In the case of cross-sectional models and panel data models with a discrete dependent variable, one way to deal with endogeneity is to use instrumental variables for endogenous independent variables. An instrumental variable may, to some extent, be able to solve the endogeneity problem if it is selected in a way that it only affects dependent variable only through its effect on the endogenous independent variable. An instrumental variable needs to be correlated with the endogenous independent variable but not correlated with the error term. The potential problem of the method of instrumental variables is that it is not easy to select an appropriate instrumental variable and sometimes an appropriate instrumental variable might not be available.

Hence, the question is to what extent estimations in this thesis suffer from the endogeneity problem. In general, many of our regressions might not suffer seriously from the ambiguous causality between dependent variable and independent variables. In Chapter 5, our dependent variable is the market reaction to the private placement announcement. The window period is [-5,5], [-10,10], and [-20,20]. Independent variables include 6 month share return prior to the issue, controlling shareholders' participation, pre-issue related party transactions, and pre-issue ownership feature in term of the absence of financial institutional investors within top 3 shareholders. We think it is very hard to conclude that firms' pre-issue share return, related party transactions, and ownership feature are determined by the market reaction to an event which is absolutely uncertain to happen in the future.

In Chapter 4, our key independent variable is proceeds or general corporate use. Our dependent variable is either post-issue spending or post-issue performance. Again, it is hard to conclude that either the amount of proceeds or general corporate use raised in SEOs is determined by firms' post-issue performance in the future which is absolutely uncertain at the time of the SEO decision. In other words, the causality between post-issue performance and proceeds or general corporate use does not seem to be ambiguous. Regarding post-issue spending estimation, we think the problem of omitted variable should be at a least extent. This is because the estimation is not a normal determination model, but a model to check the sensitivity between cash inflow and cash outflow. The right hand side of the equation includes all cash inflow into the business (so no cash inflow is omitted) and the left hand side of the equation presents different type of spending. Regarding simultaneity problem, to a weak extent, we could argue that, for example, firms may use their future investment plans to determine how much they need to raise during SEOs. However, our conclusion is not affected by the direction of the causality between dependent variable and independent variables. Our conclusion on SEO motivation is based on where firms spend their proceeds or general corporate use. It does not matter whether proceeds or general corporate use determines post-issue spending or whether post-issue spending determines proceeds or general corporate use. Both of the directions could support our conclusion on SEO motivations. However, endogeneity problem may still lead to inconsistent estimations. Even if we aim to deal with endogeneity problem, we may still face the difficulty of a lack of instrumental variable for the endogenous variable. Our key independent variable is proceeds or general corporate use. It may be difficult to find an instrument variable which could be correlated to proceeds or general corporate use, but not the error term. This is because proceeds or general corporate use is a very isolated feature which only belongs to the event of SEOs.

In Chapter 3, Equation (3.1) is a panel data model with a discrete dependent variable to test the trade-off theory, the information asymmetry theory, and the growth theory which is proxied by firms' time-variant measurement of pre-issue leverage (deviation from an optimal level), stock return, and growth. Equation (3.3) is a cross-sectional model with a discrete dependent variable to test the agency conflict which is measured by ownership structure. In Equation (3.3), we take average of independent variables, so post-issue ownership structure will be included into the estimation as well. Hence, the question is whether SEOs can significantly change ownership structure. As we demonstrated in Chapter 5, private placements could change ownership structure in a more dramatic way. However, in our sample in Chapter 3, private placements are rare, and the impact of public offerings and rights issues on firms' ownership structure is very limited. In general, the agency conflict or corporate governance is a set of economic, legal, political, and cultural processes, and will not be easily changed by a single event like the SEO. Hence, we think ownership structure is an exogenous variable. Regarding the independent variables in Equation (3.1), the variable of the deviation from the optimal leverage level which is used to proxy the trade-off theory might be endogenous. This is because if the estimation for Equation (3.2) is endogenous, the independent variables in Equation (3.2) will be correlated to the error term which is termed as the deviation from firms' optimal leverage. We use the error term from Equation (3.2) as an independent variable in Equation (3.1). Some of independent variables in Equation (3.1) are also the independent variables in Equation (3.2). Hence, it is possible that the error term as an independent variable in Equation (3.1) is correlated to other independent variables in Equation (3.1). To deal with the potential endogeneity problem, we choose the lagged error term for Equation (3.1) as an instrumental variable to the original variable. In other words, the original variable to

proxy the trade-off theory is the pre-issue error term which is termed as the deviation from firms' optimal leverage. The lagged error term is the error term two or three years prior to issues. Appendix 16 shows the results of using lagged error term as the instrumental variable which are similar to the results of original estimations.

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Appendix

Appendix 1: H shares and American Depositary Receipts (ADRs)

According to Hong Kong stock exchange fact book, by the end of 2009, there are 116 H share companies in the main board, and 40 H share companies in the Growth Enterprise Market (GEM). H share firms contain two types of firms: (1) firms which are incorporated in China mainland and conduct their IPOs in the Hong Kong stock market; (2) firms which are incorporated in China mainland and conduct their IPOs in the China mainland stock exchanges but raise more equity through SEOs in the Hong Kong stock market.

By the end of 2010, there are 185 Chinese ADR stocks traded on the U.S. organised exchanges (i.e. NYSE, NASDAQ, AMEX)[44]. Chinese ADR stocks also contain two types of firms: (1) firms which are incorporated in China mainland and conduct their IPOs in the U.S. stock exchanges; (2) firms which are incorporated in China mainland and conduct their IPOs in the China mainland stock exchanges but raise more equity through SEOs in the U.S. stock exchanges.

Both H shares and ADRs present Chinese firms' effort to raise equity when the domestic stock markets are not able satisfy their financing demand. For example, before Chinese Small and Medium Enterprise board was established in 2004 and Chinese Growth Enterprise Market board was established in 2009, high growth but low profit and size firms are not able to go public under Chinese main boards. Another example is that Chinese firms could go aboard for equity when the domestic stock market is at a low point. On the other hand, some Chinese firms believe that raising equity in a non-domestic market is a signal for a better quality firm. This is because the regulation and

[44] Source: http://chinamarketpro.com

the disclosure requirement which Chinese firms face abroad is stricter than that in the domestic Chinese stock market. Hence, Chinese firms' willingness to face a more challenging stock market in term of financial transparency could indicate firms' quality.

Unfortunately, we have limited data access to Chinese firms' H shares and ADRs. We admit that these China mainland listed firms who raise more equity or conduct SEOs in the Hong Kong stock market and U.S. stock market could be particularly relevant to our research. The study on H shares and ADRs is a limitation of this research but could be an interesting topic of future research.

Appendix 2: timeline of major stock market regulation changes mentioned in Chapter2

This appendix summarises major stock market regulation changes mentioned in Chapter2.

Appendix 3: definition of variables

Panel A: variables in Chapter 3

Symbol	Definition
Eq. (3.1) y_{it}	=1, if the firm i conducts a SEO within year t, and 0 otherwise
$TIME_i$	=1, if the year is before 2002, and 0 if the year is during 2002 and 2006 to reflect the diminished amount of SEO activity in the second period
$size_{it-1}$	the natural log of the firm's total assets
$YrEI_{it}$	years since the firm's last equity issue which includes the IPO and SEOs
$profit_{it-1}$	earnings before interest and taxes ($EBIT$) divided by total assets
Lev_indus_{it-1}	the firm's leverage minus (GICS 4-digit or 2-digit) industry average
Lev_{it-1}	firm's leverage is measured by interest-bearing (short/long-term) loans divided by total assets
PSR_{it-1}	six-month share returns prior to the SEO. If there is no SEO during a year for a firm, this measure is the previous year's second half year's return
$\mathrm{Re}vG_{it-1}$	the percentage change in operating revenue
Eq. (3.3) y_i	=1, if the firm has conducted at least one SEO during the sub-sample period, and 0 if the firm with the age of more than three has never conducted SEOs since 1994
$size_{i,avg}$	the average of the natural log of the firm's total assets
$profit_{i,avg}$	the average of earnings before interest and taxes ($EBIT$) divided by total assets
$TANG_{i,avg}$	the average of total fixed assets divided by total assets
$Lev\_indus_{i,avg}$	the average of the difference between firms' leverage and their industry average leverage
$PSR_{i,avg}$	the average of revenue growth
$SD_{i.avg}$	= 1 if the firm is a state-controlling list firm and 0 otherwise
$LH_{i.avg}$	the average of the largest shareholder's holding
$TH_{i.avg}$	the average of the sum of top 10 shareholders' holding
$NTH_{i.avg}$	the average of non-tradable shares holding
$BoDH_{i.avg}$	the average of the holding of board of directors
$CH_{i.avg}$	the average of the chairman's holding in board of directors
$CEOH_{i.avg}$	the average of the CEO's holding

Appendix 3: definition of variables (continued)

Panel B: variables in Chapter 4

Symbol	Definition
Cash	firm's cash balance
Debt	firm's leverage is measured by interest-bearing (short/long-term) loans divided by total assets
CapExp	firm's capital expenditure (retrieved from cash flow statement)
AE	firm's administrative expenses
RPT	firm's related party transactions
Other _ sources	the sum of net cash flow from operations, cash inflow from investment, and cash inflow from financing activities excluding proceeds from current SEOs (retrieved from cash flow statement
proceeds	SEO proceeds
$USE^{General}$	general corporate use of SEO proceeds
USE^{Invest}	investment corporate use of SEO proceeds
ChangeGrowth	the change in the growth rate of revenue $(Growth_t - Growth_{t-1})$
$Size_{i,-1}$	the natural log of total assets at the year-end prior to SEO
$MtoB_{i,-1}$	the natural log of issuing firms' market capitalisation divided by book value of equity at the year-end prior to the SEO
$pre-op_{i,-1}$	issuing firms' EBIT over total assets (ROA) at the year-end prior to the SEO
$pre-stock_{i,-1}$	the issuing firms' 12-month return preceding their SEOs
$EIdumB_{i,-1}$	a dummy variable measuring whether firms conduct SEOs/IPOs in the three years prior to SEOs.
$EIdumA_{i,t}$	a dummy variable measuring whether firms conduct further SEOs in period (*t*) after the current SEO

Appendix 3: definition of variables (continued)

Panel C: variables in Chapter 5

Symbol	Definition
$Size_i$	the natural log of total assets
PSR_i	firms' 6 month share return prior to the board meeting date
$Controlling\_dum_i$	=1, if controlling shareholder subscribes to new shares in the private placement, and zero otherwise
$Agency_{i,-1}$	pre-issue agency conflict
RPT	the total amount of related party transactions scaled by total assets in the year prior to private placements
$AoFII$	=1, if there are no financial institutional investors in the top 3 shareholders, and zero otherwise
$LoSC_{i,+ve}$	=1, if firms' lack of shareholder contestability increases after private placement (i.e. a positive change in the measurement means a worse shareholder contestability after private placements), and zero otherwise
$LoSC_{i,-ve}$	=1, if firms' lack of shareholder contestability decreases after private placement (i.e. a negative change in the measurement means a better shareholder contestability after private placements), and zero otherwise
$Top1/Top2to10$	the largest shareholder's holding divided by the second largest to tenth largest shareholders' total holding
HI_diff	$(Vote1-Vote2)^2+(Vote2-Vote3)^2$. In other words, the Herfindahl index measurements of difference is the sum of the square of the difference between the largest shareholder' holding and the second largest shareholder's holding and the square of the difference between the second largest shareholder' holding and third largest shareholder's holding

Appendix 4: the structure of data

The sample period for Equation (3.1) in Chapter 3 is from 1994 to 2006. This is a period from when Chinese SEO data is available in the CCER database to the last financial year before this research began. The structure of the panel of the sample firm-year observations used in Equation (3.1) is shown in the following table.

year	No. of obs.
1994	140
1995	160
1996	177
1997	347
1998	457
1999	470
2000	539
2001	477
2002	588
2003	640
2004	651
2005	647
2006	676
Total	5969

The sample period for Equation (3.3) in Chapter 3 is from 1998 to 2006. The sample from 1994 to 1997 is missing because corporate governance data used in Equation (3.3) is not available for Chinese listed firms before 1998.

The sample period in Chapter 4 is from 1998 to 2003. The sample from 1994 to 1997 is missing because neither cash flow statement nor use data of SEO proceeds is available for Chinese list firms before 1998. The sample from 2004 to 2006 is missing because we need three years' financial information of firms after SEOs to study firms' post-issue spending of their SEO proceeds and firms' post-issue performance.

The sample period in Chapter 5 is from 2006 (when private placements became available to Chinese listed firms) to 2009 (the last financial year before the research on Chapter 5 began).

Appendix 5: revised leverage prediction model

Apart from the leverage prediction model in the main text, we also use different prediction models and estimation for robustness. The revised leverage prediction models include new independent variables such as regional dummy. The new method of estimation is fixed-effect panel data.

Pooled OLS:

$$Leverage_{it} = \beta_0 + \beta_1 size_{it} + \beta_2 TANG_{it} + \beta_3 profit_{it} + \beta_4 \mathrm{Re}vG + \beta_5 Full\_year\_ret + \beta_6 NTholding_{it} + \beta_7 YearD_{it} + \beta_8 IndustryD_{it} + \beta_9 regionD_{it} + \varepsilon_{it}$$

Fixed-effect panel data:

$$Leverage_{it} = \beta_0 + \beta_1 size_{it} + \beta_2 TANG_{it} + \beta_3 profit_{it} + \beta_4 \mathrm{Re}vG + \beta_5 Full\_year\_ret + \beta_6 NTholding_{it} + \beta_7 YearD_{it} + \beta_8 \alpha_i + u_{it}$$

$Leverage_{it}$ = the firm's leverage. Leverage is measured by interest-bearing (short/long-term) loans divided by total assets.

$size_{it}$ = the natural log of the firm's total assets.

$TANG_{it}$ = the average of total fixed assets divided by total assets

$profit_{it}$ = earnings before interest and taxes ($EBIT$) divided by total assets.

$\mathrm{Re}vG_{it}$ = the percentage change in operating revenue.

$Full\_year\_ret_{it}$ = the firm's full year stock return.

$NTholding_{it}$ = the firm's non-tradable shares holding.

$YearD_{it}$ = year dummy.

$IndustryD_{it}$ = GICS 2-digit industry dummy.

$regionD_{it}$ = region dummy.

ε_{it} = pooled OLS error term

α_{it} = firm's fixed effect

u_{it} = firm's fixed effect error term

The place of firms' incorporation is used to identify which provincial unit the firm belongs to. The distribution of these provincial units across regions is as follows (Guariglia, Liu, and Song 2011):

Table A5.1: classification of Chinese provincial units

Coastal region	Central region	Western region
Beijing	Shanxi	Chongqing
Tianjin	Inner Mongolia	Sichuan
Hebei	Jilin	Guizhou
Liaoning	Heilongjiang	Yunnan
Shanghai	Anhui	Tibet
Jiangsu	Jiangxi	Shaanxi
Zhejiang	Henan	Gansu
Fujian	Hubei	Qinghai
Shandong	Hunan	Ningxia
Guangdong		Xinjiang
Hainan		
Guangxi		

Table A5.2: results for revised leverage prediction model:

	Pooled	***FE***
Size	0.022	0.076
	(13.58)***	(27.62)***
TANG	0.033	0.050
	(3.62)***	(5.10)***
Profit	-0.657	-0.439
	(-29.33)***	(-26.00)***
RevG	0.015	0.005
	(4.66)***	(2.05)**
Full_year_ret	0.007	0.002
	(1.78)*	(0.78)
NTSH	-0.058	0.128
	(-4.76)***	(6.64)***
Constant	-0.144	-1.446
	(-4.06)	(-23.27)
Year dummy	Yes	Yes
Industry dummy	Yes	No
Region dummy	Yes	No
Number of obs	10,031	10,031
F-value	48.70	108.61
R-squared	0.120	
Adj R-squared	0.118	

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: financial and share return data from the China Centre for Economic Research (CCER)

Appendix 6: revised model for Equation (3.1)

In order to add robustness test to the results of equation (3.1), we use different estimation methods to estimate equation (3.1). The model in equation (3.1) or Table 3.2 is estimated by firm clustered regression. The differences between the model in equation (3.1) or Table 3.2 and the model in this appendix include: (1) regarding the estimation method, we first use pooled logit and probit estimation, and then fixed-effect logit, random-effect logit, and random-effect probit in this appendix. We also report the marginal effect of these estimations which is used to show the economic significance of the coefficients associated with the independent variables. (2) In this appendix, the residual of the optimal leverage prediction model (using pooled OLS and fixed-effect panel estimation respectively) in appendix 5 is used to measure firms' deviation from their optimal leverage. The model in this appendix also includes the regional dummy if it is possible.

$$y_{it} = \beta_1 YrEI_{it} + \beta_2 size_{it-1} + \beta_3 profit_{it-1} + \beta_4 Lev\_indus_{it-1} + \beta_5 PSR_{it-1} + \beta_6 \mathrm{Re}vG_{it-1} + \beta_7 YearD + \beta_8 IndustryD + \beta_9 regionD + \varepsilon_{it}$$

We first estimate the model by pooled logit and probit regression and report the marginal effect in Table A6.1 and A6.2 respectively. As shown in Table 6.1, the coefficient for the measurement of growth becomes not significant when the residual of a pooled OLS leverage prediction model is used. This result is consistent with the result shown in column (11) of Table 3.2, where the coefficient for the measurement of growth is also not significant when the residual from the original leverage prediction model is in the regression. The possible reason is that the leverage prediction model may absorb some effect of firms' growth. Compared to the economic significance of the coefficients associated with the measurement of the trade-off theory and the information

Table A6.1: result for revised Equation (3.1) estimated by pooled logit and probit

$Lev\_res\_pooled_{it-1}$ = the residual of the leverage prediction model estimated by pooled OLS in Appendix 5.

$Lev\_res\_FE_{it-1}$ = the residual of the leverage prediction model estimated by fixed-effect panel data in Appendix 5.

	Pooled logit			Pooled probit		
	1	2	3	4	5	6
YrEI	-0.100	-0.119	-0.085	-0.049	-0.059	-0.043
	(-3.45)***	(-3.57)***	(-2.57)**	(-3.13)***	(-3.31)***	(-2.43)**
Size	0.090	0.133	-0.364	0.055	0.076	-0.205
	(1.69)*	(2.16)**	(-1.69)*	(1.82)*	(2.21)**	(-1.73)*
Profit	14.723	18.122	18.043	8.466	10.462	10.439
	(13.95)***	(14.71)***	(12.13)***	(14.35)***	(15.11)***	(12.57)***
Lev_indus	1.877			1.031		
	(5.51)***			(5.45)***		
Lev_res_pooled		2.853			1.601	
		(7.20)***			(7.28)***	
Lev_res_FE			6.594			3.712
			(2.37)**			(2.42)**
PSR_sec	1.662	2.357	2.449	0.910	1.325	1.374
	(11.40)***	(12.70)***	(13.30)***	(11.81)***	(13.24)***	(13.88)***
RevG	0.320	0.165	0.207	0.193	0.096	0.121
	(3.38)***	(1.53)	(1.96)**	(3.55)***	(1.57)	(2.01)**
Constant	-2.984	-3.916	4.848	-1.817	-2.291	2.689
	(-2.61)	(-2.97)	(1.26)	(-2.82)	(-3.10)	(1.27)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Region dummy	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs	5,473	4,770	4,781	5,473	4,770	4,781
LR chi square	1,475	1,451	1,407	1,487	1,465	1,421
Log likelihood	-1,824	-1,427	-1,451	-1,818	-1,420	-1,444
Pseudo R2	0.288	0.337	0.327	0.290	0.340	0.330

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A6.2: marginal effect for the result in Table A6.1

	Pooled logit			Pooled probit		
	1	2	3	4	5	6
YrEI	-0.007	-0.006	-0.005	-0.008	-0.007	-0.005
Size	0.006	0.007	-0.021	0.008	0.009	-0.026
Profit	1.046	0.969	1.038	1.294	1.233	1.323
Lev_indus	0.133			0.158		
Lev_res_pooled		0.153			0.189	
Lev_res_FE			0.379			0.470
PSR_sec	0.118	0.126	0.141	0.139	0.156	0.174
RevG	0.023	0.009	0.012	0.030	0.011	0.015

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

asymmetry theory, the economic significance of the coefficients associated with the growth is low according to Table A6.2, ranging from 0.01 to 0.03 which is relatively low. The result is, to some extent, consistent with the result in Chapter 4 that firms' post-issue investment is not correlated to the change in firms' growth opportunity. In other words, the validation of growth theory in SEO motivation is weakened.

As shown in Table 6.2, the economic significance of the coefficients associated with firms' pre-issue profitability ranges from 0.97 to 1.32. This means a 1% increase in profitability will lead to 0.97% – 1.32% increase in the probability that a firm will conduct a SEO. This result reflects the rigorous impact of SEO profitability regulation. The economic significance of the coefficients associated with firms' deviation from their optimal leverage level which is the proxy of the trade-off theory ranges from 0.13 to 0.47. This means a 10% deviation will lead to 1.3% – 4.7% increase in the probability that a firm will conduct a SEO. The economic significance of the coefficients associated with the pre-issue share return which is the proxy of the information asymmetry theory ranges from 0.12 to 0.17. This means a 10% share return will lead to 1.2% – 1.7% increase in the probability that a firm will conduct a SEO.

To provide more robustness test, we estimate the model by fixed-effect or random-effect panel data regression. We noted that fixed-effect panel estimation is not available to a probit estimation, and the marginal effect calculation is not available to a fixed-effect logit estimation. Hence, we use fixed-effect and random-effect logit estimation and random-effect probit estimation, and report marginal effect for random-effect logit/probit estimation.

Table A6.3: result for revised Equation (3.1) by panel estimation

	Fixed-effect logit			Random-effect logit			Random-effect probit		
	1	2	3	4	5	6	7	8	9
YrEI	1.133	1.454	1.513	-0.100	-0.119	-0.085	-0.049	-0.059	-0.043
	(14.21)***	(13.71)***	(14.45)***	(-3.45)***	(-3.57)***	(-2.57)**	(-3.14)***	(-3.31)***	(-2.43)**
Size	0.886	1.485	1.461	0.091	0.133	-0.366	0.055	0.076	-0.207
	(4.77)***	(5.63)***	(2.53)**	(1.70)*	(2.17)**	(-1.70)*	(1.83)*	(2.22)**	(-1.74)*
Profit	12.821	16.262	17.074	14.722	18.123	18.056	8.466	10.463	10.447
	(8.57)***	(7.18)***	(4.59)***	(13.95)***	(14.71)***	(12.15)***	(14.35)***	(15.11)***	(12.59)***
Lev_indus	1.811			1.875			1.030		
	(2.69)***			(5.50)***			(5.44)***		
Lev_res_pooled		2.264			2.849			1.599	
		(2.53)**			(7.19)***			(7.27)***	
Lev_res_FE			3.022			6.627			3.732
			(0.40)			(2.39)**			(2.44)**
PSR_sec	1.421	2.412	2.370	1.662	2.357	2.449	0.910	1.326	1.374
	(8.35)***	(9.44)***	(9.37)***	(11.39)***	(12.71)***	(13.31)***	(11.81)***	(13.25)***	(13.88)***
RevG	0.218	-0.012	-0.030	0.320	0.165	0.207	0.193	0.096	0.121
	(1.83)*	(-0.08)	(-0.19)	(3.38)***	(1.52)	(1.97)**	(3.55)***	(1.57)	(2.01)**
Constant				-2.758	-3.814	5.108	-1.708	-2.243	2.830
				(-2.45)	(-2.94)	(1.32)	(-2.70)	(-3.09)	(1.33)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummy	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Region dummy	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs	5,171	4,008	4,016	5,473	4,770	4,781	5,473	4,770	4,781
LR chi square	1,708	1,608	1,605	820	744	744	950	858	855
Log likelihood	-819	-503	-507	-1,824	-1,427	-1,451	-1,818	-1,420	-1,444

*, **, and *** stand for 90%, 95%, and 99% confidence interval.

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A6.4: marginal effect for the result in Table A6.3

	Random-effect logit			Random-effect probit		
	1	2	3	4	5	6
YrEI	-0.007	-0.006	-0.005	-0.008	-0.007	-0.005
Size	0.006	0.007	-0.021	0.008	0.009	-0.026
Pro	1.046	0.969	1.038	1.294	1.233	1.324
Lev_indus	0.133			0.157		
Lev_res_pooled		0.152			0.188	
Lev_res_FE			0.381			0.473
PSR_sec	0.118	0.126	0.141	0.139	0.156	0.174
RevG	0.023	0.009	0.012	0.030	0.011	0.015

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

The results based on the panel estimation in Table A6.3 are similar to the results based on the pooled estimation in Table A6.1. The coefficients for the measurement of the trade-off theory and the information asymmetry theory are positively significant, and the economics significance of the coefficients is also high (ranging from 0.13 to 0.47 for the proxies of the trade-off theory and ranging from 0.12 to 0.17 for the information asymmetry proxy). The coefficient for growth is significant in columns 4, 6, 7 and 9 columns in Table A6.3. The economic significance of the coefficients associated with growth is also low, ranging from 0.009 to 0.030. Although the impact of growth on SEO decision could be positively significant as shown in Table 3.2, compared to the impact of other theories, the impact of growth becomes weakened.

Appendix 7: revised model for Equation (3.3)

In the revised model, we aim to verify whether the results are robust to using the medians instead of the means of the independent variables across all available years. Using medians would enable us to minimize the effects of outlying observations. Additionally, instead of estimating Equation (3.3) separately for two time periods (Tables 3.3 and 3.4), we estimate one single regression where each regressor is interacted with a dummy equal to 1 in the first period, and 0 otherwise; and a dummy equal to 1 in the second period, and 0 otherwise. This would enable us to gain degrees of freedom and to test whether the effect of each of our regressors is indeed statistically different in the two time periods. Hence, our revised model is:

$$
\begin{aligned}
y_i = {} & \alpha + \beta_1 size_{i,med} \times dum_{9801} + \beta_2 size_{i,med} \times dum_{0206} + \beta_3 profit_{i,med} \times dum_{9801} \\
& + \beta_4 profit_{i,med} \times dum_{0206} + \beta_5 TANG_{i,med} \times dum_{9801} + \beta_6 TANG_{i,med} \times dum_{0206} \\
& + \beta_7 Lev\_indus_{i,med} \times dum_{9801} + \beta_8 Lev\_indus_{i,med} \times dum_{0206} + \beta_9 PSR_{i,med} \times dum_{9801} \\
& + \beta_{10} PSR_{i,med} \times dum_{0206} + \beta_{11} \mathrm{Re}vG_{i,med} \times dum_{9801} + \beta_{12} \mathrm{Re}vG_{i,med} \times dum_{0206} \\
& + \beta_{13} SD_{i,med} \times dum_{9801} + \beta_{14} SD_{i,med} \times dum_{0206} + \beta_{15} OwnCon_{i,med} \times dum_{9801} \\
& + \beta_{15} OwnCon_{i,med} \times dum_{0206} + \beta_{16} ManHold_{i,med} \times dum_{9801} + \beta_{17} ManHold_{i,med} \times dum_{0206} \\
& + \beta_{18} IndustryDum + \beta_{19} regionDum + \varepsilon_i
\end{aligned}
$$

dum_{9801} = 1 if the period is from 1998 to 2001, and 0 otherwise.

dum_{0206} = 1 if the period is from 2002 to 2006, and 0 otherwise.

Region dummy variables ($regionDum$) are the same as defined in Appendix 5. The rest variables are the same as defined in Equation (3.3).

Table A7.1: results for revised model for Equation (3.3)

	1	2	3	4	5	6	7
Size_9801	0.634	0.739	0.740	0.577	0.718	0.723	0.725
	(7.80)***	(8.67)***	(8.40)***	(6.68)***	(8.13)***	(8.20)***	(8.20)***
Size_0206	0.566	0.669	0.733	0.579	0.717	0.723	0.721
	(6.95)***	(7.83)***	(8.32)***	(6.70)***	(8.14)***	(8.20)***	(8.18)***
Profit_9801	13.862	14.788	15.252	16.114	15.077	15.112	15.204
	(5.43)***	(5.65)***	(5.74)***	(6.04)***	(5.68)***	(5.69)***	(5.73)***
Profit_0206	6.314	7.549	11.345	10.809	11.561	11.500	11.624
	(2.37)**	(2.72)***	(3.82)***	(3.69)***	(3.91)***	(3.88)***	(3.92)***
TANG_9801	0.298	0.336	0.454	0.559	0.432	0.422	0.460
	(0.53)	(0.59)	(0.79)	(0.98)	(0.75)	(0.74)	(0.80)
TANG_0206	0.011	-0.091	-0.040	-0.281	-0.168	-0.177	-0.074
	(0.02)	(-0.16)	(-0.07)	(-0.47)	(-0.28)	(-0.30)	(-0.13)
Lev_indus_9801	-0.052	-0.035	-0.191	0.211	-0.254	-0.227	-0.208
	(-0.08)	(-0.05)	(-0.30)	(0.33)	(-0.40)	(-0.36)	(-0.33)
Lev_indus_0206	0.243	0.006	0.038	0.352	0.034	0.050	0.015
	(0.34)	(0.01)	(0.05)	(0.46)	(0.04)	(0.06)	(0.02)
PSR_9801	2.130	2.115	2.200	2.023	2.160	2.155	2.175
	(5.74)***	(5.61)***	(5.74)***	(5.36)***	(5.62)***	(5.62)***	(5.68)***
PSR_0206	-0.574	-0.799	-0.665	-0.896	-0.399	-0.411	-0.585
	(-1.40)	(-1.86)*	(-1.50)	(-1.93)*	(-0.87)	(-0.89)	(-1.34)
RevG_9801	0.468	0.307	0.334	0.261	0.401	0.409	0.388
	(1.43)	(0.93)	(1.01)	(0.78)	(1.19)	(1.22)	(1.16)
RevG_0206	0.144	0.185	0.301	0.130	0.262	0.275	0.299
	(0.33)	(0.42)	(0.59)	(0.26)	(0.52)	(0.55)	(0.60)
State_dum_9801	-0.229	-0.095	-0.159	-0.116	-0.185	-0.198	-0.188
	(-0.98)	(-0.39)	(-0.65)	(-0.48)	(-0.75)	(-0.80)	(-0.76)
State_dum_0206	-0.126	-0.001	0.038	-0.008	-0.120	-0.111	-0.033
	(-0.59)	(0.00)	(0.17)	(-0.03)	(-0.51)	(-0.48)	(-0.14)
LH_9801		-1.541					
		(-3.02)***					
LH_0206		-1.690					
		(-2.74)***					
TH_9801			-4.696		-4.731	-4.719	-4.685
			(-6.25)***		(-6.29)***	(-6.27)***	(-6.24)***
TH_0206			-7.285		-7.284	-7.274	-7.299
			(-7.89)***		(-7.85)***	(-7.86)***	(-7.88)***
NTH_9801				-5.287			
				(-6.07)***			
NTH_0206				-7.999			
				(-8.03)***			
BoDH_9801					-57.148		
					(-1.39)		
BoDH_0206					-5.961		
					(-1.91)*		
CH_9801						-130.745	
						(-0.89)	
CH_0206						-12.798	
						(-1.67)*	
CEOH_9801							-111.645
							(-0.76)
CEOH_0206							-11.283
							(-1.22)
Constant	-13.942	-15.441	-13.297	-9.531	-12.740	-12.867	-12.956
	(-8.24)***	(-8.85)***	(-7.53)***	(-5.32)***	(-7.18)***	(-7.26)***	(-7.30)***
Number of obs	1,628	1,616	1,625	1,628	1,625	1,625	1,625
LR chi square	471.73	497.92	586.68	589.18	595.74	596.07	590.98
Log likelihood	-852.891	-832.520	-793.487	-794.166	-788.956	-788.793	-791.339
Pseudo R2	0.217	0.230	0.270	0.271	0.274	0.274	0.272

Table A7.2: marginal effect for the result in Table A7.1

	1	2	3	4	5	6	7
Size_9801	0.146	0.170	0.167	0.130	0.161	0.161	0.163
Size_0206	0.131	0.154	0.165	0.131	0.160	0.161	0.162
Profit_9801	3.196	3.400	3.442	3.640	3.373	3.372	3.419
Profit_0206	1.456	1.736	2.560	2.442	2.586	2.566	2.614
TANG_9801	0.069	0.077	0.103	0.126	0.097	0.094	0.103
TANG_0206	0.002	-0.021	-0.009	-0.064	-0.038	-0.040	-0.017
Lev_indus_9801	-0.012	-0.008	-0.043	0.048	-0.057	-0.051	-0.047
Lev_indus_0206	0.056	0.001	0.009	0.079	0.008	0.011	0.003
PSR_9801	0.491	0.486	0.497	0.457	0.483	0.481	0.489
PSR_0206	-0.132	-0.184	-0.150	-0.202	-0.089	-0.092	-0.131
RevG_9801	0.108	0.071	0.075	0.059	0.090	0.091	0.087
RevG_0206	0.033	0.043	0.068	0.029	0.059	0.061	0.067
State_dum_9801	-0.053	-0.022	-0.036	-0.026	-0.041	-0.044	-0.042
State_dum_0206	-0.029	0.000	0.009	-0.002	-0.027	-0.025	-0.007
LH_9801		-0.354					
LH_0206		-0.389					
TH_9801			-1.060		-1.058	-1.053	-1.054
TH_0206			-1.644		-1.629	-1.623	-1.642
NTH_9801				-1.194			
NTH_0206				-1.807			
BoDH_9801					-12.783		
BoDH_0206					-1.333		
CH_9801						-29.170	
CH_0206						-2.855	
CEOH_9801							-25.108
CEOH_0206							-2.538

The results shown in Table A7.1 are very similar to that in Table 3.3 and 3.4. The measurements of ownership concentration as the proxy of the agency conflict are significantly negative in both periods. Although the coefficient for board of directors' holding and chairman's holding is still significantly negative in the period from 2002 to 2006, they are only significant at 10% confidence level, while they are significant at 5% confidence level in the original estimation. The marginal effect of variables shows that the effect of profitability is very strong which ranges from 3.29 to 3.64 in the first period and ranges from 1.46 to 2.61 in the second period. The next high marginal effect variables are corporate governance variables whose marginal effects are all over 1. This means a 10% increase in, for example, ownership concentration, will lead to over 10% increase in the probability that a firm will conduct a SEO. Although the marginal effect for managerial ownership is high in the first period, the coefficients for these are not significant at all.

Appendix 8: correlation table of dependent variables in KW model

This appendix shows the correlation between different dependent variables used in KW model.

		Mean	St.Dev.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1)	ΔCash t0	0.13	0.15	1																			
(2)	ΔCash t1	0.13	0.14	0.65	1																		
(3)	ΔCash t2	0.14	0.16	0.48	0.64	1																	
(4)	ΔCash t3	0.16	0.20	0.33	0.44	0.67	1																
(5)	Σ Capex t0	0.12	0.12	0.09	0.11	0.16	0.16	1															
(6)	Σ Capex t1	0.24	0.19	0.29	0.15	0.24	0.25	0.79	1														
(7)	Σ Capex t2	0.33	0.24	0.30	0.22	0.26	0.32	0.70	0.90	1													
(8)	Σ Capex t3	0.42	0.29	0.26	0.19	0.31	0.30	0.60	0.80	0.92	1												
(9)	Σ Admin t0	0.05	0.03	0.15	0.14	0.14	0.11	0.05	0.08	0.05	0.05	1											
(10)	Σ Admin t1	0.10	0.06	0.26	0.20	0.18	0.13	0.09	0.13	0.09	0.09	0.93	1										
(11)	Σ Admin t2	0.17	0.09	0.30	0.27	0.23	0.15	0.11	0.16	0.12	0.11	0.86	0.94	1									
(12)	Σ Admin t3	0.24	0.13	0.32	0.29	0.30	0.19	0.12	0.18	0.15	0.15	0.81	0.89	0.95	1								
(13)	Σ RPT t0	0.14	0.19	-0.08	-0.05	0.00	0.00	0.10	0.06	0.04	0.05	-0.05	-0.06	-0.05	-0.03	1							
(14)	Σ RPT t1	0.28	0.33	-0.09	-0.05	0.00	-0.01	0.12	0.11	0.08	0.07	-0.06	-0.07	-0.07	-0.05	0.87	1						
(15)	Σ RPT t2	0.42	0.44	-0.07	-0.03	0.04	0.03	0.12	0.11	0.10	0.10	-0.06	-0.08	-0.08	-0.05	0.79	0.93	1					
(16)	Σ RPT t3	0.58	0.54	-0.04	-0.01	0.10	0.08	0.09	0.10	0.10	0.12	-0.08	-0.09	-0.08	-0.04	0.70	0.84	0.95	1				
(17)	ΔDebt t0	0.04	0.12	0.18	0.10	0.17	0.12	0.25	0.23	0.22	0.22	0.00	0.06	0.11	0.13	-0.01	0.03	0.04	0.05	1			
(18)	ΔDebt t1	0.12	0.18	0.23	0.21	0.25	0.20	0.37	0.54	0.49	0.42	-0.01	0.06	0.14	0.17	-0.04	0.04	0.06	0.09	0.64	1		
(19)	ΔDebt t2	0.19	0.24	0.24	0.15	0.36	0.31	0.35	0.49	0.54	0.53	-0.07	-0.02	0.06	0.11	-0.03	0.02	0.09	0.13	0.55	0.79	1	
(20)	ΔDebt t3	0.25	0.29	0.20	0.17	0.36	0.43	0.30	0.46	0.57	0.60	-0.06	-0.01	0.02	0.09	-0.05	-0.03	0.04	0.09	0.40	0.62	0.82	1

$\Delta\text{Cash} = \ln(\frac{Cash_t - Cash_{-1}}{TA_{-1}} + 1)$; $\Sigma\ \text{Capex} = \ln(\frac{\sum_{i=0}^{t} CapExp}{TA_{-1}} + 1)$; $\Sigma\ \text{Admin} = \ln(\frac{\sum_{i=0}^{t} AE}{TA_{-1}} + 1)$; $\Sigma\ \text{RPT} = \ln(\frac{\sum_{i=0}^{t} RPT}{TA_{-1}} + 1)$; $\Delta\text{Debt} = \ln(\frac{Debt_t - Debt_{-1}}{TA_{-1}} + 1)$.

The correlations highlighted in grey are between the same variables but only for different periods. This is the reason why the correlations are high. In the rest of the table, there is a high correlation between the change in debt and accumulated capital expenditure. The possible explanation is that firms borrow more to fund their investments.

Appendix 9: economic significance of the coefficients reported in Table 4.3 to Table 4.8

In this Appendix, we calculate the economic significance of the coefficients reported in Table 4.3 to Table 4.8. The economic significance is a useful statistical tool to examine the magnitude of impact of independent variable on dependent variable to avoid misleading conclusion.

Table A9.1: economic significance of the coefficients reported in Table 4.3 (Capex)

	t(0)	t(1)	t(2)	t(3)	t(0)	t(1)	t(2)	t(3)
Size	0.006	0.059	0.035	0.020	0.006	0.075	0.037	0.018
Other source	0.502	0.481	0.459	0.463	0.490	0.497	0.461	0.464
Proceeds	0.593	0.347	0.290	0.221				
Known invest					0.538	0.318	0.258	0.210
General use					0.188	0.091	0.113	0.074

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A9.2: economic significance of the coefficients reported in Table 4.4 (Growth interaction)

	t(0)	t(1)	t(2)	t(3)	t(0)	t(1)	t(2)	t(3)
Size	0.019	0.026	0.019	0.009	0.012	0.043	0.026	0.024
Other source	0.270	0.298	0.267	0.296	0.280	0.306	0.275	0.308
Proceeds	0.545	0.345	0.276	0.202				
Known invest					0.531	0.350	0.268	0.205
General use					0.023	0.018	0.008	0.020
Proceeds interaction	0.057	0.011	0.015	0.009				
General use interaction					0.066	0.013	0.035	0.023

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A9.3: economic significance of the coefficients reported in Table 4.5 (Admin expenses)

	t(0)	t(1)	t(2)	t(3)	t(0)	t(1)	t(2)	t(3)
Size	0.055	0.048	0.083	0.108	0.092	0.095	0.112	0.131
Other source	0.059	0.073	0.100	0.098	0.048	0.053	0.095	0.094
Proceeds	0.139	0.162	0.126	0.106				
General use					0.064	0.100	0.087	0.074

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A9.4: economic significance of the coefficients reported in Table 4.6 (RPT)

	t(0)	t(1)	t(2)	t(3)	t(0)	t(1)	t(2)	t(3)
Size	0.267	0.212	0.150	0.136	0.224	0.183	0.107	0.109
Other source	0.024	0.009	0.078	0.140	0.012	0.048	0.113	0.168
Proceeds	0.210	0.156	0.219	0.161				
General use					0.211	0.094	0.164	0.100

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A9.5: economic significance of the coefficients reported in Table 4.7 (Cash)

	t(0)	t(1)	t(2)	t(3)	t(0)	t(1)	t(2)	t(3)
Size	0.094	0.052	0.125	0.119	0.377	0.278	0.234	0.175
Other source	0.379	0.361	0.357	0.451	0.407	0.391	0.381	0.529
Proceeds	0.807	0.719	0.425	0.332				
General use					0.330	0.332	0.192	0.168

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A9.6: economic significance of the coefficients reported in Table 4.8 (Debt)

	t(0)	t(1)	t(2)	t(3)	t(0)	t(1)	t(2)	t(3)
Size	0.235	0.179	0.120	0.149	0.383	0.312	0.166	0.173
Other source	0.704	0.732	0.682	0.692	0.538	0.737	0.732	0.744
Proceeds	0.298	0.313	0.262	0.162				
General use					0.006	0.010	0.200	0.112

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Economic significance of the coefficients is calculated as the coefficient of independent variable multiplied by one standard deviation of independent variable divided by the mean of dependent variable. In Table 4.3 to Table 4.8, the results show that general corporate use has a significant impact on Capex, administrative expenses, and cash, and has a weak impact on related party transactions. Table A9.1 shows that one standard deviation increase in general corporate use will lead to an 18.8% increase in Capex at the year of SEO. If we take out the effect of the log transformation, the effect will increase to 20.7%. This effect reduces to 7.4% in three years after SEOs. Table A9.3 shows that one standard deviation increase in proceeds will lead to a range from 6.4% to 10% increase in administrative expenses. According to Table A9.5, the impact of general corporate use is most significant on the change in cash, which ranges from 33%

to 16.8%. The overall level of the economic significance of the coefficients confirms the impact of general corporate use on firms' post-issue Capex, administrative expenses, and cash.

Appendix 10: economic significance of the coefficients reported in Table 4.10 to Table 4.12

In this Appendix, we calculate the economic significance of the coefficients reported in Table 4.10 to Table 4.12.

Table A10.1: economic significance of the coefficients reported in Table 4.10 (operating performance)

	SEO +1yr	SEO +2yr	SEO +3yr	SEO +1yr	SEO +2yr	SEO +3yr
Size	0.061	0.099	0.109	0.020	0.142	0.130
MtoB	0.030	0.056	0.043	0.049	0.077	0.059
Pre-op	0.770	0.525	0.466	0.725	0.507	0.425
Pre-stock	0.036	0.012	0.024	0.009	0.019	0.029
EIdumB	0.067	0.020	0.021	0.067	0.007	0.000
EIdumAt		0.094	0.183		0.111	0.178
Proceed/TA	0.044	0.015	0.020			
$USE^{General}$				0.139	0.073	0.065

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A10.2: economic significance of the coefficients reported in Table 4.11 (stock performance against matched non-issuing firms)

	SEO +12m	SEO +24m	SEO +36m	SEO +12m	SEO +24m	SEO +36m
Size	0.376	1.176	1.777	0.501	0.846	1.309
MtoB	0.051	0.309	0.009	0.225	0.141	0.128
Preop	0.563	0.214	0.561	0.518	0.023	0.114
Prestock	0.651	0.971	1.077	1.560	1.463	1.431
EIdumB	0.040	0.061	0.142	0.168	0.027	0.036
EIdumAt		0.701	0.825		0.835	0.436
Proceed/TA	0.648	0.352	0.243			
$USE^{General}$				0.466	0.582	0.891

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A10.3: economic significance of the coefficients reported in Table 4.12 (stock performance against index)

	SEO +12m	SEO +24m	SEO +36m	SEO +12m	SEO +24m	SEO +36m
Size	0.532	0.284	0.151	0.450	0.149	0.051
MtoB	0.371	0.160	0.114	0.294	0.105	0.082
Preop	0.045	0.085	0.064	0.086	0.031	0.010
Prestock	0.316	0.186	0.148	0.504	0.187	0.152
EIdumB	0.021	0.003	0.001	0.021	0.002	0.013
EIdumAt		0.181	0.147		0.119	0.122
Proceed/TA	0.189	0.090	0.028			
$USE^{General}$				0.090	0.120	0.081

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A10.1 shows that one standard deviation increase in general corporate use as a percentage of total proceeds will lead to a 13.9% increase in the operating performance in one year after SEOs. This effect reduces to 6.5% in three years after SEOs. Table A10.2 shows that one standard deviation increase in general corporate use as a percentage of total proceeds will lead to a 46.6% increase in the stock performance where matched non-issuing firms are used as benchmark in one year after SEOs. This effect increases to 89.1% in three years after SEOs. A10.3 shows that one standard deviation increase in general corporate use as a percentage of total proceeds will lead to a 9% increase in the stock performance where index returns are used as benchmark in one year after SEOs. The economic significance of the coefficients is lower when index returns are used as benchmark compared to that when matched non-issuing firms are used as benchmark. This is probably because matched non-issuing firms are better to be used as benchmark for issuing firms' performance.

Appendix 11: inclusion of individual variables in the interaction model (Table 4.4)

In the interaction model, we include the individual variable of the interaction model to examine whether the result will be different.

$$Y_i = \ln\left(\frac{\sum_{i=0}^{t} CapExp_i}{TA_{i,-1}} + 1\right)$$

	(1) t(0)	(2) t(1)	(3) t(2)	(4) t(3)	(5) t(0)	(6) t(1)	(7) t(2)	(8) t(3)
Size	0.005	-0.006	0.000	0.003	0.004	-0.010	-0.005	0.005
	(0.91)	(-0.56)	(-0.02)	(0.18)	(0.63)	(-1.03)	(-0.43)	(0.28)
other _ sources	0.132	0.222	0.227	0.278	0.137	0.227	0.232	0.289
	(8.81)***	(6.45)***	(7.02)***	(6.78)***	(7.04)***	(10.68)***	(7.95)***	(9.56)***
proceeds	0.421	0.518	0.613	0.637				
	(8.52)***	(8.24)***	(7.65)***	(5.02)***				
USE^{Invest}					0.497	0.642	0.710	0.753
					(7.76)***	(7.46)***	(8.14)***	(7.97)***
$USE^{General}$					0.133	0.149	0.096	0.225
					(2.51)**	(2.14)*	(0.88)	(1.08)
Pr*oceeds*× *ChangeGrowth*	0.162	-0.218	-0.269	0.342				
	(1.77)	(-2.11)*	(-1.71)	(1.37)				
$USE^{General}$ × *ChangeGrowth*					0.097	-0.057	-0.791	0.924
					(0.75)	(-0.32)	(-2.33)**	(2.83)**
ChangeGrowth	-0.035	0.065	0.105	-0.082	0.013	0.022	0.090	-0.085
	(-1.59)	(1.70)	(2.42)**	(-1.46)	(0.73)	(1.01)	(2.70)**	(-3.33)***
constant	-0.114	0.090	-0.017	-0.121	-0.084	0.152	0.077	-0.189
	(-1.05)	(0.43)	(-0.05)	(-0.31)	(-0.75)	(0.85)	(0.36)	(-0.48)
Number of obs	559	576	569	555	451	455	444	439
R-squared	0.271	0.335	0.369	0.352	0.334	0.405	0.365	0.405

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

We include the change in growth in the regression of Table 4.4. In the Table 4.4, the interaction variable between general corporate use and change in growth is only significantly positive at the year of SEOs while not significant for the rest three periods. In the new result presented above, the same interaction variable is negatively significant in the two and three years after SEOs. This negative relationship does not support that the change from general use to Capex is associated with the change in growth.

Appendix 12: summary statistics of independent variables in Chapter 5

This appendix shows the summary statistics of independent variables used in Chapter 5.

	Mean	StDev	Median
Size	21.67	0.95	21.59
PSR	0.34	0.47	0.30
Controlling_dum	0.36	0.48	0.00
LoSC_dum (Top1/Top2to10)	0.91	0.29	1.00
LoSC_dum (HI_diff)	0.86	0.34	1.00
RPT before issue	0.25	0.27	0.18
AoFII_dum before issue	0.42	0.49	0.00
HI_diff before issue	0.13	0.12	0.10
Top1/Top2-10 before issue	4.67	8.79	2.28

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

The sample is 209 private placements from 2006 to 2009 (after excluding private placements where the controlling shareholder is the only buyer). The natural log of total assets prior to private placements ($Ln(TA)$) is used to control firms' size. PSR is firms' 6 month share return prior to the board meeting date. On average, issuing firms have 34% positive stock return 6 months before the boarding meeting date. Controlling shareholder subscription dummy ($Controlling\_dum$) is equal to one if controlling shareholder subscribes to new shares in the private placement, and zero otherwise. On average, controlling shareholders are involved in 36% of all 209 private placements as the buyer of newly issued shares. $LoSC$ stands for lack of shareholder contestability. $LoSC$ is a dummy variable which is equal to one if firms' shareholder contestability improves after private placement (i.e. a negative change in the lack of shareholder contestability after private placements), and zero otherwise. As shown in the table above, on average, firms' shareholder contestability improves during the private placement process in 91% of 209 private placements when top 1 shareholder' holding divided by the sum of top 2-10 shareholders' holding is used to measure shareholder contestability. When Herfindahl index of difference is used to measure shareholder contestability, 86% of private placement firms could improve shareholder contestability during the private

placement process. We use the total amount of related party transactions scaled by total assets in the year prior to private placements (*RPT*) as the proxy for the level of the agency conflict faced by firms. The absence of financial institutional investors in the largest three shareholders (*AoFII*) is a dummy variable and is equal to one if there are no financial institutional investors in the top 3 shareholders, and zero otherwise. The absence of financial institutional investors indicates worsened agency conflict between controlling and minority shareholders. On average, 42% of private placement firms do not have any financial institutional investors who have enough shares to become top 3 shareholders. We will also pre-issue Herfindahl index of difference and top1 shareholder's holding divided by the sum of top2-10 shareholders' holding as alternative measurement of firms' pre-issue agency conflict between controlling and minority shareholders for robustness test later.

Appendix 13: inclusion of interaction variable for Table 5.4 and 5.5

In the interaction model, we include the individual variable of the interaction model to examine whether the result will be different. Additionally, we also report the economic significance of the coefficients associated with the independent variables.

Table A13.1: inclusion of interaction variable for Table 5.4

	(1) CAR[-5,5]	(2) CAR[-10,10]	(3) CAR[-20,20]	(4) CAR[-5,5]	(5) CAR[-10,10]	(6) CAR[-20,20]
Size	0.023	0.029	0.045	0.021	0.029	0.045
	(2.310)**	(2.100)**	(2.000)**	(2.170)**	(2.110)**	(2.040)**
PSR	-0.052	-0.094	-0.106	-0.049	-0.089	-0.103
	(-2.300)**	(-3.410)***	(-2.370)**	(-2.200)**	(-3.170)***	(-2.280)**
Controlling_dum	0.004	0.036	0.013	-0.004	0.030	0.011
	(0.170)	(1.060)	(0.270)	(-0.180)	(0.950)	(0.230)
LoSC_dum $(Top1/Top2to10)$	0.017	0.082	0.076			
	(0.370)	(1.190)	(0.820)			
LoSC_dum (HI_diff)				-0.016	0.004	0.022
				(-0.370)	(0.060)	(0.210)
RPT	0.141	0.340	0.274			
$\times Top1/Top2to10_{+ve}$	(1.270)	(2.100)**	(1.430)			
RPT	0.136	0.120	0.127			
$\times Top1/Top2to10_{-ve}$	(3.260)***	(2.030)**	(1.340)			
RPT				0.161	0.155	0.133
$\times HI\_diff_{+ve}$				(1.120)	(0.630)	(0.530)
RPT				0.132	0.136	0.141
$\times HI\_diff_{-ve}$				(3.330)***	(2.590)**	(1.530)
Constant	-0.459	-0.619	-0.995	-0.394	-0.550	-0.951
	(-2.030)**	(-1.950)*	(-1.960)*	(-1.800)*	(-1.800)*	(-1.930)*
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Regional dummy	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs	173	173	173	173	173	173
F-value	9.15	2.16	2.48	9.42	2.10	2.28
R-squared	0.180	0.138	0.119	0.183	0.128	0.116

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A13.2: economic significance of the coefficients reported in Table A14.1

	(1) CAR[-5,5]	(2) CAR[-10,10]	(3) CAR[-20,20]	(4) CAR[-5,5]	(5) CAR[-10,10]	(6) CAR[-20,20]
Size	0.576	0.551	0.707	0.526	0.551	0.707
PSR	0.050	0.339	0.101	0.050	0.282	0.086
Controlling dummy	0.051	0.347	0.104	0.051	0.289	0.088
LoSC_dum $(Top1/Top2to10)$	0.129	0.473	0.363			
LoSC_dum (HI_diff)				0.145	0.028	0.125
$RPT \times Top1/Top2to10_{+ve}$	1.011	1.849	1.231			
$RPT \times Top1/Top2to10_{-ve}$	0.975	0.652	0.571			
$RPT \times HI\_diff_{+ve}$				1.154	0.843	0.598
$RPT \times HI\_diff_{-ve}$				0.946	0.739	0.634

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A13.3: inclusion of interaction variable for Table 5.5

	(1) CAR[-5,5]	(2) CAR[-10,10]	(3) CAR[-20,20]	(4) CAR[-5,5]	(5) CAR[-10,10]	(6) CAR[-20,20]
Size	0.017	0.025	0.048	0.015	0.024	0.048
	(1.530)	(1.630)	(2.010)**	(1.360)	(1.550)	(2.050)**
PSR	-0.037	-0.072	-0.076	-0.031	-0.062	-0.054
	(-1.650)	(-2.650)***	(-1.810)*	(-1.360)	(-2.250)**	(-1.300)
Controlling_dum	0.014	0.046	0.028	0.005	0.039	0.024
	(0.570)	(1.420)	(0.630)	(0.250)	(1.290)	(0.520)
LoSC_dum $(Top1/Top2to10)$	0.018	-0.018	-0.030			
	(0.410)	(-0.250)	(-0.330)			
LoSC_dum (HI_diff)				-0.038	-0.068	-0.107
				(-0.800)	(-1.010)	(-1.500)
AoFII $\times Top1/Top2to10_{+ve}$	0.009	-0.043	-0.036			
	(0.140)	(-0.430)	(-0.320)			
AoFII $\times Top1/Top2to10_{-ve}$	0.023	0.036	0.132			
	(1.110)	(1.220)	(2.810)***			
AoFII $\times HI\_diff_{+ve}$				-0.027	-0.089	-0.184
				(-0.420)	(-0.980)	(-1.650)
AoFII $\times HI\_diff_{-ve}$				0.030	0.047	0.161
				(1.440)	(1.590)	(3.390)***
Constant	-0.323	-0.424	-0.989	-0.235	-0.361	-0.921
	(-1.230)	(-1.210)	(-1.800)*	(-0.900)	(-1.040)	(-1.770)*
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Regional dummy	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs	178	178	178	178	178	178
F-value	22.89	2.55	8.12	17.67	2.93	6.13
R-squared	0.096	0.103	0.152	0.100	0.114	0.180

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A13.4: economic significance of the coefficients reported in Table A14.3

	(1) CAR[-5,5]	(2) CAR[-10,10]	(3) CAR[-20,20]	(4) CAR[-5,5]	(5) CAR[-10,10]	(6) CAR[-20,20]
Size	0.426	0.475	0.754	0.376	0.456	0.754
PSR	0.174	0.433	0.218	0.062	0.367	0.187
Controlling dummy	0.178	0.443	0.223	0.064	0.376	0.191
LoSC_dum $(Top1/Top2to10)$	0.137	0.104	0.143			
LoSC_dum (HI_diff)				0.345	0.468	0.609
$AoFII \times Top1/Top2to10_{+ve}$	0.117	0.426	0.295			
$AoFII \times Top1/Top2to10_{-ve}$	0.300	0.356	1.080			
$AoFII \times HI\_diff_{+ve}$				0.352	0.881	1.506
$AoFII \times HI\_diff_{-ve}$				0.392	0.465	1.318

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

We did not include pre-issue related party transactions or the dummy of the absence of financial institutional investors although they are part of the interaction variable. This is because as shown in Appendix 12, 91% and 86% of firms' shareholder contestability improves after private placements when different measurements of shareholder contestability are used. This means 91% or 86% of the observations in $RPT \times LoSC_{-ve}$ or $AoFII \times LoSC_{-ve}$ are exactly same as the observations in *RPT* and *AoFII*. The correlation between $RPT \times LoSC_{-ve}$ and *RPT* and between $AoFII \times LoSC_{-ve}$ and *AoFII* is very high. If we include *RPT* and *AoFII* into the regression, they will have multicollinearity problem.

The results shown in Table A13.1 and A13.3 are similar to that in Table 5.4 and 5.5. The coefficient $RPT \times LoSC_{-ve}$ for is positively significant when CAR [-5,5] and CAR

[-10,10] are dependent variable. The coefficient $AoFII \times LoSC_{-ve}$ for is positively significant only when CAR [-20,20] is dependent variable. The result is weaker when *AoFII* is used to measure firms' agency conflict between controlling and minority shareholders. This is probably because *AoFII* is a discrete variable which may be less able to capture the variation of dependent variable compared to a continuous variable such as *RPT*.

Regarding the economic significance of the coefficients associated with the independent variables, one standard deviation increase in *RPT* will lead to an increase in the average CAR ranging from 65.2% to 97.5%. One standard deviation increase in *AoFII* will lead to an 108% or 131.8% increase in the average CAR ranging when $AoFII \times LoSC_{-ve}$ is positively significant for CAR [-20,20].

Appendix 14: a nested RPT and AoFII model for Table 5.4 and 5.5

We nest RPT and AoFII as different measurements of the agency conflict between controlling and minority shareholders into one model in order to provide more robustness to our results.

Table A14.1: a nested RPT and AoFII model for Chapter 5

	(1) CAR[-5,5]	(2) CAR[-10,10]	(3) CAR[-20,20]	(4) CAR[-5,5]	(5) CAR[-10,10]	(6) CAR[-20,20]
Size	0.025	0.031	0.056	0.023	0.032	0.057
	(2.410)**	(2.080)**	(2.320)**	(2.290)**	(2.160)**	(2.430)**
PSR	-0.048	-0.085	-0.079	-0.040	-0.071	-0.051
	(-2.100)**	(-3.010)***	(-1.740)*	(-1.810)*	(-2.440)**	(-1.150)
Controlling_dum	0.006	0.039	0.025	-0.001	0.033	0.023
	(0.270)	(1.170)	(0.530)	(-0.070)	(1.080)	(0.500)
LoSC_dum	0.008	0.043	-0.002			
$(Top1/Top2to10)$	(0.160)	(0.510)	(-0.020)			
LoSC_dum				-0.041	-0.055	-0.126
(HI_diff)				(-0.860)	(-0.770)	(-1.290)
RPT	0.134	0.338	0.246			
$\times Top1/Top2to10_{+ve}$	(1.200)	(2.160)**	(1.250)			
RPT	0.140	0.126	0.149			
$\times Top1/Top2to10_{-ve}$	(3.470)***	(2.200)**	(1.680)*			
RPT				0.158	0.144	0.113
$\times HI\_diff_{+ve}$				(1.120)	(0.600)	(0.480)
RPT				0.136	0.143	0.163
$\times HI\_diff_{-ve}$				(3.590)***	(2.820)***	(1.910)*
AoFII	0.004	-0.074	-0.065			
$\times Top1/Top2to10_{+ve}$	(0.050)	(-0.770)	(-0.540)			
AoFII	0.024	0.037	0.136			
$\times Top1/Top2to10_{-ve}$	(1.200)	(1.240)	(2.800)***			
AoFII				-0.036	-0.116	-0.236
$\times HI\_diff_{+ve}$				(-0.530)	(-1.280)	(-2.100)**
AoFII				0.031	0.050	0.168
$\times HI\_diff_{-ve}$				(1.560)	(1.670)*	(3.440)***
Constant	-0.513	-0.640	-1.229	-0.437	-0.582	-1.153
	(-2.110)**	(-1.830)*	(-2.200)**	(-1.880)*	(-1.770)*	(-2.220)**
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Regional dummy	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs	173	173	173	173	173	173
F-value	18.39	2.57	8.40	20.27	2.58	8.17
R-squared	0.187	0.148	0.171	0.193	0.149	0.198

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A14.2: economic significance of the coefficients reported in Table A15.1

	(1) CAR[-5,5]	(2) CAR[-10,10]	(3) CAR[-20,20]	(4) CAR[-5,5]	(5) CAR[-10,10]	(6) CAR[-20,20]
Size	0.626	0.589	0.880	0.576	0.608	0.895
PSR	0.074	0.367	0.194	0.012	0.310	0.179
Controlling dummy	0.076	0.376	0.199	0.013	0.318	0.183
LoSC_dum $(Top1/Top2to10)$	0.061	0.248	0.010			
LoSC_dum (HI_diff)				0.372	0.379	0.718
$RPT \times Top1/Top2to10_{+ve}$	0.960	1.838	1.106			
$RPT \times Top1/Top2to10_{-ve}$	1.003	0.685	0.670			
$RPT \times HI\_diff_{+ve}$				1.133	0.783	0.508
$RPT \times HI\_diff_{-ve}$				0.975	0.778	0.733
$AoFII \times Top1/Top2to10_{+ve}$	0.052	0.733	0.532			
$AoFII \times Top1/Top2to10_{-ve}$	0.313	0.366	1.113			
$AoFII \times HI\_diff_{+ve}$				0.470	1.149	1.931
$AoFII \times HI\_diff_{-ve}$				0.405	0.495	1.375

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

The results of the nested model are consistent with that in Table 5.4 and 5.5. The coefficient for the interaction between pre-issue *RPT* and the improvement in shareholder contestability is primarily positively significance for CAR[-5,5] and CAR[-10,10]. The coefficient for the interaction between pre-issue *AoFII* and the improvement in shareholder contestability is only positively significance for CAR[-20,20]. The economic significance of the coefficients associated with the independent variables is also strong. One standard deviation increase in the interaction regarding *RPT* leads to an increase in the average CAR ranging from 67% to 100.3%. One standard deviation increase in the interaction regarding *AoFII* leads to a 111.3% or 137.5% increase in CAR[-20,20] when different proxies of shareholder contestability are used.

Appendix 15: a robustness test for the model in Chapter 5

For robustness, we consider firms' pre-issue shareholder contestability as an alternative measurement of firms' pre-issue agency conflict between controlling and minority shareholders.

Table A15.1: a robustness test for the model in Chapter 5

	(1) CAR[-5,5]	(2) CAR[-10,10]	(3) CAR[-20,20]	(4) CAR[-5,5]	(5) CAR[-10,10]	(6) CAR[-20,20]	(7) CAR[-5,5]	(8) CAR[-10,10]	(9) CAR[-20,20]
Size	0.010	0.018	0.027	0.005	0.015	0.034	0.005	0.013	0.029
	(0.870)	(1.160)	(1.220)	(0.470)	(0.980)	(1.480)	(0.420)	(0.820)	(1.240)
PSR	-0.042	-0.079	-0.099	-0.041	-0.075	-0.094	-0.041	-0.074	-0.085
	(-1.920)*	(-3.010)***	(-2.370)**	(-1.890)*	(-2.860)***	(-2.220)**	(-1.860)*	(-2.820)***	(-2.090)**
Controlling_dum	0.009	0.040	0.012	-0.005	0.025	0.007	-0.002	0.024	0.000
	(0.370)	(1.160)	(0.270)	(-0.260)	(0.800)	(0.140)	(-0.090)	(0.810)	(0.000)
LoSC_dum ($Top1/Top2to10$)	-0.006	0.001	-0.017				-0.025	-0.013	0.005
	(-0.110)	(0.010)	(-0.190)				(-0.460)	(-0.170)	(0.060)
LoSC_dum (HI_diff)				-0.018	0.030	0.084			
				(-0.410)	(0.450)	(1.010)			
$Top1/Top2to10_{pre-issue}$	-0.004	0.006	-0.003				-0.033	-0.033	-0.029
$\times Top1/Top2to10_{+ve}$	(-0.250)	(0.340)	(-0.170)				(-0.970)	(-0.920)	(-1.000)
$Top1/Top2to10_{pre-issue}$	0.003	0.003	0.005				0.002	0.003	0.009
$\times Top1/Top2to10_{-ve}$	(3.500)***	(1.790)*	(2.810)***				(2.060)**	(1.770)*	(3.010)***
$HI\_diff_{pre-issue}$				0.472	0.979	0.960	0.873	1.167	0.802
$\times HI\_diff_{+ve}$				(0.650)	(1.130)	(1.470)	(1.100)	(1.200)	(1.170)
$HI\_diff_{pre-issue}$				0.213	0.113	-0.015	0.104	0.007	-0.362
$\times HI\_diff_{-ve}$				(3.030)***	(1.060)	(-0.080)	(1.140)	(0.050)	(-1.540)
Constant	-0.149	-0.294	-0.536	-0.044	-0.253	-0.736	-0.029	-0.177	-0.579
	(-0.580)	(-0.840)	(-1.060)	(-0.180)	(-0.750)	(-1.440)	(-0.110)	(-0.500)	(-1.100)
Industry dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regional dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs	178	178	178	178	178	178	178	178	178
F-value	25.07	2.08	4.16	22.10	1.64	2.87	21.03	1.75	4.13
R-squared	0.130	0.109	0.129	0.135	0.125	0.113	0.168	0.145	0.157

*, **, and *** stand for 90%, 95%, and 99% confidence interval.

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

Table A15.2: economic significance of the coefficients reported in Table A16.1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	CAR[-5,5]	CAR[-10,10]	CAR[-20,20]	CAR[-5,5]	CAR[-10,10]	CAR[-20,20]	CAR[-5,5]	CAR[-10,10]	CAR[-20,20]
Size	0.251	0.342	0.424	0.125	0.285	0.534	0.125	0.247	0.455
PSR	0.112	0.376	0.093	0.062	0.235	0.054	0.025	0.226	0.000
Controlling dummy	0.114	0.385	0.096	0.064	0.241	0.056	0.025	0.231	0.000
LoSC_dum $(Top1/Top2to10)$	0.046	0.006	0.081				0.190	0.075	0.024
LoSC_dum (HI_diff)				0.163	0.207	0.478			
$Top1/Top2to10_{pre-issue} \times Top1/Top2to10_{+ve}$	0.929	1.057	0.437				7.664	5.814	4.223
$Top1/Top2to10_{pre-issue} \times Top1/Top2to10_{-ve}$	0.697	0.529	0.728				0.465	0.529	1.311
$HI\_diff_{pre-issue} \times HI\_diff_{+ve}$				1.547	2.434	1.973	2.862	2.902	1.648
$HI\_diff_{pre-issue} \times HI\_diff_{-ve}$				0.698	0.281	0.031	0.341	0.017	0.744

Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

The lack of shareholder contestability is measured in two ways: the largest shareholder's holding divided by the second largest to tenth largest shareholders' total holding ($Top1/Top2to10$) and the traditional Herfindahl index measurements of difference (HI_diff). A higher $Top1/Top2to10$ or HI_diff means more lack of shareholder contestability which leads to worse agency conflict. Hence, similar to *RPT* and *AoFII*, to support our hypothesis in Chapter 5, we expect a significant positive coefficient for the interaction variable between firms' pre-issue shareholder contestability and the dummy variable of the improvement in shareholder contestability after private placements.

The result in Table A15.1 shows that the coefficient for the interaction variable between firms' pre-issue shareholder contestability in term of $Top1/Top2to10$ and the dummy variable of the improvement in shareholder contestability after private placements is significantly positive. The economic significance of the coefficients associated with this variable is strong which ranges from 46.5% to 131.1%. However, the coefficient when *HI_diff* is used is not significant in 5 out of 6 regressions. This result might mean *HI_diff* might not be a good proxy for the agency conflict between controlling and minority shareholders.

Appendix 16: instrumental variables for the proxy of the trade-off theory

As discussed in Section 6.4, the deviation from firms' optimal leverage level which is measured by the error term of Equation (3.2) might be an endogenous variable in Equation (3.1). In this appendix, we aim to use instrument variable to deal with the endogenous variable.

	1	2	3	4
YrEI	-0.046	-0.008	-0.022	0.012
	(-2.74)***	(-0.44)	(-1.14)	(0.60)
Size	0.078	0.167	0.150	0.215
	(2.37)**	(4.51)***	(3.72)***	(4.72)***
Profit	8.983	8.579	11.507	11.161
	(13.43)***	(11.02)***	(13.56)***	(12.01)***
Lev_indus (t-2)	0.689			
	(2.71)***			
Lev_indus (t-3)		0.245		
		(0.73)		
Lev_res_pooled (t-2)			1.932	
			(6.34)***	
Lev_res_pooled (t-3)				1.386
				(3.50)***
PSR_sec	1.169	1.029	1.359	1.275
	(13.35)***	(10.32)***	(11.16)***	(9.09)***
RevG	0.161	0.112	0.040	-0.042
	(2.82)***	(1.76)*	(0.57)	(-0.51)
Constant	-2.351	-4.378	-4.070	-5.679
	(-3.32)	(-5.50)	(-4.68)	(-5.78)
Year dummy	Yes	Yes	Yes	Yes
Industry dummy	Yes	Yes	Yes	Yes
Region dummy	Yes	Yes	Yes	Yes
Number of obs	5,070	4,505	4,102	3,699
Log likelihood	4,031	2,652	3,695	2,532

*, **, and *** stand for 90%, 95%, and 99% confidence interval.
Data source: SEO, financial, corporate governance and share return data from the China Centre for Economic Research (CCER) database

We choose lagged deviation from firms' optimal leverage level as the instrumental variable to the original variable. In the above table, two or three period lagged measurement of firms' deviation from their optimal leverage level is chosen to be the instrumental variable to one period legged measurement in Equation (3.1). The regression is estimated by the probit instrumental variable specification in stata (since the probit instrumental variable specification is the only available option for discrete

dependent variable instrumental estimation in stata). The pooled OLS leverage prediction model is the model in Appendix 5.

The results show that when the instrumental variable is used, the coefficients for the proxy of trade-off theory are still significantly positive in three out of four columns. The coefficients for the pre-issue share return which is the proxy of the information asymmetry are still significantly positive. However, the impact of the pre-issue growth on the SEO decision is not significant when the instrumental variable of the residual of the leverage prediction model is used. This is probably because the new leverage prediction model includes growth compared to Equation (3.2), so it may absorb the effect of growth.