



Chunyang Huang

ESSAYS ON CORPORATE GOVERNANCE
ISSUES IN CHINA

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Helsinki School of Economics

ISSN 1237-556X
ISBN 978-952-488-106-7

E-version:
ISBN 978-952-488-125-8

Helsinki School of Economics -
HSE Print 2007

Acknowledgements

This dissertation project would still be work in progress without the advice and support I have received from a number of persons.

First of all, I would like to express my sincerest gratitude to my advisor, Professor Sami Torstila, for his analytical insight and the time he always found to comment on my work. I particularly appreciate his patience and encouragement during the prolonged process of this project. It has been, and continues to be, my honor to be one of his students.

I am also indebted to my pre-examiners, Associate Professor Gilles Hilary and Professor Minna Martikainen, for constructive comments which improved the final version of this dissertation.

During the course of this dissertation project, I have benefited from the advice of Professor Matti Keloharju, a former advisor of my dissertation, whose commitment to excellence led to substantial improvement in the quality of my research. In addition, I have also benefited from the comments of Professor Vesa Puttonen, Professor Anders Löflund, Assistant Professor Markku Kaustia, and other participants in the Joint Finance Research Seminar at Helsinki School of Economics and Swedish School of Economics and Business Administration, and the seminar at Xiamen University, China.

At earlier stages of my doctoral study, I greatly benefited from the encouragement and advice of late Professor Teppo Martikainen, a one-time advisor of my dissertation. Without him, I would not have undertaken my doctoral study at all.

I would also like to thank the Graduate School of Finance and Financial Accounting and Helsinki School of Economics Foundations for their financial support.

Finally, I would like to thank my parents, Shijun and Baohua, my younger sisters, Sheng and Ren, for their support during my doctoral study. My foremost thanks go to my

dearest Chengying, for her love, understanding, patience, and encouragement. Baobei, the most romantic thing I can think of is to accompany you for the rest of your life.

Helsinki, February 2007

Chunyang Huang

Abstract

The main objective of this thesis is to contribute to the literature on corporate governance issues associated with concentrated ownership through three interrelated essays. All three essays use data from the Chinese stock markets. One of the unique features of the Chinese stock markets is the concentration of ownership and control rights in the hands of state-owned-enterprises (SOEs), which provides opportunities for examining some of the corporate governance issues that have not been addressed in other markets. Taken together, the three essays provide direct systematic evidence showing that ownership concentration is beneficial to minority shareholders, as it can align the interests of large shareholders with those of minority shareholders. In contrast, concentration of control rights can lead to expropriation of minority shareholders by large shareholders, especially when large shareholders have control rights in excess of their cash-flow ownership.

The first essay investigates earnings management behavior of SOEs conducting initial public offerings (IPOs) on the Shenzhen Security Exchange. The results show that the earnings management behavior of IPO firms has a strong link to governmental regulations on IPO pricing. When the pricing system is based on pre-IPO earnings, firms manipulate their earnings in the pre-IPO years. When the pricing system is based on earnings in the IPO year, firms manage their IPO-year earnings. When the pricing system does not link directly to accounting earnings, IPO firms have less incentive to manipulate earnings.

The second essay examines the separation of ownership and control in the Shenzhen Security Exchange and the impacts of such separation on firm performance, related-party lending and cash dividend policy. The results show that the ownership and control of publicly traded firms are highly concentrated in the hands of SOEs. Higher ownership concentration is associated with better firm performance, less related-party lending and more cash dividends. In contrast, greater separation of ownership from control is associated with worse firm performance, more related-party lending and less cash dividends.

The third essay examines related-party transactions between listed firms and their controlling shareholders following reverse mergers on the Shenzhen Security Exchange. The results show that, on average, firms undertaking related-party transactions following reverse mergers earn significantly positive excess returns around the announcement. Most of the positive excess returns are driven by two kinds of transactions: transactions through which the new controlling shareholders bring their main business into the listed firms and transactions through which the new controlling shareholders bail out financially distressed firms.

Keywords: corporate governance, ownership and control, large shareholder, state-owned-enterprise, earnings management, related-party transaction, cash dividend, expropriation, propping, Chinese stock markets

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1. Introduction

The latest corporate scandals of some of the largest corporations in the world, such as Enron, WorldCom and Parmalat, highlight the importance of corporate governance issues in financial markets and have attracted a great deal of public interests and controversy. According to Shleifer and Vishny (1997), “Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment ... How do they make sure that managers do not steal the capital they supply...?” This problem is of particular significance in countries with weak legal protection of investors and in companies with concentrated ownership, because minority shareholders have little legal and voting power to prevent the controlling shareholders from expropriating corporate resources.

Academic interest in corporate governance dates back as early as Berle and Means (1932), who called attention to the prevalence of widely held corporations in the U.S., in which ownership of capital was dispersed between small shareholders, yet control was concentrated in the hands of managers. However, the idea of separation of ownership and control had not received much attention until the works of Jensen and Meckling (1976), and Fama and Jensen (1983a, b), who argued theoretically that the separation of ownership and control is likely to create conflicts of interests between managers and shareholders (the “agency problem”). These were followed by empirical works such as Jensen (1986), Mock, Shleifer and Vishny (1988), and McConnell and Servaes (1990), among others.

Recently, several studies have begun to question the empirical validity of dispersed ownership. La Porta, Lopez-de-Silanes and Shleifer (1999) shown that widely held corporation is the exception rather than the norm in most of the richest countries in the world. Claessens, Djankov and Lang (2000) shown that more than two-thirds of East Asian firms are controlled by a single shareholder. Faccio and Lang (2002) shown that 53.99 percent of Western European firms have only one controlling owner. Moreover, these studies found that the controlling shareholders usually have voting rights in substantially excess of their cash-flow ownership. The prevalence of concentrated ownership and the divergence between control rights and cash-flow ownership of large

shareholders highlighted in these studies have led to renewed interests in corporate governance issues with a focus on the costs and benefits associated with large shareholders. This new strand of studies includes La Porta, Lopez-de-Silanes, Shleifer and Vishny (2000a, b; 2002), Johnson, La Porta, Lopez-de-Silanes and Shleifer (2000), Claessens, Djankov, Fan and Lang (2002), Friedman, Johnson and Milton (2003), Djankov, La Porta, Lopez-de-Silanes and Shleifer (2005), and this thesis.

The aim of this thesis is to contribute to the existing literature on corporate governance issues associated with concentrated ownership through three interrelated essays. All three essays use data from one of the Chinese stock markets – the Shenzhen Security Exchange. One of the unique features of the Chinese stock markets is the concentration of ownership and control rights in the hands of state-owned-enterprises (SOEs), which provides opportunities for examining some of the corporate governance issues that have not been addressed in other markets.

The first essay in the thesis investigates earnings management on the Chinese IPO markets. It is the first study offering evidence on the link between IPO firms' earnings management incentives and governmental accounting-based regulations on IPO pricing. The second essay uses data from the Shenzhen Security Exchange to analyze the separation of ownership and control and the impacts of such separation on firm performance, related-party lending (the lending of capital from a listed company to its controlling shareholder or companies controlled by its controlling shareholder) and cash dividend policy. Previously, Claessens, Djankov, Fan and Lang (2002) analyzed the impacts of separation of ownership and control on firm performance for East Asian firms. This essay extends the analysis of Claessens, Djankov, Fan and Lang (2002) to the Chinese stock markets and supplements their analysis with direct evidence from related-party lending and cash dividend policy. Finally, the third essay examines related-party transactions between listed firms and their controlling shareholders following reverse mergers on the Shenzhen Security Exchange. This essay is the first study providing systematic evidence on the specific circumstances under which related-party transactions may be beneficial to minority shareholders.

Besides academic contributions, the issues addressed in this thesis are of practical relevance. For example, the issues addressed in the first, second, and third essays are

closely related to the recent reforms of financial reporting practice, voting right distribution, and regulations on related-party transactions on the Chinese stock markets, respectively.

The structure of this introductory chapter is organized as follows. Section 2 reviews the existing literature on corporate governance. As this introductory chapter does not mean to extensively cover all literature on corporate governance, only those closely related to the issue of concentrated ownership are reviewed here. For a comprehensive review on other aspects of corporate governance issues, the reader is referred to Shleifer and Vishny (1997), Becht, Bolton and Röell (2003) and Denis and McConnell (2003). Subsection 2.1 looks at the empirical evidence on ownership and control of publicly traded companies around the world. Subsection 2.2 reviews theoretical research on the incentive and expropriating effects of large shareholders. Subsection 2.3 presents empirical evidence on the costs and benefits associated with large shareholders. Section 3 reviews research on corporate governance issues in the Chinese stock markets. Section 4 surveys some of the recent studies on the relations between institutional and regulatory structures and financial reporting behavior. Section 5 provides a summary of the three essays in this thesis, with an emphasis on their contributions and relations to previous research.

2. An overview of research on large shareholders and corporate governance

2.1. Empirical evidence on ownership and control of publicly traded companies around the world

Modern corporate finance theories have developed around the ownership structure described in Berle and Means (1932), in which ownership of capital is dispersed between small shareholders, yet control is concentrated in the hands of managers. Several recent studies begin to question the empirical validity of dispersed ownership and provide empirical evidence that dispersed ownership is the exception rather than the norm.

In an attempt to find out who have the ultimate control rights in corporations, La Porta, Lopez-de-Silanes and Shleifer (1999) trace the chains of ownership for the 20 largest publicly traded corporations in each of the 27 richest countries and find that

concentrated ownership exists even among the largest corporations in the richest countries in the world. In addition, La Porta, Lopez-de-Silanes and Shleifer (1999) find that large shareholders usually have control rights in substantially excess of their cash-flow rights through dual-class share structure and pyramiding.

Applying a similar methodology, Claessens, Djankov and Lang (2000) find that more than two-thirds of East Asian firms are controlled by a single shareholder. The largest shareholder is often able to control the firm with a relatively small cash-flow ownership, with the divergence between control rights and cash-flow rights most pronounced in family-controlled firms. Devices such as pyramid structure, cross-holdings, multiple classes of shares and management appointment are often used to enhance the largest shareholder's control.

Using a sample of 5,232 listed firms in 13 Western European countries, Faccio and Lang (2002) find that families (44.29 percent) and widely held corporations (36.93 percent) are the two most common types of ultimate owners of Western European corporations. 53.99 percent of Western European firms have only one controlling owner. More than two-thirds of the family-controlled firms have top managers from the controlling families. Widely held corporations are more likely the ultimate owners of financial and large firms, while families are more likely the ultimate owners of non-financial and small firms. They also find that the controlling shareholders often use multiple classes of shares, pyramidal structures, holdings through multiple control chains and cross-holdings to enhance their control rights in excess of their cash-flow rights.

2.2. Theoretical research on the incentive and expropriating effects of large shareholders

The agency problem described in Jensen and Meckling (1976) arises because, under dispersed ownership, shareholders do not have the power as well as incentive to monitor managers. This suggests that one way to alleviate the agency problem is to concentrate ownership and control in the hands of a small number of shareholders (the incentive effect). In the case of inside large shareholders, Jensen and Meckling (1976) show that a manager with large ownership has the incentive to maximize firm value through his efforts, because he gets a large portion of the firm's profits. In the case of

outside large shareholders, Shleifer and Vishny (1986) show that an outside large shareholder has the incentive to maximize firm value by monitoring managers, because his gain from monitoring outweighs the cost. Moreover, the outside large shareholder also has the power to discipline managers.

Although large shareholders have both the incentives and power to monitor managers and even to participate in corporate management, there may be costs associated with large shareholders as well. The most obvious of these costs is that large shareholders have their own interests, which need not coincide with the interests of minority shareholders. In pursuing their own interests, large shareholders may use their controlling power to expropriate corporate resources at the expense of minority shareholders (the expropriating effect). The conflict of interests between large shareholders and minority shareholders is exacerbated when in addition there is separation between control rights and cash-flow ownership (Shleifer and Vishny, 1997).

Grossman and Hart (1988) present a model to show how dual-class shares can be used to benefit the controlling shareholder in a corporate control contest. In their model, there are two types of benefits – cash-flow benefits proportional to the ownership of all shareholders and private benefits accrued to the controlling shareholder only. The separation of control from ownership (dual-class shares) will maximize the private benefits of control in relative to cash-flow benefits while one-share-one-vote will maximize the cash-flow benefits in relative to private benefits of control. Burkart, Gromb, and Panunzi (1998) analyze the separation of cash-flow ownership and voting rights. They argue that the under-concentration of cash-flow ownership increases moral hazard and leads to inefficiencies. Their model suggests expropriation of minority shareholders, as the controlling party allocates some corporate resources to the production of private benefits. Bebchuk (1999) and Bebchuk and Zingales (2000) examine the initial owner's choice of ownership and control structure in the context of an initial public offering (IPO). They argue that concentrated ownership and separation of cash-flow ownership and control rights are more likely to be used in firms with large private benefits of control, despite some significant drawbacks that they have. Bebchuk, Kraakman and Triantis (1999) argue that the common arrangements for separating ownership and control, such as stock pyramid, cross-ownership structure, and dual class equity structure, have the

potential to create very large agency costs – costs that are in order of magnitude larger than those associated with controlling shareholders who hold a majority of the cash-flow rights in their companies.

Finally, the recent “law and finance” literature argues that expropriation by large shareholders can be limited by legal protection of minority shareholders. La Porta Lopez-de-Silanes, Shleifer and Vishny (2002) present a model to show how investor protection and cash-flow ownership by the controlling shareholder can affect firm value. In their model, the controlling shareholder can enjoy private benefits of control by diverting a portion of the profits from the firm to himself, and distributes the rest as dividends. This diversion can take the forms of excess salary, transfer pricing, subsidized personal loans, non-arms-length asset transactions, and in some cases outright theft. However, unless the controlling shareholder can simply steal profits with impunity, he has to engage in costly but legal maneuvers to divert profits, such as setting up intermediary companies, taking risks of possible legal challenges, and so on. Presumably, the better protected are the minority shareholders, the more costs controlling shareholder has to incur to expropriate a given share of profits. Thus, better investor protection reduces expropriation. Similarly, higher cash-flow ownership by the controlling shareholder yields lower equilibrium level of expropriation of minority shareholders for a given legal regime. Hence, better investor protection and higher cash-flow ownership by the controlling shareholder are associated with higher firm value.

2.3. Empirical evidence on the incentive and expropriating effects of large shareholders

There are several strands of literature offering empirical evidence on the incentive and expropriating effects of large shareholders. The first strand of literature focuses on the relation between concentrated ownership and control and firm valuation. Mock, Shleifer and Vishny (1988) examine a sample of 371 Fortune-500 firms for 1980 and find that firm value, as measure by Tobin’s Q, tends to increase as managerial stock ownership increases to 5 percent; firm value then decreases as managerial ownership increases from 5 percent to 25 percent; finally, firm value tends to increase slightly as managerial ownership increases beyond 25 percent. These results also hold for ownership

by top officers and outside directors. Mock, Shleifer and Vishny (1988) thus suggest that at relatively low levels of ownership, increase in managerial ownership helps to align the interests of managers and shareholders. At higher levels of ownership, additional ownership by insiders leads to entrenchment. Similar results are found in McConnell and Servaes (1990) for a large sample of firms listed on the New York Stock Exchange and the American Stock Exchange.

Claessens, Djankov, Fan and Lang (2002) examine the incentive and expropriating effects of large shareholders for a sample of 2,980 publicly traded firms in nine East Asian countries. They find that higher concentration of cash-flow rights is associated with higher market valuation (market-to-book ratio), but higher concentration of voting rights is associated with lower market valuation; the separation of ownership from control is associated with lower market valuation, which they interpret as evidence of expropriation of minority shareholders by the controlling shareholders. In addition, they find that family control is an important factor behind the negative relation between control rights and market valuation. In contrast, they find no evidence of expropriation in state-controlled and widely held corporations. Similar results are obtained by Lins (2003) for a sample of 1,433 firms from 18 emerging countries¹.

The second strand of literature examines the control premiums in negotiated block transfers and the voting premiums of shares with superior voting rights. Based on a sample of 63 block trades between 1978 and 1982 involving at least 5% of the common stock of NYSE and AMEX corporations, Barclay and Holderness (1989) find that large blocks of shares are priced at substantial premiums (average 20 percent) to the post-announcement exchange prices. They argue that the premiums reflect private benefits of control accrued to the block holders only. Using a similar approach, Dyck and Zingale (2004) examine the pricing of 393 control blocks from 39 countries during 1990-2000 and find that the value of control in these countries ranges between 4 percent and 65

¹ There are other studies arguing that the relation between ownership and firm value is spurious (Demsetz, 1983; Demsetz and Lehn, 1985; Himmelberg, Hubbard, and Palia, 1999). While greater ownership concentration results in stronger incentives to monitor, investors may be inhibited from taking value-maximizing positions in firms if the costs associated with amassing large stakes are high. If transaction costs are low, each firm would have the optimal, but not necessarily concentrated, ownership structure.

percent, with an average of 14 percent of the company's market value. They also find that private benefits of control are larger in countries where capital markets are less developed, ownership is more concentrated, and privatizations are less likely to take place as public offerings. Nenova (2003) examines the value of corporate voting rights for a sample of 661 firms with dual-class shares from 18 countries in 1997. She finds that the value of the votes for control-blocks, which represents a lower bound for the actual private benefits that controlling shareholders can extract from the firms, varies widely across countries. It is close to half of the firm market value in South Korea, and close to zero in Finland. She also finds that the legal environment, law enforcement, investor protection, takeover regulations and power-concentrating corporate charter provisions explain 68% of the cross-country variation in the value of votes for control-blocks².

The third strand of literature investigates the relation between large shareholders and dividend payouts. La Porta, Lopez-de-Silanes, Shleifer and Vishny (2000a) examine the dividend policies of 4,000 firms from 33 countries and find that firms in countries with better legal protection of minority shareholders make higher dividend payouts. They argue that investors in good legal protection countries are able to use their legal power to extract dividends from firms, leaving less profit for expropriation by insiders (managers and controlling shareholders). For a sample of 5,897 firms from Western Europe and East Asia, Faccio, Lang and Young (2001) find that more dividends are paid by firms that are "tightly affiliated" to a business group via a chain of controls that comprises at least 20 percent of the control rights at each link, and amongst such firms, to those having wider divergence of control and cash-flow rights. In contrast, for firms not tightly affiliated to a group, wider divergence of control and cash-flow rights is associated with lower dividend rate. This correlation is driven by those corporations that are "loosely affiliated" to a group in that the control links are all above the 10 percent level, but are not all above the 20 percent level. They conclude that investors anticipate strongly the expropriation in firms with wider divergence of control and cash-flow rights that are tightly affiliated to a group; more dividends are paid to allay these concerns, as corporations compete for

² Other studies on the control premium in negotiated block transfers and the voting premium of shares with superior voting rights include Bergstrom and Rydqvist (1990), Mikkelsen and Regassa (1991), and Zingales (1994, 1995).

capital. However, investors seem less alert to expropriation in loosely-affiliated corporations, allowing their insiders latitude to pay less dividends, given a greater discrepancy between their ownership and control rights.

The fourth strand of literature links legal protection of investors to the development of financial markets. This strand of literature argues that the extent of legal protection of investors in a country is an important determinant of the development of its financial markets. When laws are protective of outside investors and well enforced, investors are willing to finance firms, and financial markets are both broader and more valuable. In contrast, when laws are poorly protective of investors, the development of financial markets is stunted. Using a sample of 49 countries, La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997) show that countries with better protection of minority shareholders have more valuable stock markets, larger numbers of listed securities per capita, and higher rates of IPO activities than countries with poor legal protection of minority shareholders do. For a sample of 539 large firms from 27 wealthy countries, La Porta, Lopez-de-Silanes, Shleifer and Vishny (2002) find that firms in countries with better investor protection have higher Tobin's Q than firms in countries with inferior investor protection do. They also find that higher insider cash-flow ownership is associated with higher firm valuation, and that this effect is greater in countries with inferior investor protection.

The fifth strand of literature examines the relation between large shareholders and management turnovers. Kaplan and Milton (1994) and Kang and Shivdasani (1995) show that Japanese firms with large shareholders are more likely to replace managers in response to poor performance than firms with dispersed ownership do. For Italian firms, Volpin (2002) finds that the sensitivity of executive turnover to performance increases with the ownership by the largest shareholders, but decreases when the top executives come from the controlling shareholders.

The final strand of literature looks more directly on related-party transactions between firms and their large shareholders. For a sample of 107 mergers within Korean business groups (chaebols), Bae, Kang and Kim (2002) find that chaebol-affiliated firms that performed well prior to the mergers earn significantly negative announcement returns; Chaebol bidders who acquire poorly performing targets within the same group

and/or have concentrated equity ownership by owner-managers also earn significantly negative abnormal returns. These types of mergers, however, have a significantly positive effect on the market value of the portfolio of other firms in the group. They argue that firms belonging to business groups pay less attention to the maximization of individual firm value and make takeover decisions that are beneficial to the controlling shareholders only.

For a sample of 375 filings of related-party transactions between Hong Kong listed companies and their controlling shareholders during 1998-2000, Cheung, Rau and Stouraitis (2006) show that firms undertaking related-party transactions earn negative excess returns both at the initial announcement of the related-party transactions and during the 12-month period following the announcement, significantly lower than firms announcing similar arms' length transactions; the excess returns are significantly negatively related to percentage ownership by the controlling shareholder and to proxies for information disclosure; the likelihood of undertaking related-party transactions is higher for firms whose ultimate owners can be traced to mainland China.

For a representative sample of 114 companies from the U.S. markets during 2000-2001, Gordon, Henry and Palia (2006) show that related-party transactions are widely spread and involve equally executives and non-executive board members; weaker corporate governance mechanisms are associated with more and greater dollar amounts of related-party transactions; industry-adjusted returns are negatively associated with related-party transactions³.

3. Review of prior research on large shareholders and corporate governance in the Chinese stock markets

Under the philosophy of “a market economy with socialist characteristics”, the Chinese government partially privatized its state-owned enterprises (SOEs) by selling a

³ Other studies on related-party transactions include Bertrand, Mehta and Mullainathan (2002), Buysschaert, Deloof and Jegers (2004), Cheung, Jing, Rau and Stouraitis (2005), and Djankov, La Porta, Lopez-de-Silanes and Shleifer (2005).

minority portion of ownership to the public, which led to the creation of two official stock exchanges – the Shanghai Stock Exchange and the Shenzhen Security Exchange – in the early 1990s. Concerning about the potential loss of control on state assets, the government further imposed the restriction that the ownership retained by SOEs is not allowed to be traded on the stock exchanges. Consequently, most listed firms on the Chinese stock markets have concentrated ownership structures that feature a dominant SOE shareholder. Hence, prior studies on corporate governance issues in the Chinese stock markets have focused mostly on the costs and benefits associated with SOE controlling shareholders.

First, on the relation between ownership and performance, Xu and Wang (1999) examine a sample of 154 listed firms on the two Chinese stock exchanges during 1993-1995 and find a positive and significant correlation between ownership concentration and profitability; this relation is stronger for firms dominated by non-SOE shareholders than for those dominated by SOE shareholders; firms' profitability is positively correlated with the fraction of non-state shares, but it is either negatively correlated or uncorrelated with the fraction of state shares and tradable A-shares held mostly by individuals. Xu and Wang (1999) thus conclude that state ownership is associated with inefficiency. Sun and Tong (2003) also find similar results when they evaluate the performance changes of 634 SOEs listed on China's two exchanges upon share issuing privatization during 1994-1998. For a sample of 826 firms listed on the two Chinese stock exchanges during 1994-1998, Tian (2001) finds a non-monotonic relation between firm value and state ownership: firm value is negatively related to state ownership when state ownership is relatively small, but positively related to state ownership when state ownership is relatively large. He interprets the results as being consistent with the grabbing hand and helping hand of government shareholder (Frye and Shleifer, 1997). Specifically, when government ownership is small, the government is likely to interfere in the firm for political objects (grabbling hand). However, when its financial interest from corporate value is sufficiently large, the government is likely to provide corporate governance and government partiality (helping hand). Wei, Xie and Zhang (2005) investigate the relation between ownership structure and firm value for a sample of 5,284 firm-year observations in the two Chinese stock markets during 1991-2001. They find that both state and

institutional shares are significantly negatively related to Tobin's Q, and that significant convex relations exist between Q and state shares, as well as between Q and institutional shares.

One important issue that has not been addressed in the above studies is the distinction between ownership and control. In particular, these studies do not distinguish between cash-flow rights and control rights of the largest shareholders. Consequently, the effect of the divergence between ownership and control on firm performance is still unknown.

Second, on the magnitude of private benefits of control, Bai, Liu and Song (2004) develop an indirect measure of private benefits of control for Chinese Special Treatment (ST) firms, which relies on the cumulated abnormal returns (CARs) after the ST announcement. Specifically, when a listed firm has accounting losses for two consecutive years, it is designated a ST firm by the regulatory authorities and will be de-listed from the stock exchange if it cannot turn around within two years. To maintain the firm's listing status, the incumbent controlling shareholder and potential outside contenders will engage in a control contest. In this contest, the incumbent controlling shareholder and potential contenders will try to outbid each other by injecting an amount equivalent to their private benefits of control into the ST firm to enhance the firm's performance outlook. As a result, minority shareholders benefit from the control contest, which is reflected in the positive abnormal returns after ST announcement. For a sample of 66 ST firms on the Chinese stock markets during 1998-2000, Bai, Liu and Song (2004) estimate that the average private benefits of control is 33.5% of the firm's market value.

Third, on the relation between legal protection of shareholders and the development of financial market, Bai, Liu, Lu, Song and Zhang (2004) construct measures for corporate governance mechanisms and link their corporate governance measures to firm valuation for a sample of 1,006 listed firms on the Chinese stock markets. They find that better-governed firms are associated with higher market valuation as measured by Tobin's Q and market-to-book ratio. In particular, firms cross-listed on a better-regulated market such as Hong Kong or New York are valued higher. Allen, Qian and Qian (2005) compare growth in the formal sector (state-owned and publicly traded firms) and the informal sector (all other firms) of the China's economy. They find that the

informal sector, with much poorer applicable legal and financial mechanisms, grows much faster than the formal sector does, and provides most of the economy's growth. Allen, Qian and Qian (2005) conclude that there exist effective informal financing channels and governance mechanisms, such as those based on reputation and relationship, to support this growth.

Fourth, on political connection and firm performance, Fan, Hong and Zhang (2006) examine the post-IPO performance of a sample of 617 listed firms on the Chinese stock markets during 1993-2000. They report that firms run by ex- or current government bureaucrats underperform firms without politically-connected CEOs significantly in the three years following IPO; firms with politically-connected CEOs are more likely to appoint other bureaucrats to the management teams and boards of directors, while they appoint fewer directors with relevant professional background or prior business experience, nor any representative of minority shareholders. They conclude that the appointment of politically-connected CEOs does not enhance firm efficiency but rather fulfill political goals of politicians.

Finally, there are several studies examining related-party transactions between listed firms and their controlling shareholders. For a sample of 131 Chinese listed firms in the basic material industries, Jian and Wong (2004) show that group-affiliated firms engage in more related-party transactions than stand-alone firms do; group-affiliated firms report abnormally high levels of related-party sales, mainly to their controlling shareholders and other member firms in the group, when they have incentives to inflate earnings to avoid being delisted or prior to equity offerings. Once the group-affiliated firms have generated more free cash flow, they divert resources back to the group by providing other member firms generous trade credits. Jiang, Lee and Yue (2005) document the widespread use of corporate loans by controlling shareholders to extract funds from Chinese listed companies. They show that firms with large year-end balance of "other receivables" (which were interpreted by Jiang, Lee and Yue (2005) as related-party lending to the controlling shareholders) experience worse operating performance in the following year and are much more likely to become candidates for delisting in three years; firms with higher level of "other receivables" also earn negative risk-adjusted returns by the end of the fourth month after fiscal year end. Furthermore, Jiang, Lee and

Yue (2005) find that the level of “other receivables” is negatively related to cash-flow ownership by the largest shareholder, and is higher in firms with SOE controlling shareholders. Cheung, Jing, Rau and Stouraitis (2005) look more directly into the market reaction to related-party transactions between Chinese listed firms and their controlling shareholders. They find that firms undertaking related-party transactions earn significantly negative abnormal returns around the announcement; there is an inverse relationship between the percentage of state ownership and excess returns at the announcement of related-party transactions; this relationship is driven mostly by related-party transactions undertaken by firms that are majority-controlled by the state.

4. Recent research on the relations between institutional and regulatory structures and financial reporting behavior

The prime reason why the institutional and regulatory structures within which a firm operates may have an impact on the firm’s financial reporting practice is because the institutional and regulatory structures can affect the firm’s reporting incentives. Most of the recent evidence on the relations between institutional and regulatory structures and financial reporting behavior comes from studies of international variation in public reporting behavior. This should not be surprised given that there are greater differences in institutional and regulatory structures across countries than within a country.

Using a sample of manufacturing firms in 16 countries during 1986-1995, Ali and Hwang (2000) examine the relations between measures of the value relevance of financial accounting data and several country-specific institutional factors, where value relevance is specified primarily in terms of explanatory power of accounting variables (earnings and book value of equity) for security returns, relative to explanatory power for comparable U.S. firms. They find that the value relevance of financial reports is significantly affected by country-specific institutional factors: the value relevance of financial reports is lower for countries where the financial systems are bank-oriented rather than market-oriented; where private sector bodies are not involved in standard setting process; where accounting practices follow the Continental model as opposed to

the British-American model; where tax rules have a greater influence on financial accounting measurements; and where spending on auditing services is relatively low.

For a sample of over 8,000 firms from 31 countries during 1990-1999, Leuz, Nanda and Wysocki (2003) examine systematic differences in several earnings management measures (including loss avoidance and earnings smoothing) in these countries, and find that firms in countries with developed equity markets, dispersed ownership structures, strong investor rights, and legal enforcement engage in less earnings management. They argue that strong and well-enforced outsider rights limit insiders' acquisition of private control benefits, and consequently, mitigate insiders' incentives to manage accounting earnings because they have little to conceal from outsiders. Hence, Leuz, Nanda and Wysocki (2003) suggest an endogenous link between corporate governance and the quality of reported earnings.

Ball, Robin and Wu (2003) study the quality of annual earnings reports in four East Asian economies (Hong Kong, Malaysia, Singapore and Thailand) during 1984-1996. They measure the reporting quality as the timelines with which economic income (loss) is reflected in accounting income, where economic income is defined as the common stock return over the fiscal year of a company. Their results show that reported earnings in the four East Asian economies generally are low in transparency despite their alleged high quality accounting standards (heavily US, UK and IAS influenced). They exhibit both low timeliness (incorporation of economic income in contemporaneous accounting income) and low asymmetric conservatism (heightened timeliness in incorporating value decreases, or negative economic income). Hence, Ball, Robin and Wu (2003) argue that accounting standards alone do not determine the quality of financial statement and financial reporting. Beyond accounting standards, incentives of preparers and auditors, enforcement mechanisms, ownership structure and other institutional features of the economy affect the outcome of the financial reporting process.

On a discussion comment to Ball, Robin and Wu (2003), Holthausen (2003) points out that accounting standards and other institutional structures are different across economies in many respects. Moreover, the stock returns do not capture the economic income equivalently across economies. Hence, there are interpretational difficulties associated with Ball, Robin and Wu (2003) and similar studies using international data.

He suggests that a more powerful test of the hypothesis that institutional and regulatory structures affect the characteristics of public reporting should be carried out in a within country setting where more features of the overall institutional and reporting regime are relatively constant.

Ball and Shivakumar (2005) examine the financial reporting quality (measured by timely loss recognition) for a large sample of U.K. private and public firms during 1989-1999. They find that timely loss recognition is substantially less prevalent in private companies than in public companies, despite the groups facing equivalent regulatory rules. Ball and Shivakumar (2005) thus argue that private companies are more likely to resolve information asymmetry by an “insider access” model. They are less likely to use public financial statements in contracting with lenders, managers and other parties, and in primary and secondary equity transactions. Their financial reporting is correspondingly more likely to be influenced by taxation, dividend and other policies. These differences imply a demand for lower quality financial reporting.

Other recent studies on the relations between institutional and regulatory structures and financial reporting quality include Ball, Kothari and Robin (2000), Leuz (2003), Bushman, Piotroski and Smith (2004), Bushman and Piotroski (2006), Burgstahler, Hail and Leuz (2006), and Leuz and Oberholzer (2006).

5. Summary of the three essays

The first essay in this thesis investigates earnings management on the Chinese IPO markets. This essay is motivated by the casual observation that the reported earnings of Chinese firms subject to accounting-based regulations on IPO-pricing decline significantly after IPOs, despite the fact that these firms were selected for listing on the basis of good earnings. Prior research on the international variation in financial reporting behavior suggests that institutional and regulatory regimes in a country can have significant impacts on the financial reporting behavior in that country (e.g., Ali and Hwang, 2000; Ball, Robin and Wu, 2003; Leuz, Nanda and Wysocki, 2003; Bushman and Piotroski, 2006; Leuz and Oberholzer, 2006). However, one major concern in this literature is that institutional structures and financial reporting standards vary across

countries in many respects, which are difficult to adequately control for in a cross-country analysis (Holthausen, 2003). In contrast to prior studies, this essay examines the impacts of institutional and regulatory structures on financial reporting behavior in a within-country setting, where more features of the overall institutional and reporting regimes are relatively constant. This is the first study linking earnings management incentives of IPO firms directly to regulations on IPO pricing.

The sample in the first essay includes all 271 IPO firms on the Shenzhen Security Exchange during 1997-2000. The main findings from this essay are as follows. IPO firms' discretionary total accruals – the proxies for earnings management – are high in the pre-IPO and the IPO years relative to the post-IPO years. This accruals pattern causes net income to peak in the pre-issue and issuing years and decline in the post-issue years. Most importantly, I document that the earnings management behavior of IPO firms priced under different pricing systems has a strong link to the pricing systems used. During the sample period, the government imposes four different pricing systems fixing IPO prices on pre-IPO earnings or/and forecasted earnings in the IPO year. The evidence shows that discretionary total accruals are high in the pre-IPO years when the pricing system is based on pre-IPO earnings. When the pricing system is based on the forecasted earnings in the IPO year, issuers first overestimate IPO-year earnings and then adopt aggressive discretionary total accruals to meet the forecasted targets. The evidence also shows that when the pricing system does not link directly to earnings figure, issuers have less incentive to manipulate accounting earnings. By comparing the earnings management behavior of firms subject to different IPO-pricing regulations, this study sheds new light on the relations between institutional structures and public reporting quality.

The second essay in this thesis examines the separation of ownership and control in the Chinese stock markets and the impacts of such separation on firm performance, related-party lending and cash dividend policy. This essay is motivated by several facts. First, La Porta, Lopez-de-Silanes and Shleifer (1999), Claessens, Djankov and Lang (2000), and Faccio and Lang (2002) find that concentrated ownership is very common among corporations in East Asia and Europe and that large shareholders in these corporations usually have control rights in substantially excess of their ownership.

However, there has not been study addressing the issue of separation of ownership and control on the Chinese stock markets, despite that the Chinese markets differ from other markets in many respects, such as market segmentation of institutional shares and individual shares, which may have significant impact on the separation of ownership and control. Second, Claessens, Djankov, Fan and Lang (2002) find that market valuation of firms with concentrated ownership is positively related to the ownership by the largest shareholders (the incentive effect), but negatively related to the divergence between control rights and ownership of the largest shareholders (the expropriating effect). However, there is little direct evidence on the specific mechanism through which the incentive and expropriating effects of large shareholders may affect firm value. Third, Prior research on privatization suggests that state-controlled firms, due to their lack of incentives from shareholders and managers, seem to be less profitable and valuable than firms controlled by non-state shareholders (Megginson and Netter, 2001). However, there are also other studies suggesting that non-state-controlled firms (mainly family firms) are likely to have more serious agency problem between the controlling shareholders and minority shareholders, especially in countries with poor shareholder protection (Claessens, Djankov, Fan and Lang, 2002; Burkart, Panunzi and Shleifer, 2003; Maury, 2006). It is therefore important to empirically distinguish the incentive and expropriating effects between state and non-state controlling shareholders.

The sample in the second essay includes all 491 non-financial companies listed on the Shenzhen Security Exchange at the end of 2002. The main findings from this essay are as follows. First, at the 20% threshold, the state controls about 76% of the listed companies. Families control about 12% and legal persons control 6%. The state is more likely the ultimate owner of large companies, whereas families and legal persons are more likely the ultimate owners of small companies. Second, although the conventionally control-enhancing devices such as dual-class shares, pyramiding and cross-holdings are not common among Chinese firms, large shareholders often use management appointment to enhance their control rights in excess of their ownership rights. More importantly, the segmentation of institutional and individual share markets aggravates the separation of the effective control rights and cash-flow ownership of the largest shareholders. Third, ownership concentration is beneficial to firm performance (the

incentive effect), whereas the divergence between control rights and ownership of the largest shareholder is detrimental to firm performance (the expropriating effect). Among firms controlled by different types of ultimate owners, the expropriating effect is stronger in family-controlled and legal-person-controlled firms than that in state-controlled firms. Fourth, the amounts of related-party lending from listed firms to their controlling shareholders are negatively related to the percentage ownership by the controlling shareholders, but positively related to the divergence between control rights and ownership of the controlling shareholders, especially in family-controlled and legal-person-controlled firms. In contrast, cash dividend payout ratio is positively related to the percentage ownership by the controlling shareholders, but negatively related to the divergence between control rights and ownership of the controlling shareholders. Again, the negative relation between cash dividend payout ratio and the divergence between control rights and ownership of the controlling shareholders is stronger in family-controlled and legal-person-controlled firms.

In a concurrent working paper, Jiang, Lee and Yue (2005) also find a negative relation between the amounts of related-party lending and the percentage ownership by the largest shareholders on the Chinese stock markets. However, they do not attempt to distinguish between cash-flow rights and control rights of the largest shareholders. Consequently, the effect of the divergence between ownership and control on related-party lending is unknown in their study. Another major difference between the second essay of this thesis and Jiang, Lee and Yue (2005) is the measures of related-party lending. Jiang, Lee and Yue (2005) measure a firm's related-party lending to the largest shareholder as the year-end balance of "other receivables" item in the balance sheet, which include not only the amounts of related-party lending to the largest shareholder, but also the amounts of lending to other parties. Instead, the amounts of a firm's related-party lending to its largest shareholder in the second essay of this thesis is the actual amounts of related-party lending reported in the firm's annual report. Furthermore, in the second essay of this thesis, the amounts of related-party borrowing are subtracted from the amounts of related-party lending to get the "net" amounts of related-party lending.

The third essay of this thesis examines related-party transactions following reverse mergers on the Shenzhen Security Exchange. This essay is motivated by the study

of Friedman, Johnson and Milton (2003), who argue theoretically that the controlling shareholders may sometimes transfer private resources into firms with minority shareholders (propping). However, despite considerable anecdotal evidence, there is little direct systematic evidence on the specific circumstances under which real propping occurs. Previously, Cheung, Rau and Stouraitis (2006) and Cheung, Jing, Rau and Stouraitis (2005) examine one of the specific mechanisms through which real propping may occur – related-party transactions between listed firms and their controlling shareholders – on the Hong Kong and the Chinese stock markets respectively, and find that only a small portion of the related-party transactions examined are likely to be propping. However, Cheung, Rau and Stouraitis (2006) and Cheung, Jing, Rau and Stouraitis (2005) do not address the issue of under what specific circumstances the controlling shareholders may prop up the firms.

The sample in the third essay includes 105 related-party transactions of assets (including equities) undertaken by 57 listed firms following reverse mergers on the Shenzhen Security Exchange. The main findings from this essay are as follows. First, on average, firms undertaking related-party transactions following reverse mergers earn significantly positive excess returns around the announcement of the transactions. Second, most of the positive excess returns are driven by two types of transactions: transactions through which the new controlling shareholders bring their main business into the listed firms, and transactions through which the new controlling shareholders bail out financially distressed firms (propping transactions). Third, financially distressed firms are more likely to undertake related-party transactions that benefit minority shareholders, whereas cash-abundant firms are more likely to undertake related-party transactions leading to expropriation of minority shareholders. Fourth, firms undertaking related-party transactions with positive announcement returns outperform their industry peers in the year of and the year following the transactions.

In comparing the results from the third essay of this thesis with those from earlier studies (Cheung, Jing, Rau, and Stouraitis, 2005; Cheung, Rau, and Stouraitis, 2006), The reader should note that most of the related-party transactions in the third essay of this thesis are conducted for listing the new controlling shareholders' main business on the

stock exchange and/or propping up financially distressed listed firms, which are more likely to benefit the minority shareholders in the listed firms.

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Essay 1:
Earnings Management in Response to Regulation on IPO Pricing
- Empirical evidence from the Shenzhen Security Exchange

Abstract

This paper examines earnings management in Chinese IPO markets using a sample of 271 firms conducting IPOs during 1997-2000 on the Shenzhen Security Exchange. I find that earnings management behavior of IPO firms has a strong link to governmental regulations on IPO pricing. During the sample period, the government imposes four different pricing systems fixing IPO prices on pre-IPO earnings and/or forecasted earnings in the IPO year. The evidence shows that IPO firms' discretionary total accruals – the proxies for earnings management – are high in the pre-IPO years when the pricing system is based on pre-IPO earnings. When the pricing system is based on the forecasted earnings in the IPO year, issuers first overestimate IPO-year earnings and then adopt aggressive discretionary total accruals to meet the forecasted targets. The evidence also shows that when the pricing system does not link directly to accounting figure, issuers have less incentive to manipulate earnings.

Keywords: Earnings management, Discretionary total accruals, IPO pricing regulation, Chinese stock markets

JEL Classification: G15; G18; G34; G41

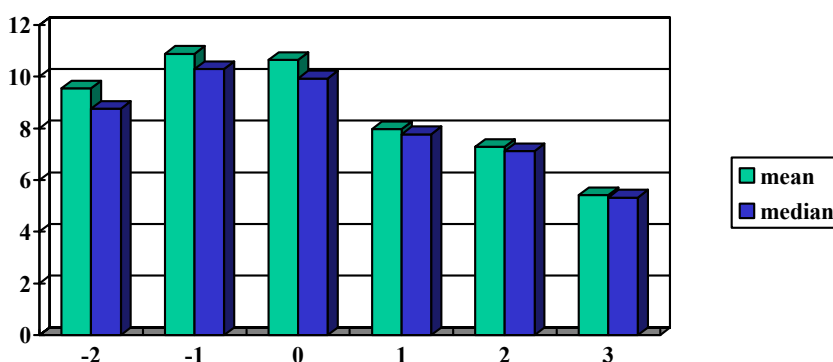
1. Introduction

The post-IPO earnings decline of listed firms on the Chinese stock markets has attracted a great deal of debates. On the one hand, in an attempt to keep the quality of listed companies at a high standard, the Chinese Security Regulatory Committee (CSRC) selects companies with genuine growth prospects to the stock exchanges¹. Once being listed, firms enjoy a variety of favorable policies, such as taxation (listed firms pay only 15% income tax vs. unlisted firms' 33%), investment freedom (listed firms are not subject to certain government restrictions on industry entry), government project priority (listed firms have the priority to undertake major state-sponsored projects), etc. On the other hand, these firms experience significant earnings declines after IPOs. A plot of return-on-equity ratios (ROEs, defined as net income divided by total assets) over time for firms going public between 1997-1999 on the Shenzhen Security Exchange (SZSE) in Figure 1 shows that the average ROE is more than 10% in the IPO year, declines to 7.96% one year after IPO and decreases further afterward.

Figure 1

Return-on-equity ratios (in percentage) of IPO firms

Figure plots the mean and median return-on-equity ratios for firms going public during 1997-1999 on the Shenzhen Security Exchange, arranged by years relative to IPO.



¹ For example, in its document No.12 (1996) concerning the selection of new companies to the Chinese stock markets, CSRC states that companies with good earnings potentials should be given priority.

In this paper, I explore a possible source for the post-IPO earnings decline, namely, earnings management by issuers in response to governmental regulation on IPO pricing. I hypothesize that the governmental regulation that mechanically fixes IPO prices on accounting earnings creates strong incentives for issuers to report unusually high pricing period earnings by adopting aggressive accounting accruals adjustments. As the accounting accruals will total zero over the long run (because the sum of earnings must equal the sum of cash flow over the life of business), any higher-than-normal accruals in pricing period must be offset by lower-than-normal accruals in post-IPO period. Consequently, post-IPO earnings decline.

I examine the net income performance of 271 IPO firms on the Shenzhen Security Exchange during 1997-2000 and find that issuers subject to IPO pricing regulation have superior net income performance at the time when the firms' earnings are used for IPO pricing (pricing period). Immediately after the pricing period, these issuers experience earnings decline. In contrast, the net income performance of issuers not subject to pricing regulation does not show any significant pattern. The analysis on net income components shows that the observed net income performance pattern is driven mainly by accounting accruals: the accounting accruals of IPO firms subject to pricing regulation are unusually high in the pricing period but low in the post-pricing period.

The main contribution of this study to the earnings management literature is to add new evidence showing the impacts of institutional and regulatory structures on public reporting quality. Previous research on the international variation in public reporting behavior suggests that institutional and regulatory regimes in a country can have significant impacts on the public reporting behavior in that country (e.g., Ali and Hwang, 2000; Ball, Robin and Wu, 2003; Leuz, Nanda and Wysocki, 2003; Bushman and Piotroski, 2006; Burgstahler, Hail and Leuz, 2006). However, one major concern in this literature is the problem of correlated omitted variables. This problem arises because institutional structures and financial reporting standards vary across countries in many respects, which are difficult to adequately control for in a cross-country analysis. Hence, Holthausen (2003) suggests that a more powerful test of the hypothesis can be carried out in a within-country setting where more features of the overall institutional and reporting regimes are relatively constant.

The changes in IPO-pricing regulations on the Chinese stock markets during the period of 1997-2000 provide a rare opportunity for testing the hypothesis that institutional and regulatory structures affect the characteristics of public reporting. During this period, four different pricing systems had been imposed by CSRC while other institutional and reporting factors had been relatively constant. The results show that earnings management behavior of IPO firms has a strong link to the pricing systems imposed: when the pricing system is based on earnings in the pre-IPO years, firms manage pre-IPO earnings upward; when the pricing system is based on forecasted earnings in the IPO year, firms first overestimate IPO-year earnings and then manage earnings upward to meet the forecasted targets; when the pricing system does not link directly to earnings, firms have less incentive to manipulate earnings. By focusing on the incentive differences among firms subject to different IPO-pricing regulations, this study is the first to offer direct evidence linking earnings management behavior of IPO firms to regulation on IPO pricing.

Previously, Aharony, Lee and Wong (2000) and Wei, Tan and Lin (2000) have also studied the post-IPO earnings decline in the Chinese stock markets. This study is different from theirs in the followings respects. First, the focuses are different. While the focus in Aharony, Lee and Wong (2000) is earnings management driven by competition between firms for listing quota, this study focuses on earnings management driven by CSRC's regulation on IPO pricing. Wei, Tan and Lin (2000) do not specify the motive of earnings management. Second, the methodologies are different. This study distinguishes the incentive differences among firms under different IPO-pricing systems, whereas Aharony, Lee and Wong (2000) and Wei, Tan and Lin (2000) treat all firms equally. Third, the samples are different. The sample in Aharony, Lee and Wong (2000) includes 83 IPO firms offering B- and H-shares to foreign investors during the period of 1992-1995. The sample in this study includes 271 IPO firms offering A-shares to domestic investors during the period of 1997-2000. A-share markets are different from B- and H-share markets in many respects, such as CSRC's regulation on IPO pricing, accounting standard and disclosure requirement, auditing procedure, degree of investors' sophistication, etc. Presumably, these differences should affect firms' incentives and opportunities of earnings management. For example, since IPO pricing of H-shares

(shares listed on the Hong Kong Stock Exchange) is based on market demand instead of CSRC's regulation, the earnings management incentives of firms offering H-shares may be affected by market factors but not by regulatory factors; The accounting standard, disclosure requirement, auditing procedure, and investors are more sophisticated in B- and H-share markets, which should reduce the opportunities for earnings management. The sample in Wei, Tan and Lin (2000) includes only a few IPO firms in public utility and manufactory industries.

The rest of this paper is organized as follows. Section 2 reviews international evidence on post-IPO underperformance, the effects of institutional and regulatory structures on financial reporting quality, and evidence of earnings management on the Chinese stock markets. Section 3 details the incentives and opportunities for earnings management during IPO on the Chinese stock markets. Section 4 develops the main hypotheses predicting earnings management behavior and net income performance of IPO firms. Section 5 discusses the measures of earnings management used in this study. Section 6 describes data and provides some descriptive statistics. Section 7 reports the empirical evidence. Conclusions are drawn in the final section.

2 Literature review

2.1 International evidence on post-IPO underperformance

Ritter (1991) was the first to document the post-issue stock underperformance of IPO firms. In a study on the post-issue stock performance of 1,526 firms that went public in the U.S. during 1975-1984, Ritter (1991) finds that in the three years after the first day of going public these firms significantly underperform a set of comparable firms matched by size and industry. There is substantial variation in the underperformance year-over-year and across industries, with younger firms and firms going public in heavy volume years faring the worst. Ritter (1991) suggests that investors are periodically overoptimistic about the earnings potential of young growth firms and that firms take advantage of these 'windows of opportunities'.

After Ritter (1991), several papers have attempted to provide explanations for post-IPO stock underperformance. Mikkelsen, Partch and Shaha (1997) find that the

operating performance of IPO firms exceeds the performance of matched public traded firms before going public and then after going public declines to a level that is below the performance of matched firms. Variation in operating performance after going public is explained by the size and age of the firms and by the presence of secondary sale, with offerings that include a large proportion of shares sold by current holders having worse post-issue performance. Mikkelsen, Partch and Shaha (1997) thus suggest that companies tend to conduct equity offerings following favorable operating performance that is not sustainable in the long run. As the real earnings of these firms reveal in the post-issue period, investors adjust the prices accordingly.

Teoh, Welch and Wong (1998) and Teoh, Wong and Rau (1998) find that firms with unusually high accounting accruals (discretionary accruals) before and in the year of IPO experience poor operating and stock performance after IPOs. They argue that investors mechanically fix IPO prices on reported earnings. Taking advantage of this, managers of IPO firms use discretionary accruals to manipulate pre-IPO earnings upward for the sake of getting higher IPO prices. Since inflated accounting accruals are the results of borrowing from firms' future earnings, they must come down after IPOs. So do firms' reported earnings. Realizing that the pre-IPO earnings are unsustainable, investors adjust prices accordingly.

However, Ball and Shivakumar (2005, 2006) question the hypothesis in Teoh, Welch and Wong (1998). They argue that firms going public encounter market and regulatory demands at that time to increase their reporting quality. The market mechanisms for enforcing this demand include monitoring by internal and external auditors, boards, analysts, rating agencies, the press and other parties. Once public, firms are subject to greater risks of shareholder litigation and regulatory action. Hence, they hypothesize that listed firms report more conservatively than previously as private firms do. Empirically, Ball and Shivakumar (2006) also show that the evidence reported by Teoh, Welch and Wong (1998) is unreliable for a variety of reasons.

Other studies on the post-issue operating and stock performance of IPO firms include Jain and Kini (1994), Loughran and Ritter (1995) and Ritter and Welch (2002), among others.

2.2 The effects of institutional and regulatory structures on financial reporting quality

Using a sample of manufacturing firms in 16 countries during 1986-1995, Ali and Hwang (2000) examine the relations between measures of the value relevance of financial accounting data and several country-specific institutional factors, where value relevance is specified primarily in terms of explanatory power of accounting variables (earnings and book value of equity) for security returns, relative to explanatory power for comparable U.S. firms. They find that the value relevance of financial reports is significantly affected by country-specific institutional factors: the value relevance of financial reports is lower for countries where the financial systems are bank-oriented rather than market-oriented; where private sector bodies are not involved in standard setting process; where accounting practices follow the Continental model as opposed to the British-American model; where tax rules have a greater influence on financial accounting measurements; and where spending on auditing services is relatively low.

For a sample of over 8,000 firms from 31 countries during 1990-1999, Leuz, Nanda and Wysocki (2003) examine systematic differences in several earnings management measures (including loss avoidance and earnings smoothing) in these countries, and find that firms in countries with developed equity markets, dispersed ownership structures, strong investor rights, and legal enforcement engage in less earnings management. They argue that strong and well-enforced outsider rights limit insiders' acquisition of private control benefits, and consequently, mitigate insiders' incentives to manage accounting earnings because they have little to conceal from outsiders. Hence, Leuz, Nanda and Wysocki (2003) suggest an endogenous link between corporate governance and the quality of reported earnings.

Ball, Robin and Wu (2003) study the quality of annual earnings reports in four East Asian economies (Hong Kong, Malaysia, Singapore and Thailand) during the years 1984-1996. They measure the reporting quality as the timelines with which economic income (loss) is reflected in accounting income, where economic income is defined as the common stock return over the fiscal year of a company. The results show that reported earnings in the four East Asian economies generally are low in transparency despite their alleged high quality accounting standard (heavily US, UK and IAS influenced). They

exhibit both low timeliness (incorporation of economic income in contemporaneous accounting income) and low asymmetric conservatism (heightened timeliness in incorporating value decreases, or negative economic income). Hence, Ball, Robin and Wu (2003) argue that accounting standards alone do not determine the quality of financial statement and financial reporting. Beyond accounting standards, incentives of preparers and auditors, enforcement mechanisms, ownership structure and other institutional features of the economy affect the outcome of the financial reporting process.

On a discussion comment to Ball, Robin and Wu (2003), Holthausen (2003) points out that accounting standards and other institutional structures are different across economies in many respects. Moreover, the stock returns do not capture the economic income equivalently across economies. Hence, there are interpretational difficulties associated with Ball, Robin and Wu (2003) and similar studies using international data. He suggests that a more powerful test of the hypothesis that institutional and regulatory structures affect the characteristics of public reporting should be carried out in a within country setting where more features of the overall institutional and reporting regime are relatively constant.

Ball and Shivakumar (2005) examine the financial reporting quality (measured by timely loss recognition) for a large sample of U.K. private and public firms during 1989-1999. They find that timely loss recognition is substantially less prevalent in private companies than in public companies, despite the groups facing equivalent regulatory rules. Ball and Shivakumar (2005) thus argue that private companies are more likely to resolve information asymmetry by an “insider access” model. They are less likely to use public financial statements in contracting with lenders, managers and other parties, and in primary and secondary equity transactions. Their financial reporting is correspondingly more likely to be influenced by taxation, dividend and other policies. These differences imply a demand for lower quality financial reporting.

Other studies on the relations between institutional and regulatory structures and financial reporting quality include Ball, Kothari and Robin (2000), Leuz (2003), Bushman, Piotroski and Smith (2004), Bushman and Piotroski (2006), Burgstahler, Hail and Leuz (2006), and Leuz and Oberholzer (2006).

2.3 *Evidence of earnings management on the Chinese stock markets*

Zhou and Chen (2002) summarize the motivations of Chinese firms to manage earnings into: (1) competing for listing quota (set by the government on the basis of firms' profitability); (2) meeting profitability-based regulation on rights issue; (3) avoiding being delisted from the stock exchange.

2.3.1 *Earnings management for listing quota*

IPO activities in China are tightly regulated by the Chinese Security Regulatory committee (CSRC), which imposes a quota system on the number of firms that can go public every year and selects IPO firms on the basis of operating performance. As a result, firms want to go public may have strong incentive to manipulate earnings upward.

Based on a sample of 83 Chinese state-owned enterprises (SOEs) that issued to foreign investors B-Shares on Chinese domestic stock exchanges or H-Shares on the Hong Kong Stock Exchange during 1992-1995, Aharony, Lee and Wong (2000) find a statistically significant post-issue earnings decline for firms in unprotected industries². In addition, they find that the accounting accruals of sample firms in unprotected industries decline whereas the cash flow from operations of these firms increases after the IPOs. Since companies in protected industries usually have good relationship with the government and thus receive favorable treatments for listing, Aharony, Lee and Wong (2000) hence take their findings as evidence that Chinese firms in unprotected industries practice earnings management to compete for listing quota. They also suggest that SOEs in unprotected industries may list those business units with temporarily high profits resulting from high accounting accruals during the process of financial packaging before IPOs.

Using a sample of A-share (shares issue to domestic investors only) IPO firms during 1992-1995, Wei, Tan and Lin (2000) find that the reported earnings of these firms decrease after IPOs, which they interpret as evidence of earnings management before IPOs. However, Wei, Tan and Lin (2000) do not investigate the motive behind such

² In Aharony, Lee and Wong (2000), the protected industries include petrochemicals, energy, and raw materials, while all other industries are considered unprotected industries. Firms in protected industries are large monopolies under the direct supervision of the State Council.

earnings management behavior. They measure earnings management as the yearly changes in total accruals. Results from Wei, Tan and Lin (2000) are based on case study rather than statistical analysis.

2.3.2 Earnings management to qualify for rights issue

Firms that want to conduct rights issues have to meet CSRC's rights issue criteria, which require that a right-issuing firm must have a listing history of three years with a return on equity (ROE) ratio of not less than 10% in each of the last three years. Hence, listed firms want to conduct rights issues may have the incentive to manipulate reported ROE above the 10% threshold.

Based on a sample of 447 firms applying for rights issues on the Chinese stock markets during 1996-1998, Chen and Yuan (2004) find that firms with ROEs just above the threshold for rights issue have used non-operating incomes to boost reported earnings. Using a sample of 784 listed firms on the Chinese stock markets in 2000, Liu and Lu (2004) find that firms qualifying for rights issues have significantly higher accounting accruals and non-operating incomes than firms without rights issue qualification do. For a sample of listed firms in 1994-2000, Chen, Lee and Li (2003) find that firms with ROEs close to meeting rights issue qualification have higher probability of receiving fiscal transfers from local governments (the controlling shareholders of these firms). They also find that Firms with ROEs close to the critical value for rights issue have incentive to pay out cash dividends to lower the book value of equity (according to Chinese accounting standard, cash dividends are deductible from equity in the paying year), and thus increase ROEs for meeting rights issue qualification. Other studies on earnings management motivated by rights issue regulation include Jiang (1999) and Chen, Xiao and Guo (2000).

2.3.3 Earnings management to avoid being delisted from the stock exchange

Chinese publicly listed firms with accounting losses for three consecutive years will be delisted from the stock exchange. To avoid being delisted, firms with accounting losses for two consecutive years may have the incentive to manipulate earnings upward and report profits.

Using a sample of 31 firms with negative earnings for two consecutive years, Liu and Lu (2004) find that firms managing to report profits in the third year have significantly higher accounting accruals than firms reporting loss in the third year do. Chen, Lee, and Li (2003) find that firms close to dipping into loss have a higher possibility of receiving fiscal transfers from local governments. Other studies of earnings management for avoiding being delisted from the stock exchange include Jiang (1999) and Lu (1999).

3. Incentives and opportunities for earnings management during IPO

3.1 *IPO pricing on the Chinese stock markets*

CSRC had not introduced the market mechanism into IPO pricing until the year of 2000. During 1993-1999, IPOs in China essentially adopted an administrative pricing policy, which sets the offering price equal to the product of price/earnings ratio (P/E) and earnings per share (EPS). During this period, the P/E ratios used in IPO pricing were predetermined by CSRC in the range of 13-20, regardless of industry and market demand. Table 1 describes the actual P/E ratios that CSRC applied to IPO pricing on the Shenzhen Security Exchange for the period of 1996-1999. During the same period, three measures of EPS used in IPO pricing had been imposed by CSRC. The first one is the expected EPS for the issuing year, which is based on the company's own estimation. The second one is the arithmetic average of the (reported) EPS for the three years prior to IPO. The third one is the average of the realized EPS in the year prior to IPO and the expected EPS in the IPO year. CSRC's regulations on EPS used in IPO pricing had been changed several times in the past. Before 1996, IPO pricing was based on the forecasted EPS. The CSRC's December 26, 1996 notice changed IPO pricing to be based on the arithmetic average of the realized EPS in the three years prior to IPO. The CSRC's September 10, 1997 notice modified the calculation of EPS used in IPO pricing to: $EPS = 0.5 * EPS$ in the year prior to IPO + $0.5 * \text{Forecasted EPS}$ in the IPO year. The CSRC's March 17, 1998 notice changed the EPS used in IPO pricing back to the Forecasted EPS in the IPO year. Beginning from July 28, 1999, CSRC has introduced the market mechanism into IPO pricing. Under the market mechanism, IPO pricing is no longer link directly to P/E ratio

and EPS. Issuers and underwriters are allowed to set an initial offering price range subject to the approvals from CSRC.

Table 1

P/E ratios applied by CSRC to IPO pricing on the Shenzhen Security Exchange, January 1996 – July 1999

Table reports the mean and median price/earnings (P/E) ratios predetermined by the Chinese Security Regulatory Committee (CSRC) in setting IPO prices on the Shenzhen Security Exchange for the period of January 1996 to July 1999. The Industries are (1) Mechanical & electronic appliance manufacturing, (2) chemicals, (3) multi-business, (4) food & drug, (5) machinery, (6) metal, (7) processing, (8) real state, (9) nature resource, (10) retail, (11) service, (12), transportation, and (13) utility.

Industry	Applied P/E by industries		Applied P/E by years		
	mean	median	year	mean	median
1	15.21	14.50	1996	15.66	15.00
2	14.20	14.40	1997	14.94	15.00
3	15.04	14.67	1998	14.11	14.30
4	14.74	14.89	1999	16.71	16.90
5	15.61	15.67			
6	16.26	15.75			
7	17.05	16.30	Average P/E on the market by years		
8	15.14	15.00	1996	38.88	
9	15.32	15.41	1997	42.66	
10	16.08	15.00	1998	32.31	
11	16.17	15.26	1999	37.56	
12	16.12	15.43			
13	16.28	15.47			

Presumably, the administrative pricing policy could induce strong incentive for IPO firms to manipulate upward the earnings used in IPO pricing. However, the prediction on earnings management under market pricing mechanism is not so clear-cut. On the one hand, if investors mechanically fix the IPO prices on EPS under market mechanism, issuers also have the incentive to report inflated earnings for getting higher IPO prices (Teoh, Welch, and Wong, 1998). On the other hand, pressure from

underwriters might restrict issuers' earnings management attempts. Specifically, under the administrative pricing policy, CSRC selects the IPO firm and predetermines the P/E ratio used in IPO pricing. The underwriter's role is merely to provide the standardized underwriting procedures and thus bears not responsibility for information disclosure. Under the market mechanism, only the number of firms that an investment bank can underwrite in a given year is determined by CSRC. The underwriter is free to decide on which firms to be underwritten as well as the offering prices. In return, the underwriter in the market pricing mechanism is required by CSRC to be responsible for the trueness of issuers' financial information in IPO prospectuses³. To reduce the risk of being punished by CSRC, the investment bank is likely to underwrite those firms with conservative reporting practices. In general, I expect that firms under market pricing mechanism would be less likely to manipulate earnings due to the monitoring from underwriters.

3.2 *Managerial incentives for manipulating earnings during IPO*

At first glance, managers of Chinese companies seem not to have immediate incentive to manage earnings. They own little share and stock option on the companies. Once post-IPO earnings are significantly lower than estimated or pre-IPO earnings, managers would face potential punishment from CSRC⁴.

Nevertheless, managers of IPO firms may have indirect incentives to manage earnings. In a study on the ownership structure of listed companies in the Shenzhen Security Exchange at the end of 2002, the second essay of this thesis finds that the state is the controlling shareholder in about 76% of the listed companies (at the 20% level of control). Furthermore, the state is the majority shareholder (more than 50% ownership) in 50% of the listed companies. One of the consequences of majority government ownership is that the government has the right to appoint board members and managers in listed companies. As representatives of the government, managers are likely to consider the interests of the government to be their top priority.

³ In its notice no. 34 (1999), CSRC states that "underwriters and issuers in the new (market) IPO mechanism are required to be co-responsible for the trueness of financial information in IPO prospectus. Should any intentional misleading is found, underwriters and issuers will be punished,"

⁴ See Section 3.5 for discussion

First, due to trading restrictions, state-owned shares are not allowed to be traded on the stock exchange, which means that the market value of listed firms is not directly relevant to the government. In practice, the government evaluates managers' performance on the basis of listed firms' book value of equity^{5,6}. The greater increase in a listed firm's book value, the more the managers are paid and being promoted. For example, the Shenzhen City Government, the controlling shareholder of Agricultural Product Corporation, paid 1.5 millions RMB (about 180 thousands USD) bonus to the general manager of Agricultural Product Corporation for his contribution to 'increase the book value of the company through IPO'. (Security Times, 12 September 2003). In October 2003, the Central Bureau of the Chinese Communist Party promoted the chairman of China Ocean Petrol Corporation to the governor of Hainan province for his contribution to 'increase the most book value amongst all Chinese IPO'. (Xinhua New, 8 October 2003). According to CSRC's regulation on IPO pricing, the total proceeds from a firm's IPO are determined by three factors: P/E ratio, (realized or estimated) EPS and the number of shares offered. Within these three factors, P/E ratio and the number of shares offered are predetermined by CSRC; the only factor under managers' discretion is EPS. Since managers are evaluated by the book value of equity under their management, they have incentive to manage the firm's earnings upward for getting more proceeds from IPO.

Second, companies that want to be listed on the stock exchange must go through CSRC's selection procedure, which is based mainly on accounting earnings. In China, local government officials are often promoted for bring companies to the stock exchange, as the listing can bring more tax revenues and employment to the local economy. Hence, supervisors from local governments may encourage managers of IPO candidates to manage earnings upward for increasing the companies' chances of being selected.

Third, when a firm is 100% owned by the state, the firm has to hand over its profits to the state and has little autonomy on investment, production, employment, salary,

⁵ For example, in one of its document published in 1996, the Bureau of State Property Management, a government agency supervising listed state-owned enterprises, states that the main responsibility of managers in listed state-owned enterprises is 'to increase the book value of company'.

⁶ Another reason for the book-value-of-equity-valuation is that the private transfers of stated-owned shares are based on book value of equity (Chen and Xiong, 2001).

and compensation decisions. Once public, managers enjoy greater autonomy as they can freely make decisions on the distribution of after-tax profits, investment, employment, salary, and compensation. Theoretically, going public should put managers under closer scrutiny from various stakeholders (shareholders, lenders, auditors, the media, etc.). However, this need not be the case in China. On the one hand, as the majority shareholder of listed companies, the government appoints most of the board members and top managers⁷. Minority shareholders have little incentive and ability to monitor managers (Jensen and Meckling, 1976). On the other hand, the government officials who are responsible for state asset management may not have sufficient incentive to monitor managers. They are civil servants and draw incomes from government payroll that has little to do with the market performance of the listed companies. These bureaucrats may also lack the ability to monitor managers because they are not industry experts and have to overlook hundreds of companies in which the state has an interest. Hence, managers are left with enormous autonomy but little economic responsibility, which may create strong incentives for self-dealings and in-job-consumptions. Such self-dealings and in-job-consumptions can take the forms of outright thief, unfair transaction prices between listed companies and companies controlled by the managers, luxury offices and cars, personal travel, etc. In general, the opportunities of self-dealings and in-job-consumption are highly correlated to the amounts of cash in the firms. Hence, managers have their own incentives for boosting EPS and bring more cash into the companies.

3.3 *Financial packaging of IPO firms*

The majority of listed companies were formerly state-owned enterprises (SOEs). Prior to IPOs, these SOEs have to convert their socialist fund accounting system into accrual accounting system. The conversion requires considerable judgments, which in turn creates opportunities for earnings management. For example, a SOE may attribute most of the profits to the business units for IPO and then tunnels back these profits in future years. The conversion also allows a company to change any and all accounting

⁷ According to a survey by Finance & Economy Magazine, about 70% of chairmen and general managers in listed companies are appointed directly by the local and central governments. (Finance & Economy Magazine, 12 October 2003).

principles via retroactive restatements of the pre-issue financial statements, which gives an exceptional opportunity for the issuer to doctor reported accounting earnings in the pre-issue years.

3.4 *Accounting and auditing environments*

Although accounting standards affect earnings management opportunities greatly, the environments within which the accounting standards operate carry more weights on the practices of earnings management. A thorough analysis reveals that the lack of independent and professional auditors, together with the unaccountability of the judicial system cause earnings management less costly and consequently render additional earnings management opportunities to Chinese companies.

Chinese Accounting Standard (CAS) is based on the International Accounting Standard (IAS). However, unlike IAS, which permits significant amounts of discretions in financial reporting and therefore requires professional judgments from both managers and independent auditors, CAS does not allow firms the same latitude to maneuver. Choices are few and the rules are more rigid. For instance, amortization and depreciation in most of the cases are fixed to one schedule. The different kinds of reserves are strictly defined by preset percentages. Thus in China auditing becomes a mere formality on the information provided by the listed firms. In addition, most of the auditing firms are major-owned by the state, who is also the majority owner in most of the listed firms, independence is likely to be compromised or sacrificed. Moreover, due to the short but fast changing history of auditing business in China, qualified personnel are anything but adequate, not to mention their professional competence. Obviously, in such an environment, managerial discretion over accounting figures is subject to virtually none constraint comparing with that in developed markets.

3.5 *Constraints on earnings management of IPO firms*

To prevent IPO firms from overestimating earnings used in IPO pricing, CSRC stipulates in its Document No. 12(1996) that “when the realized EPS (in the IPO year) is ten to twenty percent lower than the company’s own forecast, the company and the related auditing firm should be expected to give their explanations and apologies on

newspapers that are designated officially for information disclosure. When the realized EPS (in the IPO year) is twenty percent or more lower than the forecasted one, the company and the auditing firm should give their explanations and apologies, and will be subject to special investigation from CSRC. Should any intentional overstatement of profit be found, issuing and auditing firms would be severely punished”.

The following case of “Liming Corporation” illustrates how CSRC’s regulation on IPO pricing works in reality.

Liming Corporation, which went public in 1998, priced its IPO using expected-EPS-pricing method. The company estimated that its EPS for 1998 would be 0.292 Yuan. Multiplying the estimated EPS by a P/E ratio of 18 assigned by CSRC, the resulting IPO price was 5.26 Yuan per share. In April 1999, the company published its 1998 annual report with a realized EPS of 0.274 Yuan. Although the realized EPS was less than the estimated one, managers did not need to apologize because the difference was less than 10%. On a random auditing of selected firms a few months later, CSRC found that Liming Corporation had manipulated its 1998 earnings by (1) creating sales to nonexistent customers; (2) selling nonexistent products to subsidiaries of the controlling shareholder; (3) recording profit when there was actually loss from the business. After audited, CSRC estimated that the EPS of Liming Corporation in 1998 was actually a negative 0.287 Yuan. The company and its chairman were fined 1 million Yuan and 200 thousand Yuan respectively for intentionally overstating earnings used in IPO pricing. The auditing firm was suspended from auditing business.

4. Main hypotheses

(1) IPO firms’ incentives for earnings management are associated with CSRC’s regulations on IPO pricing.

CSRC’s regulations on IPO pricing may induce three interactive incentives for earnings management. First, when the pricing system determines IPO price on the basis of realized EPS prior to IPO, firms might have the incentive to manage pre-IPO earnings upward. Second, when the pricing system determines IPO price on the basis of expected EPS in the IPO year, firms might have the incentive to overestimate earnings in the IPO

year. Third, to avoid being punished by CSRC for significant deviation of realized EPS from forecasted EPS in the IPO year, firms are likely to try to meet the forecasted targets by managing earnings upward in the IPO year.

Specifically, I predict the earnings management behavior of firms under four pricing systems as follows: (a) (Realized-EPS method) Firms whose IPO prices are based on the average EPS for the three years prior to IPO might manage earnings upward in the three years prior to IPO. To avoid being punished by CSRC, these firms would try to underestimate the EPS in the IPO year. (b) (Average-EPS method) Firms whose IPO prices are based on the average of realized EPS in the year prior to IPO and expected EPS in the IPO year might manage earnings upward in the year prior to IPO and overestimate earnings in the IPO year. To meet the overestimated targets, these firms would also try to manage earnings upward in the IPO year. (c) (Expected-EPS method) Firms whose IPO prices are based on the expected EPS in the IPO year might first overestimate earnings in the IPO year and then try to manage earnings upward to meet the forecasted targets; (d) (Market method) IPO firms that are not subject to CSRC's pricing regulation would be less likely to manipulate earnings due to the monitoring by underwriters.

For convenience, I define the years in which earnings are used for IPO pricing as the 'pricing period'. For example, the pricing period for firms under realized-EPS-pricing regime is the three years prior to IPO.

To test the hypothesis, I use t-tests to compare (1) the average amounts of earnings management in pricing period and non-pricing period, (2) the average forecasted EPS growth rates in the IPO year for firms under different pricing systems, and (3) the average amounts of earnings management in the IPO year for firms under different pricing systems. I expect that (1) the average amounts of earnings management in the pricing period are significantly more than those in non-pricing period, (2) the average forecasted EPS growth rates in the IPO year for firms whose estimated EPS are used in IPO pricing are significantly higher than those for firms whose estimated EPS are not used in IPO pricing, and (3) the average amounts of earnings management in the IPO year for firms whose estimated EPS are used in IPO pricing are significantly more than those for firms whose estimated EPS are not used in IPO pricing.

(2) *Hypothesis 2: Firms' earnings management reverses after pricing period, so do their reported earnings.*

This is because earnings management is typically accomplished by shifting incomes from future periods to the present. For example, firms want to boost earnings in the current year can recognize revenues in advance of cash collection or accelerate sales by adopting loose credits policies, which automatically reduce revenues and increase bad debt provisions in the subsequent years. If offering firms borrow future incomes to manage earnings in pricing period, then earnings will increase in pricing period and decrease subsequently. Consequently, I hypothesize that there is a negative relation between pricing period earnings management and post-pricing period earnings performance.

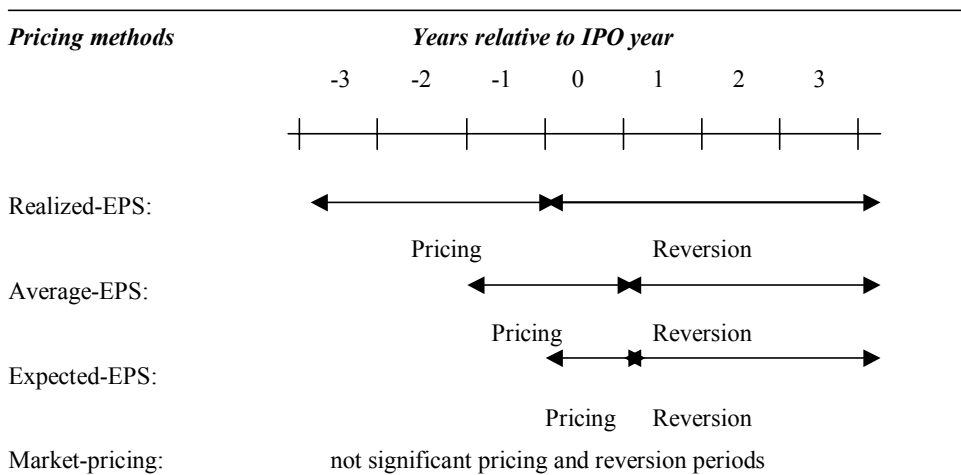
Specifically, I predict that earnings reversions will begin from (a) the year of IPO for firms applying realized-EPS-pricing method; (b) the year immediately after the IPO year for firms applying average-EPS-pricing method; (c) the year immediately after the IPO year for firms applying expected-EPS-pricing method; and (d) there should not be any significant earnings reversion for firms under market pricing regime.

To test the hypothesis, I use correlation tests and regression analysis to examine the relation between pricing period earnings management and post-pricing net incomes. I expect that (1) there is a negative correlation between pricing period earnings management and post-pricing period net income performance, and (2) the regression coefficient of pricing period earnings management on post-pricing period net income performance is negative.

Figure 2 shows the predicted time lines of earnings management (pricing period) and earnings reversions under four different pricing regimes.

Figure 2

Time lines of earnings management (pricing period) and earnings reversions predicted by hypotheses 1 and 2



5. Measures of earnings management

Healy and Wahlen (1999) summarize the means to manipulate accounting earnings into three categories: changes in accounting methods, timing of accruals and real transactions (such as asset sales). In China, discretionary changes of accounting methods are rare because most accounting options are not allowed. For example, firms have to use straight-line method to depreciate various assets over given periods; firms also have to use FIFO (first-in-first-out) method to calculate the costs of inventories. Hence, I measure earnings management based on timing of accruals and real transactions.

5.1 Abnormal accruals models

Recent studies on earnings management have relied on accruals-based measures to estimate the degree of manipulation. Under accrual accounting system, managers are allowed to make adjustments (collectively called accruals) to cash flow in order to reflect the underlying business condition more accurately. However, when managers have discretion over accruals, nothing can prevent them from overstating (understating)

accruals and thus reporting higher (lower) earnings if needed. For example, manager can increase current accruals by advancing recognition of revenues with credit sales before cash is received, by reducing the percentage of bad loan provisions, or by deferring recognition of expenses when cash is advanced to suppliers. As a way to see if managers' adjustments are appropriate, we can compare the reported accruals to some 'norms' (such as industry peers). If the reported accruals are higher (lower) than the 'norms', we say that managers have managed earnings upward (downward).

My first measure of earnings management uses the modified Jones model to separate the 'normal' (non-discretionary) accruals from total accruals. The Jones model assumes that two firm characteristics, level of gross property, plant, and equipment (PPE) and the change in revenues, determine to a large extent the amounts of accruals that a firm reports because of firm economic condition. Total accruals are regressed on gross PPE and change in revenues to estimate non-discretionary accruals, where gross PPE is used to adjust for non-discretionary depreciation expense, and the change in revenues is used to adjust for non-discretionary changes in working capital accounts. The residual accruals are considered subject to managerial control and termed discretionary. Specifically, I estimate the non-discretionary total accruals of firms i under modified Jones model by the following two equations:

$$\left(\frac{AC_{j,t}}{TA_{j,t-1}} \right) = \beta_0 \left(\frac{1}{TA_{j,t-1}} \right) + \beta_1 \left(\frac{\Delta Sales_{j,t}}{TA_{j,t-1}} \right) + \beta_2 \left(\frac{PPE_{j,t}}{TA_{j,t-1}} \right) + \varepsilon_{j,t} \quad (1)$$

and

$$NDTAC_{i,t} = b_0 \left(\frac{1}{TA_{i,t-1}} \right) + b_1 \left(\frac{\Delta Sales_{i,t} - \Delta TR_{i,t}}{TA_{i,t-1}} \right) + b_2 \left(\frac{PPE_{i,t}}{TA_{i,t-1}} \right) \quad (2)$$

where subscript j represents that firm j is from the estimation sample, $AC_{j,t}$ is company j 's total accruals at period t ($AC = \text{operating income} - \text{Cash flow from operation}$); $\Delta Sales_{j,t}$ is the change in revenues from period $t-1$ to period t , $PPE_{j,t}$ is property, plant and equipment at period t , $NDTAC_{i,t}$ is non-discretionary total accruals of firm i at period t , b_1 and b_2 are the OLS estimates of β_1 , and β_2 respectively, $\Delta TR_{i,t}$ is the change in trade receivable. All variables are deflated by TA_{t-1} , the book value of total assets at the end of period $t-1$. Data from all non-issuing firms in the same industry, except for those from firms with reported

ROE in the ranges of 0%-2% and 10%-12% are used to estimate β_1 and β_2 ⁸.

Finally, discretionary total accruals are just the difference between reported total accruals and the estimated non-discretionary total accruals.

My second measure of discretionary accruals is called industry-adjusted discretionary total accruals, which is the difference between the issuer's asset-scaled discretionary total accruals estimated from the modified Jones model and the industry median asset-scaled discretionary total accruals from the modified Jones model.

My third measure of discretionary accruals is from a performance-matched pair model. Specifically, for each IPO firm, a non-issuing match is selected from the same industry as it has the closest net income/assets performance to the IPO firm in the pre-issue year. Discretionary accruals in the matched-pair model are measured as the difference between discretionary accruals of the IPO firm and that of the matched firm. The main advantage of matched-pair model is that systematic errors in estimating discretionary accruals of similarly performance firms by the Jones model are eliminated (Teoh, Wong and Rau, 1998).

5.2 Real transaction model

Unlike the US GAAP where non-recurring items, such as one-time gains or loss from the sales of assets, are below the line as extraordinary items, Chinese GAAP does not allow for below-the-line item in income statement. Instead, non-recurring items, such as one-time gains or loss from the disposal of assets and equity investment, subsidies from government and parent company, gains or loss from debt restructure, are reported as non-operating income above the line⁹. Thus, the net income in a Chinese income

⁸ Results from previous research suggest that listed companies with reported ROE just above CSRC's thresholds for rights issue (10%) and delisting (0%) have manipulated their earnings upward (Chen, Lee and Li, 2003; Chen and Yuan, 2004; Liu and Lu, 2004). To avoid the problem of contaminated sample, I exclude firms with reported ROE in the ranges of 0%-2% and 10%-12% from the estimation sample. (When I include these firms in the estimation sample, the resulting discretionary accruals are generally smaller in magnitude. However, the overall results are qualitatively similar).

⁹ Non-operating income is also referred to as non-core-operating income in other studies, see for example, Chen and Yuan (2004) and Liu and Lu (2004).

statement includes profits (loss) from normal operations as well as profits (loss) from non-operating activities. Under a concentrated ownership structure, it is easy to arrange 'sales' of assets or equities from the listed company to its parent to create profits for the former. In a study on earnings management of firms conducting rights issues, Chen and Yuan (2004) find that 77% of the firms passing the profit threshold required for rights issue qualification during 1995-1997 have actually manipulated their earnings upward through non-operating income. Ding (2002) reports that, in 2001, 53% of the companies whose before-subsidy earnings were negative have managed to report positive earnings by receiving subsidies from their parent companies.

I also employ the non-operating income approach in Chen and Yuan (2004) to measure earnings management by real transactions. Instead of assuming that all non-operating incomes are discretionary, I measure discretionary non-operating income as the difference between non-operating income (scaled by assets) of an IPO firm and the industry median non-operating income (scaled by assets).

6. Data and descriptive statistics

The sample in this study includes 271 non-financial firms conducting IPOs on the Shenzhen Security Exchange during 1997-2000. The sample period starts from 1997 because it is the first year that listed companies are required to report statements of cash flow, which are needed in the calculations of accounting accruals and accounting performance. During the sample period, CSRC had changed the IPO pricing methods several times as follows:

(1) From the beginning of 1997 to 10 September 1997, IPOs were priced as the product of P/E ratio predetermined by CSRC and the arithmetic average of the realized EPS in the three years before IPO (realized-EPS method);

(2) The CSRC's September 10, 1997 notice modified the calculation of EPS used in IPO pricing to: $EPS = 0.5 * EPS \text{ in the year prior to IPO} + 0.5 * \text{Forecasted EPS in the IPO year}$ (average-EPS method);

(3) The CSRC's March 17, 1998 notice changed the EPS used in IPO pricing to the Forecasted EPS in the IPO year (expected-EPS method);

(4) Beginning from July 28, 1999, IPO pricing was no longer linked directly to P/E ratio and EPS. Issuers and underwriters were allowed to set an initial offering price range according to market condition (market method).

Table 2 shows the distribution of IPO firms by IPO pricing methods. Of all 271 firms, 99 firms (36.53% of the total) use the realized-EPS method, 45 firms (16.61%) use the average-EPS method, 82 firms (30.25%) use the expected-EPS method and 45 firms (16.61%) use the market method. In the first three methods of IPO pricing, the applied P/E ratios are predetermined by CSRC in a narrow range of 13 to 20, regardless of market demand and industry. The P/E ratios predetermined by CSRC are substantially lower than the P/E ratios prevailing in the market. For example, by the end of the first trading day, the average (median) P/E ratios are 37.35 (34.03), 37.14 (33.78) and 34.57 (31.47) for firms under the realized, average and expected methods, respectively. Under the market method, IPO firms and their underwriters determine the IPO prices according to market demand. As a result, the average (median) P/E ratio in the market method is 28.16 (26.42), about two times of that during regulated period. However, the P/E ratios used in the market method are still substantially lower than the P/E ratios prevailing in the markets, which is evidenced by the mean (median) P/E ratio of 64.55 (61.65) at the end of the first trading date.

Table 2 also shows the forecasted EPS growth rates in the IPO year under the four pricing methods, which are calculated as:

Forecasted EPS growth rate in the IPO year = (forecasted EPS in the IPO year / realized EPS in the year before IPO) – 1

Chinese firms are required to disclose their forecasted EPS for the IPO year in the IPO prospectuses. When the realized EPS in IPO year is substantially lower than the forecasted one, managers of the issuing firm and the auditing firm will be punished by CSRC. Thus, an IPO firm is likely to be ‘optimistic’ on IPO year’s earnings only when it is necessary, i.e., when the forecasted EPS is used in IPO pricing. In the sample, when the forecasted EPS is used in IPO pricing, the mean (median) forecasted EPS growth rates are 9.55% (6.52%) under average-EPS method and 15.58% (7.44%) under expected-EPS method, respectively. When the forecasted EPS is not used in IPO pricing, the mean

(median) forecasted EPS growth rates are -1.99% (-8.55%) under the realized method and -9.32% (-17.51%) under the market method, respectively.

Table 2

Characteristics of IPO firms using various methods of IPO pricing

Table shows the applied P/E (price/earnings) ratios, post-offering P/E ratios, estimated yearly growth rates of EPS (earnings per share) in the IPO year for a sample of 271 IPO firms using four methods of IPO pricing on the Shenzhen Security Exchange during 1997-2000. The four methods are (1) price per share = P/E * the arithmetic average of the realized EPS in the three years prior to IPO; (2) price per share = P/E * (0.5 * EPS in the year prior to IPO + 0.5 * forecasted EPS for the IPO year); (3) Price per share = P/E * Forecasted EPS in the IPO year; (4) issuers and underwriters are free to set the prices. Applied P/E is the P/E ratio actually used in IPO pricing. In the first three methods, the P/E ratios are predetermined by CSRC. In the fourth method, the P/E ratio is calculated as the offering price divided by EPS in the year prior to IPO. Post-offering P/Es are calculated as the closing prices in the first trading day divided by the realized EPS in the year prior to IPO (for the first and fourth methods), by the average of the realized EPS for the year prior to IPO and the expected EPS for the IPO year (for the second method), or by the expected EPS for the IPO year (for the third method). Estimated EPS growth rate for IPO year is the firm's own estimated EPS in the IPO year over the realized EPS in the year before IPO.

IPO pricing method	(1)	(2)	(3)	(4)
Effective Period				
Beginning	01 Jan. 1997	11 Sep. 1997	18 Mar. 1998	28 July 1999
Ending	10 Sep. 1997	17 Mar. 1998	27 July 1999	31 Dec. 2000
Number of Firms	99	45	82	45
% of total	36.53%	16.61%	30.25%	16.61%
Applied P/E				
Mean	14.85	14.66	15.18	28.16
Median	15.00	14.85	15.10	26.42
Minimum	14.00	14.00	14.00	18.56
Maximum	20.00	17.50	19.15	71.45
Post-offering P/E				
Mean	37.35	37.14	34.57	64.55
Median	34.03	33.78	31.47	61.65
Estimated EPS growth rate in IPO year				
Mean	-1.99%	9.55%	15.58%	-9.32%
Median	-8.55%	6.52%	7.44%	-17.51%

The pre-issue financial data is from companies' IPO prospectuses, which contain financial statements for the three years prior to IPO. In most of the cases, I begin the analyses of performance and earnings management from two years prior to IPO. This is because the performance and earnings management measures usually require information from the previous year.

7. Accounting performance and earnings management in time series

In this section, I first examine the net income performance around IPO. I then examine the time profiles of accruals, cash flow and non-operating income components of net income around the time of IPO to evaluate the relative contributions of accruals, cash flow and non-operating income to net income performance. For evidence that the motives for earnings management are different between firms priced under different pricing regimes, I divide the sample into four categories by the pricing regimes. Finally, I use Pearson correlations and regression analysis to test whether pricing period accruals can explain the cross-sectional variation in post-pricing earnings underperformance.

7.1 Time profile of net income performance around IPO

Table 3 reports three measures of net income performance from two years prior to IPO to three years after IPO: net income as a percentage of total assets (unadjusted net income), asset-scaled net income minus the industry median asset-scaled net income (industry-adjusted net income), and the annual change in asset-scaled net income of the issuer minus the change for a pre-issue performance-matched non-issuer (performance-matched net income). Assets are the arithmetic average (for non-issue years) or weighted average (for the year of IPO) of total assets at the beginning and the end of the year. Since IPO firms applying market method were listed in the year of 2000, their accounting data for the third year after IPO (2003 annual data) is not available in the sample. I report net income performance for this category only to the second year after IPO. Of the three measures, unadjusted net income captures the effects of discretionary reporting choices, such as discretionary accruals and non-operating income, on earnings performance. Industry-adjusted net income is used to adjust for changing business conditions in the

industry. Some previous studies suggest that the post-IPO earnings decline might be the results of self-selection (i.e., firms tend to issue shares when their earnings are temporarily high) and mean reversion of earnings (Collins and Kothari, 1989; Easton and Zmijewski, 1989; Ritter, 1991; Loughran, and Ritter, 1997; Fama and French, 2000). To address this issue, I use annual change in asset-scaled net income of the issuer minus the change for a pre-issue performance-matched non-issuer to remove normal mean reversion in net income (Barber and Lyon, 1997). The matched non-issuing firm is selected from the same industry and has the closest asset-scaled net income to the issuer in the pre-offering fiscal year (i.e., year -1). This adjustment could be important given the fact that one of the CSRC's IPO selection criteria is based on profitability.

The time profile of unadjusted net income in Panel A of Table 3 shows that firms subject to IPO pricing regulation have 'superior' performance during the pricing periods and deteriorating performance in the post-pricing periods: the mean (median) unadjusted net incomes of firms applying average-EPS-pricing method grow from 8.13% (7.78%) in the pre-pricing year (year -2) to 11.29% (10.53%) and 13.14% (11.75%) in the pricing years (years -1 and 0), then decline to 8.18% (7.63%) immediately following the pricing period (year $+1$) and decline further to 5.26% (5.21%) by year $+3$; for firms applying expected-EPS-pricing method, the mean (median) unadjusted net incomes grow from 8.93% (8.50%) in the pre-pricing year (year -1) to 12.83% (11.85%) in the pricing year (year 0), then decline to 7.96% (7.54%) immediately following the pricing year and 5.52% (5.31%) by year $+3$; for firms applying realized-EPS-pricing method, the mean (median) unadjusted net incomes decline from 11.51% (10.77%) and 13.17% (12.23%) in the pricing period (years -2 and -1), to 8.73% (8.36%) immediately following the pricing period (year 0), and further to 5.39% (5.27%) by year $+3$. Because of data limitation, I do not have information on the pre-pricing performance of firms applying realized-EPS-pricing method.

Table 3

Time profiles of asset-scaled net incomes (in percentage) around IPO

Table reports three performance measures of net income from years -2 to +3 relative to the IPO year (year 0) for a sample of 271 IPO firms in SZSE during 1997-2000. The first measure is the level of net income scaled by total assets; the second is issuer's asset-scaled net income minus the industry median; the third is the issuer's annual change in asset-scaled net income minus that of a matched non-issuer. The matched non-issuer is selected from the same industry and has the closest asset-scaled net income to the issuer in the pre-offering fiscal year. The assets used to scale net income are either arithmetic average (for non-issue years) or weighted average (for IPO year) of total assets at the beginning and the end of the year. The third measure for net income performance is calculated as:

$$\left(\frac{NI_{i,t}}{TA_{i,t}} - \frac{NI_{i,t-1}}{TA_{i,t-1}}\right) - \left(\frac{NI_{m,t}}{TA_{m,t}} - \frac{NI_{m,t-1}}{TA_{m,t-1}}\right)$$

where subscripts i and m denote issuer and matched firms, NI is net income, TA is the average total assets, and t is the fiscal year. Firms are divided into realized, average, expected and market categories depending on the method of IPO pricing. See table 2 for the descriptions on these four categories. Because of data limitation, the performance measures for firms applying market pricing method cover only to the year +2. The test statistics for means are based on two-tailed, t -distribution. Wilcoxon test is used for median. ***, ** and * denote significant (different from zero) at 1%, 5% and 10% level respectively.

Year	-2	-1	0	1	2	3
Panel A: Unadjusted net incomes						
Realized EPS pricing method						
Mean	11.51	13.17	8.73	7.56	6.81	5.39
Median	10.77	12.23	8.36	7.38	6.52	5.27
Average EPS pricing method						
Mean	8.13	11.29	13.14	8.18	7.42	5.26
Median	7.78	10.53	11.75	7.63	7.09	5.21
Expected EPS pricing method						
Mean	8.36	8.93	12.83	7.96	7.13	5.52
Median	7.89	8.50	11.85	7.54	6.64	5.31
Market pricing method						
Mean	8.78	9.00	8.34	8.60	8.42	
Median	8.48	8.54	8.10	8.37	8.17	
Panel B: Issuers' net incomes – industry median net incomes						
Realized EPS pricing method						
Mean	5.03***	5.57***	0.45	-0.53	-1.52*	-2.81**
Median	4.48***	5.00***	0.03	-0.46	-1.40*	-2.58**

Table 3 – Continued

Average EPS pricing method						
Mean	1.41	4.65***	5.37***	0.32	-1.44*	-3.10***
Median	1.29	4.27***	4.68***	0.29	-1.22	-2.73***
Expected EPS pricing method						
Mean	1.30	2.33**	5.63***	0.61	-1.62*	-2.79***
Median	1.17	1.99**	4.80***	0.48	-1.49*	-2.42**
Market pricing method						
Mean	1.48	1.81*	1.20	1.44	1.22	
Median	1.43	1.70*	1.07	1.14	1.05	
<i>Panel C: Issuers' net income changes – performance-matched non-issuers' net income changes</i>						
Realized EPS pricing method						
Mean		1.35**	-4.50***	-1.03**	-1.15**	-1.08**
Median		1.13**	-3.86***	-0.65*	-0.95**	-0.88*
Average EPS pricing method						
Mean		3.52***	2.09***	-5.07***	-0.44	-2.11***
Median		3.07***	1.52***	-3.73***	-0.73	-1.71**
Expected EPS pricing method						
Mean		0.78	4.09***	-4.61***	-0.91*	-1.29**
Median		0.92*	3.40***	-4.13***	-0.75*	-1.01**
Market pricing method						
Mean		0.42	-0.32	0.28	-0.08	
Median		0.37	-0.05	0.39	0.04	

The time profile of industry-adjusted net incomes in Panel B of Table 3 also indicates a similar pattern of ‘superior’ performance during the pricing periods and deteriorating performance afterward for firms subject to pricing regulation. For example, firms applying average-EPS pricing method outperform their industry medians (in term of asset-scaled net income) by an average of 4.65% in the first year of the pricing period (year -1) and 5.37% in the second year of the pricing period (year 0). However, they perform on par with their industry medians in the year immediately following the pricing period (year +1), and underperform their industry medians by an average of -1.44% and -3.10% in the second and third years following the pricing period (year +2 and +3).

Furthermore, the mean and median industry-adjusted net incomes of firms subject to pricing regulation are all significantly positive in the pricing period but significantly negative in years +2 and +3, indicating that these firms systematically outperform their industry medians during the pricing period and underperform their industry medians two and three years after IPO.

The time profile of performance-matched net incomes in Panel C of Table 3 shows that net incomes of issuers subject to pricing regulation grow significantly faster than those of their matches during the pricing period: the mean (median) performance-matched net incomes range from 1.35% (1.13%) for realized-EPS-pricing firms to 4.09% (3.40%) for expected-EPS-pricing firms. However, immediately after the pricing period, issuers significantly underperform their matches by an average (median) of -4.50% (-3.86%) for realized-EPS-pricing firms, -5.07% (-3.73%) for average-EPS-pricing firms and -4.61% (-4.13%) for expected-EPS-pricing firms. In later years of post-pricing period, issuers continue to underperform their matches. Hence, mean reversion in earnings is not likely to be the explanation for the post-pricing underperformance of issuers subject to pricing regulations.

One interesting observation from Table 3 is that the net income performance of regulated firms decline significantly in year +3. This might be due to CSRC's regulation on rights issue qualification (Chen and Yuan, 2004; Liu and Lu, 2004), which will be discussed further in the next subsection.

For firms that are not subject to pricing regulation (market-pricing firms), the time profiles of the three performance measures show quite different pictures. The mean (median) asset-scaled net incomes of firms in this category are in a narrow range of 8.34% (8.10%) in the IPO year to 9.00% (8.54%) in the year prior to IPO, with the pre-issue performance being slightly better than the post-issue performance. In both pre-issue and post-issue periods, market-pricing issuers seem to outperform their industry medians. However, the industry-adjusted net incomes of these firms are not significant except for the year prior to IPO. Compared to their pre-issue performance-matched pairs, market-pricing firms do not seem to outperform or underperform in any year around IPO.

In sum, the net incomes of IPO firms subject to pricing regulation increase significantly during the pricing periods, but decline significantly following the pricing

periods. In contrast, the net incomes of IPO firms that are not subject to pricing regulation do not change much in any year around IPO.

7.2 Time profiles of operating cash flow, discretionary total accruals and non-operating incomes around IPO

The reported net income of a Chinese firm consists of two components: operating income and non-operating income. Operating income can be further decomposed into cash flow from operations and accounting accruals. To see which component is responsible for the observed net income pattern, I examine the time profiles of these three components separately. Similar to net income, I also report three measures (unadjusted, industry-adjusted and performance-matched) for each of the three components.

Results from Table 4 show that the time profile of operating cash flow does not match the time profile of net income in Table 3. If anything, operating cash flow of regulated firms seems to move in the opposite direction to net income. The means (median) of all three operating cash flow measures increase over time from year -3 to year $+2$, and then decline slightly in year $+3$, the last year in our sample period. Compared to the industry medians, the operating cash flow of issuers in the realized-EPS-pricing and average-EPS-pricing regimes is significantly smaller during and before the pricing period. Furthermore, the operating cash flow of issuers subject to pricing regulation is in line with those of their performance-matched pairs. Hence, operating cash flow is not likely to be the cause for observed net income pattern of regulated firms.

Next, I examine the time profile of accounting accruals. To match net income performance, I also report three measures of discretionary accruals: unadjusted, industry-adjusted and performance-matched discretionary total accruals. All three measures are from the cross-sectional modified Jones model described in Section 5.1. Table 5 provides some descriptive statistics on the properties of the estimated regressions (coefficients, t -statistics, adjusted R -square, and numbers of observations). In general, the regression statistics are reasonable. The means and medians of t -statistics for estimated parameters b_1 and b_2 are in the range of 2.03 to 3.55. The mean and median adjusted R -squares for the regressions are 44% and 39% respectively, which are encouraging as indicators of the explanatory power of the cross-sectional modified Jones model.

Table 4

Time profiles of asset-scaled operating cash flow (in percentage) around IPO

Table reports three performance measures of operating cash flow from years -2 to +3 relative to IPO year (year 0) for a sample of 271 IPO firms in SZSE during 1997-2000. The first measure is the level of operating cash flow scaled by total assets; the second is issuer's asset-scaled operating cash flow minus the industry median; the third is the issuer's annual change in asset-scaled operating cash flow minus that of a matched non-issuer. The matched non-issuer is selected from the same industry and has the closest asset-scaled net income to the issuer in the pre-offering fiscal year. The assets used to scale operating cash flow are either arithmetic average (for non-issue years) or weighted average (for IPO year) of total assets at the beginning and the end of the year. The third measure for operating cash flow performance is calculated as:

$$\left(\frac{OCF_{i,t}}{TA_{i,t}} - \frac{OCF_{i,t-1}}{TA_{i,t-1}}\right) - \left(\frac{OCF_{m,t}}{TA_{m,t}} - \frac{OCF_{m,t-1}}{TA_{m,t-1}}\right)$$

where subscripts i and m denote issuer and the matched firm, OCF is cash flow from operations, TA is the average total assets, and t is the fiscal year. Firms are divided into realized, average, expected and market categories depending on the method of IPO pricing. See table 2 for the descriptions of these four categories. Because of data limitation, the performance measures for firms applying market pricing method cover only to year +2. The test statistics for means are based on two-tailed, t -distribution. Wilcoxon test is used for median. ***, ** and * denote significant (different from zero) at 1%, 5% and 10% level respectively.

Year	-2	-1	0	1	2	3
Panel A: Unadjusted operating cash flow						
Realized EPS pricing method						
Mean	3.82	3.96	4.24	4.56	4.87	4.31
Median	3.58	3.65	4.03	4.40	4.52	4.07
Average EPS pricing method						
Mean	4.11	3.90	4.19	4.46	4.76	4.28
Median	3.97	3.73	4.12	4.27	4.45	4.12
Expected EPS pricing method						
Mean	4.23	4.06	4.44	4.75	4.92	4.51
Median	4.10	3.82	4.20	4.53	4.66	4.32
Market EPS pricing method						
Mean	4.53	4.38	4.89	4.90	4.85	
Median	4.32	4.22	4.56	4.63	4.50	
Panel B: Issuers' operating cash flow – industry median operating cash flow						
Realized EPS pricing method						
Mean	-1.10**	-1.03**	-0.33	0.16	0.35	-0.24
Median	-0.84**	-0.81**	-0.12	0.18	0.22	-0.29

Table 4 - Continued

Average EPS pricing method						
Mean	-0.88**	-0.81**	-0.57	0.19	0.25	0.07
Median	-0.67*	-0.70*	-0.31	-0.06	0.18	0.03
Expected EPS pricing method						
Mean	-0.24	-0.48	-0.13	0.34	0.52	0.16
Median	-0.11	-0.35	-0.20	0.24	-0.33	-0.09
Market EPS pricing method						
Mean	0.11	-0.05	0.60	0.75*	0.57	
Median	-0.02	-0.17	0.38	0.48	0.36	
<i>Panel C: Issuers' operating cash flow changes – performance-matched non-issuers' operating cash flow changes</i>						
Realized EPS pricing method						
Mean		0.01	0.37	0.15	0.38	-0.19
Median		-0.14	0.35	0.21	0.36	-0.42
Average EPS pricing method						
Mean		-0.34	0.10	0.52*	0.27	-0.24
Median		-0.29	0.15	0.41	0.22	-0.28
Expected EPS pricing method						
Mean		-0.26	0.33	0.23	0.12	-0.31
Median		-0.18	0.21	0.17	0.20	0.25
Market EPS pricing method						
Mean		-0.17	0.33	0.53*	0.08	
Median		-0.11	0.36	0.36	0.14	

Table 5

Descriptive statistics of estimated parameters from the modified Jones model

This table provides descriptive statistics of the parameters from the regressions that estimate expected total accruals from the modified Jones model. For each issuing firm, the parameters are estimated from a cross-sectional regression using non-issuing firms in the same industry. N is the number of firms in the issuer's industry used in the cross-sectional regressions. The expected total accruals of firms i are estimated from the following equation:

$$\left(\frac{AC_{j,t}}{TA_{j,t-1}} \right) = \beta_0 \left(\frac{1}{TA_{j,t-1}} \right) + \beta_1 \left(\frac{\Delta Sales_{j,t}}{TA_{j,t-1}} \right) + \beta_2 \left(\frac{PPE_{j,t}}{TA_{j,t-1}} \right) + \varepsilon_{j,t}$$

where subscript j represents that firm j is form the estimation sample, $AC_{j,t}$ is firm j 's total accruals at period t ; $\Delta Sales_{j,t}$ is the change in revenue from period $t-1$ to t , $PPE_{j,t}$ is property, plant and equipment at period t , $TA_{j,t-1}$ is the book value of total assets at the end of period $t-1$.

Parameter	Mean	Median	25% quartile	75% quartile
b_0	-0.02	-0.02	-0.07	0.05
<i>t-statistics</i>	-0.67	-0.91	-1.46	1.13
b_1	0.04	0.03	-0.01	0.06
<i>t-statistics</i>	2.44	2.03	-0.81	3.26
b_2	0.06	0.05	0.02	0.9
<i>t-statistics</i>	3.55	3.14	1.70	4.42
Adjusted-R ²	44%	39%	26%	58%
N	25	23	17	33

Results from the three panels of Table 6 show that the time profile of discretionary total accruals is similar to that of net incomes. For firms subject to pricing regulation, the mean (median) discretionary total accruals all peak during the pricing period and then decline steadily, turning from significantly positive during the pricing period to negative immediately after the pricing period. Like net incomes, discretionary total accruals also decline significantly in year +3. Hence, the evidence so far is consistent with a scenario where IPO firms subject to pricing regulation advance accruals to boost the reported EPS in the pricing period. As the accounting accruals will total zero over the long run, higher-than-normal accruals in pricing period must be offset by lower-than-normal accruals in post-pricing period. Consequently, post-IPO earnings decline.

For firms that are not subject to IPO pricing regulation, the means (median) of the three measures of discretionary total accruals are not statistically significant different from zero in any year of the sample period.

Table 6

Time profiles of asset-scaled discretionary total accruals (in percentage) around IPO

Table reports three measures of asset-scaled discretionary total accruals from years -2 to +3 relative to IPO year (year 0) for a sample of 271 IPO firms in SZSE during 1997-2000. The first measure is based on a cross-sectional modified Jones model, which assumes that the part of total accruals that are not correlated with change in sales and level of gross property, plan, and equipment are discretionary. The second measure is the difference between issuer's asset-scaled discretionary total accruals estimated from the modified Jones model and the industry median asset-scaled discretionary total accruals from the modified Jones model. The third measure is the difference between issuer's asset-scaled discretionary total accruals estimated from the modified Jones model and the asset-scaled discretionary total accruals from the modified Jones model of a performance-matched non-issuer. The matched non-issuer is selected from the same industry and has the closest asset-scaled net income to the issuer in the pre-offering fiscal year. The estimation sample for modified Jones model includes non-issuers with return on equity ratio not in the ranges of 0-2% and 10-12%. For detailed descriptions of these measures, see Section 5. Firms are divided into realized, average, expected and market categories depending on the method of IPO pricing. See table 2 for the descriptions of these four categories. Because of data limitation, the discretionary total accruals for firms applying market-pricing method cover only to year +2. The test statistics for means are based on two-tailed, *t*-distribution. Wilcoxon test is used for median. ***, ** and * denote significant (different from zero) at 1%, 5% and 10% level respectively

Year	-2	-1	0	1	2	3
<i>Panel A: Discretionary total accruals (DTA) from modified Jones model</i>						
Realized EPS pricing method						
Mean	2.51***	3.72***	-0.91	-1.32	-1.49	-3.17***
Median	1.97**	2.80***	-0.66	-0.86	-1.14	-2.36***
Average EPS pricing method						
Mean	0.74	2.68***	4.05***	-1.09	-1.26	-2.59***
Median	0.50	2.12**	2.88***	-0.71	-0.89	-2.15***
Expected EPS pricing method						
Mean	0.53	0.72	4.25***	-0.77	-1.17	-2.91***
Median	0.59	0.48	3.40***	-0.72	-0.79	-2.25***
Market pricing method						
Mean	0.17	0.43	0.08	0.51	-0.38	
Median	-0.20	0.26	-0.32	0.24	-0.05	
<i>Panel B: Issuer's DTA – industry median DTA</i>						
Realized EPS pricing method						
Mean	3.33***	4.72***	-0.35	-0.92	-1.22	-2.51***
Median	2.70***	3.86***	-0.36	-0.70	-0.74	-1.82**

Table 6 - Continued

Average EPS pricing method						
Mean	1.21	3.30***	4.58***	-0.48	-0.81	-2.05***
Median	1.00	2.71***	3.82***	-0.29	-0.57	-1.68**
Expected EPS pricing method						
Mean	0.45	1.10	4.53***	-0.41	-0.88	-2.29***
Median	0.21	0.76	3.61***	-0.56	-0.52	-1.77**
Market pricing method						
Mean	-0.44	0.63	0.37	0.76	0.33	
Median	-0.29	0.32	0.22	0.52	-0.15	
<i>Panel C: Issuer's DTA – performance-matched non-issuer's DTA</i>						
Realized EPS pricing method						
Mean	2.14**	2.37***	-1.25	-1.44	-1.57	-2.81***
Median	1.77*	1.98**	-1.03	-1.14	-1.26	-2.12***
Average EPS pricing method						
Mean	0.02	1.99**	4.30***	-0.46	-0.87	-2.16***
Median	-0.19	1.73*	2.66***	-0.29	-0.62	-1.84**
Expected EPS pricing method						
Mean	0.65	0.34	3.85***	-0.68	-1.06	-3.24***
Median	0.31	0.42	2.61***	-0.40	-0.75	-2.21***
Market pricing method						
Mean	-0.27	-0.52	0.37	0.83	0.43	
Median	-0.11	-0.33	0.20	0.58	0.35	

Finally, I examine the time profile of the last component of net income – non-operating income. Panel A of Table 7 indicates that the levels of regulated firms' unadjusted non-operating incomes increase steadily from year -2 to year +2, peaking in year +2 before declining in year +3. Panel B shows that the mean industry-adjusted non-operating incomes of these firms are significantly positive in year +1 and +2, but significantly negative in year +3. Compared to those of performance-matched pairs, the non-operating incomes of regulated firms decline significantly in year +3.

Table 7

Time profiles of asset-scaled non-operating income (in percentage) around IPO

Table reports three measures of asset-scaled non-operating income performance from years -2 to $+3$ relative to IPO year (year 0) for a sample of 271 IPO firms in SZSE during 1997-2000. The first measure is the level of asset-scaled non-operating income. The second measure is the issuer's asset-scaled non-operating income minus the industry median. The third is the issuer's annual change in asset-scaled non-operating income minus that of a matched non-issuer. The matched non-issuer is selected from the same industry and has the closest asset-scaled net income to the issuer in the pre-offering fiscal year (year -1). The third measure for non-operating income performance is calculated as:

$$\left(\frac{NOI_{i,t}}{TA_{i,t}} - \frac{NOI_{i,t-1}}{TA_{i,t-1}}\right) - \left(\frac{NOI_{m,t}}{TA_{m,t}} - \frac{NOI_{m,t-1}}{TA_{m,t-1}}\right)$$

where subscripts i and m denote issuer and matched firms, NOI is net income, TA is the average total assets, and t is the fiscal year. Firms are divided into realized, average, expected and market categories depending on the method of IPO pricing. See table 2 for the descriptions of these four categories. Because of data limitation, the non-operating income for firms applying market pricing method cover only to year $+2$. The test statistics for means are based on two-tailed, t -distribution. Wilcoxon test is used for median. ***, ** and * denote significant (different from zero) at 1%, 5% and 10% level respectively

Year	-2	-1	0	1	2	3
Panel A: unadjusted non-operating income (NOI)						
Realized EPS pricing method						
Mean	0.91	1.36	1.38	1.83	2.24	0.76
Median	0.77	1.19	1.12	1.67	1.98	0.63
Average EPS pricing method						
Mean	0.95	1.35	1.33	1.69	2.16	0.67
Median	0.88	1.26	1.17	1.46	1.83	0.64
Expected EPS pricing method						
Mean	1.01	0.95	1.42	1.75	2.05	0.59
Median	0.90	0.87	1.29	1.56	1.79	0.53
Market pricing method						
Mean	0.67	0.83	0.89	1.05	1.12	
Median	0.63	0.72	0.74	0.90	0.95	
Panel B: Issuer's NOI – industry median NOI						
Realized EPS pricing method						
Mean	-0.34	0.15	0.13	0.70**	1.16***	-0.42*
Median	-0.39	0.10	-0.11	0.63*	0.94***	-0.46*

Table 7 - Continued

Average EPS pricing method						
Mean	-0.32	0.14	0.15	0.42*	1.08***	-0.57**
Median	-0.29	0.16	0.09	0.35	0.95***	-0.53**
Expected EPS pricing method						
Mean	-0.30	-0.22	0.25	0.53*	0.93**	-0.58**
Median	-0.25	-0.22	0.29	0.41*	0.76**	-0.50**
Market pricing method						
Mean	-0.55**	-0.32	-0.27	-0.12	-0.03	
Median	-0.46**	-0.18	-0.20	-0.15	-0.13	
<i>Panel C: Issuer's NOI – performance-matched non-issuer's NOI</i>						
Realized EPS pricing method						
Mean		0.32	-0.11	0.40	0.32	-1.29***
Median		0.30	-0.15	0.46	0.27	-1.11***
Average EPS pricing method						
Mean		0.25	0.04	0.43	0.57	-1.33***
Median		0.37	0.00	0.36	0.46	-1.23***
Expected EPS pricing method						
Mean		-0.17	0.42	0.35	0.22	-1.36***
Median		-0.09	0.28	0.30	0.16	-1.13***
Market pricing method						
Mean		0.01	-0.13	0.25	0.18	
Median		-0.06	-0.10	0.19	0.11	

The sudden declines of non-operating incomes and discretionary accruals of regulated firms in year +3 are consistent with the findings in Chen and Yuan (2004) and Liu and Lu (2004) that listed firms on the Chinese stock markets manipulate their earnings for rights issue qualification. Specifically, CSRC's regulation on rights issue requires that a right-issuing firm must have a listing history of three years with a return on equity (ROE) ratio of not less than 10% in each of the last three years. To qualify for rights issues, listed firms have the incentive to keep the reported ROEs above the 10% threshold in the first three years following IPOs (years 0 to +2). Since reported earnings

cannot deviate from economic earnings forever, after rights issues, firms' reported earnings drop significantly. To test such hypothesis, I divide all regulated firms into two groups. The first group consists of firms qualifying for rights issues in the third year after IPO (year +3). The second group consists of firms without right issue qualification in year +3. I perform t-tests on the differences in year +2's discretionary total accruals and industry-adjusted non-operating income between these two groups. Results in Table 8 show that the average year +2's discretionary total accruals and industry-adjusted non-operating income of firms qualifying for rights issues are -0.28% and 2.02% respectively, whereas the corresponding figures for firms without rights issue qualification are -2.88% and -0.36% respectively. T-statistics for the differences in discretionary total accruals and industry-adjusted non-operating income between these two groups are 2.61 and 2.58. Both are significant at the 1% level. Thus, the results are consistent with the evidence from prior studies that firms qualifying for rights issues in the third year after IPO have managed earnings upward in the second year after IPO.

Table 8

T-tests on the differences in year +2's discretionary total accruals and industry-adjusted non-operating incomes between firms qualifying for rights issues and firms without right issue qualification

Table reports the results of t-tests on the differences in average year+2's discretionary total accruals (DTA) and industry-adjusted non-operating incomes (NOI) between firms qualifying for rights issues and firms without right issue qualification in year +3. DTA are from the cross-sectional modified Jones model. Industry-adjusted NOI is the difference between a firm's non-operating income and industry median non-operating income. Sample includes all 226 IPO firms that are subject to CSRC's regulation on IPO pricing in SZSE during 1997-1999.

	Qualified firms	Non-qualified firms	Difference	t-statistics (p-value)
No. of Obs.	(N=135)	(N=91)		
Mean DTA	-0.28%	-2.88%	2.60%	2.61 (0.01)
Mean NOI	2.02%	-0.36%	2.38%	2.58 (0.01)

Taken together, the evidence suggests that IPO firms subject to CSRC's pricing regulation use discretionary accruals to boost the reported EPS in the pricing period. Since inflated accruals are the results of borrowing from future earnings and must be reversed in later period, these firms experience deteriorating net income performance in the post-pricing years. To qualify for rights issues in the post-IPO period, regulated firms rely on non-operating incomes to keep their reported ROEs above the CSRC's threshold for rights issue.

7.3 Tests on the association between earnings management and CSRC's regulation on IPO pricing

To test the hypothesis that earnings management behavior of IPO firms is associated with CSRC's regulation on IPO pricing, I first use *t*-tests to compare the average discretionary total accruals in pricing period with those in non-pricing period. I bisect the observations in each pricing regime into two groups. The first group consists of discretionary total accruals from pricing period. The second group consists of discretionary total accruals from non-pricing period. For market pricing regime, I arbitrarily assign discretionary total accruals in the year prior to IPO and the IPO year to the pricing period group (assigning discretionary total accruals in other years to the pricing period group does not affect the results qualitatively). If IPO firms manage earnings during the pricing period, the average discretionary total accruals should be significantly higher in pricing period than in non-pricing period.

Results from Panel A of Table 9 show that the average discretionary total accruals of regulated firms are significantly higher in pricing period than in non-pricing period. For example, the average pricing period and non-pricing period discretionary total accruals of firms under realized-EPS-pricing regime are 3.12% and -1.72%, respectively. The difference is 4.84% with a *t*-statistic of 3.16. For all regulated firms, the average pricing period and non-pricing period discretionary total accruals are 3.37% and -1.30%, respectively. The difference is 4.67% with a *t*-statistic of 4.32. In contrast, for firms that are not subject to pricing regulation (market pricing regime), the average discretionary total accruals in pricing period are not significantly different from those in non-pricing

period. Hence, the hypothesis that earnings management behavior of IPO firms is associated with CSRC's regulation on IPO pricing cannot be rejected.

To see whether firms whose forecasted EPS for the IPO year are used in IPO pricing systematically overestimate earnings in the IPO year, I perform *t*-test to compare the forecasted EPS growth rates of firms under average-EPS and expected-EPS pricing regimes with those of firms under realized-EPS and market pricing regimes. Results from Panel B of Table 9 show that firms whose forecasted EPS are used in IPO pricing are more optimistic in estimating IPO-year's earnings. The average forecasted EPS growth rate of firms whose forecasted EPS are used in IPO pricing is 13.44%, whereas the average forecasted EPS growth rate of firms whose forecasted EPSs are not used in IPO pricing is -4.28%. The difference is 17.72% with a *t*-statistics of 3.82.

Presumably, firms would like to be as optimistic as possible in estimating IPO-year's earnings when the estimations are used in IPO pricing. To prevent these firms from overestimating earnings for the IPO year, CSRC imposes the regulation that any significant deviation of realized EPS from forecasted EPS in the IPO year will be punished, which might in turn induce these firms to meet the forecasted targets by managing earnings upward in the IPO year. To test for such possibility, I perform *t*-test to compare the IPO-year discretionary total accruals of firms whose forecasted EPS are used in IPO pricing with those of firms whose forecasted EPS are not used in IPO pricing. Results from Panel C of Table 9 show that the average IPO-year discretionary total accruals of firms whose forecasted EPS are used in IPO pricing is 4.18%, whereas the average IPO-year discretionary total accruals of firms whose forecasted EPSs are not used in IPO pricing is -0.60%. The difference is 4.78% with a *t*-statistic of 2.85. Thus, when forecasted EPSs in the IPO year are used in IPO pricing, firms tend to first overestimate IPO-year EPSs and then manage earnings upward to meet the targets.

Table 9

Tests on the association between CSRC's regulation on IPO pricing and earnings management behavior of IPO firms

Table reports the results from three t-tests on the association between CSRC's regulation on IPO pricing and earnings management behavior for a sample of 271 IPO firms in SZSE during 1997-2000. Panel A shows the results of t-tests on the difference between average pricing period discretionary total accruals (DTA_P) and average non-pricing period discretionary total accruals (DTA_N). Panel B shows the results of t-test on the difference in average forecasted EPS growth rate between firms applying forecasted EPS in IPO pricing and firms not applying forecasted EPS in IPO pricing. Panel C shows the results of t-test on the difference in average discretionary total accruals between firms applying forecasted EPS in IPO pricing and firms not applying forecasted EPS in IPO pricing. Discretionary total accruals are from modified Jones model. The forecasted EPS growth rate = (forecasted EPS in the IPO year / realized EPS in the year before IPO) – 1, where the forecasted EPS in the IPO year is from IPO prospectus. In panel A, The tests are first performed for firms in four pricing regimes separately and then for all firms that are subject to pricing regulation. In panel B and C, firms under average-EPS-pricing and expected-EPS-pricing regimes are classified into group 1, whereas firms under realized-EPS-pricing and market pricing regimes are classified into group 2. See Table 2 for the descriptions of the four pricing regimes.

Panel A: Difference between pricing period discretionary total accruals (DTA_P) and non-pricing period discretionary total accruals (DTA_N)

	DTA_P	DTA_N	$DTA_P - DTA_N$	t-statistic
Realized-EPS method	3.12%	-1.72%	4.84%	3.16
(No. of Observations)	198	396		
Average-EPS method	3.37%	-1.05%	4.42%	3.77
(No. of Observations)	90	180		
Expected-EPS method	4.25%	-0.72%	4.97%	6.73
(No. of Observations)	82	410		
Market method	0.26%	0.1%	0.16%	0.29
(No. of Observations)	90	135		
All regulated firms	3.37%	-1.30%	4.67%	4.32
(No. of Observations)	370	986		

Panel B: Difference in forecasted IPO-year EPS growth rates between firms applying forecasted EPS in IPO pricing and firms not applying forecasted EPS in IPO pricing

	Group 1 (N=144)	Group 2 (N=127)	Difference between Two groups	t-statistics
Mean EPS growth rate (Forecasted)	13.44%	-4.28%	17.72%	3.82

Table 9 - Continued

Panel C: Difference in IPO-year discretionary total accruals between firms applying forecasted EPS in IPO pricing and firms not applying forecasted EPS in IPO pricing

	Group 1 (N=144)	Group 2 (N=127)	Difference between Two groups	t-statistics
DTA in IPO year	4.18%	-0.60%	4.78%	2.85

7.4 Predicting post-pricing net income performance with pricing period discretionary total accruals

Having documented that IPO firms subject to pricing regulation use discretionary total accruals to manage pricing period earnings, we are now in the position of analyzing the relation between pricing period discretionary total accruals and post-pricing net income performance. Since advancing discretionary accruals to the pricing period is essentially the borrowing of incomes from post-pricing period, my second hypothesis thus predicts a negative relation between pricing period earnings management and post-pricing period income performance.

I use correlation tests and regression analysis to examine the relation between pricing period earnings management and post-pricing period net income. I expect that (1) there is a negative correlation between pricing period earnings management and post-pricing period net income, and that (2) the regression coefficient of pricing period earnings management on post-pricing period net income is negative.

Table 10 reports the Pearson correlations between pricing period discretionary total accruals (DTA_0) and year-over-year changes in industry-adjusted asset-scaled net incomes (ΔROA) for 1 to 3 years after the pricing period (year +1 to year +3, where year 0 is the last year in the pricing period). DTA_0 are represented here by the discretionary total accruals from modified Jones model in the last year of pricing period. I also perform the correlation tests on other discretionary accruals and net income performance measures, such as discretionary accruals from industry model and performance-matched model, and the year-over-year changes in asset-scaled net income and asset-scaled performance-matched net income. The results are qualitatively similar and are not reported here. Results from Panel A of Table 10 show that pricing period discretionary

total accruals are significantly negatively correlated with changes in industry-adjusted asset-scaled net income for the three categories of regulated firms in each of the first three post-pricing years. The correlation coefficients range between -0.272 to -0.610 , with the ones in year +1 being the most significant. Results for sample including all regulated firms are similar (panel B).

Table 10

Pearson correlations between pricing period discretionary total accruals and industry-adjusted post-pricing net income performance

Table reports the Pearson correlation coefficients between pricing period discretionary total accruals (DTA_0) and year-over-year changes in industry-adjusted asset-scaled net incomes (ΔROA) for 1 to 3 years after the pricing period (year +1 to +3, where year 0 is the last year in the pricing period). DTA_0 are the discretionary total accruals from modified Jones model in the last year of pricing period. The last year in the pricing period is the year before IPO for realized-EPS-pricing firms and the IPO year for other firms. Panel A divides firms into four categories based on the methods of IPO pricing. The sample in panel B includes all firms subject to IPO-pricing regulation. ΔROA_t is year-over-year change in industry-adjusted ROA in post-pricing year t . ***, ** and * denote significant (different from zero) at 1%, 5% and 10% levels, respectively.

	ΔROA_{+1}	ΔROA_{+2}	ΔROA_{+3}
Panel A: Correlation coefficients between DTA_0 and year-over-year changes in industry-adjusted ROA, by pricing methods			
Realized-method firms' DTA_0	-0.571***	-0.272**	-0.296**
Average-method firms' DTA_0	-0.529***	-0.330**	-0.302*
Expected-method firms' DTA_0	-0.610***	-0.365***	-0.324**
Market-method firms' DTA_0	-0.158	-0.107	
Panel B: Correlation coefficients between DTA_0 and year-over-year changes in industry-adjusted ROA, for all regulated firms			
All regulated firms' DTA_0	-0.529***	-0.283***	-0.265***

To see whether pricing period discretionary accruals can be used to predict post-pricing net income performance, I estimate three cross-sectional regressions. The dependent variables in the regressions are year-over-year changes in industry-adjusted ROA in year +1, +2 and +3 (ΔROA_1 , ΔROA_2 and ΔROA_3), respectively. In addition to

pricing period discretionary total accruals, I also include four year-0 independent variables: asset-scaled operating cash flow (OCF_0), asset-scaled non-operating income (NOI_0), sale growth rate ($\Delta SALE_0$), and capital expenditure growth rate ($\Delta CAPEXO_0$). By including operating cash flow and non-operation income, I want to see the incremental power of pricing period operating cash flow and non-operating income in predicting net income underperformance in subsequent years. The inclusion of sale growth rate and capital expenditure growth rate is to remove the earnings decline related to growth in assets or sales (Loughran and Ritter, 1997). Specifically, for an issuing firm investing heavily in projects that generate profits only from year +2 onward, the increase in assets in year 0 will induce mechanical decline in profitability in year +1. An issuing firm that experiences rapid sale growth is likely to attract new entrants into its industry. The consequent increase in competition could cause the issuing firm to experience profitability decline in year +1. Thus, I expect that both $\Delta SALE_0$ and $\Delta CAPEXO_0$ should be negatively correlated with ΔROA_1 .

To correct for the possible dependence in the residuals, I estimate the standard errors clustered by time (year) and industry (Petersen, 2006; and Thompson, 2006). Since the standard errors clustered by industry are similar to the White standard errors, but the standard errors clustered by year are larger than the White standard errors, I report only the t -statistics associated with the standard errors clustered by year.

The correlation coefficient matrix in Panel A of Table 11 shows that there is not significant correlation among regressors used in the cross-sectional regressions. Regression results in Panel B of Table 11 show that when ΔROA in year +1 is the dependent variable, the estimated coefficient on DTA_0 is -0.575 , statistically significant at the 1% level, indicating that a one-standard-deviation increase in DTA_0 (about 17% in the sample) is associated with a decline in industry-adjusted ROA of 9.78% in year +1. Pricing period discretionary accruals also negatively influence net income performance in years +2 and +3. The estimated coefficients on DTA_0 are -0.183 (significant at the 5% level) and -0.215 (significant at the 1% level) for the year +2 and year +3 regressions. Thus, pricing period discretionary accruals are associated with both economically and statistically significant earnings declines in years +1 to +3. The estimated coefficients on operating cash flow are positive but statistically insignificant in the three regressions,

indicating that pricing period operating cash flow is not responsible for the post-pricing underperformance. Although the coefficients on non-operating incomes are negative in all regressions, they are neither statistically nor economically significant. As expected, the coefficients on ΔSALE_0 and ΔCAPEXO_0 are both significantly negative in the year +1 regression.

Overall, the results are consistent with the prediction of the second hypothesis that the reversion of discretionary total accruals in post-pricing period causes reported earnings to decline in post-pricing years.

Table 11

Cross-sectional regressions predicting post-pricing net income underperformance with pricing period discretionary total accruals, for all regulated firms

Table presents results from cross-sectional regressions of year-over-year changes in industry-adjusted asset-scaled net income (ΔROA) for 1 to 3 years after the pricing period (year +1 to +3, where year 0 is the last year in the pricing period) on pricing period discretionary total accruals (DTA_0). DTA_0 are discretionary total accruals from modified Jones model in the last year of pricing period. The controlling variables include four year-0 variables and a set of industry dummies (not reported). The four year-0 variables are sale growth rate (ΔSALE_0), capital expenditure growth rate (ΔCAPEXO_0), asset-scaled operating cash flow (OCF_0) and asset-scale non-operating income (NOI_0). ΔROA_t is the year-over-year changes in industry-adjusted asset-scaled net income in post-pricing year t . Sample includes all 226 IPO firms subject to IPO-pricing regulation in SZSE during 1997-1999. Panel A reports the correlation coefficient matrix among regressors. T-statistics based on standard errors clustered by year are in parentheses. ** and * denote significant at 1%, 5% and 10% level respectively.

Panel A: Correlation coefficient matrix among regressors

	DTA_0	ΔSALE_0	ΔCAPEXO_0	OCF_0	NOI_0
DTA_0	1				
ΔSALE_0	-0.032	1			
(Probability)	(0.635)				
ΔCAPEXO_0	0.067	0.075	1		
(Probability)	(0.316)	(0.261)			
OCF_0	-0.089	0.102	0.055	1	
(Probability)	(0.183)	(0.128)	(0.413)		
NOI_0	-0.074	-0.079	0.028	-0.077	1
(Probability)	(0.271)	(0.240)	(0.273)	(0.251)	

Table 11 - continued

Pane B: Regression results

Independent variables	Dependent variables		
	ΔROA_{+1}	ΔROA_{+2}	ΔROA_{+3}
DTA_0	-0.575*** (-3.88)	-0.183** (-2.86)	-0.215*** (-3.10)
$\Delta SALE_0$	-0.077* (-2.09)	-0.008 (-0.17)	0.021 (0.50)
$\Delta CAPEX_0$	-0.092* (-1.93)	-0.040 (-0.94)	-0.033 (-0.78)
OCF_0	0.119 (1.68)	0.032 (0.65)	0.072 (1.65)
NOI_0	-0.024 (-0.61)	-0.027 (-0.53)	-0.036 (-0.83)
No. of observations	226	226	226
F-statistics:	20.70	12.94	13.51
Adjusted R ² :	66.03%	28.44%	33.95%

8. Conclusions

This study examines earnings management during initial public offerings (IPOs) for a sample of 271 firms conducting IPOs on the Shenzhen Security Exchange in 1997-2000. I find a strong link between governmental regulation on IPO pricing and IPO firms' earnings management behavior. During the sample period, the government had imposed four different pricing systems fixing IPO prices on pre-IPO earnings and/or forecasted earnings in the IPO year. The evidence shows that IPO firms' discretionary total accruals – the proxies for earnings management – are unusually high in the pre-IPO years when the pricing system is based on pre-IPO earnings. When the pricing system is based on the forecasted earnings in the IPO year, issuers first overestimate IPO-year

earnings and then adopt aggressive discretionary total accruals to meet the forecasted targets. The evidence also shows that when the pricing system does not link directly to earnings, issuers have less incentive to manipulate earnings. By focusing on the incentive differences between firms under different pricing regimes, this study shed new light on the relations between institutional structures and public reporting quality.

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Essay 2:
**The Separation of Ownership and Control on the Chinese Stock
Markets**

Abstract

This paper examines the separation of ownership and control, and the effects of such separation on firm performance, related-party lending and cash dividend policy for a sample of 491 publicly listed firms on the Shenzhen Security Exchange in 2002. I find that 94 percent of the firms have a large shareholder with more than 20 percent of the control rights; the majority of these controlling shareholders are state-owned enterprises (SOEs); firm performance is positively related to cash-flow ownership of the largest shareholder, but negatively related to the divergence between control rights and cash-flow ownership of the largest shareholder. The negative effect of the divergence between control and ownership on firm performance is stronger in non-government-controlled firms. Furthermore, I find that concentrated ownership is negatively related to the amounts of related-party lending, but positively related to cash dividend payout ratio. In contrast, the divergence between control rights and ownership is positively related to the amounts of related-party lending, but negatively related to cash dividend payout ratio.

Keywords: Ownership and control, Firm performance, Related-party lending, Cash dividend, Expropriation

JEL Classification: G15; G32; G34; G35

1 Introduction

Several recent studies have documented the prevalence of concentrated ownership and control in most of the markets in the world (La Porta, Lopez-de-Silanes, and Shleifer, 1999; Claessens, Djankov, and Lang, 2000; Faccio and Lang, 2002). This has triggered intensive discussions on the benefits and costs associated with large shareholders. For example, Claessens, Djankov, Fan and Lang (2002) show that the market value of East Asian firms increases with the cash-flow ownership of the largest shareholder (the incentive effect of large shareholder), but decreases with the divergence between the control rights and cash-flow ownership of the largest shareholder (the expropriating effect of large shareholder). For a sample of the largest 20 firms in each of 27 wealthy economies, La Porta, Lopez-de-Silanes, Shleifer and Vishny (2002) show that firm value is positively related to the cash-flow ownership of the largest shareholder. However, they find no relation between firm value and the divergence between control rights and cash-flow ownership of the largest shareholder. They also find that firms in countries with poor legal protection of minority shareholders have lower Tobin's Q ratios compared to firms in countries with good legal protection of minority shareholders do. Joh (2003) shows an inverse relation between Korean firm profitability and the divergence between control rights and cash-flow ownership of the largest shareholder.

However, most of the existing evidence on the benefits and costs associated with large shareholders is indirect. In contrast to prior research, this study examines the direct effects of ownership and the separation of ownership and control on related-party lending (the lending of capital from a listed company to its controlling shareholder or companies controlled by its controlling shareholder) and cash dividend policy for a sample of 491 publicly listed companies on the Shenzhen Security Exchange in 2002. By examining the effects of ownership and control on related-party lending and cash dividend policy, I am able to describe in detail the specific mechanisms through which the incentive and expropriating effects of large shareholders actually occur.

The Shenzhen Security Exchange is appropriate for testing the incentive and expropriating effects of large shareholders for several reasons. First, the ownership and control of Chinese firms are highly concentrated. As will be shown in Section 5 of this

paper, at the end of 2002, the majority of the listed companies on the Shenzhen Security Exchange have a large shareholder with more than 20% voting rights. Moreover, due to market segmentation and trading restriction on institutional shares (shares held by large shareholders), the effective control rights of the largest shareholder in a typical Chinese firm is about 80% more than his cash-follow ownership. Such ownership and control structures imply that both the incentive and expropriating effects are likely to be prevalent on the Chinese stock markets. Second, the Chinese stock markets are widely regarded as ‘cash withdraw machines’ in which controlling shareholders take capital from publicly listed companies with little restriction¹. As such, related-party lending and cash dividend are among the most important mechanisms through which controlling shareholders expropriate minority shareholders on the Chinese stock markets. By adopting a low payout policy, the controlling shareholder can keep profits in the listed company and expropriate these profits through related-party lending. In fact, the problems of non-existent cash dividend and heavy related-party lending are so common among Chinese firms that the Chinese Security Regulatory Commission (CSRC) has to make it mandated for listed companies to disclose the amounts of related-party lending and cash dividends in their annual reports. Third, there are three major types of controlling shareholders on the Chinese stock markets (government, families and legal persons) with difference in their abilities to expropriate minority shareholders, which provides additional opportunities for testing the difference in the incentive and expropriating effects among these types of controlling shareholders.

Based on the ownership and corporate governance data of all 491 non-financial companies listed on the Shenzhen Security Exchange (SZSE) at the end of 2002, I first examine the ownership and control structures of these companies and find that ownership and control are highly concentrated. In about 94% of the companies, there is a large shareholder with more than 20% voting rights. The majority of these controlling shareholders are government agents (in 75.97% of the 491 firms), followed by families (11.81%) and legal persons (6.11%). Across different sizes of companies, large companies are more likely to be government-controlled, while families and legal persons are more likely to be the controlling shareholders of small companies. Although the

¹ See, for example, the articles in the July issue (2003) of ‘Finance (in Chinese)’.

conventional control-enhancing devices such as dual-class shares, pyramiding and cross-holdings are not common among Chinese companies (except for family-controlled companies), manager appointment is widely used by controlling shareholders to enhance their controls. Moreover, due to the market segmentation between institutional shares (shares held by large shareholders) and individual shares (shares held by minority shareholders) and the trading restriction on institutional shares, the effective control rights of the largest shareholders are substantially in excess of their cash-flow ownership. The average ratio of effective control rights to cash-flow ownership of the largest shareholder ranges from 1.75 in government-controlled companies to 1.83 in legal-person-controlled companies (at the 20% level of control).

Based on the results from the ownership and control analysis, together with the financial and market data of the 491 companies, I perform three tests on the incentive and expropriating effects of large shareholders. The first test is to evaluate the effects of cash-flow ownership and the divergence between control rights and cash-flow ownership of the largest shareholder on firm performance. The results show that both market-to-book ratio and return-on-asset ratio are positively related to the cash-flow ownership of the largest shareholder, but negatively related to the divergence between control rights and cash-flow ownership of the largest shareholder, indicating that both the incentive and expropriating effects of large shareholders are prevalent on the Chinese stock markets. I also find that the expropriating effect (but not the incentive effect) is significantly stronger in family-controlled and legal-person-controlled firms than in government-controlled firms, suggesting that family and legal-person controlling shareholders are more able than government controlling shareholders to divert benefits to themselves. These results are robust to controlling for a number of firm- and industry-specific variables.

The first test is an indirect test in that it does not show the specific mechanisms through which the incentive and expropriating effects occur. To substantiate the claims, I examine related-party lending and cash dividend in the second and the third tests. For related-party lending, I find that the amounts of (asset-scaled) related-party lending are negatively related to the cash-flow ownership of the largest shareholder, but positively related to the divergence between control rights and cash-flow ownership of the largest

shareholder. Similar to the results from performance regressions, the positive relation between the amounts of related-party lending and the divergence between control rights and cash-flow ownership of the largest shareholder is stronger in non-government-controlled firms than in government-controlled firms. For cash dividend, I find that cash dividend payout ratio (the ratio of cash dividend to net income) is positively related to the cash-flow ownership of the largest shareholder, but negatively related to the divergence between control rights and cash-flow ownership of the largest shareholder. Again, the negative relation between cash dividend payout ratio and the divergence between control rights and cash-flow ownership of the largest shareholder is stronger in non-government-controlled firms than in government-controlled firms.

In general, the results in this study are consistent with the findings in Claessens, Djankov, Fan and Lang (2002), but not with those in Cheung, Rau and Stouraitis (2006). For a sample of 375 fillings of related-party transactions between Hong Kong firms and their controlling shareholders during 1998-2000, Cheung, Rau and Stouraitis (2006) find that the divergence between control rights and cash-flow ownership of the largest shareholder does not have any significant impact on the likelihood of undertaking value-destroying related-party transaction. There are two possible explanations for such contradiction. First, as argued in Cheung, Rau and Stouraitis (2006), it is possible that the divergence between control rights and cash-flow ownership may proxy for expropriations that are not reflected in their data. This is because their sample includes only transactions with amounts exceeding the threshold requiring stock exchange notification, while the amounts of a firm's related-party lending in this study is the sum of all related-party lending (including many small transactions) undertaken by the firm over the whole year. Second, the difference in legal systems between Hong Kong and mainland China might account for such contradiction. In fact, Cheung, Rau and Stouraitis (2006) do find that the divergence between control and ownership is significant in explaining the occurrence of value-destroying related-party transactions in firms whose ultimate owners can be traced to mainland China.

Previously, several studies have examined the relation between state ownership and performance of Chinese firms and found mixed results (Xu and Wang, 1999; Qi, Wu and Zhang, 2000; Sun and Tong, 2003; Wei, Xie and Zhang, 2005). The most important

difference between this study and their studies is the separation of ownership from control. In prior studies, no attempt has been made to distinguish between control rights and cash-flow rights of the largest shareholders. Consequently, the effect of the divergence between control and ownership on firm performance is still unknown. The lack of data may be one of the key reasons why such important issue has not been addressed in prior studies (see Section 4.1 for detailed discussions of data sources on ownership and control of Chinese firms).

The rest of this paper is organized as follows. Section 2 discusses international evidence on the incentive and expropriating effects of large shareholders and prior research on ownership and performance of Chinese firms. Section 3 provides some background information on the development of the Chinese stock markets. Section 4 describes the data. Section 5 traces the chains of ownership to find out who are the ultimate controlling shareholders of listed companies on SZSE, and the devices used by these ultimate owners to enhance their controls. Section 6 investigates the effects of ownership and the divergence between control and ownership on firm performance. Section 7 provides direct evidence on the incentive and expropriating effects of large shareholders. Conclusions are drawn in the final section.

2 Literature review

2.1 International evidence on the incentive and expropriating effects of large shareholders

In traditional corporate finance theories, corporations are viewed as the nexus of contracts between various economic entities. Ownership of capital is dispersed among small investors (principals) and yet control rights are concentrated in the hands of managers (agents), who have little or none ownership in the firms and are unaccountable to shareholders. Thus, the main problem in corporate finance is the principal-agent problem, namely, the conflict of interests between shareholders and managers (Jensen and Meckling, 1976; Fama and Jensen, 1983). Recently, this traditional view of widely held corporation has been challenged by a number of studies. In an attempt to find out who have the ultimate control rights in corporations, La Porta, Lopez-de-Silanes and

Shleifer (1999) trace the chains of ownership for the 20 largest publicly traded corporations in each of the 27 richest countries and find that concentrated ownership exists even among the largest corporations in the US and that widely held corporation is the exception rather than the norm in most of the richest countries in the world. In addition, La Porta, Lopez-de-Silanes and Shleifer (1999) find that large shareholders usually have control rights in substantially excess of their cash-flow rights. Applying the same methodologies, Claessens, Djankov and Lang (2000) find that more than two-thirds of East Asian firms are controlled by a single shareholder. The largest shareholder is often able to control the firm with a relatively small cash-flow ownership, with the divergence between control rights and cash-flow rights most pronounced in family-controlled firms. Devices such as pyramid structure, cross-holdings, dual-class shares and management appointment are often used to enhance the largest shareholder's control. Using a sample of 5,232 listed firms in 13 Western European countries, Faccio and Lang (2002) find that families and widely held corporations are the two most common types of ultimate owners of Western European corporations. Widely held firms are more likely the ultimate owners of financial and large firms, while families are more likely the ultimate owners of non-financial and small firms.

The theoretical predictions from Grossman and Hart (1988), Harris and Raviv (1988), Burkart, Gromb and Panunzi (1997), and Johnson, Boone, Breach and Friedman (2000) suggest that concentration of control rights may facilitate expropriation, and subsequently causes decrease in firm value, whereas concentration of cash-flow rights gives the controlling shareholder incentive not to engage in such costly transactions. Therefore, expropriation is usually associated with the discrepancy between control rights and cash-flow rights, which can take the forms of deviation from one-share-one-vote rule, pyramiding, cross-holdings and management appointment. Thus, the central problem of corporate finance in many countries, particularly in those with poor investor protection, is not the conflict of interests between shareholders and managers, but the expropriation of minority investors by controlling shareholders.

Empirically, Claessens, Djankov, Fan and Lang (2002) examine a sample of 2,980 publicly traded corporations in nine East Asian countries and find results that are consistent with both the incentive and expropriating effects of large shareholders: firm

value increases with the cash-flow ownership of the largest shareholder, but decreases with the discrepancy between the control rights and cash-flow ownership of the largest shareholder. La Porta, Lopez-de-Silanes, Shleifer and Vishny (2002) examine the largest 20 firms in each of 27 wealthy economies and also find that firm value is positively related to the cash-flow ownership of the largest shareholder. However, they find no relation between firm value and the discrepancy between control rights and cash-flow ownership of the largest shareholder. Lins (2003) argues that it is important to distinguish between management blockholder and non-management blockholder in studying the relation between ownership and firm value. Since it is the managers who actually administrate a firm, the reduction in firm value from potential costly agency problem may be even worse when the managers have sufficient controls to expropriate and there is not large non-management blockholder to constrain the expropriation. Based on a sample of 1,433 firms from 18 emerging markets, Lins (2003) finds that firm value is negatively related to the discrepancy between management control rights and cash-flow ownership. In contrast, firm value increases with the ownership by large non-management shareholders, indicating that large non-management blockholdings may act as a substitute for missing institutional governance mechanism in countries with poor investor protection.

However, most of the evidence from prior studies on the incentive and expropriating effects of large shareholders is indirect. One of the exceptions is Cheung, Rau and Stouraitis (2006), who provide direct evidence on the expropriating effect of large shareholders by examining the related-party transactions between Hong Kong listed companies and their controlling shareholders. They find that firms undertaking related-party transactions earn significant negative excess returns both around the initial announcement of the transactions and during the 12 month period following the announcement, suggesting that the related-party transactions might be used by controlling shareholders to expropriate corporate resources. In addition, they find that the excess returns are negatively related to the ownership by the controlling shareholder and proxies for poor information disclosure, and that firms whose ultimate owners can be traced to mainland China are more likely to undertake value-destroyed related-party transactions.

2.2 *Prior research on ownership and performance of Chinese firms*

Prior evidence on the relation between ownership and performance of Chinese firms is controversial. On the one hand, for a sample of 154 companies listed on SZSE and the Shanghai Security Exchange (SHSE) in 1993-1995, Xu and Wang (1999) find that firm performance is positively related to the ownership of non-state shareholders, but negatively or not related to state ownership. Qi, Wu and Zhang (2000) also find results similar to Xu and Wang (1999) for a sample of listed companies on SHSE from 1991 to 1996. Sun and Tong (2003) evaluate the performance changes of 634 state-owned enterprises (SOEs) listed on China's two exchanges upon share issuing privatization (SIP) in the period of 1994-1998 and find that state ownership has negative impact on firm performance after SIP.

On the other hand, for a sample of 826 firms listed on the two Chinese stock markets during 1994-1998, Tian (2001) finds that the continuous relationship between government shareholding and firm value is non-monotonic: firm value is negatively related to government ownership when government ownership is relatively small, but positively related to government ownership when government ownership is relatively large. He interprets the results as being consistent with the grabbing hand and helping hand of government shareholder (Frye and Shleifer, 1997). Specifically, when government ownership is small, the government is likely to interfere in the firm for political objects (grabbing hand). However, when its financial interest from corporate value is sufficiently large, the government is likely to provide corporate governance and government partiality (helping hand). Wei, Xie and Zhang (2005) investigate the relation between ownership structure and firm value for a sample of 5,284 firm-year observations in the two Chinese stock markets during 1991-2001. They find that both state and institutional shares are significantly negatively related to Tobin's Q, and that significant convex relations exist between Q and state shares, as well as between Q and institutional shares.

One of the common features of the above studies is that the controlling shareholder of a company is defined by the investor group with the largest ownership in the company. Such classification may misidentify the shareholder who actually controls the company. For example, assume that there are three large shareholders in a company:

two unrelated SOEs, each with 20% ownership, and one family with 30% ownership, and that the remaining 30% shares are owned by dispersed individual investors. According to the classification in the above studies, this company is classified as being state-controlled, because the total state ownership is 40%, larger than the 30% ownership by the family, despite the fact that the family is actually the largest shareholder of the company.

3 Development of the Chinese stock markets

3.1 *Stock markets dominated by the government*

In December 1990, the first Chinese stock market – the Shanghai Security Exchanges (SHSE) was officially launched. In July 1991, another stock market, the Shenzhen Security Exchanges (SZSE) was established. By now, SHSE and SZSE are the only two official stock exchanges in China with SHSE being a little larger in terms of total capitalization and the number of listed firms. From the very beginning, the Chinese government has intended to use stock market as a mean for reforming its inefficient SOEs. This intention, together with a centered-planning-type IPO selecting procedure, results in a stock market system that is dominated by state-owned shares. Specifically, the aggregate amounts of new shares to be issued each year in the two Chinese stock markets are determined by a quota set by the state planning committee, the central bank and the Chinese Security Regulatory Commission (CSRC). This quota is then distributed to individual provinces and mega cities. Criteria used for allocation of new issues among provinces and cities reflect the central security regulatory authorities' perceived regional development needs and provincial differences in production structure and industrial base. The richer and more economically developed coastal provinces have received most of the quota. Within each regional quota, local security regulatory authorities invite enterprises (most of them are SOEs) to request a listing and make selection based on criteria that combine good performance as well as sector development objectives².

² For example, in its document No.12 (1996), which concerning the selection of new companies to the stock exchanges, CSRC stated that the 1000 major state-owned enterprises and enterprises with good performance should be given priority.

If a company wants to be listed, it has to obtain approvals from the local government, CSRC and other relevant government agents. Once the company (usually a SOE) receives the permission for going public and the quota for the number of shares to be issued, it can form a stock company in two alternative ways. It can select either become the only founder of the stock company or to contact other enterprises and institutions to see if they are willing to be co-founders of the stock company. In either case, the total ownership of founder and co-founders cannot exceed 75% in the new stock company, unless approved by security regulatory agents. The rest of the shares in the new stock company are sold to public through IPO. At the mean time, the approved SOE begin the incorporatization process. First, non-productive assets are separated from productive assets. The whole or part of productive assets then constitutes the SOE's holdings in the new stock company. Managers of the SOE also talk intensively with their supervisors (officials from ministry and/or local government) for candidates of board members and top managers. Most of the times, the original managers and party officials of the SOE keep the key positions of the board and management team because the state will have a major holding in the new stock company (see, for example, Xu and Wang, 1999).

Once going public, the SOE founder will either become the controlling shareholder of the listed company (if parts of its assets are carved up) or being dissolved (if all its assets are carved up). In the latter case, the Bureau of State Property Management (BSPM) or other government-run holding companies at ministry and local government levels act as the controlling shareholder of the listed company.

3.2 *The emergence of private controlling shareholders*

Due to the socialist ideology of the Chinese Communist Party, family firms were prohibited from going public at the initial stage of stock market development. As Chinese economic and political reforms deepening, the restriction on large private ownership in publicly traded companies has been liberalizing. In 1993, the first family firm (Fuyao Glass) was allowed to go public on SHSE. However, due to the government intention of using stock market as a mean for reforming its inefficient SOEs, only a relatively small portion of the IPO quota has been allocated to family firms. By the end of 2002, only 71

family firms (5.8% of the total number of listed firms on the two Chinese stock markets) have received the quota for going public on SHSE and SZSE (Lu and Zhang, 2004).

As an alternative, many family firms have gone public by acquiring control blocks in listed firms. After getting controls of the listed firms, the family firms can arrange related-party transactions to bring their business into the listed firms, thus indirectly getting their assets listed on the stock exchanges – a process referred to as a “reverse merger”³.

3.3 *Market segmentation*

Although all shares in a Chinese company entitle shareholders the same voting and dividend rights, they are different in ownership restriction and tradability. Classified by ownership restrictions, shares can be either domestic shares or foreign shares. Domestic shares (A-shares) are those shares that can only be owned by domestic investors, whereas foreign shares (B- and H-shares) are only available to foreign investors. According to the official classifications, domestic shares can be further classified into state shares, legal person shares, and tradable A-shares.

State shares are shares held by the central and local governments or solely state-owned enterprises. Although the State Council of China is the ultimate owner of all state-owned shares, the actual exercises of shareholders’ rights are by BSPM or SOEs. State-owned shares are not tradable on the stock exchanges, but transferable among SOEs and domestic institutions upon approvals from CSRC and the Ministry of Finance.

Legal person shares are shares held by domestic institutions, including stock companies, non-bank financial institutions, and other enterprises that have at least one non-state owner. Legal person shares are also not tradable on the stock exchanges but can be transferable among domestic institutions upon approval from CSRC.

Collectively, state shares and legal person shares are called institutional shares, because they can only be held by institutions.

Tradable A-shares are owned and traded mostly by individuals on SHSE and SZSE. It is the only type of shares that can be traded among domestic individual investors on the stock exchanges.

³ See the third essay of this thesis for a discussion of reverse mergers on the Chinese stock markets.

B-shares were initially available only to foreign investors and some authorized domestic security firms. After 19 September 2001, B-shares have been allowed to be traded by domestic individuals as well. Trading of B-shares is denominated in US dollar in SHSE and in Hong Kong dollar in SZSE. **H-shares** are similar to B-shares except that they are issued and traded on the Hong Kong Stock Exchange.

Not every listed firm has all the above-mentioned types of shares. At the minimum, a listed company must have state- or legal-person-shares and tradable A-shares with the latter category accounts for not less than 25% of total shares outstanding.

4 Ownership and control data

4.1 Data Sources

The ownership and control data in this study is manually collected from the 2002 annual reports of listed companies on SZSE. Starting from 2001, publicly traded companies in China are required to report in annual reports detailed ownership information, including the structures of pyramidal ownership chains, of their controlling shareholders. I collect the ownership and control data from the 2002 annual reports because some companies did not provide such information on their 2001 annual reports. Specifically, I collect data on cash-flow ownership of the largest ten shareholders and other shareholders with more than 5% ownership from section 3 ('Change in shares outstanding and information on shareholders') of listed firms' annual reports; data on the compositions of board of directors and supervisory committee, appointments of top managers, and ownership of board members and top managers is from section 4 ('Information on board members, members of supervisory committee, top managers and employees'). The sources of ownership and control data are illustrated in Table 1.

Information on the ultimate owners of the largest shareholders is usually unavailable from listed firms' annual reports, because the majority of these ultimate owners are central and local governments, SOEs, other corporations and families that are not listed on stock exchanges and thus are not required disclosing their ownership information. To find out such information, I first go back to listed firms' IPO prospectuses. In case that a firm has changed its controlling shareholder after IPOs, I then

look into the firm's announcements on change of the controlling shareholder from database maintained by Securities Times, a newspaper designated for major information disclosures of listed firms on SZSE. When such searching procedure does not end up with the ultimate owner of current controlling shareholder, I use Internet as the last resource. I use searching phrases such as the names of the listed firms, the controlling shareholders, the controlling shareholders of the controlling shareholders, and so on. I also search for the names of the persons who hold key positions in the listed firms, the controlling shareholders of the listed firms, the controlling shareholders of the controlling shareholders, and so on. After these search procedures, the ultimate owners of the largest shareholders of all 491 listed firms are identified.

Table 1

Sources of Data

Table describes the sources of data used in this study.

Items	Sources of the data
1. Cash-flow ownership of top ten shareholders	Section 3 of annual reports
2. Cash-flow ownership of shareholders with more than 5% shares outstanding	Section 3 of annual reports
3. Immediate owners of shareholders whose ownership is more than 5%	Section 3 of annual reports and the Internet
4. Information on members of the board and top managers	Section 4 of annual reports
5. Ultimate owners of controlling shareholders	Section 3 of annual reports, IPO prospectus, data base maintain by Securities Times and the Internet
6. Pyramiding and multiple control chains	Section 3 of annual reports and the Internet
7. Book value of total assets	Section 2 of annual reports
8. Market and financial data	Website of Shenzhen Security Information Corporation (www.cninfo.com.cn)

At the end of 2002, there are 494 companies listed on SZSE. I exclude the 3 financial firms adopting different reporting procedure from the sample. The remaining 491 companies are classified into 13 industries according to the official industry classification of SZSE, which is based primarily on the core business of the firms.

4.2 Definitions of Variables

The definitions of ownership and control in this paper are similar to those in La Porta, Lopez-de-Silanes and Shleifer (1999), Claessens, Djankov and Lang (2000) and Faccio and Lang (2002). Specifically, ownership is measured by cash-flow rights and control by voting rights. For example, suppose that the family F owns 30% of stock in company A, which in turn owns 20% of stock in listed companies B. Assume that there is not deviation from one-share-one-vote and cross-holdings between company A and Company B. Then, the cash-flow ownership of the family F in company B is 6%, or the product of the two ownership stakes along the chain. The family F also controls 20% of company B, or the weakest link in the chain of voting rights.

Ownership and control can be different due to multiple voting classes of shares (different voting rights for given cash flow rights), cross-holdings, pyramiding and multiple control chains. Since Chinese laws prohibit the deviation from one-share-one-vote (see, for example, Article 130 of Section 4, China Corporate Law), there is not multiple voting classes of shares on the Chinese stock markets. In addition, cross holding, a device that two companies have ownership in each other or the company holds its own shares, is rare among Chinese firms. Nevertheless, controlling shareholders may use pyramiding and multiple control chains to enhance their controls in excess of their cash-flow ownership.

Pyramiding refers to the situation where a company holds part of the stock of another company, which in turn holds part of the stock of the third company, and so on. Unlike La Porta, Lopez-de-Silanes and Shleifer (1999), the definition of pyramiding in this paper is not dependent on the condition that there is at least one publicly traded company involved in the chain of controls. This is because the number of publicly traded companies on the Chinese stock markets is relatively small. The definition of pyramiding depends on the threshold used in classification. For example, if company A owns 30% of

company B, that owns 40% of company C, which in turn owns 50% of company D, then company C and D are controlled by company A through a pyramid at the 30% threshold. However, at the 40% threshold, company C is directly controlled by company B (which is widely held at the 40% threshold) but not by company A through pyramiding, and company D is still controlled by company B through a pyramid. At the 50% threshold, company D is directly controlled by company C (which is widely held at the 50% threshold), and no pyramiding would be recorded. Pyramiding implies a discrepancy between the ultimate owner's cash-flow ownership and control rights. In the above example, company A owns 6% cash-flow rights of company D (the product of its ownership stakes along the control chain) but has 30% control rights of company D (the weakest link in the control chain).

Company A is controlled by a multiple control chain if it has an ultimate owner who controls it via multitude of control chains, each of which includes at least 5% voting rights at each link. In the previous example, if company A also owns 5% of company D directly, then company A owns 11% of the cash-flow rights of company D ($30\% \times 40\% \times 50\% + 5\%$) and controls 35% of its voting rights ($\min(30\%, 40\%, 50\%) + 5\%$) through a multiple control chain.

4.3 Types of ultimate owners

In this study, I classify the ultimate owners of listed companies on SZSE into the following four categories: the state (government), families, legal persons and widely held companies.

When a listed company is controlled (at a given threshold) by the central and local governments or a SOEs, I classify the ultimate owner of this company into the state category.

If the (direct and indirect) control rights of a family or an individual in a listed company exceed the given threshold, the listed company is classified as being family-controlled. I do not distinguish family members from family.

A legal person is usually an enterprise or institution that is collectively owned by the people of a village, a town or a street, by the employees, or by a group of individual investors, whose ownership in the legal entities is not individually significant. Legal

persons are more like widely held corporations in the sense that none of their shareholders has any significant ownership. Note that the definition of a legal person in this study is different from that in the official classification of SZSE discussed in Section 3.3.

When none of the shareholders in a company has ownership exceeding a given threshold, this company is classified into widely held category.

Foreign companies or individuals can be shareholders of a Chinese firm by holding B- and H-shares of the firm. However, since there is not a single foreign company or individual owning more than 10% shares in any of the companies, foreign shareholder category is not included in this paper.

5. Evidence on the separation of ownership and control on SZSE

5.1 The separation of ownership and control on SZSE

In this subsection, I use data on the largest shareholders to investigate the separation of ownership and control in SZSE. To better reflect the realities of Chinese stock markets, I define the ultimate control of a company using four thresholds of voting rights: 10%, 20%, 30% and 50%. In China, 10% voting rights is required for convening board meeting and shareholder meeting; 30% voting rights is the threshold at which a mandatory tender offer must be made to all shareholders; 50% voting rights gives the controlling shareholder absolute control over the company. A fourth threshold of 20% is used to compare the results in this study with those in La Porta, Lopez-de-Silanes and Shleifer (1999), Claessens, Djankov and Lang (2000), and Faccio and Lang (2002).

5.1.1 The ultimate owners of listed companies on SZSE

Based on the definitions of ownership and control in Section 4, I report in Table 2 the ultimate owners of listed companies on SZSE at the end of 2002. Unlike La Porta, Lopez-de-Silanes and Shleifer (1999), Claessens, Djankov and Lang (2000) and Faccio and Lang (2002), who allow multiple controlling shareholders in a company when there are several shareholders with voting rights exceeding a given threshold, I allow only one controlling shareholder in a company with the most control rights. In fact, when multiple

controlling shareholders are allowed, most of the multiple controlling shareholders in a company are of the same type of ultimate owners (e.g. state, legal person or family).

One of the striking features from Table 2 is that the state is the ultimate owner in most of the listed companies, regardless of which threshold of control is used. At the 20% threshold, the state is the ultimate owner in 75.97% of the listed companies. At the 30% threshold, the state is the ultimate owner in 62.12% of the listed companies. The state still controls 37.07% of the listed companies even by the absolute control standard (the 50% threshold). When the threshold of control is lowered from 20% to 10%, the state controls 8 additional companies, or 1.63% of the total. Another noticeable feature from Table 2 is that, on average, the state has the most control rights among different types of ultimate owners. The mean control rights of ultimate owners in state-controlled companies are 48.83% at the 20% threshold, increase to 53.22% and 61.95% at the 30% and 50% thresholds respectively. In fact, when there are more than one government agents owning shares in a state-controlled company, the control rights of the largest shareholder underestimate the total control rights of the state in the companies.

Table 2 also shows that families are the second most important type of ultimate owners on SZSE, which is not reflected in prior studies (Xu and Wang, 1999; Qi, Wu, and Zhang, 2000; Sun and Tong, 2003). At the 20% threshold, families control 11.81% of the listed companies. Compared with the state, families usually control the firms with relatively smaller control rights. For example, at the 20% threshold, the mean control rights of the ultimate owners in family-controlled firms are only 33.79%.

As mentioned above, the official classification of ownership defines any legal entity that is not 100% owned by the state as a legal person. Hence, it is not surprised that previous studies using the official classification find that legal persons are the second most important type of controlling shareholders (Xu and Wang, 1999; Qi, Wu, and Zhang, 2000; Sun and Tong, 2003). However, when looking further into the ultimate owners of these legal entities, a different picture emerges: at the 20% threshold, legal persons control only 6.11% of the listed companies. This is because the ultimate owners of most official-classified legal persons are in fact the state or families.

Table 2

Ultimate control of listed companies on SZSE at the end of 2002, by owner types

Table presents the number and percentage of companies controlled by each type of ultimate owner, and the mean and median control rights of these ultimate owners. Sample includes all 491 non-financial companies on the Shenzhen Security Exchange at the end of 2002. The ultimate owners of these companies are classified into four categories: state, family, legal person and widely held. The definitions for these ultimate owners are in Section 3. Results are presented at the 10%, 20%, 30% and 50% thresholds of control, respectively.

	Types of ultimate owner			
	State	Family	Legal person	Widely-held
<i>Panel A: Classified at the 10% threshold</i>				
No. of firms	381	75	34	1
Percentage of total	77.60%	15.28%	6.92%	0.20%
Mean control rights	47.39%	31.95%	34.64%	8.86%
Median control rights	48.80%	28.00%	29.32%	8.86%
<i>Panel B: Classified at the 20% threshold</i>				
No. of firms	373	58	30	30
Percentage of total	75.97%	11.81%	6.11%	6.11%
Mean control rights	48.83%	33.79%	37.36%	15.98%
Median control rights	50.01%	29.00%	29.99%	16.62%
<i>Panel C: Classified at the 30% threshold</i>				
No. of firms	305	22	15	149
Percentage of total	62.12%	4.48%	3.06%	30.35%
Mean control rights	53.22%	49.03%	47.92%	24.23%
Median control rights	53.20%	51.20%	46.74%	25.92%
<i>Panel D: Classified at the 50% threshold</i>				
No. of firms	182	12	6	291
Percentage of total	37.07%	2.44%	1.22%	59.27%
Mean control rights	61.95%	59.54%	60.82%	31.91%
Median control rights	62.05%	56.84%	61.36%	29.91%

Several differences are worth noting when comparing the ultimate controls of Chinese firms to those of firms in other countries (La Porta, Lopez-de-Silanes and Shleifer, 1999; Claessens, Djankov and Lang, 2000; Faccio and Lang, 2002). First, the

percentage of widely held companies on SZSE is not only much less than those in developed economies, but also less than those in East Asia. Second, the majority of the listed companies on SZSE are controlled by the state, whereas state ownership is not common in other markets except for Singapore. Third, although families are the second most important type of controlling shareholders on SZSE, the percentage of family-controlled firms is much less than those in other markets.

5.1.2 Ultimate owners across firm sizes

To see whether ownership and control structures are different across firm sizes, I divide the 491 companies into large, median and small groups based on book value of total assets. The large group contains the 100 largest companies in term of total assets; the median group includes the 200 companies whose total assets ranked 101st to 300th; and the small group includes the 191 companies with the smallest total assets. Book value instead of market capitalization is used here because institutional shares (shares owned by large shareholders) of Chinese companies are not tradable on the stock exchange.

As shown in Table 3, the state is more likely to be the ultimate owner of large corporations. At the 20% threshold, the state controls 86% of the companies in the large group, 80% of the companies in the median group, and 61.78% of the companies in the small group. In contrast, families are more likely to be the ultimate owners of small companies. At the 20% threshold of control, families control only 8% of the companies in the large group. They control 10% of the companies in the median group and 20.42% of the companies in the small group. Similarly, legal-person-controlled and widely held companies are more likely to be small firms.

The presence of state control in large companies on the one hand, and family control and dispersed ownership in small companies on the other hand, can also be seen from the comparison between Table 3 and Table 2. For example, at the 20% threshold, the state controls 86% of the largest companies but only 75.97% of all companies. On the other hand, families control 20.42% of the smallest companies but only 11.81% of all companies. Widely held companies constitute 7.32% of the companies in the small group but only 6.11% of the companies in the overall sample.

Table 3

Ultimate owners across firm size

Sample includes all 491 non-financial companies listed on SZSE at the end of 2002. These 491 companies are divided into 3 groups based on book value of total assets. The large group includes the 100 companies with the largest book value of total assets. The median group includes the 200 companies whose book value of total assets ranked 101st to 300th. The small group includes the remaining 191 companies with the smallest book value of total assets. The ultimate owners of these companies are classified into four categories: state, family, legal person and widely held. The definitions for these ultimate owners are in Section 3. Average assets are in million of RMB. Results are presented at the 10%, 20%, 30% and 50% thresholds of control, respectively.

	Average	Types of ultimate owners			
Group	assets	State	Family	Legal person	Widely held
<i>At the 10% threshold</i>					
Large	4,942.3	89.00%	8.00%	3.00%	0
Median	1,657.2	83.00%	11.00%	5.50%	0.50%
Small	621.3	65.97%	23.56%	10.47%	0
<i>At the 20% threshold</i>					
Large	4,942.3	86.00%	8.00%	3.00%	3.00%
Median	1,657.2	80.00%	10.00%	3.50%	6.50%
Small	621.3	61.78%	20.42%	10.47%	7.32%
<i>At the 30% threshold</i>					
Large	4,942.3	77.00%	5.00%	2.00%	16.00%
Median	1,657.2	68.50%	3.00%	1.50%	27.00%
Small	621.3	47.64%	5.76%	5.24%	41.36%
<i>At the 50% threshold</i>					
Large	4,942.3	55.00%	3.00%	2.00%	40.00%
Median	1,657.2	39.50%	1.50%	0.50%	58.50%
Small	621.3	25.13%	3.14%	1.57%	70.16%

5.1.3 Control- enhancing devices used by different types of ultimate owners

Table 4 reports the control-enhancing devices used by different types of ultimate owners. I ignore dual-class share structure and cross-holdings because deviation from one-share-one-vote is not allowed in China and cross-holdings are rare among Chinese firms. In addition to pyramiding and multiple control chain used in previous studies, I

also include a variable ‘majority control’, in which an ultimate owner controls more than 50% of the total votes in the company. When a shareholder has majority control, his controlling position is very difficult to be challenged.

Table 4

Percentages of companies adopting control-enhancing devices

Table presents the percentages of companies whose ultimate owners adopt control-enhancing devices. Sample includes all 491 non-financial companies in the Shenzhen Security Exchange at the end of 2002. These 491 companies are classified into 4 categories according to the types of their ultimate owners. Results are presented only for the state, family and legal person categories. Pyramids report the percentage of companies whose ultimate owner adopts pyramiding as control devices. Multiple control chain reports the percentage of company whose ultimate owner adopts at least 5% of holding through control chain. Majority control reports the percentage of companies whose ultimate owner controls more than 50% votes.

	State	Family	Legal person
<i>At the 10% threshold</i>			
No. of firms	381	75	34
Pyramids	10.2%	69.3%	5.9%
Multiple control chain	20.5%	40.0%	20.6%
Majority control	88.7%	52.0%	70.6%
<i>At the 20% threshold</i>			
No. of firms	373	58	30
Pyramids	10.2%	70.7%	6.7%
Multiple control chain	20.4%	43.1%	23.3%
Majority control	90.6%	58.6%	80.0%
<i>At the 30% threshold</i>			
No. of firms	305	22	15
Pyramids	10.5%	72.7%	13.3%
Multiple control chain	20.7%	50%	26.7%
Majority control	98.0%	81.2%	86.7%
<i>At the 50% threshold</i>			
No. of firms	182	12	6
Pyramids	9.9%	66.7%	33.3%
Multiple control chain	17.0%	50.0%	33.3%
Majority control	100%	100%	100%

Among different types of ultimate owners, families use control-enhancing devices more frequently than the state and legal persons do. At the 20% threshold of control, pyramiding is used in 70.7% of the family-controlled firms, 10.2% of the state-controlled firms and 6.7% of the legal-person-controlled firms. Similarly, at the 20% threshold, multiple control chain is used in 43.1% of the family-controlled firms, 20.4% of the state-controlled firms and 23.3% of the legal-person-controlled firms. On the other hand, the controlling positions of families are more likely to be challenged. At the 20% threshold, only 58.6% of the family owners have majority control rights, whereas the state has majority control rights in 90.6% of the companies it controls, and legal persons have majority control rights in 80% of the companies they control. The results for control-enhancing devices used by different types of ultimate owners are robust across thresholds of control, as can be seen from Table 4.

5.1.4 Discrepancy between ownership and control across types of ultimate owners and firm sizes

The fact that family owners use control-enhancing devices more frequently may lead to greater discrepancy between ownership and control in family-controlled companies. This is indeed the case, as can be seen from Panel A of Table 5. At the 20% threshold of control, the mean ratio of ultimate owners' cash-flow ownership to voting rights in family-controlled firms is 61.8%, whereas this ratio is 95.6% and 98.4% in state-controlled and legal-person-controlled firms, respectively.

Panel A of Table 5 also reveals that the discrepancy between ownership and control in family-controlled companies increases with the ultimate owners' control rights. At the 20% threshold of control, the average ratio of ownership to control in family-controlled companies is 61.8%. The ratio decreases to 50.1% at the 30% threshold and further to 36.4% at the 50% threshold. Panel B of Table 5 reports that the discrepancy between ownership and control is greater in small companies than in large companies, albeit being of much less magnitude than that across types of ultimate owners.

Table 5

Discrepancy between ownership and control across types of ultimate owner and firm sizes

Table reports the mean ratio of cash-flow rights to voting rights of the ultimate owners for a sample of 491 non-financial firms on the Shenzhen Security Exchange at the end of 2002. Panel A classifies these 491 companies into 4 categories according to the types of their ultimate owners: state, family, legal person and widely held. The definitions for these ultimate owners are in Section 3. Results are presented only for the state, family and legal person categories. Panel B classifies companies into 3 groups according to their size (book value of total assets). The large group includes the 100 companies with the largest book values of total assets. The median group includes the 200 companies whose book value of total assets ranked 101st to 300th. The small group includes the 191 companies with the smallest book value of total assets. Results are presented at 10%, 20%, 30% and 50% thresholds of control, respectively.

Panel A: Mean ratio of ultimate owners' cash flow rights to voting right across types of ultimate owners

	State	Families	Legal persons
At the 10% threshold	96.0%	63.4%	98.7%
At the 20% threshold	95.6%	61.8%	98.4%
At the 30% threshold	95.7%	50.1%	97.5%
At the 50% threshold	95.8%	36.4%	94.7%

Panel B: Mean ratio of ultimate owners' cash flow rights to voting right across firm sizes

	Large	Median	Small
At the 10% threshold	93.7%	94.8%	90.8%
At the 20% threshold	93.5%	94.8%	90.8%
At the 30% threshold	92.8%	96.6%	91.8%
At the 50% threshold	92.5%	97.3%	91.7%

5.1.5 Representatives of ultimate owners in boards and management teams

Appointing representatives to the board of directors and management team is undoubtedly one of the control-enhancing devices that are used frequently by ultimate owners, particularly in countries with poor protection of minority investors (Claessens, Djankov, and Lang, 2000; Faccio and Lang, 2002). In this subsection, six variables are used to examine the issue of representatives from ultimate owners in boards and management teams. The first variable **chairman** denotes that the chairman or vice

chairman of the listed company is from the ultimate owner. The second variables – **general manager** is defined in a similar way. The third variable – **member of the board** denotes that at least one member of the board is from the ultimate owner. The fourth variable **same chairman** denotes that the chairman or vice chairman of the listed company is also the chairman or vice chairman of the controlling shareholder. The fifth variable **chairman on board** denotes that the chairman or vice chairman of the controlling shareholder is on the board of the listed company. Finally, the sixth variable **independent member** is used to denote that there is at least one independent board member in the listed company.

Table 6 shows that representatives from ultimate owners are more likely to occupy the key positions of board (chairman and vice chairman) than the key positions of management team (general manager and vice general manager). The percentage of companies whose chairmen and vice chairmen include at least one representative from the ultimate owners ranges from 63.3% (in legal-person-controlled companies) to 70.7% (in family-controlled companies), while the percentage of companies whose general managers and vice general managers include at least one representative from the ultimate owners ranges from 19.0% (in state-controlled companies) to 22.4% (in family-controlled companies). In 88.7% of all companies, at least one member of the board is from the ultimate owner. In about half of all companies, the chairman or vice chairman of the controlling shareholder also holds the same positions in the listed company. In 61% of all companies, the chairman or vice chairman of the controlling shareholder is on the board of the listed company.

Independent board members appear more frequently in family- and legal-person-controlled firms than in state-controlled firms. There is at least one independent board member in about one-third of family- and legal-person-controlled firms, whereas independent board members appear in about one-fourth of state-controlled firms.

Compared with the results in Claessens, Djankov and Lang (2000) for East Asian firms and Faccio and Lang (2002) for Western European firms, the percentage of companies that have representatives from the ultimate owners in the boards and management teams is the highest on the Chinese stock markets.

Table 6

Compositions of boards of directors and management teams in companies controlled by different types of ultimate owners

Table reports the percentage of companies that have representatives from the ultimate owners in key positions of boards of directors (chairman, vice chairman) and management teams (general manager, vice general manager), and the percentage of companies that have an independent board member. Sample includes 461 companies whose ultimate owners control more than 20% of the votes in the companies. These 461 companies are classified into 3 categories depending on whether their ultimate owners are the state, family or legal person. The variable **Chairman** denotes that the chairman or vice chairman of listed company is from the ultimate owner. The variables **Member of the board** and **General Manager** are defined in a similar way. **Same chairman** means that the chairman or vice chairman of the ultimate owner is also the chairman or vice chairman of the listed company. **Chairman on board** means the chairman or vice chairman of the ultimate owner is on the board of the listed company. **Independent member** means that there is at least one independent board member in the company.

	All	State	Family	Legal person
No. of firms	461	373	58	30
Chairman	69.8%	70.2%	70.7%	63.3%
Member of the board	88.7%	89.3%	87.9%	83.3%
General Manager	19.5%	19.0%	22.4%	20.0%
Same Chairman	49.2%	48.8%	53.4%	46.7%
Chairman on board	61.0%	59.8%	67.2%	63.3%
Independent member	27.8%	26.0%	34.4%	36.7%

5.2 *The separation of ownership and effective control due to market segmentation*

As mentioned in Section 3, one of the unique features of the Chinese stock markets is the market segmentation of institutional and individual shares, which further aggravates the problem of separation of ownership and control on the Chinese stock markets. First, institutional shares (shares owned by large shareholders) can only be transferred among institutional investors upon the approvals from security regulatory authorities. As often suggested by the media, the approvals from security regulatory authorities depend crucially on the seller's consent and the process usually takes months

or even years⁴. Thus, the disciplinary role of takeover is virtually nonexistent on the Chinese stock markets. Second, because of market segmentation, the shares that can be traded on the stock exchange (tradable A-shares) constitute only a small portion of shares outstanding. Moreover, ownership of tradable A-shares is dispersed. The free-rider problem faced by individual investors also makes it uninteresting for them to participate in corporate governance. Third, the legal infrastructure for minority shareholder protection is relatively underdeveloped in China. Courts usually do not accept cases raised by minority investors. For example, in 2001, the controlling shareholder of 'Meierya Corporation' embezzled USD 44.6 million (41% of Meierya's equity) from the listed company and was condemned by CSRC and SZSE. However, when minority shareholders took the case to court and asked for compensation, the court could not find appropriate law regulating such matter and had to turn down the case. Fourth, although tradable A-shares constitute more than one-third of the shares outstanding on the Chinese stock markets, holders of these shares are rarely represented on the boards of listed companies. Even if there are independent members on the boards, the accountability of these independent board members to minority shareholders is questionable, as most of them are in fact handpicked by the controlling shareholders (Kong, 2001).

I therefore argue that, under market segmentation and weak investor protection, the effective control of a listed company is in the hand of whoever controls the institutional shares⁵. Accordingly, the effective control rights of an institutional shareholder are represented by his fractional ownership of institutional shares in the company. For example, in a company with an ownership structure of 60% institutional shares and 40% tradable A-shares, the effective control rights of an institutional investor with 30% ownership should be 50% (30%/60%).

Table 7 shows the effective control rights of the largest shareholders by types of owners. It appears that the majority of the largest shareholders are in absolute control of the companies: the effective control rights of the largest shareholders exceed 50% in 387

⁴ The only situation where seller's consent is not required is when the owner of institutional shares defaults on loans and the lenders ask court to auction the shares that have been used as collaterals for the loans.

⁵ This is also the common view held by researchers and the media. See, for example, the articles in the October issue of New Fortune, 2003.

(out of 491) companies, There are only 12 companies in which the largest shareholders own less than 30% of the institutional shares. Again, the controlling positions of the largest shareholders are less likely to be challenged in state-controlled companies, as the effective control rights of the largest shareholders are relatively higher in state-controlled companies than in other companies. On the other hand, the discrepancy between ownership and effective controls is the highest in family-controlled companies. At the 50% threshold, the mean control leverage ratio (the ratio of effective control rights to cash-flow rights) of the largest shareholders is 1.94 in family-controlled companies, 1.76 in state-controlled companies and 1.79 in legal-person-controlled companies.

Table 7

The separation of ownership and effective control due to market segmentation

Table reports the effective control rights and the discrepancy between effective control rights and cash-flow rights of the largest shareholders. Sample includes all 491 non-financial companies in the Shenzhen Security Exchange at the end of 2002. These 491 companies are classified into 4 categories according to the types of their ultimate owners: state, family, legal person and widely held. The definitions for these ultimate owners are in Section 3. Effective control right is defined as the largest shareholder's fractional ownership of institutional shares in the company. Control leverage is the ratio of the largest shareholder's effective control rights to his cash-flow rights. Results are presented at the 20%, 30% and 50% thresholds of effective control, respectively.

	<i>Types of ultimate owner</i>			
	State	Family	Legal person	Widely-held
<i>At the 20% threshold</i>				
No. of firms	380	74	34	3
Mean effective control rights	78.88%	55.79%	59.14%	18.79%
Mean control leverage ratio	1.75	1.78	1.83	1.56
<i>At the 30% threshold</i>				
No. of firms	377	69	33	12
Mean effective control rights	79.41%	58.01%	60.01%	24.02%
Mean control leverage ratio	1.75	1.80	1.83	1.65
<i>At the 50% threshold</i>				
No. of firms	329	36	22	104
Mean effective control rights	84.94%	73.52%	69.46%	39.34%
Mean control leverage ratio	1.76	1.94	1.79	1.70

6 The effects of concentrated ownership and control on firm performance

In this section, I use the results in Section 5 to study the effects of concentrated ownership and control on firm performance in the Chinese stock markets. The next section will provide concrete evidence explaining such relations.

Following Claessens, Djankov, Fan and Lang (2002), I test the two hypotheses about the effects of concentrated ownership and control on firm performance. The first hypothesis (the incentive hypothesis) states that the more cash-flow ownership by the largest shareholder, the stronger his incentive to provide corporate governance; likewise, his incentive to reduce firm value by extracting private benefits is weaker. Both effects should result in a positive relation between firm performance and the largest shareholder's cash-flow ownership. In contrast, the second hypothesis (the expropriating hypothesis) states that the bigger the gap between the largest shareholder's control rights and cash-flow rights, the stronger his incentive to extract private benefits of control. The expropriating effect should result in a negative relation between firm performance and the divergence between the largest shareholder's control rights and cash-flow rights.

6.1 Variables and sample statistics

Following the literature on ownership and performance (e.g. Claessens, Djankov, Fan, and Lang, 2002; La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 2002; Lins, 2003), I use market-to-book ratio of assets (MB ratio) to measure firm valuation. Market value is defined here as the sum of market value of common stock and book value of debt and preferred stock. I use the prices of tradable A-shares to calculate the market value of common stock, because they are the prices that minority investors are willing to pay after taking into account the incentive and expropriating effects of large shareholders. I also use return on asset ratio (ROA), defined as net income over book value of assets, as the accounting measure of firm performance.

Following Claessens, Djankov, Fan, and Lang (2002), I use the cash-flow ownership (Ownership) of the largest shareholder to proxy for the incentive effect of the controlling shareholder. To be consistent with the Chinese reality, I use the effective control rights mentioned in Section 5.2 to represent the actually control rights of the

largest shareholder. Hence, the difference between the effective control rights and cash-flow ownership (Control – Ownership) of the largest shareholder is used here to proxy for the expropriating effect of the controlling shareholder.

The initial sample includes all 491 non-financial firms listed on SZSE at the end of 2002. To minimize the effect of extreme values on regression results, I trim the initial sample in the following two steps. First, observations with negative book value are excluded from the sample. Second, market-to-book ratios and ROAs are censored at the 1st and 99th percentiles by setting outlying values to the 1st and 99th percentiles, respectively. The final sample includes 487 observations.

To control for the possibility that a variety of other factors may jointly affect ownership and performance and thus induce a spurious correlation between them (Himmelberg, Hubbard, and Palia, 1999), I include in the regressions the following firm-specific variables commonly used in studies of firm valuation.

(a) Sale growth and capital spending relative to assets – Sale growth and Capital Spending

I expect sale growth and capital spending to have positive impacts on MB ratio, because both variables proxy for the firm's growth prospect and investment opportunity. However, the impact of capital spending on ROA may need time to realize. Hence, the relation between capital spending and ROA is ambiguous.

(b). Size (measured by the logarithm of total assets) – Size

Large-sized corporations on the Chinese stock markets are usually important sources of employment and tax revenues to local economies. For political reasons, local governments may have the incentive to interfere in these firms, resulting in more serious agency problem (Zhang, 2001). On the other hand, many large-sized corporations operate in monopolistic industries (such as telecommunication, steel and public utility). They also have scale economy and better access to bank credits and government projects. I expect that larger firms should have higher ROA because of monopolistic power and better access to capital markets, but lower market valuation due to more serious agency problem.

(c) Fixed asset ratio (measured by fixed asset to total assets) – Fixed Asset

Himmelberg, Hubbard and Palia (1999) argue that higher fixed asset ratio (lower intangible asset ratio) is usually associated with lower MB ratio, because the book value

of assets in the denominator of MB ratio understates the market value of intangibles. Furthermore, firms with high proportion of intangible assets tend to belong to the new economy. Thus, I expect a negative relation between fixed asset ratio and MB ratio.

(d) Leverage (measured by the ratio of liability to assets) – Leverage

Equity financing of Chinese firms is tightly regulated by Chinese Security Regulatory Committee (CSRC), which disallows those firms with return on equity ratio (ROE) below a certain threshold to conduct seasoned equity offerings (Chen and Yuan, 2004). Consequently, firms with poor earnings have to rely on borrowing for capital needed, leading to a negative relation between leverage and ROA ratio. Furthermore, according to CSRC's regulation, firms with negative earnings for two consecutive years are subject to trading restriction, causing liquidity problem for the trading of their stocks. Hence, I expect that leverage should have negative impacts on MB and ROA.

(e) Years since establishment – Age

Older firms usually have more liquid trading, more attention from analysts, better information disclose, and more diversified activities leading to lower risk of financial distress. However, younger firms tend to have more growth opportunities. Hence, the effects of age on market-to-book ratio and ROA are ambiguous.

(f) Managerial ownership and the presence of another blockholder – Management and Second

Jensen and Meckling (1976) argue that managerial holding in the firm may be an effective device to solve the agency problem between shareholders and managers. Morck, Shleifer and Vishny (1988) and McConnell and Servaes (1990) show a 'U' shape relation between managerial ownership and firm value. I include a variable Management (measured by the percentage ownership of all board members and managers) to control for the effects of managerial holding on MB ratio and ROA. Gomes and Novaes (1999) argue that the presence of a second large owner monitors the controlling shareholder and reduces expropriation. I therefore include a dummy variable Second, which takes the value of one when there is another shareholder with more than 5% ownership in the firm. I expect this variable to have positive effect on firm performance.

(g) Types of controlling shareholders

Government ownership is traditionally viewed as being inefficient due to political interference and lack of incentive (Shleifer and Vishny, 1994; Meggingson and Netter, 2001). Some prior studies on the performance of Chinese firms suggest a negative relation between government ownership and firm performance (Xu and Wang, 1999; Qi, Wu and Zhang, 2000; Sun and Tong, 2003). However, there are also other studies suggesting that the conflicts of interests between the controlling shareholders and minority shareholders are likely to be more serious in non-government-controlled firms (mainly family firms), particularly in countries with poor shareholder protection (Claessens, Djankov, Fan and Lang, 2002; Burkart, Panunzi and Shleifer, 2003; Maury, 2006). To control for the performance differences across types of ultimate owners, I include two dummy variables in the regressions: Legal-person and Family. Legal-person takes the value of one when the ultimate owner is a legal person. Family is defined in a similar way. I also include four interactive terms ownership*legal person, ownership*family, (control – ownership)*legal person, and (control – ownership)*family, to account for the possibility that the incentive and expropriating effects may be different across types of controlling shareholders.

(h) Industry dummies

Market valuation and profitability may be systematically different across industries due to business cycles. To control for such effect, I include industry dummies in the regressions. I use the 13-industry classification published by SZSE, which is based on the core business of the companies.

Table 8 reports the summary statistics for the two performance measures and the control variables. There are two things that are worth noting. First, since most of the listed companies were newly formed or restructured from former state-owned enterprises, they are relatively young with an average (median) age of 14.33 (14.00) years. Second, managerial ownership in the firms is minimal with an average (median) of 0.042% (0.016%), which is in sharp contrast to the situation in other markets (for example, see Lins (2003) for managerial ownership in 18 emerging markets and Himmelberg, Hubbard and Palia (1999) for the US markets). Several facts may account for the small managerial ownership in Chinese firms. First, managers of listed companies are usually appointed by

the controlling shareholders, not by their personal holdings in the companies. Second, stock option, which is frequently used in other markets to increase managerial holding, is rare in the Chinese stock markets. Third, by law, managers of Chinese firms are not allowed to buy shares in the companies during their tenure.

Table 8

Summary statistics

Table reports the descriptive statistics of variables used in regressions of firm performance on the controlling shareholder's ownership and control. Market-to-book ratio (MB) is computed as the sum of market value of common stock and book value of debt and preferred stock, divided by book value of assets. ROA is net income divided by total assets. To alleviate the influence of extreme values, MB and ROA are censored at the 1st and 99th percentiles by setting outlying values to the 1st and 99th percentiles. Size is the log of total assets; Sale growth is the growth rate of sale over previous year; Capital spending and fixed assets are all scaled by total assets; Leverage is the ratio of liability over total assets; Management is the managerial ownership (in percentage) in the company.

	Mean	Median	St. Dev
MB	2.704	2.366	1.172
ROA	0.028	0.029	0.033
Sale growth	0.169	0.121	0.305
Capital Spending	0.065	0.035	0.079
Size (log assets)	9.115	9.092	0.310
Fixed assets	0.356	0.339	0.176
Leverage	0.431	0.442	0.176
Age	14.33	14.00	1.759
Management	0.042	0.016	0.158

Table 9 shows the correlation matrix between variables. Although there are several significant correlations, I do not expect them to introduce significant collinearity in the regressions because the correlations between variable are very low. For example, although age is significantly correlated with capital spending and leverage, the correlation coefficients are only 0.114 and 0.142, respectively. Nevertheless, diagnostic tests will be carried out to test for collinearity in the regressions.

Table 9

Correlation matrix

Table reports the correlation matrix among variables used in regressions of firm performance on the controlling shareholder's ownership and control. Ownership is the cash-flow ownership of the largest shareholder in the firm; (Control – Ownership) is the difference between the effective control rights and the cash-flow ownership of the largest shareholder; Size is the log of total assets; Sale growth is the growth rate of sale over previous year; Capital spending and fixed assets are all scaled by total assets; Leverage is the ratio of liabilities over total assets; Management is the percentage of managerial ownership in the firm. * and ** denote significant at the 5% and 1% level, respectively.

	Ownership	Control- Ownership	Sale Growth	Capital Spending	Size	Fixed Assets	Leverage	Age	Management
Ownership	1	0.081	-0.054	-0.021	0.061	0.063	-0.052	-0.103*	-0.086*
Control-Ownership		1	0.041	-0.092*	0.108*	-0.017	-0.066	0.050	0.029
Sale growth			1	0.059	0.094*	-0.016	0.081	-0.030	0.016
Capital Spending				1	-0.106*	-0.031	-0.076	0.114**	0.006
Size					1	0.106	0.129**	-0.035	-0.020
Fixed Assets						1	-0.079	-0.076	0.003
Leverage							1	0.142**	-0.075
Age								1	-0.072
Management									1

6.2 *Regression results*

6.2.1 *Main results*

Table 10 reports the results of OLS regressions linking firm performance to the ownership and control of the largest shareholder. To correct for the possible dependence in the residuals, I also estimate the standard errors clustered by industry (Petersen, 2006; and Thompson, 2006). Since the standard errors clustered by industry are larger than the White standard errors, I report only the t-statistics associated with the standard errors clustered by industry.

The first column presents the results with market-to-book ratio as the dependent variable and the second column with ROA as the dependent variable. For the market-to-book regression, the coefficient on ownership is 0.875 and statistically significant at the 5% level, suggesting that increase in the largest shareholder's cash-flow ownership is associated with higher market value. On the other hand, the coefficient on the gap between control and ownership is -1.052 and statistically significant at the 10% level, suggesting that increase in the divergence between control rights and cash-flow rights of the largest shareholder is associated with lower market value. The results on the incentive and expropriating effects of large shareholders do not appear to be affected by the performance measures. For the ROA regression, the coefficients on ownership and the gap between control and ownership are 0.028 and -0.032 , respectively (statistically significant at the 5% and 10% level, respectively).

To make economic sense of the incentive and expropriating effects, I calculate the changes in firm performance associated with one-standard-deviation changes in ownership and the gap between control and ownership. For example, when firm performance is measured by market-to-book ratio, a standard deviation increase in the largest shareholder's ownership (17.94% in the sample) is associated with an increase of 0.1570 (0.875×0.1794) in market-to-book ratio, or 5.81% of the sample average. Similar calculation indicates that a standard deviation increase in the largest shareholder's ownership increase return-on-asset ratio by 0.00502, or 17.93 % of the sample average. For the expropriating effect, a standard deviation increase in the gap between control and ownership (0.1236 in the sample) lowers market-to-book ratio by 0.1300 (4.81% of the

sample average), or return-on-asset ratio by 0.0040 (14.13% of the sample average). Thus, the incentive and expropriating effects of large shareholders are statistically and economically significant on the Chinese stock markets. In term of economic significance, the results here are similar to the findings in Claessens, Djankov, Fan and Lang (2002) for East Asian firms.

Previous research suggests that the incentive and expropriating effects of large shareholders can be different depending on the types of ultimate owners. In particular, Claessens, Djankov, Fan and Lang (2002) find that the incentive and expropriating effects are the strongest among family-controlled firms in East Asian countries. Table 10 shows that the expropriating effects of large shareholders are also stronger in family-controlled firms on the Chinese stock markets. For the MB regression, the coefficients on the interactive term (control–ownership)*family is -2.584 , significant at the 10% level. The incremental F-statistic for testing the null hypothesis of no interaction between family owner and the gap between control and ownership is 11.32, statistically significant at the 1% level (not reported in the table). On the other hand, the incentive effects of large shareholders in family-controlled and legal-person-controlled firms do not appear to be significantly different from those in state-controlled firms, as the coefficients on the interactive terms ownership*family and ownership*legal person are not statistically significant. The incremental F-statistic for testing the null hypothesis that the incentive effects of controlling shareholders are the same across types of owners is 1.106 (not reported in the table). For the ROA regression, the coefficients on the interactive terms (control–ownership)*family and (control–ownership)*legal person are statistically significant at the 5% and 10% level, respectively. Hence, it appears that investors in family-controlled firms are concerned more about the expropriating effects of the controlling shareholders than investors in state-controlled firms do. The reason might be that family owners are more able than the state to efficiently divert private benefits from the firms. More discussions on this point will be in the following section.

Table 10**Firm performance and the controlling shareholder's ownership and control**

Table presents the regression results on the relations between firm performance and the controlling shareholder's ownership and control rights. The dependent variables in the first and second columns are market-to-book ratio (MB) and return-on-assets ratio (ROA), respectively. The main independent variables are the percentage cash-flow ownership by the controlling shareholder (ownership) and the divergence between the effective control rights and cash-flow ownership of the controlling shareholder (control-ownership). The control variables include sale growth, capital spending, firm size, fixed to total assets ratio (Fixed assets), liability to assets ratio (Leverage), firm age, managerial ownership (Management), a dummy variable for the presence of another shareholder with more than 5% ownership (Second), industry dummy and types of controlling shareholder dummies. Numbers in parentheses are t-statistics based on standard errors clustered by industry. *, ** and *** denote significant at the 10%, 5% and 1% level, respectively.

Independent variables	Dependent variable			
	MB	(t-stat)	ROA	(t-stat)
Constant	17.266***	(6.390)	-0.051	(-1.502)
Ownership	0.875**	(2.009)	0.028**	(2.271)
Control – ownership	-1.052*	(-1.883)	-0.032*	(-1.865)
Sale growth	0.138	(1.569)	0.026***	(3.950)
Capital spending	0.867	(1.571)	0.009	(0.366)
Size	-1.665***	(-5.749)	0.017**	(2.218)
Fixed assets	-0.458	(-1.382)	0.007	(0.651)
Leverage	-0.954**	(-2.297)	-0.082***	(-4.072)
Age	0.108***	(2.713)	0.001	(0.735)
Management	-0.234	(-0.537)	-0.014	(-1.033)
Second	0.272*	(1.877)	0.005	0.858)
Legal person	0.448*	(1.773)	0.012*	(1.806)
Family	-0.114	(-0.239)	0.011	(1.601)
Ownership*Legal Person	0.293	(0.176)	0.007	(0.193)
Ownership*Family	1.178	(0.977)	0.022	(0.820)
(Control-ownership)*				
Legal Person	-1.547	(-1.481)	-0.099**	(-2.013)
(Control-ownership)*Family	-2.584*	(-1.876)	-0.073*	(-1.905)
Industry dummy	yes		yes	
Adjusted R-square	0.468		0.255	
Number of observations	487		487	

6.2.2 Control variables

Sale growth and capital spending Sale growth has a positive impact on ROA, suggesting that higher growth firms have better returns. However, more capital spending does not lead to higher MB and ROA.

Firm Size Interestingly, firm size has opposite impacts on MB and ROA, which is consistent with the findings in Xu and Wang (1999), Qi, Wu and Zhang (2000), Tian (2001) and Sun and Tong (2003). As discussed above, large-size companies on the Chinese stock markets are more likely to have serious agency problem due to government interference, leading to lower market valuation. It is also possible that small firms have better growth prospects – an argument put forward by Claessens, Djankov, Fan and Lang (2002) for East Asian economies. On the other hand, large-size companies usually operate in monopolistic industries and have better accesses to capital markets, leading to higher returns on assets.

Fixed Assets ratio Fixed assets ratio does not have significant impact on MB and ROA ratios. This is inconsistent with the argument by Himmelberg, Hubbard and Palia (1999) that firms with lower fixed assets ratio (higher intangible assets ratio) tend to belong to the new economy and are evaluated higher. One of the possible explanations might be that Chinese investors are more conservative than the US investors in evaluating the growth potentials of high-tech companies (Jiang and Zhang, 2004).

Leverage Higher leverage is associated with lower MB and ROA ratios, which may be explained by CSRC's regulations on seasoned equity offerings and trading restriction. For this reason, it is better to interpret the result as demonstrating a relation, but not necessarily causation, between leverage and performance. Nevertheless, when leverage ratio is excluded from the regressions, the coefficients on ownership and the gap between control and ownership are qualitatively similar.

Age Age has a positive effect on MB ratio, suggesting that older firms are valued higher on the Chinese stock markets. However, older firms do not seem to have higher ROA.

Managerial ownership It is interestingly to see that managerial ownership does not have any significant impact on MB and ROA ratios. This may be due to the fact that managerial ownership in Chinese companies is too small to give managers any

incentive or to signal the quality of the firms to the market. As shown in Table 8, the average managerial ownership in the sample is only 0.042%.

Multiple large shareholders Market valuation is higher when there is another large shareholder in the company, suggesting that the presence of another large shareholder can constrain the expropriation by the controlling shareholder. However, the presence of another large shareholder does not seem to improve the accounting performance of the firm, suggesting that there may be other costs (such as negotiation costs between large shareholders) associated with multiple large shareholders.

Non-government controlling shareholders Some prior studies on ownership and performance of Chinese firms have found a negative relation between government ownership and firm performance, which has been taken as (indirect) evidence suggesting that non-government-controlled firms outperform the comparable government-controlled firms (Xu and Wang, 1999; Qi, Wu, and Zhang, 2000; Sun and Tong, 2003). The results here show that this may not always be the case. While the average performance of legal-person-controlled firms is indeed better than that of government-controlled firms, the average market performance of family-controlled firms does not appear to be better than that of government-controlled firms.

Overall, the R-square for MB regression is much larger than that for ROA regression, suggesting that the results of MB regression are more significant. Collinearity diagnostics show that all the tolerance levels for the independent variables are more than 0.75 (VIF values are more than 1.33), indicating that there is not significant collinearity in the regressions (not tabulated).

6.3 *Reverse causation*

An issue that is often debated on the relation between ownership and performance is the causation between these two variables (Himmelberg, Hubbard, and Palia, 1999; Demsetz and Villalonga, 2001). For example, the positive relation between ownership and performance could indicate that firm value is higher as a result of market expectation of the incentive effect of the controlling shareholder. However, it is also plausible that the controlling shareholder increases his ownership stakes with the knowledge that the cash flow of the firm will be higher in the future. Similarly, the negative relation between the

deviation of control from cash-flow rights and firm performance could indicate that expropriation by the controlling shareholder increases when the gap between control and ownership get larger. Conversely, it could be the case that the controlling shareholder wants to lower his ownership but maintain his control rights when the firm is overvalued (or when the earnings are temporarily higher).

It seems unlikely that, on the Chinese stock markets, the controlling shareholders would change their ownership and controls in light of expected performance of the firms. First, as discussed above, there are basically two kinds of shares on the Chinese stock markets: institutional shares and individual shares. The shares held by the controlling shareholders are institutional shares that are not tradable on the stock exchanges. To change their holdings, the controlling shareholders must get approvals from various government agents (CSRC, the stock exchange, ministry of finance, etc.), which usually takes months or years to complete⁶. Hence, even the controlling shareholders want to change their ownership in light of expected performance, they cannot do so in a timely way. Second and more importantly, because of market segmentation, the prevailing exchange prices of individual shares have little impact on the transferred prices of institutional shares in the same company (Chen and Xiong, 2001). Moreover, cross-holding of institutional shares and individual shares in the same company is rare among Chinese firms. It is therefore unlikely that the controlling shareholders would change their ownership and controls in light of expected performance of the firms.

7 Direct evidences on the incentive and expropriating effects of controlling shareholders

The results so far suggest that ownership concentration in the hand of the largest shareholder is beneficial to firm value, whereas the separation of ownership from control is detrimental to firm value; and that the expropriating effects of the largest shareholder are stronger in family- and legal-person-controlled firms. In this section, I use the cases of related-party lending and cash dividend to substantiate the above claims.

⁶ A study by the Shenzhen Security Exchange shows that the average time for institutional share transactions during 2000-2002 is 336 days (from submitting application to transferring ownership).

7.1 *Related-party lending*

Related-party lending is referred here as the lending of capital by a listed firm to its largest shareholder or other companies controlled by the largest shareholder. To be true, related-party lending needs not lead to expropriation providing that the debtor can pay back the principal and the appropriate interest. What is special in the Chinese case is that the related parties usually pay little interest on such loans, if not at all. As a result, related-party lending is viewed as one of the most prolific examples of expropriation by controlling shareholders on the Chinese stock markets. There have been many instances that listed firms run into financial difficulty because they had to write off large amounts of bad debts from related-party lending⁷. Prior research has also documented a negative relation between related-party lending and firm performance (Jian and Wong, 2004).

Since related-party lending is in effect the transfer of capital from the listed company to the controlling shareholder, it should be affected by the controlling shareholder's ownership and control rights in the company. Based on the incentive and expropriating arguments above, I predict that the amounts of related-party lending should be negatively related to the controlling shareholder's cash-flow ownership (incentive effect), but positively related to the divergence between the control rights and cash-flow ownership of the controlling shareholder (expropriating effect). To test the hypothesis, I perform a cross-sectional regression similar to the performance regressions above. The dependent variable is the asset-scaled net related-party lending (the amounts of related-party lending minus the amounts of related-party borrowing, scaled by total assets), which is reported in the listed companies' annual reports. The main independent variables are cash-flow ownership by the largest shareholder and the divergence between the effective control rights and ownership of the largest shareholder. I also include the same set of control variables used in the performance regressions.

Panel A of Table 11 shows that the average (median) net lending is 3.375% (1.257%) of total assets. In one extreme case, a firm lends an amount as much as 95.03%

⁷ See the related reports in the business column of Sohu.com (<http://business.sohu.com>). One of the best-known examples is the case of Monkey King Corporation in which the listed company ran into financial difficulty because it had lent 0.89 billion Yuan, or about 95% of its total assets, to the controlling shareholder. (Shanghai Security Times, 27 March 2001)

of its total assets to related parties. In the other extreme, a firm borrows an amount equal to 55% of its total assets from related parties.

To control for the effect of outliers on the regression results, I drop observations with extreme value of related-party lending (outside the 1st and 99th percentiles) from the regression. To correct for the possible dependence in the residuals, I estimate the standard errors clustered by industry and report the associated t-statistics.

The results in Panel B of Table 11 show that ownership concentration has a negative impact on related-party lending. The coefficient on ownership is -0.038 , statistically significant at the 10% level. A one-standard-deviation increase in the ownership by the largest shareholder lowers asset-scaled related-party lending by 0.68% ($0.1794 * (-0.038)$), or 20.15% of the sample average. In contrast, increase in the divergence between control and ownership of the largest shareholder is associated with more related-party lending. The coefficient on (control-ownership) is 0.065%, statistically significant at the 10% level. A one-standard-deviation increase in the gap between the effective control rights and cash-flow ownership of the largest shareholder brings an increase of 0.80% ($0.1236 * 0.065$) in asset-scaled related-party lending, or 23.70% of the sample average.

For the control variables, most of the coefficients are significant and consistent with the common predictions. For example, the coefficients on fixed assets ratio and leverage are both significantly negative, suggesting that higher fixed assets ratio and debt-to-assets ratio are associated with less related-party lending. Obviously, a firm with higher fixed assets ratio should have less liquid assets to be expropriated by the controlling shareholder (Himmelberg, Hubbard, and Palia, 1999). Similarly, a firm with higher debt-to-assets ratio has to pay more debts, which should reduce the free cash flow available to the controlling shareholder (Jensen, 1986). Other factors that have significantly negative impacts on related-party lending include sale growth (slow growth firms have more free cash flow to be expropriated), firm size (larger firms are more closely monitored by the market), the presence of another large shareholder with more than 5% ownership (the monitoring by another large shareholder reduces the expropriation by the controlling shareholder) and managerial ownership (incentive effect of managers). On the other hand, firm age and family dummy affect related-party lending

positively. The positive effect of firm age might be due to the fact that older firms have more cumulative related-party lending. On average, family-controlled firms have more related-party lending than state-controlled firms do. The coefficients on (control-ownership)*legal person and (control-ownership)*family are both significantly positive, which are consistent with the results in Table 10 that the expropriating effects of large shareholders in non-government-controlled firms are stronger than that in government-controlled firms (the incremental F-statistic is 10.53, significant at the 1% level). On the other hand, the insignificant coefficients on ownership*legal person and ownership*family are also consistent with the results in Table 10 that the incentive effects of large shareholders in legal-person-controlled and family-controlled firms are not significantly different from that in government-controlled firms.

7.2 Cash dividend

Unlike related-party lending which can be used to the benefit of the controlling shareholder only, cash dividends must be paid on a pro rata basis. As such, the agency theory of dividend holds that a corporation in which the controlling shareholder has a small ownership stake is unlikely to pay out profits in the form of cash dividends, especially when the control rights in the corporation are highly concentrated. The reason is that the controlling shareholder in such a corporation may use his control power to expropriate the profits through mechanisms such as related-party lending and unfair transaction price, rather than to share the profits with minority shareholders (Jensen, 1986; La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 2000; Faccio, Lang, and Yong, 2001).

Obviously, the agency theory of dividend is consistent with the incentive and expropriating hypothesis of large shareholders: the controlling shareholder's incentive to distribute profits on a pro rata basis is stronger when he can receive a larger portion of the profits; his incentive to expropriate profits for private benefits is stronger when the divergence between his control rights and cash-flow rights is larger. Hence, the incentive and expropriating hypothesis of large shareholders predicts that cash dividend rates should be positively correlated with ownership concentration, and negatively correlated with the separation of ownership and control.

Table 11**Related-party lending and the controlling shareholder's ownership and control**

Table presents the regression results on the relation between related-party lending and the controlling shareholder's ownership and control. The dependent variable is the net lending from the listed company to its related parties, scaled by total assets. The main independent variables are the percentage cash-flow ownership by the controlling shareholder (ownership) and the divergence between the effective control rights and cash-flow ownership of the controlling shareholder (control-ownership). The control variables include sale growth, capital expending over assets, firm size, fixed assets to total assets ratio (Fixed assets), liability to assets ratio (Leverage), firm age, managerial ownership (Management), a dummy variable for the presence of another shareholder with more than 5% ownership (Second), industry dummies, and types of controlling shareholder dummies. Numbers in parentheses are t-statistics based on standard errors clustered by industry. *, ** and *** denote significant at the 10%, 5% and 1% level, respectively.

Panel A: Descriptive statistics of asset-scaled net related-party lending					
No. of Obs.	Mean	Median	Minimum	Maximum	% of positive
487	3.375%	1.257%	-55.00%	95.03%	61.84%
Panel B: Regression Results			<u>Hypothesized sign</u>		
Constant		0.317***	(3.185)		
Ownership		-0.038*	(-1.713)		–
Control – ownership		0.065*	(1.927)		+
Sale growth		-0.016**	(-2.319)		–
Capital spending		-0.037	(-0.950)		–
Size		-0.022**	(-2.073)		–
Fixed assets		-0.105***	(-5.339)		–
Leverage		-0.053*	(-1.882)		–
Age		0.004**	(1.727)		–
Management		-0.051**	(-2.381)		–
Second		-0.024**	(-2.011)		–
Legal person		0.053	(1.548)		
Family		0.056**	(1.971)		
Ownership*Legal Person		-0.048	(-0.616)		
Ownership*Family		-0.053	(-0.735)		
(Control-ownership)* Legal Person		0.231*	(1.819)		+
(Control-ownership)*Family		0.172**	(2.014)		+
Industry dummy		yes			
R-square		0.244			
Number of observations		477			

To test the hypothesis, I perform a cross-sectional regression of cash dividend rate (Dividend) on the ownership and the gap between the effective control rights and ownership of the largest shareholder. Cash dividend rate is measured as the ratio of cash dividends per share to earnings per share (after interest and tax). I also include the same set of control variables used in the performance regressions of Table 10. I expect that companies with higher growth and more capital spending should pay fewer dividends due to the need for financing investment projects internally with retaining earnings; high-leveraged companies should pay fewer dividends due to interest burden and constraint from creditors. The type of ultimate owner might affect the company's dividend policy on the Chinese stock markets. For example, during the IPO process of a SOE, the productive assets of the SOE are usually carved up and become the SOE's investment in the listed firm. The unproductive assets (such as school, dining room, services for retirees) are kept in the parent company. After the IPO, the parent company has to rely on cash dividends from the listed company for its working capital needed. Furthermore, the parent company usually does not control company other than the listed one, which might limit its ability to expropriate through related-party transactions. In contrast, a family owner usually has several companies under his control. Therefore, I expect that state-controlled companies should pay more dividends than family-controlled companies do.

Panel A of Table 12 shows some descriptive statistics of cash dividend rates. Note that companies with negative earnings have been eliminated from the sample. There are 451 non-financial listed companies with positive earnings in the year 2002 on SZSE. Of these 451 companies, 240 companies (53.22%) pay cash dividends. The mean (median) payout ratio is 28.32% (12.19%). Interestingly, the payout ratios of 18 companies (about 4% of all profitable companies) are more than 100%, which means that these companies pay out more than what they have earned in 2002. To alleviate the effect of these outliers on the regression results, I set the dividend rates of the above 18 companies all equal to 100%. Since not all the firms with positive earnings pay out cash dividends, I use a Tobit regression here. I also estimate the standard errors clustered by industry and report the associated t-statistics.

Panel B of Table 12 shows the Tobit regression results. For ownership of the largest shareholder, the estimated coefficient is 0.347 and significant at the 5% level. This

makes sense because a controlling shareholder with larger cash-flow ownership in the company can receive more dividends. For the gap between the effective control rights and ownership rights of the largest shareholder, the estimated coefficient is -0.198 and statistically significant at the 5% level, suggesting that increase in the gap between the control rights and cash-flow rights of the largest shareholder reduces the company's cash dividend payouts. Taken together, the results suggest that the controlling shareholder is unwilling to distribute the company's profits on a pro rata basis when his ownership in the company is small. He might want to expropriate the profits by mean such as related-party lending, especially when the cost of doing so is relatively small (when the gap between his control rights and cash-flow rights is larger). As the controlling shareholder's cash-flow ownership in the company get larger, his is more likely to distribute the profits on a pro rata basis.

For the control variables, the estimated coefficient on firm size is significantly positive, suggesting that large companies are more likely to pay out profits in the form of cash dividends. As shown in Table 3, the controlling shareholders of large companies are mostly SOEs who rely on dividends from listed companies to support their unproductive units. In contrast, family owners do not have unproductive unit to support. Moreover, most of the family owners usually have other companies under their controls, which make it easier for these owners to arrange related-party transactions. Therefore, family owners may prefer to retain profits in the firms for expropriation, which is supported by the significantly negative coefficient on the family dummy. Consistent with the predictions, leverage has negative impact on payout ratio, and the presence of another large shareholder has positive impact on payout ratio. However, sale growth does not have significant impact on payout ratio. Interestingly, firm age has a negative impact on payout ratio, suggesting that older firms pay fewer dividends. This is puzzled because older firms are usually under closer scrutiny from the media and analysts. The coefficients on the interactive terms (control-ownership)*legal person and (control-ownership)*family are both significantly negative, suggesting again that the expropriating effects of large shareholders are stronger in non-government-controlled firms than in government-controlled firms.

Table 12**Cash dividends and controlling shareholder's ownership and control**

Table presents the results of a Tobit regression of cash dividend payout rate (Dividend) on ownership and control. Sample includes 451 listed firms with positive earnings in 2002 on the Shenzhen Security exchange. The dependent variable is cash dividend per share divided by earnings per share. The main independent variables are cash-flow ownership and the gap between the effective control rights and ownership of the largest shareholder. Control variables include firm size (log total assets), leverage (liabilities to assets), sale growth, family dummy (the ultimate owner is a family), and legal person dummy (the ultimate owner is a legal person). T-statistics based on standard errors clustered by industry are reported in parentheses. *, ** and *** denote significant at the 10%, 5% and 1% level, respectively.

Panel A: Descriptive statistics of dividend rates					
No. of Obs.	Mean	Median	Minimum	Maximum	% of payer
451	28.32%	12.19%	0	156.00%	53.22%
Panel B: Regression results					
					<u>Hypothesized sign</u>
Constant	-0.398*	(-1.885)			
Ownership	0.347**	(2.014)			+
Control – Ownership	-0.198**	(-2.101)			–
Sale growth	-0.017	(-1.581)			–
Capital spending	0.189	(0.439)			–
Size	0.062**	(2.225)			+
Fixed assets	-0.137	(-0.583)			–
Leverage	-0.452***	(-2.681)			–
Age	-0.073**	(-2.815)			+
Management	0.079	(0.409)			+
Second	0.254*	(1.911)			+
Legal person	-0.080	(-0.403)			–
Family	-0.436**	(-2.007)			–
Ownership*Legal Person	0.704	(0.892)			
Ownership*Family	-0.141	(-0.356)			
(Control-ownership)*					
Legal Person	-1.648*	(-1.728)			–
(Control-ownership)*Family	-1.446*	(-1.937)			–
Industry dummy	yes				
Pseudo R-Square	0.1285				
No. of Observations	451				

8 Conclusions

This paper investigates the separation of ownership and control in one of the Chinese stock markets – the Shenzhen Security Exchange. Like La Porta, Lopez-de-Silanes and Shleifer (1999), Claessens, Djankov and Lang (2000) and Faccio and Lang (2002), I trace the chains of ownership to find out the ultimate owners of listed companies at the end of 2002 and distinguish among four types of owners: the state, families, legal persons and widely held corporations. At the 20% threshold, the state controls about 76% of the listed companies. Families control about 12% and legal persons control 6%. The state is more likely to be the ultimate owner of large companies, whereas families and legal persons are more likely to be the ultimate owners of small companies. Compared with the results from other markets, widely held corporations are rare and family control is less important on the Chinese stock markets.

Although the conventionally control-enhancing devices such as dual-class shares, pyramiding and cross-holdings are not common among Chinese firms, large shareholders often use management appointments to enhance their control rights in excess of their ownership rights. More importantly, the segmentation of institutional share and individual share markets aggravates the separation of the effective control rights and cash-flow ownership of the largest shareholders.

Based on the results from the analysis of ownership and control, I test the incentive and expropriating hypothesis of large shareholders by examining the effects of cash-flow ownership and the divergence between control rights and cash-flow ownership of the controlling shareholder on firm performance. Similar to Claessens, Djankov, Fan and Lang (2002), I find that ownership concentration is beneficial to firm performance (the incentive effect of large shareholders), whereas the separation of ownership and control is detrimental to firm performance (the expropriating effect of large shareholders). Among firms controlled by different types of ultimate owners, the expropriating effect is stronger in non-government-controlled firms than in government-controlled firms.

Finally, I substantiate the incentive and expropriating effects of large shareholders by examining the impacts of concentrated ownership and control on related-party lending and cash dividend policy. I find that the net amounts of related-party lending from listed

firms to their controlling shareholders are negatively related to the percentage ownership by the controlling shareholders, but positively related to the divergence between the control rights and ownership of the controlling shareholders. In contrast, cash dividend rates are positively related to the percentage ownership by the controlling shareholders, but negatively related to the divergence between the control rights and ownership of the controlling shareholders. Furthermore, the effects of the divergence between control and ownership on related-party lending and cash dividend rates are stronger in non-government-controlled firms than in government-controlled firms.

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Essay 3:

**Related-party Transactions Following Reverse Mergers on the
Shenzhen Security Exchange**

Abstract

This paper provides direct evidence on the specific circumstances under which minority shareholders in public traded firms can benefit from related-party transactions with their controlling shareholders. By examining a sample of 105 related-party transactions between 57 publicly listed firms and their new controlling shareholders following reverse mergers on the Shenzhen Security Exchange during 1999-2001, I find that, on average, firms undertaking these related-party transactions earn significantly positive excess returns around the announcements. Multivariate analysis shows that most of the positive excess returns are driven by two kinds of transactions: transactions through which the new controlling shareholders bring their main business into the listed firms and transactions through which the new controlling shareholders bail out financially distressed firms (propping transactions). In term of ROA and sale growth, firms undertaking these two types of related-party transactions also outperform their industry peers in the year of and the year following the transactions.

Keywords: Related-party transaction, Reverse merger, Propping, Tunneling

JEL Classification: G14; G15; G32; G34; G38

1 Introduction

The role of large shareholders in companies with concentrated ownership is controversial. On the one hand, the controlling shareholders have interests that are different from those of minority shareholders. In pursuing their own interests, the controlling shareholders may use their voting power to expropriate corporate resources at the expense of other shareholders (Johnson, La Porta, Lopez-de-Silanes, and Shleifer, 2000; Bertrand, Mehta, and Mullainathan, 2002; La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 2002). On the other hand, large ownership by the controlling shareholders also aligns their interests with those of minority shareholders. Under some circumstances, the controlling shareholders may even transfer private resources into firms that have minority shareholders (Burkart, Gromb, and Panunzi, 2000; Johnson, Boone, Breach, and Friedman, 2000; Friedman, Johnson, and Milton, 2003). Friedman Johnson and Milton (2003) use the term ‘propping’ (or ‘negative tunneling’) to describe the situation in which controlling shareholders use their private funds to benefit minority shareholders.

However, despite considerable anecdotal evidence, there is little direct systematic evidence on the specific circumstances under which real propping occurs. Most of the evidence on propping is indirect (Johnson, Boone, Breach and Friedman, 2000; Friedman, Johnson, and Milton, 2003; Jian and Wong, 2004; Bai, Liu, and Song, 2004). Two recent studies, Cheung, Rau and Stouraitis (2006) and Cheung, Jing, Rau and Stouraitis (2005), examine one of the specific mechanisms through which real propping may occur – related-party transactions between listed firms and their controlling shareholders – on the Hong Kong and the Chinese stock markets, and find that only a small portion of the related-party transactions are propping. However, Cheung, Rau and Stouraitis (2006) and Cheung, Jing, Rau and Stouraitis (2005) do not address the issue of under what specific circumstances the controlling shareholders may prop up the firms.

In this paper, I extend the studies of Cheung, Rau and Stouraitis (2006) and Cheung, Jing, Rau and Stouraitis (2005) by providing direct evidence on the specific circumstances under which related-party transactions are likely to benefit minority shareholders. Specifically, I examine 105 related-party transactions undertaken by 57 publicly listed firms following reverse mergers on the Shenzhen Security Exchange

during 1999-2001. In China, any company that wants to go public has to obtain a listing quota for the authorities. One way to get around the quota system is to acquire a control block in a publicly listed firm. After getting control of the listed firm, the new controlling shareholder can arrange related-party transactions to bring his business into the listed firm, thus indirectly getting his assets listed on the stock exchange – a process referred to as ‘a reverse merger’. Some of such related-party transactions are likely to benefit the minority shareholders in the listed firm, especially when the listed firm is in financial difficulty and needs new business to turn around.

Most of the 105 related-party transactions in this study are conducted for bringing the new controlling shareholders’ main business into the listed firms following reverse mergers. By examining these related-party transactions, I am able to describe in detail the specific circumstances under which propping actually occurs, and the immediate market reaction to such propping, which serves as a lower bound for market valuation of propping. Specifically, there are two issues that I want to address: What types of related-party transactions are likely to benefit the minority shareholders in the listed companies? When are firms more likely to undertake beneficial related-party transactions?

Previously, Cheung, Rau and Stouraitis (2006) and Cheung, Jing, Rau and Stouraitis (2005) classify related-party transactions on the basis of *a priori* reasoning, which would identify most of the transactions in this study as being expropriating of minority shareholders. Instead, I use an *ex post* measure – the announcement cumulated abnormal returns (CARs), which evaluates the related-party transactions from minority shareholders’ standpoint. I classify related-party transactions into two broad categories – transactions that are beneficial to minority shareholders (with positive announcement CARs) and transactions that are expropriating of minority shareholders (with negative announcement CARs).

The 105 related-party transactions examined in this study take the forms of asset (including equity) acquisitions by listed firms, asset sales to the new controlling shareholders, asset swaps between listed firms and their new controlling shareholders and others (debt relief and free assets from the new controlling shareholders). In contrast to the findings in Cheung, Jing, Rau and Stouraitis (2005), I find that about 60% of the related-party transactions in this study are beneficial to the minority shareholders in the

listed firms (with positive market-adjusted announcement CARs). During the 5-day window around the announcement (dates [-2, +2] relative to the announcement date), the average market-adjusted CARs are 1.55% (p-value 0.05) for the 105 transactions; the average market-adjusted CARs are also significantly positive for related-party transactions in the forms of asset swaps and others. The only significant negative CARs are the median CARs for transactions in the form of asset acquisitions by listed firms.

Multivariate analysis shows that the announcement CARs are positively related to the dummy variable indicating that the assets purchased by a listed firm constitute the main business of the listed firm. This suggests that transactions for bringing the new controlling shareholders' main business into listed firms are beneficial to the minority shareholders in the listed firms. The announcement CARs are also positively related to the dummy variable indicating that the assets sold by a listed firm are unrelated to its main business (mostly overdue collectables and obsolete inventories), indicating that the market reacts positively to propping transactions. When a firm has previously undertaken an expropriating transaction with the same related party, the market reacts negatively to the announcement of the subsequent transaction. Among firm characteristics, leverage is negatively related to the announcement CARs, suggesting the possibility that listed firms with higher level of debts are less likely to be successfully restructured (Bai, Liu, and Song, 2004). In contrast to the findings in Cheung, Jing, Rau and Stouraitis (2005), I do not find any significant relation between state-owned-enterprise (SOE) controlling shareholder and announcement CARs, and between percentage ownership by the controlling shareholder and announcement CARs.

Results from Logit regressions show that the likelihood of undertaking a beneficial related-party transaction in a given year is higher when the firm has negative earnings in the previous year, but lower when the firm has higher level of debts. Taken together, these are direct evidence supporting the conjecture that bailout from the controlling shareholder is more likely to occur when a listed firm is temporarily in financial difficulty (Johnson, Boone, Breach, and Friedman, 2000; Friedman, Johnson and Milton, 2003). The likelihood of undertaking a beneficial related-party transaction is also positively related to the proportion of directors associated with the controlling shareholder, suggesting that a listed firm is more likely to receive assistance when the

controlling shareholder has tighter control of the firm. In contrast, the likelihood of undertaking an expropriating related-party transaction is negatively related to the proportion of directors associated with the controlling shareholder. Finally, the likelihood of undertaking an expropriating related-party transaction is higher when the listed firm has recently conducted a rights issue, suggesting that firms with free cash flow are more likely to be expropriated by the controlling shareholders (Jensen, 1986).

There are two plausible explanations that might account for the differences between the results from this paper and those from previous studies (e.g., Cheung, Rau, and Stouraitis, 2006; Cheung, Jing, Rau, and Stouraitis, 2005). First, the related-party transactions in this study are undertaken following reverse mergers. Most of these related-party transactions are in the forms of asset acquisitions and asset swaps, which bring the new controlling shareholders' main business into the listed firms. Related-party transactions in such forms are likely to benefit the listed firms, especially when the listed firms are in financial difficulty and need new business to turn around. Second, prior to the related-party transactions, about three-fourths of the firms in this study have negative industry-adjusted sale growth; two-thirds of the firms have negative industry-adjusted ROA (ROE) ratios; six-sevenths of the firms have higher-than-industry-median levels of debts. In contrast, firms undertaking related-party transactions in Cheung, Jing, Rau and Stouraitis (2005) do not perform worse than their industry peers prior to the transactions. Presumably, financially distressed firms are more likely to receive assistances from the related parties (Jian and Wong, 2004; Bai, Liu, and Song, 2004).

The rest of this paper is organized as follows. The next section reviews prior evidence on propping and reverse mergers. Section 3 discusses the relevant institutional background of this study. Section 4 describes the data and methodologies. Section 5 presents the empirical results on related-party transactions. Section 6 tests the robustness of the results. Conclusions are drawn in the final section.

2 Prior evidence on propping and reverse mergers

Friedman, Johnson and Milton (2003) use the term 'propping' to describe the situation in which controlling shareholders transfer their private resources into firms that

have minority shareholders. Although prior research has mostly argued that minority shareholders in companies with concentrated ownership are expropriated by controlling shareholders (Johnson, La Porta, Lopez-de-Silanes, and Shleifer, 2000; La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 2002; Bae, Kang, and Kim, 2002), a few studies have argued that sometimes controlling shareholders may use their private resources to prop up the firms.

First, Friedman, Johnson and Milton (2003) develop a model showing that, in order to preserve the rights for legitimate claim to future dividends and the opportunities for future expropriation, the controlling shareholder may choose to prop when there is a moderate adverse shock to the firm. However, when the negative shock is too large, the controlling shareholder will loot the firm. In particular, the model predicts that debt issuing in countries with weak legal systems is attractive to outside investors, because it acts as a commitment by the controlling shareholder to bail out the firm when there is a temporary shock. Using data from the Asian financial crisis of 1997 and 1998, Friedman, Johnson and Milton (2003) find a positive correlation between the propensity to prop and debt level, and a less adverse effect of debt on stock price during the crisis.

Second, the literature on political connections documents that firms with close ties to banks and government receive assistance and bailout. For example, Hoshi, Kashyap and Scharfstein (1991) find that Japanese banks provide capital to firms experiencing liquidity shortfalls, so long as the firms belong to the same industry group. Charumilind, Kali and Wiwattanakantang (2006) show that Thai firms with connections to banks and politicians obtain more long-term loans and need less collateral during the period preceding the Asian financial crisis of 1997 and 1998 compared to firms without such connections. Faccio, Masulis and McConnell (2006) examine a sample of firms from 35 countries and find that firms with political connections use more debt financing and are more likely to receive bailout when they face financial distress than firms without such connections do.

Third, Bai, Liu and Song (2004) examine the stock performance of 66 financially distressed Chinese firms and find that these firms outperform the market by an average of

31.8% during the period from 3 months before their ST designations to 24 months after¹, which is taken as evidence for propping. According to Bai, Liu and Song (2004), when a listed firm is designated the ST status, it face the possibility of being de-listed from the stock exchange. To maintain the company's listing status, the incumbent controlling shareholder and potential outside contenders will engage in a control contest. In this contest, the incumbent controlling shareholder and potential contenders will try to outbid each other by injecting an amount equivalent to their private benefits of control into the ST firm to enhance the firm's performance outlook. As a result, minority shareholders benefit from the control contest, which is reflected in the positive abnormal returns after the ST announcement.

However, these studies do not provide direct evidence that minority shareholders benefit from the specific acts of propping. In two recent studies, Cheung, Rau and Stouraitis (2006) and Cheung, Jing, Rau and Stouraitis (2005) examine one of the specific mechanisms through which real propping may occur – related-party transactions between listed firms and their controlling shareholders. They find some evidence that minority shareholders gain from related-party transactions. However, the dominant evidence from these two studies is the expropriation of minority shareholders through related-party transactions. For a sample 375 related-party transactions in the Hong Kong Stock Exchange during 1998-2000, Cheung, Rau and Stouraitis (2006) show that firms undertaking related-party transactions earn negative excess returns both at the initial announcement of the related-party transactions and during the 12-month period following the announcement, significantly lower than firms announcing similar arms' length transactions. Cheung, Jing, Rau and Stouraitis (2005) examine a sample of 292 related-party transactions in the Chinese stock markets during 2000-2002. They also find that firms undertaking related-party transactions earn significantly negative abnormal returns around the announcement. Furthermore, they find that the negative announcement returns are driven mostly by related-party transactions undertaken by firms that are majority-controlled by the state.

¹ In China, any listed firm with negative earnings for two consecutive years is designated a ST (Special Treatment) status by the security regulatory authorities. If an ST firm cannot turn its business around and make a profit in two years, it will be delisted from the stock exchange.

This study is also related to the literature on reverse mergers. A reverse merger is the process in which a private company goes public by acquiring the control block in a publicly listed company (the shell). After the reverse merger, the management of private company usually replaces the management of the shell, and arranges related-party transactions to bring the private company's main business into the listed company (Zhang and Zhang, 2004). A reverse merger process is a corporate combination rather than an IPO, because the reverse merger transaction itself does not raise capital for the firm.

Compared to the numerous studies on traditional IPOs, academic studies on reverse mergers are limited. In an exploratory study, Gleason, Rosenthal and Wiggins (2005) examine a sample of 121 reverse mergers listed on NYSE and NASDAQ-AMEX. They find that reverse merger firms are small, unprofitable, and likely to fail within 2 years of going public, though the average announcement returns to the acquired listed firms are significantly positive. In another study, Gleason, Jain and Rosenthal (2004) examine a sample of 127 reverse mergers listed on NYSE and NASDAQ-AMEX during 1986-2002. They find that, prior to going public, reverse merger firms generally have similar characteristics as a control sample of IPOs. However, in the year they go public, reverse merger firms have higher leverage and likelihood of financial distress, and lower ROA and balance sheet liquidity. Reverse merger firms also have lower trading liquidity, higher volatility, lower institutional ownership, and higher short-term stock returns. Stock performance is comparable in the three years following going public relative to control IPOs.

As the second most important method for going public in the Chinese stock markets, reverse mergers receive more attention from the Chinese academics. In a study on reverse mergers in the Chinese stock markets during 1993-2002, Shi and Zhang (2005) find that most of the reverse merger firms are unprofitable prior to the mergers. They also find that listed firms being acquired in reverse mergers earn significant abnormal returns during the announcement period, and that the operating performance of listed firms improves significantly in the year and one year after the reverse mergers. However, for a sample of 143 reverse merger firms on the Chinese stock markets during 1999-2000, Guo, Liu and Zhang (2004) find that listed firms being acquired in reverse mergers do not earn significant abnormal returns during the announcement period. One of the possible

explanations for the different results in Shi and Zhang (2005) and Guo, Liu and Zhang (2004) is that the sample in Guo, Liu and Zhang (2004) also includes some reverse mergers between firms controlled by the same owner.

3 Quota system and the market for corporate controls on the Chinese stock markets

From the very beginning, the Chinese government has intended to use stock market as a mean for reforming its inefficient state-owned enterprises (SOEs). This intension together with a centered-planning-type IPO selecting procedure results in a stock market system in China that is dominated by stated-owned shares. Specifically, the aggregate amount of new shares to be issued each year on the Chinese stock markets is determined by a quota set by the state planning committee, the central bank and the Chinese Security Regulatory Committee (CSRC). This quota is then distributed to individual provinces and mega cities. Criteria used for allocation of new issues among provinces reflect the central security regulatory authorities' perceived regional development needs and provincial differences in production structure and industrial base. Within each regional quota, local security regulatory authorities invite enterprises (most of them are SOEs²) to request a listing and make selection based on criteria that combine good performance as well as sector development objectives³.

Another unique feature of the Chinese stock markets is the market segmentation of shares with different liquidity in the same company. Broadly speaking, there are two categories of shares in a Chinese publicly listed company: individual shares which can be owned and traded by individuals only, and institutional shares which can be owned by institutions (SOEs, private companies and other legal institutions) only. Although each share from both categories carries the same voting rights and cash-flow rights, only individual shares are allowed to be traded on the stock exchanges. The transfers of

² By the end of 2002, non-government-owned companies that produce about 50% of China's GDP in 2002 have received only 5.8% of the listing quota (Zhang and Zhang, 2004).

³ For example, in its document No.12 (1996), which concerning the selection of new companies to the stock exchanges, CSRC stated that the 1000 major state-owned enterprises and enterprises with good performance should be given priority.

institutional shares can only be carried out through private negotiations. In a typical Chinese publicly listed company, about one-third of the shares are individual shares and the remaining two-thirds of the shares are institutional shares. Ownership of individual shares is dispersed among many small investors. In contrast, ownership of institutional shares is concentrated in the hands of a few or sometimes one institution. Hence, anyone who wants to get control of a Chinese publicly listed company has to negotiate with the incumbent institutional shareholders.

Another reason why transfers of controls can only take place in institutional share markets is that the prices of institutional shares are usually much lower than those of individual shares in the same company. On average, the per-share price of institutional shares is less than one-fifth of that of individual shares in the same company. Given that institutional shares are the control blocks in Chinese companies and that controlling shareholders usually enjoy private benefits of control, the price discount on institutional shares relative to individual shares seems to be counterintuitive. Although there is not satisfactory theory explaining the price discount of institutional shares, the prevailing view from the public, academic, and investment profession holds that trading restriction on institutional shares is the main reason. Specifically, the transfers of institutional shares, especially those owned by SOEs, require approvals from local government, security regulatory authorities, ministries and sometimes the state council. Such approval process may take months or even years, which increases institutional shareholders' risk exposure and information searching costs for finding appropriate buyers (Chen and Xiong, 2001).

On the demand side, the private sector of Chinese economy has been expanding rapidly for more than 20 years and has huge demand for capital from stock markets. Due to the quota system and other government policies on stock markets, it is very difficult for a non-SOE company to obtain listing quota and go public directly. One way to get around the quota system is to undertake a reverse merger. In a reverse merger, a private company purchase the control block in a publicly listed company. After getting control of the listed company, the private company arrange related-party transactions to bring its business into the listed company, thus indirectly get its assets (equities) listed on the stock exchanges. Reverse mergers are also encouraged by the Chinese security regulatory authorities. For example, in one of its announcement, the Chinese security regulatory

committee (CSRC) states that “to fully utilize the listing resources, any publicly listed company without sound business is encouraged to be acquired by SOEs as well as non-SOE companies”⁴. In addition, CSRC also simplify and shorten the approval process for transfers of institutional shares, making it less costly for non-government-owned firms to acquire the control blocks in listed companies. As a result, reverse merger has become the most important method for non-government-owned companies to go public on the Chinese stock markets⁵.

4 Sample selection and classification of related-party transactions

4.1 Sample on related-party transactions following reverse mergers

Since there is not ready database on reverse mergers and related-party transactions, I manually collect the data in the following steps.

First, to identify the reverse merger firms, I check all the fillings for changes of controlling shareholders by listed firms to the Shenzhen Security Exchange during 1999-2001⁶. Although there are 92 control transactions on the Shenzhen Security Exchange during this period, only 57 of them are classified as reverse mergers by the Exchange.

Second, to identify the related-party transactions following reverse mergers, I search the annual reports of the 57 reverse merger firms for the year of and the two years after the reverse mergers. According to SZSE’s regulation on information disclosure, listed firms must disclose all related-party transactions in a separate section of their annual reports. Among different categories of related-party transactions, the acquisition and sale of assets (including equities) category and the lending and borrowing category are the two most important categories in terms of frequency and traded value. However, since the amounts of related-party lending and borrowing reported in a firm’s annual

⁴ “Measures for developing a sound stock market system in China”, CSRC announcement no. 233, 2000

⁵ According to Zhang and Zhang (2004), by the end of 2002, 61% of the listed companies with non-SOE controlling shareholders on the Chinese stock markets have gone public through reverse mergers.

⁶ The pre-transaction firm characteristics in this study (in Table 1) are very similar to those reported in Shi and Zhang (2005) for a sample of reverse merger firms during 1993-2002 in the two Chinese stock markets. Therefore, I do not expect that the results in this study are sensitive to the particular sample period.

report are the year-end balance of many small deals with no specified date, the immediate market reaction to every lending and borrowing transaction is not directly measurable. In contrast, every acquisition and sale of assets with amounts exceeding certain thresholds is reported in detail in the annual reports, which is well suited for analyzing the immediate market reaction. In total, I identify 105 related-party transactions of acquisitions and sales of assets (including equities) from the 57 reverse merger firms during the year of and the two years after the reverse mergers.

Third, based on the initial announcement dates of the 105 related-party transactions disclosed in the annual reports, I then search the Security Times (the newspaper officially designated for all the major announcements of listed companies on SZSE) for the original announcements and obtain data on the characteristics of the transactions.

Daily stock returns and financial data of sample firms are obtained from the database maintained by StocKStar Corporation. Other firm characteristics are obtained from the annual reports of the sample firms.

4.2 *Classification of related-party transactions*

By definition, a controlling shareholder is the one who is in control of the company. Hence, all related-party transactions must be in the (short-term and/or long-term) interests of the controlling shareholder. However, related-party transactions need not always lead to expropriation of minority shareholders. For example, propping up a financially distressed company may be in the interests of all shareholders. To classify a related transaction, we need some sort of standard.

Previously, Cheung, Rau and Stouraitis (2006) and Cheung, Jing, Rau and Stouraitis (2005) classify related-party transactions into three broad categories on the basis of *a priori* reasoning: transactions that are likely to result in expropriation of minority shareholders (asset acquisition, asset sale, equity sale, trading relationship, and cash payment to related parties); transactions that are likely to benefit the listed company (cash receipt and subsidiary relationship); and transactions that may have been driven by strategic rationales (takeover offer and joint venture, joint venture stake acquisition and sale). Such classification, while it is simple to implement, may not accurately capture the

complexities of some related-party transactions, especially of transactions that benefit all shareholders. For example, acquisition of assets from the controlling shareholder, one of the most common forms of related-party transactions in China, may be in the interests of both the controlling shareholder and the listed company: the controlling shareholder can get his assets listed on the stock exchange, whereas the listed company can get into a new business line.

Instead of *a priori* reasoning, in this study, I use an *ex post* measure – the announcement cumulated abnormal returns (CARs), to determine whether a related-party transaction is beneficial to or expropriating of minority shareholders. Using CARs to classify related-party transactions has the advantage that CARs measure directly how minority investors react to the transaction. Specifically, I define transactions with positive CARs as being beneficial and transactions with negative CARs as being expropriating.

5 Empirical evidence on related-party transactions following reverse mergers

In this section, I examine the related-party transactions between listed companies and their new controlling shareholders in the three years following reverse mergers (the year of and the two years after reverse mergers). There are two questions that I want to address: What types of related-party transactions are likely to be beneficial to or expropriating of minority shareholders? When are firms more likely to undertake beneficial or expropriating transactions?

5.1 Characteristics of related-party transactions and the firms

Panel A of Table 1 reports some characteristics of the related-party transactions. In total, there are 105 related-party transactions worth 13.14 billion Yuan undertaken by 57 companies. Of these 105 related-party transactions, 45 deals (42.85% of total) are asset acquisitions by listed companies from controlling shareholders; 17 (16.19%) deals are asset sales by listed companies to controlling shareholders; 40 deals (38.10%) are asset swaps between listed companies and controlling shareholders; and 3 deals (2.86%) are free assets and debt releases from controlling shareholders to listed companies.

Table 1**Firm and deal Characteristics of related-party transactions**

Related-party transactions in this table are asset (including equity) transactions between publicly listed companies on the Shenzhen Security Exchange involved in reverse mergers during 1999-2001 and their new controlling shareholders. Sample includes all individually disclosed related-party transactions by these reverse merger companies in the year of and the two years after the reverse mergers. The asset transactions are classified into four categories: acquisitions by listed companies, sales by listed companies, asset swaps between listed companies and the new controlling shareholders, and others (debt relief and free assets from the new controlling shareholders). Panel A shows the characteristics of the transactions. Panel B shows the pre-transaction characteristics of the listed firms undertaking the transactions. ROE and adjusted-ROE less than -100% are truncated to -100%.

<i>Panel A:</i>		<i>Deal Characteristics</i>			
	All	Acquisition	Sale	Swap	other
No. of deals	105	45	17	40	3
Traded value (million Yuan)					
Total	13,140.51	4,638.47	1,878.10	6,455.81	168.13
Mean	125.15	103.08	110.48	161.40	37.50
Median	90.82	57.53	71.57	135.55	56.04
Percentage of traded value to total assets					
Mean	22.31%	16.55%	11.12%	34.58%	8.56%
Median	15.27%	8.02%	8.13%	30.01%	6.65%
<i>Panel B:</i>		<i>Pre-transaction firm characteristics</i>			
Pre-transaction performance data					
		Mean	Median %	of positive	
Sale growth		-6.71%	-5.67%	41.90%	
ROA		0.54%	3.65%	68.57%	
ROE		-3.13%	6.65%	68.57%	
Leverage		48.59%	47.45%		
Industry-median-adjusted pre-transaction performance data					
		Mean	Median	% of positive	
Adjusted Sale growth		-10.53	-8.68%	26.67%	
Adjusted ROA		-3.68%	-1.31%	34.29%	
Adjusted ROE		-10.73%	-2.36%	31.43%	
Adjusted Leverage		18.13%	15.75%	76.19%	

Panel A of Table 1 also show that the average (median) traded value of these 105 transactions is 125.15 million Yuan (90.82 million Yuan), representing 22.31% (15.27%) of the firms' average total assets. Although asset swaps make up only 38.10% of the number of transactions, their traded value is about one-half of the total traded value. In terms of average traded value and average percentage of traded value to total assets, asset swaps are also the largest among the four categories of related-party transactions. Since the related-party transactions in this study are undertaken by reverse merger firms, it should not be surprised to see that the majority of the related-party transactions are in the forms of asset acquisitions and asset swaps, which can be used as vehicles for listing controlling shareholders' assets on the stock exchange.

Panel B of Table 1 shows that most of the firms undertaking related-party transactions have performed worse than their industry peers prior to the transactions. The median industry-adjusted sale growth, ROA and ROE of these firms are -8.68%, -1.31% and -2.36% respectively in the year prior to the transactions. Furthermore, the median industry-adjusted liability/assets ratio of these firms is 15.75% in the year prior to the transactions, indicating that these firms also have higher level of debts than their industry peers do. The fact that firms undertaking related-party transactions have performed worse than their industry peers prior to the transactions may affect the nature of the related-party transactions. This point will be discussed further in the next section.

5.2 *Market reaction to the announcement of related-party transactions*

Figure 1 shows the average cumulated abnormal returns (CARs) for firms announcing related-party transactions for dates [-30, +30] relative to the announcement date. The CARs are estimated using market-adjusted and market-model-residual approaches. In market-adjusted approach, abnormal returns are estimated by subtracting the returns of the value-weighted Shenzhen Composite Index from the raw returns of A-shares (individual shares) of the firms. In market-model-residual approach, the market model parameters are estimated using a window of [-180, -61] relative to the announcement date. The CARs estimated from market-adjusted and market-model-residual approaches are very similar: begin from 20 trading days prior the announcement, average CARs increase gradually, suggesting that the information has been revealed

about one month prior the announcement. Over the 5-day window around the announcement (dates $[-2, +2]$), the average CARs increase rapidly, suggesting that investors react positively to the announcement of related-party transactions, and that the reaction is concentrated on the 5 days around the announcement. There are two possible reasons for the 5-day reaction period. First, Chinese firms are allowed up to two days before announcing the signing of a related-party transaction. Second, there is a daily price limit of 10% on the Chinese stock markets. Because of this daily price limit, market reaction to an announcement of related-party transaction may spill over into the days after the announcement.

Figure 1

Average CARs of related-party transactions following reverse mergers

Figure depicts the average cumulated abnormal returns (CARs) around the announcements of 105 related-party transactions undertaken by 57 reverse-merger firms on the Shenzhen Security Exchange during 1999-2001.

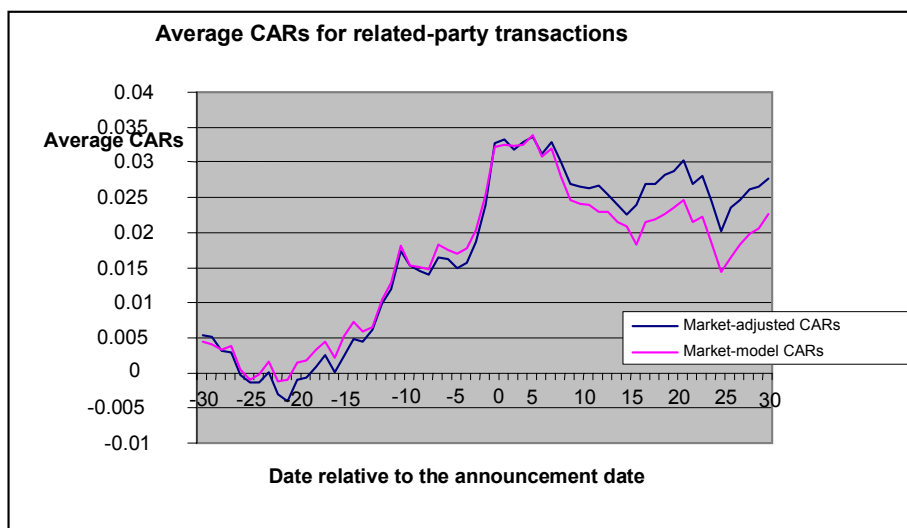


Table 2 reports the average CARs over two windows: dates $[-2, +2]$ and dates $[-5, +5]$. Again, I estimate the average CARs using market-adjusted and market-model-

residual approaches⁷. In Panel A, the related-party transactions are classified into four categories: asset acquisitions, asset sales, asset swaps, and other. The results show that, on average, the market reacts favorably to the announcement of related-party transactions following reverse mergers. For example, in the 5 days around the announcement, the average (median) market-adjusted CARs of all transactions is 1.55% (1.69%), significant at the 0.05 (0.01) level. Announcement returns by categories show that the average (median) CARs of asset swaps is 4.28% (4.56%), significant at the 0.01 (0.01) level. The average (median) CARs of asset sales is also positive, although it is not significant. In contrast, the average (median) CARs of asset acquisitions is -0.98 (-1.74), and the median is significant at the 5% level. Not surprisingly, the CARs for the three transactions in which listed companies receive free assets and debt relief from controlling shareholders are all positive. Therefore, most of the related-party transactions in this study, particularly those in the form of asset swaps, appear to be beneficial to the listed companies. Similar results are obtained when CARs are estimated using market-model-residual approach.

Previously, Cheung, Jing, Rau and Stouraitis (2005) show that Chinese firms entering into asset transactions with controlling shareholders earn significantly negative market-adjusted CARs around the announcement. They also show that the negative excess returns are driven mostly by related-party transactions with state-owned-enterprises (SOEs) who hold more than 50% of outstanding shares. To see whether this is also the case in the current sample, I re-classify the related-party transactions into three categories: transactions with SOE related parties who hold less than 50% of outstanding shares; transactions with SOE related parties who hold more than 50% of outstanding shares; and transactions with non-SOE related parties. The results from Panel B of Table 2 show that there is not significant difference between the market valuation of related-party transactions with SOE controlling shareholders and the market valuation of related-party transactions with non-SOE controlling shareholders. For the [-2, +2] and [-5, +5] windows, the average (median) CARs for related-party transactions with the three types of controlling shareholders are all positive.

⁷ The results are qualitatively similar with alternative windows and abnormal return models (see section 6.1) Morck, Cheung and Yu (2000) shows that 80% of the stock prices move together in the Chinese stock markets, which may explain the similarities among CARs estimated from different models in this study.

Table 2**Announcement cumulated abnormal returns (CARs) for related-party transactions**

Related-party transactions in this table are asset (including equity) transactions between listed companies and their new controlling shareholders following reverse mergers on the Shenzhen Security Exchange during 1999–2001. Sample includes all 105 individually disclosed related-party transactions by the 57 reverse merger firms in the year of the two years after the reverse mergers. In panel A, the 105 asset transactions are classified into four categories: acquisitions by listed companies, sales by listed companies, asset swaps between listed companies and the new controlling shareholders, and others (debt relief and free assets from the new controlling shareholders). In panel B, the 105 transactions are classified into three categories according to the types of the controlling shareholders: transactions with state-owned-enterprise (SOE) controlling shareholders with less than 50% ownership; transactions with SOE controlling shareholders with more than 50% ownership; and transactions with non-SOE controlling shareholders. Market-adjusted CARs are estimated by subtracting the returns of the value-weighted Shenzhen Composite Index from the raw returns of A-shares (individual shares), cumulated over various windows around the announcement date. The parameters in market-model are estimated using a window of [-180, -61] relative to the announcement date. Significant levels of t-tests for means and Wilcoxon signed-rank tests for medians are in parentheses.

Panel A: CARs by types of transactions					
	All	Acquisition	Sale	Swap	others
No. of deals	105	45	17	40	3
Market-adjusted CARs for [-2, +2]					
Mean	1.55%(0.05)	-0.98%(0.21)	0.87%(0.56)	4.28%(0.00)	7.11%(0.10)
Median	1.69%(0.01)	-1.74%(0.02)	1.11%(0.78)	4.56%(0.00)	9.25%(0.25)
Positive (%)	59.05%	31.11%	64.71%	85.00%	100%
Market-adjusted CARs for [-5, +5]					
Mean	1.91%(0.01)	-0.78%(0.46)	1.26%(0.49)	4.53%(0.00)	11.04%(0.19)
Median	1.16%(0.09)	-1.49% (0.05)	1.00%(0.47)	4.48%(0.00)	6.35%(0.41)
Positive (%)	57.14%	42.22%	52.94%	72.50%	100%
Market-model CARs for [-2, +2]					
Mean	1.83%(0.00)	-1.04% (0.11)	1.30%(0.46)	4.60%(0.00)	7.43%(0.10)
Median	1.72%(0.01)	-1.54%(0.08)	1.01%(0.82)	4.73%(0.00)	7.65%(0.32)
Positive (%)	63.81%	37.78%	70.59%	87.5.00%	100%
Market-model CARs for [-5, +5]					
Mean	1.96%(0.01)	-0.61%(0.62)	1.56%(0.30)	4.07%(0.00)	13.11%(0.09)
Median	1.29%(0.06)	-1.49% (0.06)	2.23%(0.01)	4.29%(0.00)	8.41%(0.15)
Positive (%)	59.05%	40.00%	58.82%	77.50%	100%

Table 2 - Continued

Panel B: CARs by types of related parties

	SOE related parties		Non-SOE related parties
	< 50% ownership	> 50% ownership	
No. of deal	21	18	66
Market-adjusted CARs for [-2, +2]			
Mean	2.32% (0.07)	1.74% (0.21)	1.26% (0.07)
Median	1.89% (0.02)	1.79% (0.22)	1.42% (0.14)
Positive (%)	61.90%	55.56%	59.09%
Market-adjusted CARs for [-5, +5]			
Mean	3.21% (0.04)	0.86% (0.58)	1.78 (0.08)
Median	1.00% (0.03)	2.29% (0.37)	0.95% (0.33)
Positive (%)	57.14%	50.00%	57.58%
Tests of difference in median for market-adjusted CARs for the window [-2, +2]			
	P-value of Wilcoxon signed-rank test		
SOE < 50% vs. SOE > 50%	0.568		
SOE < 50% vs. non-SOE	0.952		
SOE > 50% vs. non-SOE	0.792		

5.3 What types of related-party transactions are likely to be beneficial (expropriating)?

To examine what types of related-party transactions are likely to be beneficial to or expropriating of minority shareholders, I perform cross-sectional regressions of announcement CARs on the following deal and firm characteristics:

Deal characteristics:

As mentioned before, listing status is the primary motive behind most of the reverse mergers on the Chinese stock markets. One way for the new controlling shareholders to materialize the listing status is to list their business on the stock exchange through selling assets to the listed companies or swapping assets with the listed companies. If the assets being traded into the listed companies become the main source of the listed companies' future revenues, the related-party transactions are likely to be beneficial to the listed companies. Hence, my first variable of deal characteristics is **Buy-**

Core, which is a dummy variable taking the value of one when the assets being traded into a listed company constitute the core business of the listed company. Core business of a company is defined as the business that generates more than 50% of the company's revenues. It is required by SZSE that related-party transactions changing the core business of the listed companies must be stated in the announcement.

Similarly, I also create a dummy variable **Sell-Noncore** to indicate that the assets being traded out of a listed company are not related to the core business of the listed company. Anecdotal evidence suggests that related-party transactions in such form are likely to be used by the new controlling shareholders to prop up financially distressed listed companies. Frequently, the non-core assets being traded out of listed companies are overdue collectables and obsolete inventories.

When the same parties repeatedly undertake related-party transactions, the market reaction to the announcement of the subsequent transaction may depend on the type of the prior transaction. In particular, if minority shareholders are expropriated (benefited) in the prior transaction, they may expect to be compensated (expropriated) in the subsequent transaction. Alternatively, the type of the prior transaction may be an indicator for the controlling shareholder's reputation. To distinguish between these two conflicting effects, I use two dummy variables **Previous+** and **Previous-**, which take the value of one when the CARs of the previous transaction are positive and negative, respectively.

Using a different sample of related-party transactions by Chinese firms, Cheung, Jing, Rau and Stouraitis (2005) find that the average CARs of related-party transactions with SOE controlling shareholders are significantly lower than those with non-SOE controlling shareholders. To see whether this is also the case in current sample, I include a dummy variable '**SOE-owner**', which takes the value of one when the related party is a SOE. There is also another reason why the market might react differently to related-party transactions with SOE and non-SOE related parties. As discussed before, due to the government's intention of using stock markets for reforming SOEs, non-SOEs have less chance of going public through traditional IPOs. Hence, non-SOE owners are more likely to bring their main business into the listed companies following reverse mergers than SOE owners do.

Forty out of the 105 related-party transactions in this study involve partially or wholly equities. These transactions include equity swaps between listed companies and their controlling shareholders (15 deals), equity acquisitions by listed companies (17 deals), and equity sales to controlling shareholders (8 deals). In an equity acquisition (sale), the listed company pays (receives) cash in exchange for equities. In an equity swap, the value of equities being swapped into a listed company is approximately equivalent to that being swapped out of the listed company. Therefore, a related-party transaction involving equities does not bring any change to the ownership of the listed company, which is similar to that in a related-party transaction involving assets only. Nevertheless, I include a dummy variable for equity transaction to distinguish the possible difference in market valuation between asset deals and equity deals.

Firm characteristics:

Controlling shareholder's ownership: Several studies have argued that large ownership should discourage the controlling shareholder's expropriation (Shleifer and Vishny, 1997; Claessens, Djankov, Fan, and Lang, 2002; Lemon and Lins, 2003). However, Cheung, Rau and Stouraitis (2006) find that ownership by the controlling shareholder has a negative impact on the CARs of related-party transactions. As mentioned before, the valuations of institutional shares and individual shares in a Chinese firm are based on different factors. Therefore, I expect that the association between ownership by the controlling shareholder and CARs of related-party transactions should be weaker on the Chinese stock markets.

Herfindahl index: More ownership in the hands of large shareholders other than the largest one should reduce the largest shareholder's opportunity for tunneling. However, the largest shareholder may find it easier to collude with other large shareholders when the ownership of other large shareholders is more concentrated. This is likely to be the case on the Chinese stock markets, because large shareholders are usually institutional shareholders and their interests are different from the interests of individual shareholders – the minority shareholders (Huang and Xu, 2005; Lang, 2004). To test for the competition vs. collusion effects between large shareholders, I include the pre-trade Herfindahl index (Herfindahl), which is the sum of the squares of the percentage ownership by the top ten shareholders except for the largest one.

Loss and rights-issue dummies: The types of related-party transactions may depend on the financial situations of listed firms. In particular, financially distressed firms are more likely to be propped up by their controlling shareholders and cash-abundant firms are more likely to be expropriated by their controlling shareholders. Hence, I include two dummy variables ‘**Loss**’ and ‘**Rights-issue**’. Loss takes the value of one when the earnings of the listed firm are negative in the year prior to the transaction, whereas Rights-issue takes the value of one when the listed firm has conducted at least one rights issue within one year prior to the transaction.

Independent and controlling directors: According to Chinese regulations, a related-party transaction with potentially significant impact on the listed firm’s performance must be approved by the board meeting of the firm⁸. Hence, the composition of board members should affect the types of related-party transactions. Besides the proportion of independent directors on the board (**Independent directors**), I also include the proportion of directors associated with the largest shareholder as another variable for the composition of board members (**Controlling directors**).

Leverage: Friedman, Johnson and Milton (2003) suggest that, in countries with weak legal protection of investors, issuing debt can credibly commit an entrepreneur to prop up the firm when there is a moderately bad shock. However, higher level of debt also makes it more likely that the entrepreneur will abandon the firm when there is a very bad shock. To control for leverage effect, I include the ratio of total liabilities to total assets.

In addition, I also include firm size and year dummies as control variables.

Since some of the deal characteristic variables are correlated with firm characteristic variables, I perform the regression using two specifications: specification 1 uses only deal characteristics as the dependent variables; specification 2 includes all deal and firm characteristics. Following Petersen (2006) and Thompson (2006), I correct the standard errors for the possible clustering of observations by year and industry. Since the standard errors clustered by industry are similar to the White standard errors, but the standard errors clustered by year are larger than the White standard errors, I report only the t-statistics associated with the standard errors clustered by year.

⁸ In fact, all related transactions in our sample have been approved by the board meetings.

Table 3 reports the OLS regression results. In specification 1 where the independent variables include only deal characteristics, the coefficients on Buy-Core and Sell-Noncore are 0.0353 (significant at the 5% level) and 0.0614 (significant at the 1% level), respectively. This suggests that the market reacts positively to the acquisitions of quality assets by listed companies, and the sales of assets unrelated to core business of the listed companies. The coefficient on Previous– dummy is negative and significant at the 5% level, suggesting that the market reacts negatively to the announcement of a subsequent transaction when the prior transaction between the same parties had negative CARs. In contrary to the findings in Cheung, Jing, Rau and Stouraitis (2005), I do not find any significant relation between SOE related party and CARs of related-party transaction. In a specification not reported here, I also duplicate the test in Cheng, Jing, Rau and Stouraitis (2005) by using the dummy for SOE controlling shareholder with more than 50% ownership. The coefficient remains insignificant. Finally, the market does not seem to distinguish between an asset transaction and an equity transaction.

In specification 2 where all deal and firm characteristics are included, the coefficients on Buy-Core, Sell-Noncore and Previous– are still significant and the magnitude of these coefficients remains virtually unchanged. The coefficients on three firm characteristics, the proportion of independent directors, the proportion of directors associated with the largest shareholder, and leverage are also significant. The negative coefficient on independent directors seems to suggest that the more independent directors on the board, the more negative the market reacts to the announcement of a related-party transaction. A check on this variable reveals that the average proportion of independent directors on the boards is only 7.1% and that 61% of the deals are undertaken by firms without an independent director. Thus, the negative relation between CARs and the proportion of independent directors should be interpreted with cautions. On the other hand, the positive coefficient on the proportion of directors associated with the largest shareholder suggests that the more directors associated with the controlling shareholder, the more positive the market reacts to the announcement. This might be due to the fact that firms with large proportion of directors associated with controlling shareholders are more likely to undertake beneficial related-party transactions (see the next subsection). The negative coefficient on leverage suggests that the higher the debt level of the firm,

the more negative the market reaction to the announcement of related-party transactions undertaken by the firm. A plausible explanation is that firms with higher levels of debts are difficult to be restructured and thus are less likely to be propped up by the new controlling shareholders (Bai, Liu, and Song, 2004; Friedman, Johnson, and Milton, 2003).

A comparison between the R-squares of the two specifications suggests that firm characteristics do not add much to what have been explained by deal characteristics. Therefore, the most important variables for judging whether a related-party transaction is beneficial or expropriating are the contents of assets being traded.

5.4 When are firms more likely to undertake beneficial (expropriating) related-party transactions?

In this subsection, I use the sample of all firm-year observations for the year of and the two years following reverse mergers to examine when firms are more likely to undertake beneficial (expropriating) related-party transactions. My primary concern is whether there is any firm characteristic that determine the likelihood of undertaking beneficial (expropriating) related-party transactions following reverse mergers.

Table 4 reports the estimated results for three logit regressions. The dependent variables in the three regressions take the value of one (1) when the firm undertakes a related-party transaction of any type in a given year (column 1); (2) when the firm undertakes a beneficial related-party transaction (defined as a transaction where the firm earns a positive market-adjusted CARs in the [-2,+2] window) in a given year (column 2); and (3) when the firm undertakes an expropriating related-party transaction (defined as a transaction where the firm earns a negative market-adjusted CARs in the [-2,+2] window) in a given year (column 3). The independent variables include ownership of the largest shareholder, Herfindahl index, SOE controlling shareholder dummy, loss dummy, rights-issue dummy, firm size and leverage, which are defined above. Year dummies are also included in the regressions, but their coefficients are not reported. To correct for the possible dependence in the residuals, I estimate the clustered standard errors by year and industry and report the associated t-statistics.

Table 3

Regression of announcement excess returns on deal and firm characteristics

Table reports the OLS regression results of announcement cumulated abnormal returns (CARs) on some of the deal and firm characteristics for a sample of 105 related-party transactions undertaken by 57 reverse merger firms in the year of and the two years following the reverse mergers. These 57 reverse mergers take place on the Shenzhen Security Exchange during 1999-2001. The dependent variable is the market-adjusted CARs over a window of 5 days (dates [-2, +2] around the announcement dates). Deal characteristics include buy-core dummy, sell non-core dummy, previous+ dummy, previous- dummy, SOE owner dummy, and equity transaction dummy. Firm characteristics include ownership, Herfindahl index, loss dummy, rights issue dummy, independent directors, controlling directors, leverage, and firm size. The explanations for these variables are in Section 5.3. In specification 1, the independent variables include only deal characteristics, whereas specification 2 uses all variables. T-statistics in parentheses are based on standard errors clustered by year. *, **, and *** denote significant at the 10%, 5% and 1% level respectively.

Specifications	1	2	
Independent variables	coefficients	Coefficient	Expected sign
Constant	-0.0472 (-2.50) **	-0.1902 (-1.90)	
<i>Deal characteristics:</i>			
Buy-Core	0.0353 (2.62) **	0.0365 (2.87) ***	+
Sell-Noncore	0.0614 (6.89) ***	0.0643 (4.51) ***	+
Previous+	0.0015 (0.27)	-0.0010 (-0.17)	+, -
Previous-	-0.0190 (-2.35) **	-0.0192 (-2.01) *	+, -
SOE-owner	0.0014 (0.16)	-0.0031 (-0.25)	-
Equity transaction dummy	-0.0007 (-0.09)	-0.0039 (-0.63)	+, -
<i>Firm characteristics:</i>			
Ownership		0.0107 (0.46)	+
Herfindahl index		0.1559 (1.40)	+, -
Loss		0.0210 (0.91)	+
Rights issue		0.0138 (0.63)	-
Independent directors		-0.0971 (-2.17) *	+
Controlling directors		0.0426 (2.49) *	-
Firm size		0.0069 (1.82)	
Leverage		-0.0354 (-3.44) ***	+, -
Year dummies	yes	yes	
No. of Observation	105	105	
Adjusted R-square	0.4696	0.5000	

Table 4

Logit regression on the likelihoods of undertaking beneficial and expropriating related-party transactions

Table reports the logit regression results on the likelihoods of undertaking beneficial and expropriating related-party transactions for a sample of 57 reverse merger firms on the Shenzhen Security Exchange during 1999 -2001. The sample includes all the firm-year observations for the year of and the two years after the reverse mergers. The dependent variables in the three regressions are the likelihood of a firm undertaking any related-party transaction in a given year (column 1), the likelihood of a firm undertaking a beneficial related-party transaction (defined as a transaction where the firm earns a positive market-adjusted CARs in the [-2,+2] window) in a given year (column 2), and the likelihood of a firm undertaking an expropriating related-party transaction (defined as a transaction where the firm earns a negative market-adjusted CARs in the [-2,+2] window) in a given year (column 3). The independent variables include percentage ownership by the largest shareholder, Herfindahl index, SOE-owner dummy, independent directors, controlling directors, loss dummy, rights-issue dummy, firm size and leverage, which are defined in Section 5.2. Year dummies are also included in the regressions but their coefficients are not reported. T-statistics based on standard errors clustered by year and industry are in parentheses. *, **, and *** denote significant at the 10%, 5% and 1% level respectively.

Regressions	1	2	3
	All	Beneficial	Expropriating
Ownership	2.114 (1.43)	2.079 (1.25)	1.250 (0.73)
Herfindahl index	2.354 (0.46)	-7.087 (-0.97)	4.047 (0.75)
SOE-owner	-0.158 (-0.51)	-0.514 (-1.31)	0.288 (0.66)
Loss	1.988 (3.14) ***	2.872 (2.55) **	0.118 (0.09)
Rights-issue	1.186 (2.88) ***	1.009 (1.48)	1.170 (2.11) *
Independent directors	0.411 (0.39)	0.835 (0.64)	0.204 (0.21)
Controlling directors	-0.216 (-0.34)	2.130 (2.49) **	-2.656 (-2.65) **
Firm size	-0.143 (-0.69)	-0.096 (-0.44)	-0.103 (-0.57)
Leverage	-1.205 (-2.17) *	-1.667 (-2.46) **	-0.396 (-0.41)
Year dummy	yes	yes	yes
No. of observation	171	171	171

In regression 1 where the dependent variable is the likelihood of a firm undertaking any related-party transaction in a given year (column 1), the coefficients on dummy variables Loss and Rights-issue are both positive and significant at the 1% level, suggesting that firms are more likely to undertake related transactions following bad performance or rights issues. Leverage is the only variable that has a negative and

significant effect on the likelihood of undertaking a related-party transaction of any type. For the remaining variables, the coefficients are not significant.

In regression 2 where the dependent variable is the likelihood of a firm undertaking a beneficial related-party transaction in a given year (column 2), the coefficient on the dummy variable Loss is positive and significant at the 5% level, suggesting that firms with negative earnings in the previous year are more likely to undertake beneficial related-party transactions in the following year. The coefficient on the proportion of directors associated with the controlling shareholder is also positive and significant, suggesting that firms with larger proportion of directors associated with the controlling shareholders are more likely to undertake beneficial related-party transactions. The remaining significant coefficient is that on leverage, which is negative.

In regression 3 where the dependent variable is the likelihood of a firm undertaking an expropriating transaction in a given year (column 3), the coefficient on Rights-issue dummy is positive and significant at the 10% level, suggesting that firms are more likely to undertake expropriating related-party transactions following rights issues. The proportion of directors associated with the controlling shareholder has a significantly negative effect on the likelihood of undertaking expropriating related-party transactions.

When comparing the results from the three regressions, several points are worth noting. First, although Loss dummy and Rights-issue dummy are both significant in the regression of all related-party transactions, when the regressions are performed separately for beneficial and expropriating transactions, Loss dummy is significant only in the regression of beneficial transactions, whereas rights-issue dummy is significant only in the regression of expropriating transactions. This suggests that financially distressed firms are more likely to be propped up by their controlling shareholders, and that cash-abundant firms are more likely to be expropriated by their controlling shareholders. Second, the coefficient on controlling directors is significantly positive in the regression of beneficial transactions, but significantly negative in the regression of expropriating transactions. This suggests that firms with larger proportion of directors associated with the controlling shareholders are more likely to undertake beneficial related-party transactions, but are less likely to undertake expropriating related-party transactions. As shown in the second essay of this thesis, management appointment is an important device

used by controlling shareholders to enhance their controls in Chinese companies. The proportion of directors associated with the largest shareholder can be taken as a proxy for the controlling power of the largest shareholder. Hence, controlling shareholders with stronger controlling power are more likely to prop up the firms, but less likely to expropriate the firms. Third, the coefficient on percentage ownership by the largest shareholder is insignificant in all regressions. This, together with the results on controlling directors, suggests that the controlling power of the largest shareholder is more important than the ownership by the largest shareholder in determining whether a firm is likely to undertake beneficial or expropriating related-party transactions. Finally, the coefficient on leverage is significantly negative in the regression of beneficial related-party transactions, but insignificant in the regression of expropriating related-party transactions, suggesting the possibility that firms with more debts are less likely to be propped up by their controlling shareholders.

6. Robustness tests

In this section, I discuss the robustness of the regression results. First, I discuss the results with respect to alternative windows and models for estimating abnormal returns, alternative classifications of related-party transactions, and the impact of outliers. I then compare the results from this study with those from similar studies. Third, I examine the subsequent related-party transactions undertaken by the same parties. Finally, I examine the operating performance following related-party transactions.

6.1 *Alternative estimation windows, abnormal return models and classifications of related-party transactions*

To see whether the results on market valuation of related-party transactions are sensitive to the choices of estimation windows and abnormal return models, I re-estimate the CARs for seven different windows (namely, $[-1,+1]$, $[-1,+3]$, $[-1,+5]$, $[-2,+1]$, $[-2,+3]$, $[-2,+5]$ and $[-5,+5]$) and two alternative abnormal return models (namely, mean-adjusted and CAPM). I also re-estimate the regressions in Table 3 and Table 4, using these alternative CARs. The results are qualitatively similar to those reported in Tables 2,

Table 3 and Table 4 and are thus not tabulated here. In any specifications, the dummy variables Buy-Core (the listed company buy core business from the controlling shareholder) and Sell-Noncore (the listed company sell non-core business to the controlling shareholder) are always positively related to the CARs of related-party transactions; the dummy variable Loss (the listed company has negative earnings in the year prior to the transaction) is always positively related to the likelihood of undertaking a beneficial related-party transaction; the dummy variable Rights-issue (the listed company has recently conducted a rights issue) is always positively related to the likelihood of undertaking an expropriating related-party transaction. Hence, the main results of this study are robust to alternative event windows and models of abnormal returns.

The regression results in Table 3 show that the contents of a related-party transaction are the most significant factors in explaining announcement CARs. I thus use two alternative classifications of related-party transactions based on the contents of the related-party transactions. First, I define beneficial related-party transactions as those transactions in which listed companies buy core business from controlling shareholders and/or sell non-core business to controlling shareholders. Accordingly, I define expropriating related-party transactions as those transactions in which listed companies sell core business to controlling shareholders and/or buy non-core business from controlling shareholders. Second, I define beneficial related-party transactions as those transactions in which listed companies buy core business from controlling shareholders and/or sell non-core business to controlling shareholders, and the 5-day announcement CARs are positive; and expropriating related-party transactions as those transactions in which listed companies sell core business to controlling shareholders and/or buy non-core business from controlling shareholders, and the 5-day announcement CARs are negative. I re-estimate the regressions in Table 4 using these two new classifications. The results (not reported here) show again that Loss dummy is positively related to the likelihood of undertaking a beneficial related-party transaction, whereas Rights-issue dummy is positively related to the likelihood of undertaking an expropriating related-party transaction; the proportion of directors associated with the controlling shareholder is positively related to the likelihood of undertaking a beneficial related-party transaction,

but negatively related to the likelihood of undertaking an expropriating related-party transaction.

To control for the impact of outliers on the results, I also trim the sample in Table 3 at the 5% and 95% percentiles and re-run the regressions. The results (not tabulated) are qualitatively similar.

6.2 The differences between the results from this study and those from similar studies

There are some major differences between the results from this study and those from similar studies, most notably from Cheung, Jing, Rau and Stouraitis (2005) who examine a sample of 292 fillings of related-party transactions between Chinese listed companies and their controlling shareholders during 2000-2002, and from Cheung, Rau and Stouraitis (2006) who examine a sample of 375 fillings of related-party transactions between Hong Kong listed companies and their controlling shareholders during 1998-2002.

First, while Cheung, Jing, Rau and Stouraitis (2005) and Cheung, Rau and Stouraitis (2006) find that related-party transactions are mostly detrimental to the interests of minority shareholders in the listed companies, this study finds that most of the related-party transactions are beneficial to minority shareholders in the listed companies. For example, Cheung, Jing, Rau and Stouraitis (2005) find that listed companies undertaking *a priori* expropriating related-party transactions (including mostly asset transactions between listed companies and their controlling shareholders) earn an average market-adjusted return of -0.6% during the 5-day window surrounding the announcement. Cheung, Rau and Stouraitis (2006) find that the average market-adjusted CARs during the 10-day window following the announcement are -7.1% for acquisitions of assets by listed companies, -6.7% for asset sales, and -10.1% for equity sales. This study finds that the average market-adjusted announcement returns during the 5-day window are 1.55% for all related-party transactions, -0.98% for acquisitions of assets and equities by listed companies, 0.87% for asset and equity sales, and 4.28% for asset swaps. This is plausibly due to the difference in the characteristics of the sample firms. While most of the sample firms in Cheung, Jing, Rau and Stouraitis (2005) and Cheung, Rau and Stouraitis (2006) have performed (in term of market-to-book ratio and return on equity ratio) at least at par

with their industry peers prior to the related-party transactions, about two-thirds of the sample firms in this study have performed (in term of return-on-assets, return-on-equity ratios and leverage) worse than their industry peers prior to the related-party transactions (see Table 2). As shown in Table 4, financially distressed firms are more likely to be propped up by their controlling shareholders. Alternatively, the positive average CARs in this study may be due to the fact that most of the related-party transactions (68 out of 105) are conducted for listing controlling shareholders' main business on the stock exchange. As shown in Table 3, purchasing core business from the controlling shareholder is positively related to the announcement excess returns.

Second, Cheung, Jing, Rau and Stouraitis (2005) find that the negative announcement excess returns in their study are mostly driven by those related-party transactions between listed firms and their SOE controlling shareholders. Moreover, they find that minority shareholders in firms conducting related-party transactions with SOE controlling shareholders end up significantly worse off than those in firms conducting related-party transactions with non-SOE controlling shareholders. In contrast, the results from Panel B of Table 2 show that there is not significant difference between the CARs of related-party transactions with SOE controlling shareholders and the CARs of related-party transactions with non-SOE controlling shareholders. Furthermore, the regression results in Table 3 show that there is not significant relation between SOE controlling shareholder and the announcement excess returns.

Again, the insignificant relation between SOE controlling shareholder and the announcement excess returns in this study may be due to the facts that most of the related-party transactions with SOE controlling shareholders are also conducted for listing controlling shareholders' main business on the stock exchange (26 out of 39 related-party transactions with SOE controlling shareholders in this study are purchases of core business by listed firms); and that a large proportion of firms involved in related-party transactions with their SOE controlling shareholders were in financial difficulty prior to the transactions (18 out of 39 firms undertaking related-party transactions with SOE controlling shareholders in this study have negative earnings in the year prior to the transactions). As a robustness check, I divide firms undertaking related-party transactions with their SOE controlling shareholders into two groups: one group includes firms with

positive earnings in the year prior to the transactions and one group includes firms with negative earnings in the year prior to the transactions. I then estimate the average 5-day announcement CARs for the two groups separately. The average 5-day market-adjusted announcement CARs for firms with positive earnings prior to the transactions is 0.38% (t-value 0.336). In contrast, the average 5-day market-adjusted announcement CARs for firms with negative earnings prior to the transactions is 4.00% (t-value 3.061). Similarly, the average 5-day market-adjusted announcement CARs is 0.66% (t-value 0.412) for firms not purchasing core business from SOE controlling shareholders, and 2.74% (t-value 2.56) for firms purchasing core business from SOE controlling shareholders.

6.3 Subsequent related-party transactions between the same parties

Twenty-nine firms in the sample of this study undertake related-party transactions with their controlling shareholders more than once during the 3-year period following reverse mergers. In total, these 29 companies undertake 77 related-party transactions. Out of the 77 transactions, 42 are beneficial (positive 5-day announcement CARs) and 35 are expropriating (negative 5-day announcement CARs).

To see whether there is any significant difference between subsequent transactions and other transactions, I compare the CARs, deal characteristics and firm characteristics of subsequent transactions with those of the first transactions undertaken by the same firms, and with those of non-repeated transactions undertaken by other firms. The results show that there is not any significant difference between the first transactions and non-repeated transactions. However, there are some difference between subsequent transactions and non-subsequent transactions. Since the results for the first transactions and non-repeated transactions are similar, I illustrate the differences between subsequent transactions and non-subsequent transactions by comparing the first transactions with subsequent transactions between the same parties. First, the average 5-day announcement CARs for the first transactions is 3.34%, whereas the average 5-day announcement CARs for subsequent transactions is -0.47%. t-value for the difference in mean between the two series is 2.491. The percentages of the first transactions and subsequent transactions with negative CARs are 27.59% and 56.25%, respectively. Second, prior to undertaking the first transactions, 31.72% of the firms have just conducted at least one rights issue, and

48.28% of the firms have negative earnings in the previous year. The corresponding figures for firms undertaking subsequent transactions are 57.08% and 14.58%, respectively. Third, 72.41% of the first transactions involve purchases of core business from controlling shareholders, whereas 54.17% of subsequent transactions involve purchase of core business from controlling shareholders. Fourth, the average ratio of traded value to total assets is 24.71% for the first transactions, and 14.10% for subsequent transactions.

As noted in Section 5, purchasing core business from the controlling shareholder is positively related to the announcement CARs; financially distressed firms are more likely to be propped up by their controlling shareholders; firms have recently conducted right-issues are more likely to be expropriated by their controlling shareholders. Hence, the differences between the results for the first transactions and subsequent transactions illustrated above suggest that subsequent related-party transactions are more likely to be conducted for expropriating minority shareholders. However, the regression results in Table 3 suggest that the fact that a firm has previously undertaken a beneficial transaction does not have significant impact on the announcement CARs of the subsequent transaction. Furthermore, when I replace the dummy variable indicating the sign of CARs of the previous transaction with the magnitude of the CARs of the previous transaction and re-estimate regression in Table 3, the coefficient on the magnitude of the CARs of the previous transaction is not statistically significant. Hence, the evidence on subsequent transactions is inconclusive and is subjected to further investigation.

Note that dropping subsequent transactions from the analyses does not change the main results in Section 5 significantly.

6.4 Long-term operating performance following related-party transactions

A closer look into Figure 1 reveals that CARs of related-party transactions gradually increase beginning from 20 trading days prior to the announcement, but reverse in the post-announcement period, albeit the reversion is of less magnitude. This raises the question of whether the significant announcement CARs documented in this study are

purely due to insider trading and price manipulation⁹. Another concern with the announcement CARs is that the significant CARs may be due to new management effect rather than the transactions per se. This is because the related-party transactions in this study are undertaken by firms following reverse mergers, which are usually accompanied by the introductions of new management teams to the listed companies. To address these two issues, I compute two measures of long-term operating performance following related-party transactions: changes in industry-adjusted return-on-asset (ROA) and changes in industry-adjusted sale growths. Both measures are calculated for the year of and the year following the transaction (year 0 and year +1). Since industry medians are less likely to be influenced by extreme values, I make the adjustments by subtracting the industry medians from the raw operating performance.

Panel A of Table 5 shows that firms undertaking beneficial related-party transactions outperform their industry peers in the year of and the year following the transactions, whereas firms undertaking expropriating related-party transactions underperform their industry peers during the same period. The mean (median) industry-adjusted ROA of firms undertaking beneficial related-party transactions increases by 6.86% (3.70%) in the year of the transactions and by 1.51% (0.57%) in the year following the transactions. In contrast, the mean (median) industry-adjusted ROA of firms undertaking expropriating related-party transactions declines by 2.30% (2.88%) in the year of the transactions and by 2.84% (1.93%) in the year following the transactions. Similarly, firms undertaking beneficial related-party transactions experience significant increases in industry-adjusted sale growth in the year of and the year following the transactions, whereas firms undertaking expropriating related-party transactions experience significant declines in industry-adjusted sale growth in the same period.

To find out which deal and firm characteristics lead to the changes in post-transaction performance, I regress the changes in industry-adjusted ROA and sale growth on the set of explanatory variables used in the CARs regressions in Section 5.3. The results in Panel B of Table 5 show that acquiring core business from controlling

⁹ Based on a sample of firms prosecuted by CSRC for insider trading and price manipulations, Jiang and Shi (2004) find that most of the prosecuted firms have adopted the “pump-and-dump” strategy. As a result, the average CARs of these firms increase before the “pump-and-dump” operations, but reverse afterward.

shareholders is positively associated with changes in industry-adjusted ROA (significant in year+1) and changes in industry-adjusted sale growth (significant in both year 0 and +1) following the transactions, whereas selling non-core business to controlling shareholders is positively associated with changes in industry-adjusted ROA (significant in both year 0 and +1) following the transactions. In separate regressions not reported here, I also re-estimate the regressions by replacing the dummy variables for acquiring core business and selling non-core business with the 5-day CARs, or with the dummy variables for beneficial transaction and expropriating transaction. I find that the 5-day CARs or the dummy variable for beneficial transaction is significantly positive associated with changes in industry-adjusted ROA and sale growth in the post-transaction period. In contrast, the dummy variable for expropriating transaction is significantly negative associated with changes in industry-adjusted ROA and sale growth.

Table 5

Operating performance following related-party transactions

Panel A of this table reports the changes in industry-adjusted operating performance (ROA and sale growth) for the year of and the year following related-party transactions (year 0 and +1, respectively). Panel B reports the OLS regression results of changes in operating performance on some of the deal and firm characteristics. Deal characteristics include buy-core dummy, sell non-core dummy, SOE owner dummy, and equity transaction dummy. Firm characteristics include ownership, Herfindahl index, loss dummy, rights-issue dummy, independent directors, controlling directors, leverage and firm size. Year dummies are included in the regressions (not reported). In Panel A, related-party transactions are classified into beneficial transactions (with positive 5-day announcement CARs) and expropriating transactions (with negative 5-day announcement CARs). Significant levels of t-tests for means and Wilcoxon signed-rank tests for medians are in parentheses. In Panel B, T-values in parentheses are based on standard errors clustered by year. *, **, and *** denote significant at the 10%, 5% and 1% level respectively.

<i>Panel A:</i>	<i>Changes in industry-adjusted performance following related-party transactions</i>			
	Beneficial transactions		Expropriating transaction	
Year	0	+1	0	+1
Changes in industry-adjusted ROA – Δ ROA				
Mean	6.86% (0.00)	1.51% (0.01)	-2.30% (0.00)	-2.84% (0.00)
Median	3.70% (0.00)	0.57% (0.02)	-2.88% (0.00)	-1.93% (0.00)
Changes in industry-adjusted Sale Growth – Δ SG				
Mean	66.90% (0.00)	57.86% (0.00)	-24.67% (0.00)	-25.66% (0.00)
Median	43.54% (0.00)	18.56% (0.00)	-19.24% (0.00)	-31.85% (0.00)

Table 5 –continued

Panel B: OLS regression results of post-transaction operating performance

Variables	Dependent variables			
	Δ ROA for year 0	Δ ROA for year +1	Δ SG for year 0	Δ SG for year +1
	Coefficients	Coefficients	Coefficients	Coefficients
Constant	0.380 (1.19)	0.097 (0.54)	1.032 (0.71)	-1.238 (-0.29)
Deal characteristics:				
Buy-Core	0.029 (1.53)	0.042 (3.28) ***	0.564 (2.35) **	0.770 (2.88) ***
Sell-Noncore	0.049 (2.39) **	0.045 (3.42) ***	0.401 (1.63)	0.339 (1.17)
SOE-owner	-0.010 (-0.53)	-0.008 (-0.66)	-0.183 (-0.86)	0.420 (1.70)
Equity dummy	-0.002 (-0.10)	0.004 (0.20)	-0.178 (-0.71)	-0.115 (-0.48)
Firm characteristics:				
Ownership	-0.118 (-1.69)	0.038 (0.84)	-0.586 (-0.82)	0.521 (0.55)
Herfindahl index	-0.052 (-0.17)	-0.105 (-0.82)	-0.732 (-0.36)	1.797 (0.41)
Loss	0.022 (0.94)	0.002 (0.33)	0.222 (0.48)	0.198 (0.44)
Rights issue	0.071 (2.55) **	0.014 (0.72)	-0.153 (-0.40)	-0.394 (-0.87)
Ind.-Directors	0.044 (0.54)	-0.033 (-0.59)	-0.518 (-0.49)	-1.596 (-1.53)
Con.-Directors	0.049 (1.34)	-0.008 (-0.37)	0.290 (0.46)	-0.784 (-1.05)
Firm size	-0.024 (-1.55)	-0.007 (-0.92)	-0.054 (-0.31)	0.040 (0.17)
Leverage	0.172 (3.47) ***	0.011 (0.29)	0.245 (0.45)	0.303 (0.51)
Year dummies	yes	yes	yes	yes
No. observations	105	105	105	105
F-statistic	8.977 ***	3.488 ***	2.71 ***	3.499 ***
Adjusted R ²	0.479	0.277	0.164	0.278

Overall, the evidence is inconsistent with the conjecture that the positive announcement CARs of related-party transactions are due to insider trading and price manipulation. It is also inconsistent with the conjecture that the positive announcement CARs are purely due to the ‘new management effect’ associated with reverse mergers¹⁰ Rather, It seems that the market anticipates correctly the impacts of related-party transactions on the future performance of the listed companies.

¹⁰ All 57 reverse merger firms in the sample of this study have replaced their management within one year following the reverse mergers,

7. Conclusions

Based on a sample of 105 related-party transactions undertaken by 57 reverse merger companies on the Shenzhen Security Exchange in the three years following reverse mergers, this paper provides direct evidence on the specific circumstances under which related-party transactions can be beneficial to minority shareholders. I find that, on average, Chinese firms undertaking related-party transactions following reverse mergers earn significantly positive excess returns around the announcement of the transactions. Multivariate analysis shows that most of the positive excess returns are driven by two types of transactions: transactions through which the new controlling shareholders bring their main business into the listed companies, and transactions through which the new controlling shareholders bail out financially distressed firms (propping transactions). Furthermore, in term of ROA and sale growth, firms undertaking these two types of related-party transactions also outperform their industry peers in the year of and the year following the transactions.

In comparing the results from this study with those from earlier studies (Cheung, Jing, Rau, and Stouraitis, 2005; Cheung, Rau, and Stouraitis, 2006), a caution is in place. Most of the related-party transactions in this study are conducted for listing controlling shareholders' main business on the stock exchange and/or propping up financially distressed listed companies, which are more likely to benefit the minority shareholders in the listed companies. The point here is that related-party transactions may not always lead to expropriation of minority shareholders. Under some circumstances, minority shareholders may as well benefit from related-party transactions with controlling shareholders (Friedman, Johnson, and Milton, 2003). Given the prevalence of concentrated ownership structure in most of the markets in the world, the results from this study can further our understanding on the costs as well as benefits associated with concentrated ownership.

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