Earnings Management, Tunnelling Behaviour and Corporate Governance: The Case in China

SONG, XIAOQI

Earnings Management, Tunnelling Behaviour and Corporate Governance: The Case in China

By Xiaoqi Song

Supervisors: Dr. Jing-Ming Kuo and Dr. Michael Guo

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Abstract

This thesis explores three aspects of minority shareholder protection in the Chinese stock market, where earnings management depends on the split share structure reform (SSSREF) and mergers and acquisitions (M&As), as well as impact of mutual fund ownership on controlling shareholders' tunnelling behaviour and firm performance.

More precisely, Chapter 2 empirically shows that China's SSSREF has not fundamentally improved the quality of firm financial information. However, the reform exogenously created an incentive alignment effect that influences firm's earnings management behaviour. Specifically, the use of discretionary accruals by firm`s has been constrained since the reform and has consequently shifted to less detectable and underscrutinized real earnings activities after the SSSREF. This shift is similar to that seen with the passage of the Sarbanes–Oxley Act (SOX) and International Financial Reporting Standards (IFRS) on firm earnings behaviour in developed countries with a strong investor protection environment. The results also suggest that the shift between firm's accrual-based and real earnings methods is an overlooked area for investors in the Chinese stock market and may require regulatory attention.

Chapter 3 explore fully the role of mutual funds in corporate governance in Chinese listed firms through examining whether mutual fund ownership can effectively reduce controlling shareholders' tunnelling behaviour and improve firms' performance. The corresponding results find a non-linear association

between mutual fund ownership and firm performance. In particular, a higher level of mutual fund ownership is associated with better firm performance, which indicates that mutual funds could serve as sophisticated investors to provide useful accounting information to outsiders, and are also capable of monitoring to improve the corporate governance mechanism. When the mutual fund ownership reaches a certain level, the negative relation between high mutual fund ownership and firm performance may imply that mutual fund managers are more likely to expropriate value from minority shareholders when they have dominant controlling power. In addition, the non-linear relation between mutual fund ownership and firm performance is still observable when controlling shareholders implement tunnelling behaviours. At last, mutual fund ownership can effectively reduce controlling shareholders' tunnelling behaviour. Therefore, in order to realize fully the benefit of mutual fund ownership in improving corporate governance, it is necessary to further liberalize the mutual fund industry and to decentralize regulation by government agencies.

Chapter 4 extends the study of Chapter 2 and examines the environment of investor protection in the Chinese stock market by looking at the relation between earnings management and M&As. In details, the findings reveal M&As in China have a positive effect on promoting real earnings management and a negative effect on limiting accrual-based earnings management during the year of M&As. This finding indicates acquirers in China prefer to engage in more real earnings management mainly because of strict regulatory supervision by CSRC and the high percentage of deals paid by cash. However, accrual-based earnings

management yields a significantly positive correlation with both real earnings proxies and their interaction with M&As instead of a substitution effect between accrual-based and real earnings management around M&As. This further reflects the absence of effective corporate governance and weak investor protection for the Chinese stock market. In addition, the results show a decline in earnings informativeness in the year of the M&A, and this further supports that the adjustment of earnings upwards around M&A can lower firm's informational quality. Finally, due to the increase in real earnings management activities around M&As, the market is more likely to react negatively to such earnings strategy, especially in the year of the M&A.

Consequently, the empirical evidence in this thesis contributes to the current literature and related policy making by expanding our understanding of the Chinese stock market and paying more attention to protecting minority shareholder interests.

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Statement of Copyright

No part of this thesis has been previously submitted elsewhere for any other degree or qualification in this or any other university. It is all my own work unless referenced to the contrary in the text.

Chapter 1

Introduction

The Chinese capital market has received much attention from researchers, not only because of its unprecedented growth, but also because of government attempts to correct market imperfections by standardizing proper mechanisms and establishing minority shareholder protection, for example through the split share structure reform and reform of the mutual fund industry. The literature to date provides empirical evidence of the behaviour of Chinese listed firms, with different research periods corresponding to different policy regimes. The most recent studies have focused on the revised policies regarding the protection of minority shareholder interests, to examine the effectiveness of such government reforms.

As a result of state privatization, the Chinese stock market has a split structure that separates firm stocks into tradable shares (TS) and non-tradable shares (NTS). Nearly two-thirds of all A-shares are non-tradable and are typically held by the state (Yeh et al., 2009; Li et al., 2011). Although both TS and NTS have the same voting and cash flow rights, the wealth and control held by non-tradable shareholders are insulated from firm share price movements. The consequent divergence of interests and incentives between controlling non-tradable and minority tradable shareholders has created severe corporate governance issues.

In 2005, the Chinese government implemented a split share structure reform (SSSREF) aimed at converting all NTS into TS. As NTS became tradable, the wealth and interests of the original NTS becomes linked to firm stock performance, thus significantly increasing incentive alignments between non-tradable and tradable shareholders. As a result, the question of whether the SSSREF fundamentally protects minority shareholder benefits is a main concern for Firth et al. (2010) and Li et al. (2011).

In addition, consistent with the SSSREF's initial purpose, in 2000 the China Securities Regulatory Commission (CSRC) had announced an acceleration in the development of the mutual fund industry. This was due to the initial development of 'old funds' in China, the extremely high levels of government ownership, and recognition of the proper corporate governance role of mutual funds in protecting minority shareholder interests (McConnell and Servaes, 1990; Woidtke, 2002; Almazan et al., 2005; Cornett et al., 2007; Yuan et al., 2008; Hadani et al., 2011).

However, there are several reasons why mutual fund ownership in China is ineffective in corporate governance if the funds' incentives are aligned with those of controlling shareholders. First, although China's Securities Investment Fund Law 2003 states that fund unit holders should have voting rights on crucial investment issues, those rights are difficult to exercise, as strict requirements have to be met. Secondly, the CSRC has absolute rights to set up fund management firms, appoint senior management of those firms, or even revoke the licence of fund firms when it deems that necessary. As a consequence, mutual fund managers may act in the interest of the CSRC or controlling shareholders, and this

may not be in the interest of minority shareholders. In order to explore fully the role of mutual funds in corporate governance in Chinese listed firms, this thesis looks at controlling shareholders' tunnelling behaviour and tests whether monitoring by mutual fund ownership can effectively reduce such behaviour and improve firms' performance.

In addition to these two main protection policies regulated by the CSRC, Chinese investors have demanded greater financial information disclosure and more equitable benefits in merger and acquisition (M&A) activities in recent years. Although the Chinese government is taking measures to improve the market environment and regulate business practice, the overall market transparency remains low and disclosure quality continues to be substandard, which indicates that the system of investor protection in China is far behind that of most countries in the sample used by the substantial studies by La Porta et al. (1997, 1998). Moreover, since the introduction of special supervision by the CSRC, not all M&As are scrutinized by the regulators, which results in more opportunities and incentives for acquirers to overstate their earnings and manipulate accounting information prior to M&As to meet or beat the regulatory benchmark requirements and reduce the deal costs. Therefore, Chapter 4 aims to examine earnings management activities and earnings quality during the M&A as well as the corresponding market reactions in the post-M&A period. Hence, this thesis concentrates on the SSSREF, mutual fund ownership, and M&As to examine the effective protection of minority shareholder interests in China from earnings management and tunnelling behaviour.

As for the main research question for this thesis, Chapter 2 reviews the literature (Warfield et al., 1995; Beasley, 1996; Fan and Wong, 2002; Klein, 2002; Xie et al., 2003; Armstrong et al., 2012) on how good corporate governance can limit opportunistic managerial behaviour and the expropriation of minority shareholder interests by controlling shareholders, so mitigating information asymmetry and improving earnings quality. Although the SSSREF is recognized as aligning incentives to strengthen corporate governance and financial information disclosure (Beltratti et al., 2012; Hou et al., 2012; Liu and Tian, 2012), it would be premature to conclude that it has resulted in a decrease in earnings manipulation. Therefore, Chapter 2 analyses earnings management behaviours and trends across the pre- and post-reform periods, in order to examine whether the SSSREF has fully improved the quality of listed firms' financial information. To provide persuasive empirical evidence, the chapter uses a sample of Chinese A-share listed firms from 2002 to 2011, and detects accrual-based and real earnings management with a modified Jones model (Hribar and Collins, 2002) and a special real earnings individual proxy model (Roychowdhury, 2006), respectively.

The main empirical findings of Chapter 2 suggest that there is a long-run positive relationship between real and accruals earnings management throughout the sample period, which implies that when engaging in predominantly real or accruals-based earnings management Chinese listed firms are likely to use the other method to supplement it, a result of ineffective corporate governance and weak investor protection. Furthermore, consistent with Cohen et al. (2008) and Cohen and Zarowin (2010), the empirical results show that share reform has had

an impact on managerial earnings manipulation, which suggests that a significant reduction has taken place since the share reform. On the other hand, combined real earnings management proxies indicate a significant increase in the post-share reform period.

Chapter 3 recognizes the proper corporate governance role of mutual fund ownership in monitoring controlling shareholder behaviour to protect minority shareholder interests (Almazan et al., 2005; Chen et al., 2007; Cornett et al., 2007; Hadani et al., 2011). Wei et al. (2005) and Yuan et al. (2008) also confirm the monitoring effect of mutual funds by examining the Chinese stock market, but Firth et al. (2010) and Ding et al. (2013) disclose that mutual fund investors are more likely to maximize individual benefits than to safeguard minority shareholder profit when listed firms are controlled by the state. Such contradictory conclusions inspire the main purpose of Chapter 3: to clearly determine the role of mutual fund ownership in firm performance in China, especially when controlling shareholders implement tunnelling behaviour, which may force mutual fund investors to align their incentives similarly. Regarding sample selection, Chapter 3 uses the China Funds Market Research database of open-end and close-end funds from 2003 to 2011 to represent mutual fund ownership from the China Stock Market Accounting Research database. In addition, tunnelling behaviour is calculated according to Jiang et al. (2010), indicating pervasive Chinese tunnelling activity.

The empirical results in Chapter 3 suggest that mutual fund ownership is positively related with firm performance, but this relation is non-linear. A

reasonable explanation is given by Yuan et al. (2008), who emphasize that the corporate governance role of mutual fund ownership in China is beneficial in enhancing firm quality. However, highly concentrated mutual fund ownership is more likely to be restricted by controlling shareholders, since incentive alignment and special Chinese regulations influence the appointment of mutual fund managers. Furthermore, this chapter finds that mutual fund ownership itself has a non-linear association with tunnelling behaviour, and can effectively prevent the occurrence of tunnelling in the Chinese market.

Chapter 4 focuses on earnings management in M&As on the Chinese stock market, looking at both accrual- and real-based earnings strategies. Many empirical studies have considered accrual-based earnings management as the only channel for acquirers to manipulate earnings before M&A. Erickson and Wang (1999) explain that accounting earnings manipulation before M&A is beneficial to decrease deal costs through employing fewer shares with higher price to purchase the target firm. Louis (2004) supports the conclusion of Erickson and Wang (1999) and further suggests that underperformance after M&A may be caused by manipulated accounting information through earnings management. Managers prefer real earnings management to accrual-based earnings management, since it is less detectable and departs from normal operational practice. On the one hand, in China, firms need to process M&A deals on the basis of local regulations set by the CSRC. On the other hand, the majority of M&A payments in China are made by cash. The main aim for acquirers is to employ real earnings management to increase the firm's cash flow in a short time, without violating accounting

standards. Chapter 4 examines 964 successful M&A deals from 2002 to 2011 collected from the Thomson One Banker (SDC) database, for a total of 6572 firm-years.

The empirical evidence in Chapter 4 is consistent with previous studies (Cohen et al., 2008; Cohen and Zarowin, 2010; Ipino and Parbonetti, 2011). The results show that M&As in China have a positive effect on promoting real earnings management and a negative effect on limiting accrual-based earnings management during the year of M&A. However, accrual-based earnings management yields a significantly positive correlation with both real earnings proxies and their interaction with M&A, rather than a substitution effect between accrual-based and real earnings management. This further reflects the weak investor protection and absence of effective corporate governance in the Chinese stock market. In other words, the supervision over M&As cannot fundamentally improve the quality of financial information of Chinese listed firms.

Consequently, the main contribution of this thesis is to provide empirical evidence of minority shareholder protection in China from different angles. More precisely, Chapter 2 extends earnings management studies to both accrual-based and real earnings strategies and examines such earnings activities pre- and post-SSSREF. Chapter 2 also provides implications for regulators and investors in that, compared with SOX and IFRS, the SSSREF has an exogenous effect on earnings management preferences, and the dynamic substitution between accrual-based and real earnings management in the post-reform period confirms the effect of strict scrutiny and incentive alignment among shareholders.

Chapter 3 contributes to investigation of the ambiguous status of mutual fund investors in China as determined by Yuan et al. (2008) and Firth et al. (2010), and suggests that mutual fund ownership can be considered to have a proper external corporate governance role in improving firm performance, even when controlling shareholders exploit minority shareholders through tunnelling behaviour. However, this is only the case when mutual funds hold relatively low numbers of firm shares. Mutual fund ownership is also helpful in directly controlling expropriation by controlling shareholders. Furthermore, Chapter 3 reminds regulators and policy makers to focus on the supervision of mutual fund investor behaviour, especially when mutual funds comprise a high percentage of shareholdings and more authority is delegated to mutual fund managers than to regulators.

Finally, Chapter 4 discusses the research in Chapter 2 and describes earnings management around M&A activities in China, clearly indicating acquirers' earnings management preferences and determining the effect on earnings quality during the year of the M&A. Policy implications are that cash payment and the degree of CSRC supervision during M&A are not enough to force acquirers to adjust their earnings strategies, in contrast to the effects of SOX, IFRS, and the SSSREF on earnings management.

The remainder of this thesis is structured as follows: Chapter 2 examines the effects of the SSSREF on earnings management preferences in China. Chapter 3 investigates the role of mutual fund ownership on firm performance under conditions of tunnelling by controlling shareholders. Chapter 4 concentrates on

earnings management around M&As in China. Chapter 5 discusses the empirical evidence presented in this thesis and analyses its potential implications and limitations. Tables are located at the end of each chapter and the variables are defined in the Appendix.

Chapter 2

Real and Accrual-Based Earnings Management Behaviours: Evidence from the Split Share Structure Reform in China

2.1 Introduction

Split share structures are common and typically warrant different owner rights for different types of shares (Faccio and Lang, 2002). The split share structure in China includes both tradable shares and non-tradable shares, which cannot be traded publicly even if the company is listed. However, in China, the ownership of non-tradable shares (NTS) entitles shareholders to the same voting and cash flow rights as distributed to shareholders of tradable shares (TS). Nearly two-thirds of A-shares are non-tradable and typically held by the state to retain control over listed firms in the early economic reform period (Yeh et al., 2009; Li et al., 2011). Because of this split ownership structure, shareholders of non-tradable shares may exploit such privileges to manipulate firm earnings to maximize their own interests, regardless of NT shareholder benefits. For example, controlling

shareholders may conduct either tunnelling or propping, depending on the level of the private benefit of control (Johnson et al., 2000a; Glaeser et al., 2001; Friedman et al., 2003; Jiang et al., 2010). Fan and Wong (2002) find that earnings become less informative when the ownership is more concentrated. Such earnings manipulation seriously affects investor valuation and harms minority shareholder interests. As a result, in 2005 the China Security Regulatory Commission (CSRC) carried out a split share structure reform (SSSREF) to convert NTS to TS in order to strengthen corporate governance and in turn increase minority shareholder protection.

The main purpose of this reform is to coordinate the interests of NTS and TS shareholders and improve corporate governance. In detail, previous studies find that SSSREF has exogenously created an incentive alignment effect, which strengthens corporate governance and improves the quality of corporate financial information (see section 2.2.2.2 for more detail). For instance, Liu and Tian (2012) indicate that both tunnelling and excess leverage by controlling shareholders with excess control rights have been reduced since the SSSREF in China. Beltratti et al. (2012) demonstrate a positive stock market reaction upon the announcement of the SSSREF, as firms' profitability and returns are expected to increase with the improvement in corporate governance. Furthermore, the split share reform could also improve the information environment of firms in the Chinese capital market, using share price informativeness as the measure of availability of financial information (Hou et al., 2012).

However, even though the reform brought an increasingly widespread availability of information to market participants and improved corporate governance, it might be premature to conclude that firms have simultaneously reduced their earnings manipulation behaviours. This is because ownership concentration remains high after the reform, making it possible for controlling shareholders to manipulate earnings in order to inflate share prices and camouflage their intentions for expropriation. Contrary to previous literature therefore, this chapter questions whether the reform has led to full credibility (quality) of firms' disclosure of financial information, by examining the changes in earnings manipulation behaviours.

This chapter makes several contributions in the context of the Chinese stock market. First, following previous literature (Cohen et al., 2008; Zang, 2012), this chapter contributes to real earnings management (RM) studies and extends previous research by examining accrual-based and real earnings management methods in an emerging market. Although previous studies mostly rely on discretionary accruals as a proxy to detect earnings manipulation (Fields et al., 2001; Zang, 2012), firms manage earnings not only through accrual manipulation with no direct cash flow consequences to disguise their true economic performance, but also through real activities manipulation to affect accounting systems. Despite growing interest and recognition of real earnings activities in practice, related studies (Graham et al., 2005; Roychowdhury, 2006; Gunny, 2010; Zang, 2012) on such activities are still rare in the finance and accounting literature. More precisely, in an emerging market context, the investor protection

environment is often very weak compared to the situation in developed countries. For example, Allen et al. (2005) find the development of the relevant Chinese law and institutions are far behind that of most countries in the sample used by the substantial literature produced by La Porta et al. (1997, 1998), particularly in the areas of investor protection systems, corporate governance, accounting standards, and quality of government. In the absence of effective corporate governance and with weak investor protection, this chapter would expect an increasing trend of simultaneous use of both accrual and real earnings management in Chinese firms.

Second, this chapter empirically studies the relation between real and accrual-based earnings activities in the pre- and post-reform periods. As previous studies have indicated that the reform has improved the quality of firms' financial information and incentive alignment, it might be expected that Chinese listed firms have reduced their earnings management, including both accrual and real earnings management. However, such conclusions might be premature. Despite the fact that since SSSREF the shareholdings of the largest shareholders and state ownership are significantly reduced, the controlling shareholders still retain a large share ownership. In addition, because firms' operating performance cannot be improved overnight, firms may simply change their mix preferences and switch from accruals earnings management to real activities, which are less detectable and scrutinized, to continue manipulating accounting information in the post-reform period.

Third, this chapter provides policy implications for regulators regarding the effect of split share structure reform through an examination of earnings management

activities in the unique setting of the Chinese stock market. Previous studies have examined the impact on firms' earnings management behaviour of direct regulatory changes in corporate disclosure, such as the passage of the Sarbanes-Oxley Act and the adoption of IFRS (Cohen et al., 2008). This chapter extends the work of Cohen et al. (2008) by hypothesizing that the SSSREF has achieved an indirect exogenous effect on the trend of firms' earnings behaviours in the emerging markets. However, despite increased availability of information, there is room for firms to continue manipulating earnings information as they can switch from the accrual- to real-based earnings methods. This might be an overlooked area that regulators need to be aware of while improving accounting information and embarking on further reform for minority shareholder protection. Investors also need to consider this issue as an additional risk when making investments in the context of emerging markets.

This chapter employs a sample of all Chinese companies listed in the Shanghai and Shenzhen Stock Exchanges from 2002 to 2011. To calculate accrual-based earnings management, this chapter uses a Modified Jones (1991) cross-sectional model. To measure real earnings management, this study first uses Roychowdhury's (2006) method to estimate abnormal cash flows from operations, abnormal discretionary expenses, and abnormal production costs as proxies. Following Cohen and Zarowin (2010) and Badertscher (2011), the chapter then combines these three variables into three combined proxies to measure real earnings management. Since this study examines the impact of the SSSREF on

earnings management activities, it also controls for the impact of corporate governance and firm-specific variables that affect earnings manipulation activities.

Contrary to previous studies (Badertscher, 2011; Cohen et al., 2008; Ge and Kim, 2013; Zang, 2012), the empirical results of this chapter demonstrate that there is a long-run positive relationship between real and accruals earnings management throughout the sample period, which implies that when engaging in predominantly real or accruals-based earnings management Chinese listed firms are likely to use the other method to supplement it, a result of ineffective corporate governance and weak investor protection. Furthermore, consistent with Cohen et al. (2008) and Cohen and Zarowin (2010), the empirical results show that share reform has had an impact on managerial earnings manipulation. The results suggest that a significant reduction has taken place since the share reform. On the other hand, combined real earnings management proxies indicate a significant increase in the post-share reform period.

This evidence is important because it suggests that managers have shifted away from accrual-based management to real earnings management in the post-share reform period. This implies that there is an exogenous effect of the SSSREF that changes firms' earnings management behaviours. It has a similar effect to that of direct comprehensive regulatory changes in accounting reporting rules in developed countries where investor protection is strong, as evidenced by Cohen et al. (2008) and Ipino and Parbonetti (2011), who demonstrate that there was a shift from AM to RM after the SOX and IFRS.

This chapter also considers the impact of accounting flexibility that may limit firms' ability to report discretionary accruals in the sample period (Barton and Simko, 2002; Wang and D'Souza, 2006; Zang, 2012). The results in this chapter reveal that a decrease in accounting flexibility induces a higher level of real earnings management and reduces the use of discretionary accruals. However, the effect of the SSSREF on the preference between accrual-based and real earnings management remains the same after controlling for the impact of accounting flexibility. Robustness tests confirm that indirect policy implementation may result in a better information environment and have an exogenous effect on firms' earnings behaviours.

The remainder of this chapter is organized as follows. Section 2.2 first provides a brief overview of China's SSSREF and then discusses the link between the split share structure reform and earnings management. It then explains how the research hypotheses are arrived at in the light of the current literature. Section 2.3 describes the data sources, methodology, and summary statistics. Section 2.4 presents the main results for this chapter's hypotheses on the existence of both accrual-based and real earnings management in the Chinese context and their substitutive relation in the post-reform period, followed by robustness tests. Section 2.5 concludes the chapter.

2.2 Institutional Background, Literature Review and Hypotheses

2.2.1 Institutional Background

In the 1980s, the Chinese government began implementing a decentralizing plan to transfer the rights of managers from the central government to the local firm level. The main idea of this decentralization is gradually to free firms from central government control. In the 1990s, the Chinese government transferred a minority of state shares to individual investors for privatization. However, the majority of shares were prohibited from sale and kept by various levels of government. This formed a split share structure, with the NTS being mainly held by government, and the smaller proportion of TS owned mainly by institutional and individual investors.

The NTS entitle their holders to exactly the same voting and cash flow rights as accompany the TS. Most NTS belong to the state and to legal persons, while shareholders of TS are generally institutional investors and domestic individuals. Before the share reform in 2005, about two-thirds of domestic A-shares outstanding were non-tradable. Because of this unbalanced ownership structure, the price of TS is usually controlled by market mechanisms and firm profitability, while NTS are traded by negotiation and priced according to firms' net assets. Therefore, NTS shareholders focus their interest on gradually improving net asset value per share through initial public offerings (IPOs) or seasoned equity offerings

(SEOs), while TS shareholders prefer firms to increase in market value by revealing positive accounting information to other investors. As a result, there is a conflict of interest between shareholders of NTS and TS. Because of this opposition, previous studies find that NTS shareholders have little incentive to improve firm performance; instead, they may exploit their controlling rights to expropriate the benefits of TS shareholders through tunnelling before the share reform, for example through related-party transactions (Aharony et al., 2010), asset restructuring (Aharony et al., 2000; Cheng et al., 2010), or cash dividends (Huang et al., 2011).

To improve the quality of accounting information as well as protect minority shareholder benefits, in June 2001 the CRSC began reducing state ownership activity such that NTS owned by the state could be sold at market prices through IPOs or SEOs. However, the share market reacted negatively to the reduction in the NTS of listed firms, since investors feared the uncertain time window to reduce such a large amount of NTS, which would have a serious impact on market confidence and lower investor enthusiasm. In October 2002 the government had to withdraw this plan in response to strong adverse reaction from TS holders. Subsequently, in 2005, the CRSC restarted the split share reform plan and announced the first batch of four listed companies to shift their NTS to TS. By the end of 2007, 1,254 Chinese listed firms, accounting for 97% of A-share market capitalization, had completed the reform and begun gradually to release their NTS (Firth et al., 2010; Li et al., 2011).

Furthermore, in 2005 the CRSC suspended all financial activities of listed firms (IPOs and SEOs), in order to stabilize the stock market during the reform and formulate a new and transparent accounting environment for investors. Because the exchange from NTS to TS could result in high costs for TS shareholders, the CSRC also required that NTS shareholders pay compensation after negotiation with TS shareholders. In addition, because of the massive increase in the supply of shares, the CSRC imposed a 12-month lockup period before releasing the potential impact of original NTS into the stock market. Moreover, NTS shareholders with more than 5% of a firm's shares were further restricted from trading more than 5% and 10% of the firm's total share capital within 12 and 24 months, respectively. In the two years after the share reform, NTS were permitted gradually to transform into TS. By the end of 2007, 1,254 Chinese listed firms, accounting for 97 percent of the A-share market capitalization, had completed the reform and begun gradually to release their NTS (Firth et al, 2010; Li et al., 2011).

2.2.2 Literature Review and Hypotheses Development

2.2.2.1 Accrual-Based Earnings Management

Previous research mainly focuses on earnings management around financial activities such as SEOs, IPOs, share repurchases, and management buyouts. Regarding SEOs, Rangan (1998) finds that SEO firms have positive abnormal accruals, on average, during the year around the SEO, followed by poor stock

performance in the subsequent year. These results suggest that firms manipulate earnings upward around SEOs and that the stock market is misled by such reformative earnings, which temporarily overvalue issuing firms, leading to disappointment with the subsequent estimated earnings decrease, which can result in a drop in share price. Shivakumar (2000) also finds evidence to suggest accrual-based earnings management around SEOs but, in contrast to Rangan (1998), the author finds that the stock market is inefficient towards upwardly managed earnings.

Teoh et al. (1998) consider IPO financial events and find similar results. Their findings indicate that more accruals management activities take place during IPOs, followed by abnormal negative share returns. However, Brav et al. (2000) suggest that the abnormal share returns of IPO firms are not negative. In addition to examining the relation between stock returns and accrual-based earnings management, the previous literature concentrates on short-term capital market reactions around announcements of fraudulent reporting. Studies show that the relation between market reactions and the disclosure of manipulation is negative, which means investors are surprised and interpret such earnings management news as negative (Foster 1979; Dechow et al., 1995; Palmrose et al., 2004).

Extensive research also documents that Chinese listed firms may employ discretionary accruals to manage their earnings information. For example, Aharony et al. (2000) report that firms manage earnings upward by using discretionary accruals to inflate earnings and skew stock market valuations prior to an IPO. Chen and Yuan (2004) and Haw et al. (2005) state that Chinese listed

firms may use discretionary accruals to meet specific regulatory thresholds to maintain listing status, qualify for IPOs and rights issues, or avoid delisting or trading restrictions (special treatment). On the other hand, Liu and Lu (2007), Chen et al. (2008), Cheng et al. (2010), Jiang et al. (2010), and Jian and Wong (2010) suggest that controlling shareholders may tunnel resources or prop up earnings through related-party transactions, pricing transfers, or corporate loans and subsidies from local governments to beat regulatory benchmarks.

2.2.2.2 Real Earnings Management

The recent literature reveals that listed firms may also use real earnings management. Such real activities manipulation departs from normal operational practices and occurs when managers alter the timing or structure of transactions, investments, and resource allocations to boost accounting earnings in the current period (Dechow and Skinner, 2000; Roychowdhury, 2006). Such practices have a direct effect on operating activities and cash flow.

Dechow and Sloan (1991) suggest that chief executive officers (CEOs) prefer to reduce costs on research and development (R&D) toward the end of their tenure, to increase short-term earnings. Baber et al. (1991) and Bushee (1998) also find evidence consistent with the reduction of R&D expenditures to meet earnings benchmarks. Bens et al. (2003) suggest that managers partially finance repurchased stocks to reduce R&D.

Graham et al. (2005) provide survey evidence to show that managers prefer real earnings management, even though it may reduce firm value and increase related costs. The authors survey 401 financial executives regarding the key factors that determine their decisions on reported earnings and voluntary disclosure. Around 80% of the respondents indicate their willingness to sacrifice firm economic value (e.g., decrease discretionary spending on R&D or advertising fees) to manipulate accounting reports. In addition, the results of the survey show that more than half (55.3%) of the managers prefer to postpone a new investment to meet or beat a previous earnings benchmark.

Roychowdhury (2006) directly measures real earnings management activities and their capital market consequences. The author attributes earnings management to operational activities and defines real earnings management as the management's deviations from normal business practices, undertaken with the primary objective of meeting certain earnings thresholds. Roychowdhury also concludes that managers prefer price discounts to temporarily increase sales, reducing discretionary expenditures to improve reported margins, and overproducing to lower the cost of goods sold. Using cross-sectional analyses, the author finds that real earnings management is less prevalent in the presence of sophisticated investors. Gunny (2010) suggests that real earnings management is positively associated with firms just meeting their earnings benchmarks, but also concludes that earnings management through real manipulation is not opportunistic and is consistent with managers obtaining benefits to allow for better future performance or signalling.

Several papers look at real earnings management related to SEOs, subsequent stock returns, and insider trading, among other factors. Li et al. (2007) find a significant relation between real earnings management and subsequent stock returns. More specifically, stocks of firms with abnormally low (high) levels of operating cash flow underperform (outperform) in the following year and stocks of firms with abnormally low (high) levels of production costs outperform (underperform) in the following three years. These findings suggest that such a relation is stronger among firms with a greater likelihood of earnings management and does not exist between returns and normal levels of operating cash flows and production costs. Cohen and Zarowin (2010) test the preference of earnings management activities around SEOs and conclude this relation is based on a firm's ability to apply accrual management, and its costs. Their results suggest that the decline in SEO firms' post-SEO operating performance is affected not only by accrual-based earnings management, but also by real earnings management.

In China, split share ownership has provided a direct incentive for controlling shareholders to manage earnings to obtain their individual interests. More precisely, because NTS owned by controlling shareholders are determined by net asset value, increasing capital through financial activities to improve net asset value per share is regarded as their main motivation, rather than preserving firm quality. Chen et al. (2008) support this argument and indicate that controlling shareholders are less concerned with accounting information, since share price is irrelevant to their wealth. On the other hand, minority TS shareholders rely on

positive accounting information to make investment decisions and expect an increase in the market value of their TS. Therefore, controlling shareholders are motivated to overstate reported earnings to raise more capital and increase their wealth, while minority shareholders are then forced to pay inflated prices for TS (Fan et al., 2007). Chan et al. (2008) also find that Chinese listed firms with high debt prefer to adjust financial information during the issue of new shares, which can result in corrective restatements of earnings back to original levels in the following years. Furthermore, controlling shareholders with highly concentrated ownership in China often obtain control rights over their cash flow rights. Listed firms are then usually motivated to publish less accounting information, to camouflage their expropriation of value from minority TS shareholders (Fan and Wong, 2002).

To date, few studies have investigated real activities manipulation or the dynamic relation between real and accrual-based earnings management in an emerging market context with weak investor protection. Based on the arguments above, the main purpose of this chapter is to examine whether both earnings management methods are used in Chinese firms, and whether there is a positive relationship between the two earnings management activities in an environment of weak investor protection and a lack of effective corporate governance. Hence, the first hypothesis in this study is:

H1: Chinese listed firms exhibit a long-term positive relationship between real and accrual-based earnings management activities

2.2.2.3 Earnings Management in the SSSREF

Among the various key factors restricting earnings management, the previous literature documents that good corporate governance is beneficial in constraining listed firms' opportunistic behaviour, and leads to better information disclosure as well as high-quality earnings. Many studies (Beasley, 1996; Dechow et al., 1996; Klein, 2002; Xie, et al., 2003; Chang and Sun, 2009) indicate that high ownership of independent boards and audit committees can effectively limit financial statement fraud and earnings management calculated by discretionary accruals. Warfield et al. (1995) find that managerial ownership has a negative relation with the implementation of accrual-based earnings management and a positive association with earnings informativeness. Compared with findings in developed countries, Fan and Wong (2002) find that the entrenchment effect of controlling shareholders under high ownership concentration can cause low earnings informativeness for the countries in East Asia. Hazarika et al. (2012) suggest that effective supervision by the board may decrease external costs by limiting the activities of top managers who hunt aggressively for earnings to adjust accruals. Regarding external corporate governance mechanisms, Armstrong et al. (2012) show that anti-takeover laws have an exogenous effect on the market for corporate control, as reflected in the decrease in information asymmetry and increased financial statement informativeness.

With regard to the Chinese stock market, Ding et al. (2007) and Wang and Yung (2011) find that listed firms with private controlling ownership are associated with higher accrual-based earnings management than are state-controlled firms, since

private listed firms receive little assistance from the state to finance funding. Firth et al. (2007b) find that the extent of discretionary earnings is also influenced by ownership and board structure. Liu and Lu (2007) illustrate how earnings management from tunnelling can result in inefficient corporate governance. Gul et al. (2010) provide evidence indicating that corporate transparency and share price informativeness in Chinese listed firms are negatively associated with high ownership concentration under conditions of high state ownership, less foreign ownership, and poor auditor quality, which implies that a firm's information environment is affected by the quality of corporate governance.

The split share reform should exogenously align controlling shareholder incentives to restrict earnings management, and consequently strengthen corporate governance of Chinese listed firms under a weak investor protection environment. After the full-scale implementation of the share conversion in China, the incentive alignment between NTS controlling shareholders and TS minority shareholders for profit maximization was exogenous (Liu and Tian, 2012). Previous literature (Hou et al., 2012; Liu and Tian, 2012; Beltratti et al., 2011) indicates that corporate governance-related issues such as corporate transparency, external monitoring, and information asymmetry have improved since the SSSREF. Hou et al. (2012) examine the effect of the split share reform on share price informativeness and find that the reform exogenously improved firm incentive alignment, decreasing the incentive of controlling shareholders to control price-sensitive information. Beltratti et al. (2011) indicate that investors have reacted positively to the split share reform, since firm profitability and returns beyond

those of previous periods have accompanied improvements in corporate governance. Liu and Tian (2012) reveal that the tunnelling behaviour and use of excess leverage by controlling shareholders with excess control rights have dramatically decreased with the higher quality of corporate governance after SSSREF. Therefore, a great deal of evidence shows that the SSSREF has led to the improvement of corporate information.

However, the split share reform may not be able effectively to restrict earnings management, mainly because of the dynamic relation between real and accrual-based earnings strategies, discussed earlier. In particular, even after the SSSREF ownership concentration remains high in China. In addition, controlling shareholders may still have an incentive to increase their wealth by inflating stock prices via earnings management activities. In other words, listed firm values and earnings expectations can be influenced by earnings management via both accrual-based and real earnings strategies. Furthermore, even after the reform it is possible for controlling shareholders to continue to manage earnings and to adjust the expectations of minority shareholders. In addition, the original NTS shareholders have enough time to expropriate earnings for an unfair consideration before completing the reform.

Based on the discussion, this chapter postulates that the split share reform may have reduced accrual-based earnings management activities, as its incentive alignment effect has led to an improvement in corporate governance, improved firm financial information and tightened the scrutiny of regulators and agencies, resulting in higher costs of accrual-based earnings management. Rather than

implementing accrual-based earnings strategies, listed firms may switch to implement real earnings activities, which are less scrutinized and detectable, to continue their earnings manipulation. As a result, the second and third hypotheses are as follows.

H2: After the SSSREF, Chinese listed firms have tended to use less accrual-based and more real earnings management methods.

H3: After the SSSREF, Chinese listed firms have shifted from accrual-based to real earnings management.

2.3 Empirical Methodology

2.3.1 Earnings Management Measurement

2.3.1.1 Accrual-Based Earnings Management

This chapter considers discretionary accruals as a measure of earnings management. There are two reasons for this. First, it is a standard measure of earnings management in both the finance and accounting literature. Second, the costs of managing discretionary accruals are usually low. Other measures of earnings management, such as restatements, AAERs, and securities class action lawsuits, capture manipulations that are costlier to shareholders, either directly

through expected penalties or indirectly through loss of reputation. In addition, this chapter uses annual data to calculate discretionary accruals. First, quarterly data are not comparable because the first three quarterly reports may not be audited, while the fourth quarter or annual report is. Second, certain accounting variables are available only in the annual or fourth quarterly report. Guthrie and Sokolowsky (2010) suggest that 40% of accounting information published estimates discretionary accruals only in the fourth quarter. Finally, annual accrual measures are well established and documented in the earnings management literature (Teoh et al., 1998; DuCharme et al., 2004; Bergstresser and Philippon, 2006). Dechow (1995) decomposes total accruals into non-discretionary and discretionary accrual components:

$$TA_{it} = NDA_{it} + DA_{it} \quad (1)$$

where TA_{it} is total accruals for firm i in year t and NDA_{it} and DA_{it} are non-discretionary and discretionary accruals, respectively, for firm i in year t.

Following Hribar and Collins (2002), this study uses a cross-sectional Jones model to compute discretionary accruals. Each year the model is estimated for every industry, classified by CSRC industry code. Therefore, the results of discretionary accruals in this chapter partially control for industry-wide changes in economic conditions that affect total accruals, while allowing the estimated coefficients from the Jones model to vary across time. The cross-sectional Jones model is described as follows:

$$\frac{TA_{it}}{Assets_{i,t-1}} = k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{\Delta SALES_{it}}{Assets_{i,t-1}} + k_3 \frac{PPE_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (2)$$

where $Assets_{i,t-1}$ is total assets for firm i in year t, ΔREV_{it} is change in revenue for firm i in year t, ΔREC_{it} is change in receivables for firm i in year t, and PPE_{it} is gross property, plant, and equipment for firm i in year t.

The coefficients from the estimates of equation (2) are used to calculate firm-specific normal accruals (NA_{it}) for the sample firms:

$$NA_{it} = \hat{k}_1 \frac{1}{Assets_{i,t-1}} + \hat{k}_2 \frac{\Delta SALES_{it}}{Assets_{i,t-1}} + \hat{k}_3 \frac{PPE_{it}}{Assets_{i,t-1}} \quad (3)$$

The measure of discretionary accruals (DA_{it}) is the difference between total accruals and fitted normal accruals (NA_{it}):

$$DA_{it} = \frac{TA_{it}}{Assets_{i,t-1}} - NA_{it} \quad (4)$$

2.3.1.2 Real Earnings Management

Based on previous studies, three individual proxies are employed to measure real earnings management. Following the method for measuring discretionary accruals,

all real earnings management proxies are estimated for different industries and with a minimum of eight observations for each year. Following Dechow et al. (1998), Roychowdhury (2006), and Cohen et al. (2010), this chapter first models cash flow from operations (*CFO*) and describes it as a linear function of sales and changes in sales in the current year:

$$\frac{CFO_{it}}{Assets_{i,t-1}} = \alpha_1 + k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{Sales_{it}}{Assets_{i,t-1}} + k_3 \frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (5)$$

where CFO_{it} is cash flow from operations taken from the statement of cash flows of firm i in year t, $Asset_{i,t-1}$ represents total assets at the end of year t - 1, $Sales_{it}$ is net sales for firm i in year t, $\Delta Sales_{it}$ is changes in net sales for firm i between year t - 1 and year t, and ε_{it} is the error term. Abnormal cash flow from operations equals the actual *CFO* value minus the normal level of *CFO,* calculated using the estimated coefficient from equation (5) for each industry and year. Roychowdhury (2006) and Cohen et al. (2010) indicate that managers engage in sales manipulation by accelerating sales using price discounts or more lenient credit terms in the current period. The temporarily boosted sales volume is likely to diminish in the next fiscal year once the firm reverts to the original prices. Additional sales increase total earnings in the current period but result in reduced margins due to price discounts, lenient credit provision, and higher production costs relative to 'normal' level. Therefore, this chapter expects a lower abnormal *CFO* (*ACFO*) in the current period as a result of sales manipulation.

The second individual proxy is abnormally high production costs, expressed in the following regression:

$$\frac{PROD_{it}}{Assets_{i,t-1}} = \alpha_1 + k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{Sales_{it}}{Assets_{i,t-1}} + k_3 \frac{\Delta Sales_{it}}{Assets_{i,t-1}} + k_4 \frac{\Delta Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (6)$$

where $PROD_{it}$ is firm i's production costs in year t, which equals the sum of the costs of goods sold plus changes in inventory. All other variables are defined as previously. To manage earnings upward, firms can overproduce inventory to report a high operational margin, as the fixed cost per unit declines with increasing production volume. This chapter expects that a higher value of the residual (*APROD*) estimated from equation (6) indicates greater manipulation through overproduction.

The third proxy is abnormal discretionary expenses *(ADISX),* estimated as:

$$\frac{DISX_{it}}{Assets_{i,t-1}} = \alpha_1 + k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (7)$$

where $DISX_{it}$ is discretionary expenditures,[1] which include selling, general and administrative expenses, R&D, and advertising for firm i in year t. Since discretionary expenditures do not normally generate immediate firm revenue, managers may reduce such expenses to boost current earnings. If firms usually

[1] Due to the differences between the US and China in reporting requirements for the financial statement, this study follows Jiang et al. (2013) to define discretionary expenses as the sum of sales expenses and administrative expenses for firm i in year t.

pay such expenditures with cash, they may experience a higher cash flow and an abnormal *CFO* effect in the current period (Roychowdhury, 2006).

Finally, following Cohen and Zarowin (2010) and Zang (2012), this chapter constructs two aggregate proxies by combining the aforementioned individual proxies to capture the total effects of real earnings management. The first aggregate real management proxy is expressed as:

$$RM\_1 = -abnormal\ cash\ flow\ from\ operations + abnormal\ production\ costs \quad (8)$$

The regression multiplies abnormal cash flow from operations by -1 and then adds abnormal production costs. As a consequence, a higher level of *RM_1* indicates higher levels of real earnings management activities. Abnormal production costs would not be multiplied by -1, since a larger value of abnormal production costs already implies a higher level of real activities.

The second aggregate measure is:

$$RM\_2 = -abnormal\ cash\ flow\ from\ operations - abnormal\ discretionary\ expenses \quad (9)$$

In equation (9), the second aggregate RM measure is the sum of abnormal cash flow from operations and abnormal discretionary expenses multiplied by -1. A larger value of *RM_2* suggests a greater use of sales manipulation and discretionary expenses reduction; in that case managers may exploit a real earnings strategy to a greater extent.

Following Cohen et al. (2008) and Badertscher (2011), this chapter constructs the third aggregate measure, *RM_3* by the following equation:

$$RM\_3 = -abnormal\ cash\ flow\ from\ operations + abnormal\ production\ costs - abnormal\ discretionary\ expenses \quad (10)$$

In detail, a larger value of *RM_3* suggests a greater use of real earnings management to manage earnings.

2.3.2 Research Design

This chapter uses the following two regressions to examine the impact of the split share structure reform on both earnings management activities individually, and on the relations between them, over time. The first regression model examines a firm's decision to engage in accrual-based earnings management activities:

$$DA = \alpha + \beta_1 SSSREF + \beta_2 RM\_PROXY \times SSSREF + \beta_3 RM\_PROXY + \beta_4 DUALITY + \beta_5 BIND + \beta_6 PAY + \beta_7 TOP1 + \beta_8 STATE + \beta_9 TS + \beta_{10} BIG4 + \beta_{11} TOBINQ + \beta_{12} LEVERAGE + \beta_{13} FIRMSIZE + \beta_{14} BM + \beta_{15} ROA + \beta_{16} IPO\_DUM + \beta_{17} ST\_DUM \quad (11)$$

where the dependent variable, *DA*, is discretionary accruals and *RM_PROXY* is either three individual real earnings proxies (*ACFO, APROD,* and *ADISX*), or the three aggregate real earnings management proxies. The indicator variable is *SSSREF*[2], which is equal to one in the year when a listed firm is chosen to

[2]To fully capture the impact of SSSREF, this chapter will also re-examine regressions (11) and (12) when including the year of reform. However, given the special mechanism of SSSREF implemented by the CSRC, it is reasonable to calculate the starting point of SSSREF of all listed firms as the year 2006 rather than their announcement year. This is because the CSRC's policy announcement, piloting, and issue of guidelines in 2005 should have sent clear signals to the market about the impending reform across all listed firms. Assuming state shareholders are forward-looking and not myopic, these

complete the split share reform and zero otherwise. The term *RM_PROXY*SSSREF* is the interaction between the real earnings management proxies and the indicator variable, to test the relationship between accrual-based and real earnings management in the post-reform period.

This chapter also examines real earnings manipulation with the following regression:

$$RM\_PROXY = \alpha + \beta_1 SSSREF + \beta_2 DA \times SSSREF + \beta_3 DA + \beta_4 DUALITY + \beta_5 BIND + \beta_6 PAY + \beta_7 TOP1 + \beta_8 STATE + \beta_9 TS + \beta_{10} BIG4 + \beta_{11} TOBINQ + \beta_{12} LEVERAGE + \beta_{13} FIRMSIZE + \beta_{14} BM + \beta_{15} ROA + \beta_{16} IPO\_DUM + \beta_{17} ST\_DUM \quad (12)$$

where *RM_PROXY* is individual or aggregate real earnings management proxy and *DA*SSSREF* is the interaction variable between accrual-based earnings management and the SSSREF. The *SSSREF* dummy variable captures the impact of the reform on firm-specific earnings strategies after a firm is chosen for NTS share conversion. The terms *RM_PROXY* (*DA*) and *RM_PROXY*SSSREF* (*DA*SSSREF*) capture the long-term relation between the two earnings strategies and their relation after the reform. In testing the relation of these two earnings management strategies, this chapter expects to observe a positive coefficient between *RM_PROXY* and *DA*, due to weak investor protection and corporate governance. We also expect a negative coefficient of the interactive terms in equations (11) and (12) if listed firms prefer to switch from one method to another

market-wide signals should have started to invoke the incentive alignment effect between them and the private shareholders from 2006 onward, even among firms not immediately selected by the CSRC to undergo the reform. Then, as a robustness test, these analyses are replicated by substituting SSSREF with another variable, dummy2006, which equals 1 for the years 2006-2011 and 0 for the years 2002-2005. The results of this robustness test in Tables 2.23 and 2.24 are consistent with those in Tables 2.4 and 2.5.

in the post-reform period, and thus the positive relationship between the two earnings activities should be weaker.

To fully examine the effect of SSSREF on Chinese listed firms' earnings management, this chapter also controls for variables related to corporate governance and firm characteristics, which have been proven to have explanatory power for the choice of earnings management activities. Previous literature states that it is difficult for controlling shareholders to manipulate accounting information when a firm has stronger corporate governance (Fan et al., 2007; Liu and Lu, 2007). Warfield et al. (1995) find that top executives may indulge in earnings management to avoid losses and smooth earnings. This chapter also considers and includes CEO and top management compensation, which is related to firms' reported earnings in China (Firth et al., 2006), and we use as a proxy *PAY*, which is the natural logarithm of the total cash compensation received by the top three executives. Option-based compensation is not considered in this study, since it is rarely used by the Chinese listed firms (Aharony et al., 2000).

Following Firth et al. (2007b), this chapter uses *Duality* to control for situations when the CEO is also the board chair, which may weaken the board's monitoring role and increase the possibility of earnings management. Klein (2002) and Gul et al. (2010) conclude that board independence, proxied by the ratio of independent directors on the board, and external audits by Big 4 auditors, have a positive effect on limiting controlling shareholders' earnings manipulation, and improve corporate transparency and accounting quality. This chapter uses *BIG4* as a

dummy variable that is set to one if the annual report is audited by Big 4 auditors or their joint ventures, and zero otherwise.

Ownership concentration, *TOP1,* is measured by the percentage of shares held by the largest shareholder. However, controlling NTS shareholders may have maximized their wealth before the SSSREF through increasing earnings per share, which depends on the number of TS involved. To control for this effect on earnings strategies, this chapter uses *TS* in a fashion similar to Cohen and Zarowin (2010) and Zang (2012) as they control for outstanding shares. More precisely, *TS* is calculated by the natural logarithm of tradable shares.

The type of ownership is another factor that has effects on earnings management. Ding et al. (2007) and Armstrong et al. (2010) suggest that private firms prefer to use more earnings management than state-owned firms, since they cannot obtain subsidies from state or local government to invest to improve the firm's quality. This chapter uses *STATE* as a dummy variable; it is equal to one if the largest shareholder is the government and zero otherwise. In addition, Aharony et al. (2000) and Cheng et al. (2010) conclude that Chinese firms are more likely to engage in earnings management in financial activities such as IPOs or the process of losing their special treatment status, which provide incentive for managers to meet or beat an earnings benchmark in order to obtain additional benefits from overstated earnings, or to keep the firm's listed status corresponding to the earnings requirement regulated by the CSRC. This chapter includes the indicator variables *IPO_DUM* and *ST_DUM* respectively, if firms engage in such activities.

The firm characteristics, including size, capital structure and performance, may also affect earnings management (Fan et al., 2007; Firth et al., 2007b; Cohen and Zarowin, 2010). Compared with small, rapidly growing firms, whose business activities are hard to observe, large firms may have more costs associated with manipulating earnings due to the greater scrutiny by regulators and auditors. The variable *FIRMSIZE* is the natural logarithm of total assets at the end of each fiscal year; *LEVERAGE,* which has been found to affect the earnings response coefficient, is defined as total debt divided by total assets; *BM* is the book-to-market ratio to control for firm growth rate; *TOBINQ* is a proxy for investment opportunities and is the market value of assets divided by reproduction cost; *ROA,* return on assets, measures firm profitability. This chapter also uses industry dummies, constructed according to the CSRC classification, to control for the impact of industry-wide performance, and Huber-White adjusted *t*-statistics to control for heteroskedasticity.

2.3.3 Data Selection and Summary Statistics

Information about the annual financial accounting of Chinese listed companies from 1998 to 2011 is extracted from the China Stock Market Accounting Research (CSMAR) database. Although the publication of cash flow statements has been compulsory for all Chinese listed firms since 1998, the regressions in equations (2) to (7) require sales in year t - 2 and assets in year t - 1 to calculate the real and accrual-based earnings management proxies; the variables from cash

flow statements are therefore from 2000. Hovakimian (2009) excludes the financial industry, since investments in the form of capital assets vary significantly between financial and other industries. Therefore, this chapter also restricts the sample to non-financial firms with at least eight observations in each CSRC industrial code grouping per year. In addition, because corporate governance variables are available from the CSMAR database gradually from 2002, the final sample period for the regression analyses ranges from 2002 to 2011. After excluding firms with missing data for control variables and calculating discretionary accruals as well as real earnings proxies, this study obtains a total of 13,840 firm–year observations. There are 12,610 observations for RM_1(3), and 13,602 for *RM_2*, due to the data requirements to calculate them.

[Insert Table 2.1 around here]

Table 2.1 reports descriptive statistics of the final sample from 2002 to 2011. Panel A reports the sample distribution of firm-years. The number of firms dramatically increased from 2002 to 2011, reflecting the rapid growth of the Chinese stock market. Panel B provides summary measures of various accounting and financial variables in the regressions mentioned above. The median and mean of the majority of variables are quite similar to the results of Firth et al. (2007b), Gul et al. (2010), and Hou et al. (2012), although the sample periods are different in these studies. The mean of *ROE* is 0.036, with a standard deviation of 0.596. About 7% of firms use one of the international Big 4 auditors or their joint ventures. The mean and median values of the book-to-market (*BM*) ratio are very

close, 0.377 and 0.388, respectively. The ownership structure of Chinese listed firms is highly concentrated compared to the structure in developed markets; its mean is 38%, which is slightly lower than the results of Ding et al. (2007) and Gul et al. (2010), who find 41.9% and 42.8%, respectively. The difference might be due to the different sample periods and the decrease in the number of NTS held by controlling shareholders after the reform. The mean of *STATE* is 47.9%, which reveals that the state is the largest shareholder and continues to play an important role in Chinese listed companies. More importantly, Panel B also reports the descriptive statistics of earnings management variables. For the discretionary accrual part, the mean value is 0.001, which is close to the 0.002 reported by Firth et al. (2007b), and its median is 0.003, slightly higher than the mean. Regarding the three individual real earnings management proxies, the average of *APROD* is negative, with a zero median; *ADISX* has a negative median and the largest magnitude of the three individual real earnings management proxies. The median of the three aggregate real proxies are all positive and equal to 0.013.

Table 2.2 shows the Pearson correlation matrix for the variables in the main tests during 2002-2011. Consistent with our expectation, *DA* and *RM* are highly and positively correlated. Specifically, the correlation figures between *DA* and *RM_2* and between *DA* and *RM_3* are 0.492 and 0.309, respectively. This indicates that firms prefer to use both real and accrual-based earnings strategies to supplement each other. The three aggregate real earnings management proxies are highly correlated, in the range from 0.655 to 0.911. This result suggests that these proxies are indicative of real earnings management and can be substituted for each

other. They are also highly correlated with the three individual real earnings management proxies. For example, the correlation coefficient between *RM_3* and the three individual measures is between 0.601 and 0.896, which is much higher than in the US market as reported by Cohen et al. (2008). Of the three individual real proxies, *APROD* has a positive correlation with *DA* and the aggregated proxies *RM_1* and *RM_3*, while the correlations between *ACFO* and *DA* and between *ACFO* and *RM_2* and *RM_3* are all significantly negative. These results suggest that firms attempt to achieve high earnings by manipulating production activities and related cash flows. Consistent with the results of Firth et al. (2006), the compensation of the top three senior managers is significantly positively correlated with *DA*, but negatively correlated with real earnings management activities. A reverse relation can be found for leverage. The number of TS is positively correlated with real earnings management but insignificantly with accrual-based management. Overall, these preliminary results based on Pearson correlation are in line with previous studies, as well as with the hypotheses that listed firms in China may engage in both accrual-based and real earning strategies, and that their earnings management activities are correlated with firm characteristics and corporate governance features.

[Insert Table 2.2 around here]

To examine whether the incentive alignment of the split share structure reform can improve firm corporate governance in the Chinese market, this chapter tests the significance of differences in the corporate governance variables used in the study between the pre- and post-reform periods. Table 2.3 reports the mean values

of the corporate governance variables and the results of *t*-tests on the significance of the differences in variables between the two periods. Consistent with previous results and hypotheses, the results in Table 2.3 reveal an improvement in these corporate governance proxies. More specifically, ownership concentration significantly decreased. The largest shareholder's holding declined by 5%, from 40% to 35%. Similarly, state ownership also significantly decreased, from 54.3% to 40.5%. Regarding board independence and CEO duality, a significant increase in the value of the former, and a decrease in the value of the latter, are observed.

These results indicate that the SSSREF has effectively improved the quality of firms' corporate governance in China, where the institutional environment, particularly minority shareholder protection, is weaker than in the developed countries. Therefore, the regressions in this chapter include these variables to control for their effect on earnings management. However, the ownership of the largest shareholders in China is still high after the reform. Hence, this chapter perceives that the split share reform may not have sufficiently increased the quality of financial information, because controlling shareholders have an incentive to manipulate earnings to increase their own wealth by inflating the share price after their NTS are converted into TS.

[Insert Table 2.3 around here]

2.4 Empirical Results

2.4.1 Main Tests of the Hypotheses for Accrual-Based Earnings Activities

Table 2.4 reports the results of regression (11) for accrual-based earnings management in Chinese listed firms. Models 1, 2, and 3 use aggregate real earnings management proxies, *RM_1*, *RM_2,* and *RM_3,* respectively. We also control for industry effects across all models and report regression results with heteroskedasticity-consistent standard errors. In addition, this chapter applies bootstrap median regressions to eliminate the influence of outliers in the estimation. In Table 2.4, there is a significant positive correlation between accrual-based and aggregate real earnings management proxies at the 1% level across all models. The results imply that Chinese listed firms with higher levels of real earnings management tend to engage in more accrual-based earnings management. The results also support H1, that Chinese listed firms use both abnormal accrual-based and real earnings management at the same time and there is a positive relation between these two earnings strategies. This finding may reflect weak protection of minority shareholders in China.

As discussed earlier, this chapter assumes that improved corporate transparency and incentive alignment between NTS and TS shareholders have resulted in a decrease in accrual-based earnings management since the split share reform. Accordingly, Table 2.4 reports a significantly negative coefficient for *SSSREF* for

all models. These results indicate that since the reform listed firms in China have preferred to reduce accrual-based management, although they also use real earnings management. This finding is consistent with H2, and reveals that accrual-based earnings management with weak external corporate governance mechanisms in emerging markets could be effectively constrained by improving incentive alignment rather than by accounting reporting rules. Furthermore, the results are similar to the findings of Cohen et al. (2008) and Ipino and Parbonetti (2011), that there has been a significant decrease in accrual-based earnings management since SOX and the adoption of IFRS in developed markets. Unlike the direct regulatory changes in accounting reporting practice such as SOX and IFRS, the split share structure reform aligned interests between majority and minority shareholders rather than imposing direct comprehensive regulatory changes in firms' accounting reporting practices. Moreover, unlike the SOX and IFRS reforms, the SSSREF took place in a market with weak corporate governance and investor protection. However, the results show that the SSSREF can constrain Chinese listed firms' accrual-based earnings activities.

For H3, this chapter also finds a significant negative relation between accrual-based earnings management and *RM_PROXY*SSSREF* across all regressions with various real earnings management proxies. This empirical evidence indicates that the positive relation between accrual-based and real earnings management has decreased in the post-reform period. This may be because firms are more likely to replace accrual-based earnings management with less detectable and less scrutinized real earnings management activities.

The results in Table 2.4 are also robust to the control of corporate governance variables, firm characteristics, and industry effects. Discretionary accruals are significantly and negatively associated with the number of tradable shares (*TS*), while the coefficient of the salary of top management (*PAY*) is significant and positive. In addition, the significantly negative coefficient of *TS* is similar to the results of Cohen and Zarowin (2010), and implies that the larger the number of TS, the greater the monitoring effects from minority shareholders. Furthermore, the cost of earnings management to improve earnings per share depends on the number of TS. The positive coefficient on *PAY* implies that top managers are more likely to use discretionary accruals since their salary is closely linked to reported earnings. Regarding firm characteristics, the results indicate that large firms or firms with a lower book-to-market ratio (*BM*), a lower leverage ratio (*LEVERAGE*), and a higher Tobin's Q (*TOBINQ*) are more likely to manage accruals.

[Insert Table 2.4 around here]

2.4.2 Main Tests of the Hypotheses for Real Earnings Activities

Table 2.5 reports the results of the effects of the SSSREF on firm real earnings management behaviour. This study estimates regression (12) with three aggregate real earnings management proxies as the dependent variables in models 1 to 3, respectively. Consistent with H1, the empirical results in both Tables 2.4 and 2.5

indicate a positive and significant association between real and accrual-based earnings management, and they are significant at the 1% level. The discretionary accrual (*DA*) coefficients in Table 2.5 are all positive and significant across all aggregate real earnings management proxies. Specifically, the magnitude of the coefficient for *DA* is greatest for the measure *RM_3,* which is the combination of *ACFO*, *APROD,* and *ADISX*, and smallest for *RM_1*. This result further confirms H1, that there is a positive relation between accrual-based and real earnings management in Chinese listed firms over the whole sample period. Combined with the results of Table 2.4, these results show that Chinese listed firms engaging in either real or accrual-based earnings management are more likely than not to also use the other method as a supplement.

In contrast to the results for accrual-based earnings management in Table 2.4, the signs of the coefficients of *SSSREF* in Table 2.5 are all positive and significant at the 1% level when the three aggregate real earnings management proxies are employed as dependent variables. This indicates the increasing use of real earnings management since the reform. Together with the accrual-based earnings management results in Table 2.4, which shows a significantly negative coefficient on *SSSREF*, the above findings provide additional evidence to support H2, that since the reform Chinese listed firms use more RM and less AM. More importantly, the coefficient of the interactive term between *DA* and the *SSSREF* dummy is significantly negative for all the aggregate RM proxies. This finding implies that since the reform, firms are more likely to switch from AM to RM, thus supporting H3. Although previous studies indicate that the quality of firms'

information and incentive alignments for profit maximization have improved due to the reform, earnings quality has not fundamentally changed. Managers of Chinese listed firms take advantage of the dynamic relation between the two earnings strategies to avoid detection and scrutiny by the capital market and regulators.

The coefficient estimates of the control variables in Table 2.5 have signs opposite to those from the regressions with *DA* as the dependent variable in Table 2.4, which further supports the previous findings. Compared with the results in Table 2.4, those in Table 2.5 indicate that top managers with higher salaries tend to use more AM than RM. The positive and significant coefficients of *TOP1* in Table 2.5 suggest that greater ownership concentration is more likely to allow controlling shareholders to engage in more RM and camouflage their expropriation of the value of minority shareholders. Moreover, the significant negative coefficient of *BIG4* in Table 2.5 indicates that firms are less likely to manipulate real earnings given the presence of one of the international Big 4 firms or their joint ventures. In contrast to the results for accruals in Table 2.4, the aggregate RM proxies are lower in large firms or in firms with lower *BM*, lower *LEVERAGE*, and higher *TOBINQ*. Moreover, the results show that firms with more tradable shares (*TS*) prefer RM over AM, since the latter is more likely to be detected.

[Insert Table 2.5 around here]

As a result, previous research suggests the reform exogenously improved incentive alignment between NTS and TS shareholders. Both are now gradually

focusing on improving firm quality for profit maximization, as the stock held by NTS controlling shareholders becomes tradable and linked to stock performance. These shareholders may have an incentive to supply information to reap the benefits of market-based capital allocation and avoid adverse stock pricing. The need for controlling shareholders to withhold or manipulate stock price sensitive information should also be reduced (Hou et al., 2012).

However, controlling shareholders may be tempted to increase wealth by inflating stock prices in the post-reform period. Since a firm's operating performance cannot be improved within a short time, most managers prefer to manipulate accounting performance and camouflage their expropriation intentions. The results of this chapter indicate that since the reform listed firms in China have chosen to switch from AM to RM, as the costs of manipulating accruals increase with heightened scrutiny by the capital market. This finding is consistent with the results of Zang (2012), who shows that managers treat AM and RM strategies as substitutes. Tables 2.4 and 2.5 reveal that, similar to SOX and IFRS, the incentive alignment brought about by the SSSREF has had a positive impact on Chinese listed firms' earnings behaviour in terms of AM. However, a fundamental improvement in the quality of firm financial information is not sufficient, since dominant shareholders still retain a large ownership share, even though the shareholdings of the largest shareholders and state ownership are significantly reduced.

2.4.3 Robustness Checks

2.4.3.1 Individual Real Earnings Proxies

In Table 2.6, the three aggregate real earnings management proxies are replaced with three individual proxies, *ACFO*, *APROD,* and *ADISX.* The results are quite similar to those in Table 2.4 and support the predictions of the three hypotheses. More specifically, the negative coefficients of *ACFO* and *ADISX* and the positive coefficient of *APROD* are all significant at the 1% level, which reveals a positive relation between AM and RM. Furthermore, the coefficients of *SSSREF* remain negative while the interaction terms of *SSSREF*ACFO,* and *SSSREF*ADISX* are positive. This evidence further confirms the predicted substitutive relation between AM and RM since the reform that is presented in Table 2.4.

[Insert Table 2.6 around here]

To fully discover the effect of real earnings management, this chapter replicates the analysis of Table 2.6 by replacing the aggregate real earnings management proxies with their three components. The results in Table 2.7 support the hypotheses above and are similar to those in Tables 2.4 to 2.6. Consistent with H1, the coefficients of *DA* for *ACFO* and *ADISX* are significant and negative, while that for *APROD* is significantly positive, indicating a positive relation between discretionary accruals and individual real earnings management proxies. The coefficients of *SSSREF* are significant and have similar signs as above, implying a greater use of real earnings management after SSSREF and supporting H2. The

coefficients of *DA*SSSREF* show a significant positive association with the values of *ACFO* and *ADISX* after the reform and further confirm H3. For the control variables, results are similar to those reported in Table 2.5.

[Insert Table 2.7 around here]

2.4.3.2 Accounting Flexibility

Previous studies suggest that managers do not have unlimited discretion to manipulate earnings upward, due to the reversing nature of accrual accounting and flexibility within firms' internal accounting systems. Barton and Simko (2002) point out that the extent of earnings management is constrained by accounting choices in previous periods, and the net asset values on the balance sheet reflect the level of past earnings management. Firms with higher levels of overstated net assets relative to sales will be less able to engage in further accruals management. On the other hand, Wang and D'Souza (2006) build on this research and show that firms are more likely to engage in real earnings manipulation by reducing R&D expenditures when accounting flexibility is low. Therefore, this chapter follows Barton and Simko (2002) and uses net operating assets scaled by sales at the beginning of the year to proxy for accounting flexibility. Then, this chapter incorporates the accounting flexibility proxy and its interactive term with *SSSREF*, to test whether empirical results on earnings management are induced by changes in accounting flexibility or by the effect of the SSSREF:

$$DA = \alpha + \beta_1 SSSREF + \beta_2 BSC + \beta_3 BSC \times SSSREF + \beta_4 RM\_PROXY \times SSSREF + \beta_5 RM\_PROXY + \beta_6 DUALITY + \beta_7 BIND + \beta_8 PAY + \beta_9 TOP1 + \beta_{10} STATE + \beta_{11} TS + \beta_{12} BIG4 + \beta_{13} TOBINQ + \beta_{14} LEVERAGE + \beta_{15} FIRMSIZE + \beta_{16} BM + \beta_{17} ROA + \beta_{18} IPO\_DUM + \beta_{19} ST\_DUM \quad (13)$$

$$RM\_PROXY = \alpha + \beta_1 SSSREF + \beta_2 BSC + \beta_3 BSC \times SSSREF + \beta_4 DA \times SSSREF + \beta_5 DA + \beta_6 DUALITY + \beta_7 BIND + \beta_8 PAY + \beta_9 TOP1 + \beta_{10} STATE + \beta_{11} TS + \beta_{12} BIG4 + \beta_{13} TOBINQ + \beta_{14} LEVERAGE + \beta_{15} FIRMSIZE + \beta_{16} BM + \beta_{17} ROA + \beta_{18} IPO\_DUM + \beta_{19} ST\_DUM \quad (14)$$

where the dependent variable is discretionary accruals in equation (13) and the aggregate real earning proxies in equation (14). For the independent variables, BSC_a is computed as the ratio $NOA_{t-1} / Sales_{t-1}$. Following Defond (2002), this ratio is divided by its corresponding industry median value to account for its high dependence on the industry.

Consistent with the findings of Barton and Simko (2002), Wang and D'Souza (2006), and Zang (2012), the BSC_a coefficient in the third row of Table 2.8 is significantly and negatively correlated with discretionary accruals, confirming that firms with low accounting flexibility tend to have lower levels of discretionary accrual. At the same time, the coefficients of BSC_a with aggregate real earning proxies are positive and significant in Table 2.9, which implies that firms are more likely to engage in real earnings manipulation when the option to use accruals is constrained by lower accounting flexibility. However, the coefficients of the interactive term between BSC_a and *SSSREF* are all insignificant in Table 2.8, across all models, while they are significantly positive in Table 2.9. These results suggest that changes in accounting flexibility have a similar effect on accrual-based earnings manipulation, both before and after the reform, and a decrease in

accounting flexibility is more likely to induce higher levels of real earnings management, which has indeed increased since the SSSREF.

Therefore, after controlling for accounting flexibility, the results for the hypotheses in both Tables 2.8 and 2.9 are consistent with the finding in previous tables that a long-term positive relation exists between AM and RM. In addition, in the post-reform period the use of discretionary accruals has declined, while real earnings management activities have increased; hence the positive relation between those two earnings strategies has reduced since the reform. The signs and magnitudes of the control variables remain very similar to the results in the previous tables.

[Insert Tables 2.8 and 2.9 around here]

2.4.3.3 Difference-in-Difference Design

To employ the difference-in-difference method, this chapter splits the listed firms into two groups, one with and one without NTS, to compare them under similar market conditions. If the reform does not improve the incentive alignment between shareholders for the group of firms without NTS, then it is treated as the control group and no changes in related earnings management activities are expected. On the other hand, the group of firms with NTS is considered the

treatment group, and *SSSREF* is expected to have a significant effect on their earnings management behaviour.

Table 2.10 reports the results of regressing *DA* on the *SSSREF* dummy, real earnings proxies, the interaction term between these two, and the same set of control variables used in the main tests. Consistent with our expectations, Table 2.10 shows that for the treatment group the coefficients of *SSSREF* are still significantly negative, which indicates that *DA* is lower after the reform. Furthermore, the *RM* coefficient is still positive and significant, while the interaction term coefficient is still significantly negative. This shows that the long-term positive relation between accrual-based and real earnings management is lower after the reform. These results imply that these firms have shifted from AM to less detectable RM activities, which is in line with the results in Table 2.4. In contrast, the coefficients of both *SSSREF* and the interaction terms are insignificant for the control group, which implies that the SSSREF had no impact on the control group (firms without NTS), since they are unaffected by the aforementioned incentive alignment effect. In Table 2.11, the results also reveal that the SSSREF had an impact on the treatment group but not on the control group when regressing real earnings on the three main explanatory variables, as well as the same set of control variables.

[Insert Tables 2.10 and 2.11 around here]

2.4.3.4 The Suspect Firm Analysis

To test whether earnings proxies capture firms' earnings activities, this chapter follows Cohen et al. (2008) to apply suspect firm analysis to the incentive variables proposed by Roychowdhury (2006) and Graham et al. (2005). Specifically, the chapter tests two groups of suspect firms: one includes those firms that managed their earnings to avoid reporting a loss, and the other comprises firms that managed their earnings to maintain the same level as or slightly higher level than the prior year's earnings, as firms prefer to engage in earnings management according to these benchmarks. The former group includes those firms with net income divided by total assets in the interval [0, 0.005], while the latter group includes those firms with a change in net income divided by total assets in the interval [0, 0.005]. The results in Table 2.12 indicate that the firms in these two suspect groups manifest significant changes in their AM and RM proxies. According to the hypothesis of this chapter, accrual-based earnings management activities are significantly decreased after the SSSREF, while real earnings management proxies are significantly increased, as shown with all three alternative measures. This suspect firm analysis also demonstrates that those firms that engaged in earnings management shifted from accrual-based earnings management to real earnings management after the SSSREF.

[Insert Table 2.12 around here]

2.4.3.5 Sensitivity Tests

This chapter conducts various sensitivity tests to further check the robustness of the empirical results shown in previous tables.

2.4.3.5.1 Alternative Modified Jones Model

Following Kothari et al. (2005) and Cohen et al. (2008), this chapter employs the alternative modified Jones model and computes discretionary accruals with the denominator in the second term of equation (1) replaced with the difference between changes in sales revenue and changes in account receivables. The results strongly support the main hypotheses, indicating an increasing trend in the implementation of real earnings management and a reduction in accrual-based earnings strategies after the SSSREF, while there is a long-term positive relationship between these two earnings activities.

[Insert Tables 2.13 and 2.14 around here]

2.4.3.5.2 The Effect of IFRS

Ipino and Parbonetti (2011) find a decrease in discretionary accruals and an increase in real earnings management activities after the adoption of IFRS in countries with better enforcement regimes. However, the SSSREF is more exogenous than SOX/IFRS for the following reasons. First, the SSSREF is not a direct regulatory change in accounting reporting rules, whereas both SOX and IFRS are. Second, the Chinese SSSREF does not impose comprehensive regulatory changes on the accounting reporting practices of firms, but enhances incentive alignment to influence earnings management behaviour. Third, the IFRS requirement for all listed firms may partially influence the impact of the SSSREF on earnings management. To control for the confounding IFRS effect, two methods are adopted. First, to avoid the problem of multicollinearity, this study follows Hou et al. (2012) and includes observations from 2002 to 2007, since the effect of IFRS is expected to occur from 2008 in China.

The related results for equations (11) and (12) are reported in Tables 2.15 and 2.16, respectively. Similar to previous robustness checks, the main results remain unchanged. Table 2.15 shows a positive relation between AM and RM, and the coefficients of *SSSREF* and the interaction term between *SSSREF* and RM proxies remain significantly negative. These results confirm that there has been a significant reduction in AM and firms have shifted to RM since the reform. In Table 2.16, *DA* and all the interaction term coefficients are significant with the expected signs. More importantly, the coefficient of *SSSREF* is significantly

positive, which confirms that Chinese listed firms engage in more real earnings management since the reform.

[Insert Tables 2.15 and 2.16 around here]

The second method is to incorporate an IFRS dummy variable set to one after 2007 and zero otherwise. The results in Tables 2.17 and 2.18 are all consistent with the main hypotheses described above and the coefficients remain significant.

[Insert Tables 2.17 and 2.18 around here]

2.4.3.5.3 Firm Clustering[3]

This chapter also provides empirical results when the coefficients and t-stats are computed using firm clustering standard errors robust to H1, H2 and H3. From Table 2.19, the coefficients of real earnings management are significantly positive, which implies that firms with higher levels of real earnings management also tend to engage in more accrual-based earnings management. In addition, both *SSSREF* and the interaction term between *SSSREF* and RM coefficients remain significantly negative. This finding further confirms that since the reform Chinese

[3] Following Bond and Meghir (1994) and Harrison and McMillan (2003), this chapter also induces fixed effects to control for all unobserved time-invariant variables to re-examine the hypotheses. The results when fixed effects for panel data are controlled for are still consistent with the findings in Tables 2.4 and 2.5.

listed firms have used less discretionary accruals and the positive relation between accrual-based and real earnings management has weakened. On the other hand, the results in Table 2.20 also reveal that the coefficients of *DA* and the interaction term between *DA* and *SSSREF* are significantly positive and negative, respectively. The coefficient of *SSSREF* is statistically significant and positive, which confirms an increase in real earnings management since the reform and a shift from accrual-based earnings management to real earnings management.

[Insert Tables 2.19 and 2.20 around here]

2.4.3.5.4 Regression with Outliers

The results for the observations with all outliers are given in Tables 2.21 and 2.22. The results remain consistent with the main findings reported in previous tables.

[Insert Tables 2.21 and 2.22 around here]

2.5. Conclusion

This chapter contributes to the earnings management literature by providing empirical evidence on firms' accrual-based and real-based earnings behaviours and their relationship in the Chinese stock market. In addition, compared with the

impact of the direct regulatory changes in accounting reporting rules such as SOX and IFRS on earnings management in developed markets, this chapter explores the unique setting of China's split share structure reform and investigates the effect of exogenous incentive alignment between NTS and TS shareholders on Chinese listed firms' earnings strategies.

Specifically, the chapter considers firms' earnings management as a dynamic process, as it can employ multiple earnings measures with any combination of accrual- or real-based methods to achieve the desired accounting outcomes. The results show that there is a long-term positive relationship between the two earnings management activities throughout the sample period from 2002 to 2011. Furthermore, after the SSSREF, it is also interesting to note the tendency of firms to use more real earnings management and less accrual-based earnings management, and the significant reduction in the long-term positive relation between the two earnings activities. These findings suggest that firms may have shifted their focus from accrual-based to real earnings activities to avoid detection and scrutiny by the capital market after the SSSREF.

Furthermore, although previous studies show that the incentive alignment effect created by the reform has improved the quality of financial information, the positive relation between accrual-based and real earnings management is still observed in the post-reform period, which implies that SSSREF may not have fundamentally improved firms' quality. The main reason for this is that even in the post-reform period, controlling shareholders in China still own the largest percentage of total shares.

There are several policy implications based on the empirical evidence from this chapter. First of all, under the weak investor protection mechanism, the incentive alignment created by SSSREF could have a similar effect to that of a direct regulatory change in accounting reporting rules in developed countries, in terms of limiting accrual-based earnings management. However, because the incentive alignment created by SSSREF has led controlling shareholders to focus on stock performance, the incentives for earnings management may also increase. While firm operating performance cannot be improved overnight, accounting performance can be achieved through earnings manipulation in a short period. As a result, managers or controlling shareholders in Chinese listed firms may have incentives to manipulate earnings using less detectable real activities, which can be costly and difficult to monitor for outside investors.

Therefore, investors in China need to pay more attention to earnings management, since increasing scrutiny or costs of accounting discretion cannot prevent firms from engaging in earnings management activities. Controlling shareholders may simply switch to a different earnings management method to camouflage their expropriation of minority shareholders. Regulators need to be aware of both forms of earnings activity, and tackle such opportunistic behaviours by introducing mechanisms that curb the power of controlling shareholders. This study represents an important extension to the current literature on the earnings management behaviours in a fast growing capital market.

Table 2.1 Sample and Summary Statistics

Panel A. Annual Number of Firm Observations

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Observations	1,048	1,117	1,198	1,293	1,285	1,320	1,432	1,524	1,620	2,003

Panel B. Summary Statistics

Variable	Observations	Mean	Standard deviation	25th percentile	50th percentile	75th percentile
DA	13840	0.001	0.092	-0.045	0.003	0.049
RM_1	12610	-0.005	0.159	-0.086	0.013	0.094
RM_2	13602	0.007	0.111	-0.059	0.012	0.076
RM_3	12610	-0.003	0.205	-0.113	0.013	0.123
ACFO	13840	-0.003	0.095	-0.054	-0.002	0.052
APROD	12831	-0.01	0.128	-0.07	0	0.058
ADISX	13602	-0.003	0.064	-0.045	-0.014	0.023
BSC_a	13196	1.376	1.306	0.565	1	1.676
SSSREF	13840	0.468	0.499	0	0	1
TOP1	13840	0.38	0.161	0.254	0.358	0.502
PAY	13840	13.372	0.928	12.78	13.43	13.998
BIND	13840	0.348	0.062	0.333	0.333	0.372
DUALITY	13840	0.152	0.359	0	0	0
BIG4	13840	0.07	0.256	0	0	0
STATE	13840	0.479	0.5	0	0	1
TS	13840	19.012	1.067	18.264	18.915	19.619
LEVERAGE	13840	0.522	0.29	0.353	0.507	0.645
TOBINQ	13840	2.268	1.711	1.257	1.727	2.602
ROA	13838	0.036	0.596	0.01	0.033	0.063
BM	13840	0.377	0.279	0.2	0.338	0.525
FIRMSIZE	13840	21.457	1.177	20.676	21.338	22.107
IPO_DUM	13840	0.142	0.349	0	0	0
ST_DUM	13840	0.064	0.245	0	0	0

Note: All variables are as defined in the Appendix.

Table 2.2 Correlation Matrix

	DA	*RM_1*	*RM_2*	*RM_3*	*ACFO*	*APROD*	*ADISX*	BSC_a	*SSSREF*	*TOP1*	*PAY*	*BIND*	*DUALITY*	*BIG4*	*STATE*	*TS*	*LEVERAGE*	*TOBINQ*	*ROA*	*BM*	*FIRMSIZE*	*IPO_DUM*	*ST_DUM*
DA	1																						
RM_1	**0.106**	1																					
RM_2	**0.492**	**0.655**	1																				
RM_3	**0.309**	**0.911**	**0.871**	1																			
ACFO	**-0.540**	**-0.331**	**-0.844**	**-0.681**	1																		
APROD	**0.090**	**0.943**	**0.573**	**0.896**	**-0.399**	1																	
ADISX	**-0.103**	**-0.734**	**-0.587**	**-0.601**	**0.081**	**-0.484**	1																
BSC_a	**-0.043**	**0.097**	**0.065**	**0.084**	**-0.020**	**0.081**	**-0.093**	1															
SSSREF	-0.012	0.002	**0.031**	0.012	**-0.023**	-0.005	**-0.015**	**0.037**	1														
TOP1	**0.068**	**0.030**	0.003	0.014	**0.022**	**0.022**	**-0.035**	**-0.129**	**-0.153**	1													
PAY	**0.107**	**-0.153**	**-0.088**	**-0.131**	**0.024**	**-0.135**	**0.129**	**-0.144**	**0.345**	**-0.067**	1												
BIND	0.003	-0.011	**0.025**	0.004	**-0.030**	-0.014	-0.001	**0.018**	**0.256**	**-0.072**	**0.207**	1											
DUALITY	0.004	**-0.055**	**-0.034**	**-0.047**	0.005	**-0.047**	**0.048**	**0.016**	-0.010	**-0.091**	**0.030**	**0.062**	1										
BIG4	**0.019**	**-0.032**	**-0.046**	**-0.038**	**0.027**	**-0.023**	**0.045**	**-0.059**	**-0.078**	**0.088**	**0.117**	**-0.031**	**-0.037**	1									
STATE	0.005	**0.071**	-0.004	**0.045**	**0.027**	**0.078**	**-0.030**	**-0.058**	**-0.174**	**0.310**	**-0.144**	**-0.159**	**-0.116**	**0.081**	1								
TS	-0.013	**0.044**	**0.043**	**0.043**	**-0.019**	**0.032**	**-0.047**	**0.017**	**0.420**	**-0.043**	**0.438**	**0.170**	**-0.049**	**0.204**	**-0.092**	1							
LEVERAGE	**-0.250**	**0.120**	**0.102**	**0.149**	**-0.130**	**0.164**	0.003	**-0.073**	**0.022**	**-0.107**	**-0.118**	**0.036**	0.003	**-0.049**	**-0.057**	**-0.028**	1						
TOBINQ	**-0.020**	**-0.206**	**-0.159**	**-0.210**	**0.124**	**-0.214**	**0.117**	**0.016**	**0.158**	**-0.114**	-0.011	**0.051**	**0.084**	**-0.060**	**-0.164**	**-0.096**	**0.111**	1					
ROA	**0.231**	**-0.111**	**-0.076**	**-0.144**	**0.135**	**-0.174**	**-0.052**	**-0.134**	**0.073**	**0.057**	**0.189**	**0.040**	**-0.022**	**0.035**	-0.013	**0.084**	**-0.270**	**0.072**	1				
BM	**0.116**	**0.161**	**0.120**	**0.147**	**-0.050**	**0.135**	**-0.149**	0.012	**-0.170**	**0.137**	0.007	**-0.015**	**-0.077**	**0.053**	**0.183**	**0.118**	**-0.398**	**-0.591**	**0.083**	1			
FIRMSIZE	**0.072**	**0.081**	**0.047**	**0.075**	**-0.031**	**0.086**	**-0.033**	**-0.101**	**0.216**	**0.238**	**0.454**	**0.081**	**-0.103**	**0.235**	**0.117**	**0.732**	**-0.034**	**-0.402**	**0.130**	**0.342**	1		
IPO_DUM	**0.076**	**-0.059**	**-0.025**	**-0.049**	0.004	**-0.058**	**0.039**	**-0.064**	**-0.226**	**0.064**	0.013	**-0.016**	**0.065**	-0.015	**-0.019**	**-0.232**	**-0.135**	**0.017**	**0.045**	0.014	**-0.085**	1	
ST_DUM	**-0.065**	0.009	-0.003	0.005	0.010	0.009	0.001	**0.061**	0.012	**-0.027**	**-0.144**	**0.029**	**0.050**	**-0.040**	**-0.037**	**-0.098**	**0.173**	**0.133**	**0.016**	**-0.170**	**-0.198**	**-0.074**	1

Note: All variables are as defined in the Appendix. Coefficients in bold are statistically significant at the 1% level.

Table 2.3 Differences in Corporate Governance between the Pre- and Post-Reform Periods

Variable	Pre-reform	Post-reform	Difference (post–pre)	*p*-Value of *t*-test
TOP1	0.403	0.354	-0.05	0.000***
PAY	13.105	13.674	0.568	0.000***
BIND	0.335	0.362	0.027	0.000***
DUALITY	0.165	0.137	-0.028	0.000***
BIG4	0.078	0.061	-0.017	0.000***
STATE	0.543	0.405	-0.138	0.000***
TS	18.588	19.492	0.904	0.000***

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011.

Table 2.4 Impact of the SSSREM on Accrual-Based Earnings Management (*DA*) with Aggregate Real Earnings Proxies

	Model 1		Model 2		Model 3	
	RM_1	RM_1	RM_2	RM_2	RM_3	RM_3
SSSREF	-0.005***	-0.004***	-0.007***	-0.008***	-0.008***	-0.008***
	(-2.635)	(-2.902)	(-4.804)	(-5.106)	(-4.596)	(-7.712)
*RM_PROXY*SSSREF*	-0.032***	-0.022*	-0.094***	-0.105***	-0.049***	-0.042***
	(-2.726)	(-1.897)	(-6.601)	(-5.381)	(-5.691)	(-3.866)
RM_PROXY	0.123***	0.105***	0.522***	0.527***	0.215***	0.200***
	(13.626)	(11.079)	(52.133)	(46.291)	(32.261)	(22.291)
TOP1	-0.004	-0.009	-0.010**	-0.012***	-0.006	-0.012**
	(-0.765)	(-1.500)	(-2.275)	(-5.767)	(-1.146)	(-1.961)
PAY	0.009***	0.006***	0.011***	0.009***	0.012***	0.010***
	(7.474)	(5.815)	(11.995)	(8.257)	(10.945)	(11.045)
BIND	0.012	0.003	-0.012	-0.010	0.006	-0.005
	(0.910)	(0.317)	(-1.107)	(-0.962)	(0.444)	(-0.663)
DUALITY	0.001	-0.000	0.001	0.001	0.002	0.002
	(0.602)	(-0.015)	(0.797)	(0.564)	(1.134)	(0.993)
BIG4	-0.005	-0.004	0.003	0.006*	-0.002	-0.001
	(-1.624)	(-1.497)	(1.056)	(1.932)	(-0.578)	(-0.537)
STATE	-0.005***	-0.002	-0.001	0.000	-0.005***	-0.004**
	(-3.030)	(-1.017)	(-0.481)	(0.242)	(-3.079)	(-2.367)
TS	-0.020***	-0.016***	-0.022***	-0.018***	-0.022***	-0.018***
	(-12.527)	(-9.335)	(-17.416)	(-13.877)	(-14.760)	(-10.765)
LEVERAGE	-0.095***	-0.098***	-0.107***	-0.098***	-0.112***	-0.108***
	(-24.222)	(-13.329)	(-30.168)	(-12.907)	(-28.637)	(-13.268)
TOBINQ	0.005***	0.003***	0.008***	0.007***	0.008***	0.006***
	(6.713)	(4.295)	(13.299)	(12.205)	(11.034)	(6.582)
ROA	0.002	0.033	0.005	0.059	0.002	0.054
	(0.637)	(0.736)	(1.443)	(1.144)	(0.716)	(0.975)
BM	-0.029***	-0.022***	-0.032***	-0.021***	-0.037***	-0.027***
	(-8.341)	(-6.642)	(-10.706)	(-5.575)	(-11.114)	(-7.399)
FIRMSIZE	0.019***	0.015***	0.021***	0.016***	0.020***	0.017***
	(11.332)	(9.056)	(14.986)	(8.656)	(12.872)	(6.235)
IPO_DUM	0.002	0.002	-0.006***	-0.005**	0.001	0.001
	(0.795)	(0.502)	(-3.142)	(-2.168)	(0.182)	(0.501)
ST_DUM	-0.004	-0.004	-0.002	-0.005	-0.003	-0.003
	(-0.898)	(-0.806)	(-0.452)	(-1.507)	(-0.817)	(-0.586)
Intercept	-0.081***	-0.046**	-0.111***	-0.076***	-0.097***	-0.085***
	(-4.016)	(-1.999)	(-6.755)	(-2.998)	(-5.166)	(-3.397)
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Bsqreg	No	Yes	No	Yes	No	Yes
R-squared	0.119		0.401		0.245	
Pseudo-R-squared		0.061		0.226		0.128
Observations	12,524	12,524	13,402	13,402	12,524	12,524

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variable is *DA*. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2.5 Impact of the SSSREM on Aggregate Real Earnings Management Proxies (Aggregate RM)

	Model 1		Model 2		Model 3	
	RM_1	RM_1	RM_2	RM_2	RM_3	RM_3
SSSREF	0.022***	0.022***	0.014***	0.016***	0.030***	0.034***
	(6.675)	(7.063)	(7.619)	(7.032)	(7.716)	(9.455)
*DA*SSSREF*	-0.110***	-0.086**	-0.160***	-0.100***	-0.155***	-0.083*
	(-3.121)	(-2.029)	(-8.094)	(-4.826)	(-3.804)	(-1.868)
DA	0.366***	0.339***	0.800***	0.860***	0.992***	1.047***
	(15.122)	(11.563)	(61.435)	(57.497)	(35.534)	(36.033)
TOP1	0.023**	0.025**	0.018***	0.016***	0.024**	0.037***
	(2.357)	(2.304)	(3.277)	(3.063)	(2.095)	(4.421)
PAY	-0.034***	-0.032***	-0.016***	-0.017***	-0.039***	-0.037***
	(-18.340)	(-29.728)	(-15.515)	(-12.080)	(-17.378)	(-16.435)
BIND	0.014	0.006	0.034**	0.024**	0.035	0.013
	(0.611)	(0.267)	(2.557)	(2.288)	(1.283)	(0.434)
DUALITY	-0.009**	-0.010***	-0.004*	-0.006***	-0.010**	-0.006
	(-2.184)	(-2.854)	(-1.948)	(-3.329)	(-2.198)	(-1.300)
BIG4	-0.018***	-0.016***	-0.015***	-0.017***	-0.024***	-0.023***
	(-3.006)	(-3.957)	(-4.338)	(-3.772)	(-3.283)	(-3.073)
STATE	0.009***	0.009***	-0.004**	-0.003*	0.007**	0.005*
	(3.107)	(3.402)	(-2.411)	(-1.790)	(2.035)	(1.650)
TS	0.021***	0.018***	0.024***	0.020***	0.037***	0.034***
	(8.078)	(5.948)	(15.711)	(10.351)	(11.576)	(7.954)
LEVERAGE	0.118***	0.100***	0.114***	0.104***	0.220***	0.207***
	(18.185)	(15.233)	(28.076)	(15.671)	(26.513)	(12.749)
TOBINQ	-0.019***	-0.017***	-0.014***	-0.013***	-0.029***	-0.027***
	(-15.752)	(-11.674)	(-19.782)	(-13.956)	(-19.116)	(-13.748)
ROA	-0.002	-0.018	-0.007**	-0.042	-0.005	-0.066
	(-0.533)	(-0.610)	(-2.188)	(-0.870)	(-0.825)	(-0.641)
BM	0.072***	0.056***	0.040***	0.028***	0.097***	0.072***
	(12.672)	(11.470)	(11.622)	(8.323)	(13.982)	(13.664)
FIRMSIZE	-0.009***	-0.003	-0.019***	-0.015***	-0.026***	-0.022***
	(-3.193)	(-0.889)	(-12.206)	(-6.970)	(-7.849)	(-4.829)
IPO_DUM	0.004	0.004	0.018***	0.015***	0.012*	0.010
	(0.810)	(0.801)	(7.035)	(4.317)	(1.885)	(1.121)
ST_DUM	0.009	0.013	-0.001	0.000	0.004	0.001
	(1.395)	(1.604)	(-0.392)	(0.103)	(0.575)	(0.183)
Intercept	0.119***	0.095**	0.127***	0.140***	0.186***	0.239***
	(3.346)	(2.260)	(6.075)	(5.783)	(4.341)	(5.421)
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Bsqreg	No	Yes	No	Yes	No	Yes
R-Squared	0.143		0.387		0.264	
Pseudo-R-squared		0.077		0.253		0.153
Observations	12,524	12,524	13,402	13,402	12,524	12,524

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variables are aggregate RM proxies. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2.6 Impact of the SSSREM on Accrual-Based Earnings Management (*DA*) with Individual Real Earnings Proxies

	Model 1		Model 2		Model 3	
	ACFO	ACFO	APROD	APROD	ADISX	ADISX
SSSREF	-0.006***	-0.008***	-0.004**	-0.004***	-0.002	-0.002
	(-4.313)	(-6.599)	(-2.425)	(-3.099)	(-1.125)	(-1.369)
*RM_PROXY*SSSREF*	0.066***	0.060***	-0.014	-0.005	0.125***	0.111***
	(3.989)	(3.323)	(-0.864)	(-0.363)	(4.550)	(3.675)
RM_PROXY	-0.624***	-0.659***	0.129***	0.118***	-0.250***	-0.234***
	(-54.901)	(-77.494)	(10.330)	(8.662)	(-13.223)	(-9.787)
TOP1	-0.001	-0.002	-0.003	-0.008	-0.006	-0.006
	(-0.238)	(-0.398)	(-0.456)	(-1.178)	(-1.187)	(-1.455)
PAY	0.005***	0.003***	0.008***	0.005***	0.007***	0.005***
	(5.942)	(3.211)	(6.683)	(4.887)	(6.192)	(4.637)
BIND	-0.009	-0.006	0.015	0.008	0.004	0.002
	(-0.891)	(-0.656)	(1.146)	(0.557)	(0.294)	(0.217)
DUALITY	-0.001	0.000	0.001	0.001	-0.000	-0.002
	(-0.601)	(0.050)	(0.457)	(0.496)	(-0.060)	(-0.824)
BIG4	0.002	0.005**	-0.005*	-0.003	-0.004	-0.004
	(0.723)	(1.980)	(-1.684)	(-1.153)	(-1.283)	(-1.394)
STATE	0.000	0.000	-0.005***	-0.002	-0.004**	0.001
	(0.115)	(0.212)	(-3.109)	(-0.889)	(-2.326)	(0.449)
TS	-0.019***	-0.016***	-0.019***	-0.016***	-0.019***	-0.015***
	(-15.275)	(-8.491)	(-12.148)	(-8.849)	(-12.599)	(-10.751)
LEVERAGE	-0.115***	-0.106***	-0.098***	-0.098***	-0.081***	-0.083***
	(-30.752)	(-13.331)	(-24.366)	(-13.715)	(-21.287)	(-15.196)
TOBINQ	0.008***	0.007***	0.005***	0.003***	0.003***	0.002**
	(13.051)	(9.969)	(6.635)	(5.003)	(4.883)	(2.079)
ROA	0.003	0.074	0.001	0.037	0.003	0.023
	(0.970)	(1.358)	(0.503)	(1.013)	(1.022)	(0.756)
BM	-0.027***	-0.016***	-0.029***	-0.019***	-0.023***	-0.017***
	(-9.184)	(-3.591)	(-8.140)	(-5.710)	(-6.534)	(-5.653)
FIRMSIZE	0.020***	0.018***	0.018***	0.015***	0.018***	0.014***
	(15.320)	(8.327)	(11.241)	(6.756)	(11.320)	(8.376)
IPO_DUM	-0.006***	-0.005***	0.003	0.002	0.004	0.003
	(-3.298)	(-3.370)	(0.883)	(0.749)	(1.373)	(1.077)
ST_DUM	0.002	-0.000	-0.003	-0.004	-0.004	-0.007**
	(0.478)	(-0.065)	(-0.724)	(-1.032)	(-0.938)	(-2.146)
Intercept	-0.074***	-0.047***	-0.075***	-0.047**	-0.075***	-0.037**
	(-4.640)	(-2.717)	(-3.759)	(-2.540)	(-3.871)	(-2.552)
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Bsqreg	No	Yes	No	Yes	No	Yes
R-Squared	0.448		0.116		0.107	
Pseudo-R-squared		0.270		0.060		0.056
Observations	13,638	13,638	12,745	12,745	13,402	13,402

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variable is *DA*. Models 1, 2, and 3 are the regressions that use *ACFO, APROD,* and *ADISX* as RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2.7 Impact of the SSSREM on Individual Real Earnings Management Proxies (Individual RM)

	Model 1		Model 2		Model 3	
Dependent variable	ACFO	ACFO	APROD	APROD	ADISX	ADISX
SSSREF	-0.009***	-0.012***	0.016***	0.015***	-0.006***	-0.005***
	(-6.003)	(-7.189)	(6.295)	(6.465)	(-4.488)	(-5.184)
*DA*SSSREF*	0.042**	0.049***	0.011	0.018	0.108***	0.068***
	(2.413)	(2.895)	(0.359)	(0.550)	(7.331)	(5.032)
DA	-0.688***	-0.794***	0.224***	0.180***	-0.151***	-0.092***
	(-56.169)	(-53.906)	(11.123)	(8.097)	(-14.216)	(-10.898)
TOP1	0.001	0.005	0.006	0.014**	-0.019***	-0.014***
	(0.123)	(1.004)	(0.806)	(2.076)	(-5.073)	(-3.828)
PAY	0.004***	0.005***	-0.022***	-0.019***	0.013***	0.012***
	(4.733)	(5.455)	(-14.691)	(-13.876)	(17.368)	(16.189)
BIND	-0.024**	-0.026***	0.003	-0.006	-0.014	-0.017*
	(-2.156)	(-3.242)	(0.158)	(-0.335)	(-1.454)	(-1.886)
DUALITY	-0.001	-0.000	-0.004	-0.006**	0.004***	0.006***
	(-0.445)	(-0.334)	(-1.376)	(-2.084)	(2.658)	(4.386)
BIG4	0.009***	0.008***	-0.012***	-0.012***	0.010***	0.005*
	(3.329)	(2.594)	(-2.640)	(-4.508)	(4.110)	(1.869)
STATE	0.004***	0.001	0.010***	0.006***	0.001	0.001
	(3.013)	(0.534)	(4.020)	(4.193)	(0.496)	(1.168)
TS	-0.015***	-0.013***	0.012***	0.013***	-0.012***	-0.007***
	(-11.253)	(-5.964)	(5.309)	(5.260)	(-10.752)	(-6.794)
LEVERAGE	-0.110***	-0.106***	0.114***	0.097***	-0.011***	-0.010***
	(-29.627)	(-16.005)	(21.499)	(14.175)	(-3.840)	(-3.459)
TOBINQ	0.011***	0.009***	-0.016***	-0.014***	0.004***	0.003***
	(17.785)	(13.388)	(-15.936)	(-10.318)	(9.437)	(5.227)
ROA	0.003	0.060	0.001	-0.020	0.003***	0.003
	(1.173)	(1.456)	(0.414)	(-0.576)	(10.409)	(1.026)
BM	-0.026***	-0.015***	0.057***	0.046***	-0.018***	-0.015***
	(-8.387)	(-3.959)	(12.166)	(9.912)	(-7.925)	(-7.166)
FIRMSIZE	0.017***	0.016***	-0.005**	-0.006**	0.006***	0.000
	(12.328)	(6.203)	(-2.341)	(-2.414)	(4.952)	(0.113)
IPO_DUM	-0.015***	-0.013***	0.004	0.002	-0.005***	-0.005***
	(-7.227)	(-3.601)	(0.975)	(0.631)	(-2.901)	(-2.631)
ST_DUM	0.005	0.003	0.006	0.001	-0.001	-0.004*
	(1.602)	(0.915)	(1.070)	(0.283)	(-0.402)	(-1.767)
Intercept	-0.069***	-0.104***	0.088***	0.098***	-0.059***	-0.021
	(-3.845)	(-4.369)	(3.099)	(3.107)	(-4.143)	(-1.278)
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Bsqreg	No	Yes	No	Yes	No	Yes
R-Squared	0.423		0.146		0.080	
Pseudo-R-squared		0.265		0.076		0.045
Observations	13,638	13,638	12,745	12,745	13,402	13,402

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variables are *ACFO, APROD,* and *ADISX*. Models 1, 2, and 3 are the regressions that use *ACFO, APROD,* and *ADISX* as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 2.8 Impact of the SSSREM on Accrual-Based Earnings Management (*DA*), Controlling for Accounting Flexibility

	Model 1		Model 2		Model 3	
Real proxy	RM_1	RM_1	RM_2	RM_2	RM_3	RM_3
SSSREF	-0.008***	-0.008***	-0.008***	-0.008***	-0.010***	-0.010***
	(-2.844)	(-3.137)	(-3.703)	(-4.146)	(-4.162)	(-4.341)
BSC_a*SSSREF	0.002	0.002	0.000	0.000	0.002	0.001
	(1.508)	(1.174)	(0.338)	(0.392)	(1.284)	(0.968)
BSC_a	-0.004***	-0.002**	-0.004***	-0.003***	-0.005***	-0.003***
	(-3.805)	(-2.053)	(-4.928)	(-4.031)	(-5.126)	(-2.971)
*RM_PROXY*SSSREF*	-0.038***	-0.021*	-0.096***	-0.111***	-0.052***	-0.045***
	(-3.212)	(-1.865)	(-6.584)	(-6.772)	(-6.025)	(-5.304)
RM_PROXY	0.131***	0.110***	0.528***	0.535***	0.221***	0.205***
	(14.501)	(12.593)	(52.782)	(45.052)	(33.499)	(30.991)
TOP1	-0.004	-0.007	-0.011**	-0.012***	-0.007	-0.012**
	(-0.752)	(-1.344)	(-2.347)	(-2.593)	(-1.328)	(-2.551)
PAY	0.007***	0.005***	0.009***	0.008***	0.010***	0.009***
	(5.815)	(4.786)	(9.510)	(11.671)	(8.680)	(7.639)
BIND	0.019	0.008	-0.003	-0.007	0.014	-0.001
	(1.406)	(0.684)	(-0.285)	(-0.532)	(1.121)	(-0.061)
DUALITY	0.002	-0.000	0.002	0.002	0.003	0.000
	(0.821)	(-0.009)	(1.052)	(0.828)	(1.380)	(0.138)
BIG4	-0.001	0.001	0.007**	0.009***	0.003	0.000
	(-0.205)	(0.271)	(2.536)	(2.650)	(0.818)	(0.192)
STATE	-0.005***	-0.002	-0.000	0.002	-0.004***	-0.003
	(-2.730)	(-1.017)	(-0.193)	(1.272)	(-2.692)	(-1.603)
TS	-0.018***	-0.014***	-0.020***	-0.016***	-0.019***	-0.016***
	(-10.829)	(-9.344)	(-14.989)	(-10.771)	(-12.570)	(-10.903)
LEVERAGE	-0.088***	-0.086***	-0.100***	-0.091***	-0.104***	-0.100***
	(-23.016)	(-18.913)	(-28.102)	(-25.778)	(-27.416)	(-27.550)
TOBINQ	0.004***	0.003***	0.008***	0.006***	0.007***	0.006***
	(5.943)	(3.739)	(12.653)	(9.434)	(10.220)	(7.381)
ROA	0.061***	0.103***	0.058***	0.126***	0.068***	0.129***
	(4.497)	(5.728)	(5.743)	(7.035)	(5.239)	(6.153)
BM	-0.029***	-0.020***	-0.030***	-0.019***	-0.036***	-0.025***
	(-8.140)	(-5.512)	(-9.986)	(-6.495)	(-10.632)	(-7.685)
FIRMSIZE	0.017***	0.013***	0.019***	0.013***	0.018***	0.014***
	(9.769)	(7.137)	(12.929)	(8.406)	(10.971)	(9.366)
IPO_DUM	0.003	0.002	-0.007***	-0.005***	0.001	0.001
	(0.851)	(0.573)	(-3.314)	(-2.606)	(0.329)	(0.404)
ST_DUM	-0.001	-0.001	0.001	-0.003	-0.001	-0.001
	(-0.369)	(-0.334)	(0.230)	(-1.196)	(-0.152)	(-0.165)
Intercept	-0.071***	-0.021	-0.062***	-0.050**	-0.091***	-0.034*
	(-3.266)	(-0.961)	(-3.552)	(-2.417)	(-4.539)	(-1.778)
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Bsqreg	No	Yes	No	Yes	No	Yes
R-Squared	0.130		0.413		0.260	
Pseudo-R-squared		0.067		0.235		0.138
Observations	12,053	12,053	12,898	12,898	12,053	12,053

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variable is *DA*. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2.9 Impact of the SSSREM on Real Earnings Management (*RM*), Controlling for Accounting Flexibility

	Model 1		Model 2		Model 3	
Dependent variable	RM_1	RM_1	RM_2	RM_2	RM_3	RM_3
SSSREF	0.014***	0.011***	0.012***	0.015***	0.025***	0.028***
	(3.061)	(2.794)	(4.380)	(5.526)	(4.466)	(3.863)
BSC_a*SSSREF	0.006***	0.007***	0.002**	0.002*	0.005*	0.004
	(2.835)	(3.787)	(2.087)	(1.799)	(1.940)	(1.235)
BSC_a	0.007***	0.005***	0.004***	0.004***	0.010***	0.007***
	(4.534)	(5.533)	(5.254)	(4.941)	(5.988)	(4.427)
*DA*SSSREF*	-0.141***	-0.117***	-0.179***	-0.128***	-0.199***	-0.111***
	(-3.935)	(-3.029)	(-8.912)	(-7.088)	(-4.799)	(-2.731)
DA	0.394***	0.364***	0.816***	0.880***	1.034***	1.069***
	(16.045)	(16.902)	(61.911)	(72.298)	(36.699)	(31.841)
TOP1	0.028***	0.028***	0.021***	0.017***	0.032***	0.036***
	(2.879)	(2.767)	(3.722)	(3.750)	(2.766)	(2.996)
PAY	-0.030***	-0.029***	-0.014***	-0.016***	-0.033***	-0.033***
	(-15.637)	(-22.340)	(-13.165)	(-15.699)	(-14.471)	(-13.534)
BIND	-0.001	0.000	0.023*	0.023	0.013	-0.001
	(-0.030)	(0.025)	(1.727)	(1.350)	(0.465)	(-0.073)
DUALITY	-0.009**	-0.010***	-0.005**	-0.006***	-0.011**	-0.006
	(-2.300)	(-2.623)	(-2.056)	(-3.561)	(-2.293)	(-0.906)
BIG4	-0.019***	-0.017***	-0.018***	-0.019***	-0.026***	-0.025***
	(-2.898)	(-2.714)	(-4.653)	(-5.172)	(-3.201)	(-2.696)
STATE	0.009***	0.008***	-0.004**	-0.002	0.006*	0.005
	(2.862)	(2.926)	(-2.508)	(-1.523)	(1.653)	(1.247)
TS	0.017***	0.014***	0.021***	0.017***	0.031***	0.029***
	(6.151)	(5.251)	(13.373)	(11.531)	(9.256)	(7.596)
LEVERAGE	0.114***	0.093***	0.110***	0.101***	0.210***	0.186***
	(15.827)	(14.459)	(25.470)	(28.701)	(23.218)	(23.230)
TOBINQ	-0.018***	-0.016***	-0.014***	-0.013***	-0.028***	-0.026***
	(-15.431)	(-14.222)	(-19.299)	(-15.370)	(-18.648)	(-17.685)
ROA	-0.061***	-0.082***	-0.053***	-0.085***	-0.116***	-0.196***
	(-3.611)	(-3.735)	(-6.327)	(-3.479)	(-5.115)	(-3.898)
BM	0.067***	0.051***	0.035***	0.024***	0.089***	0.066***
	(11.462)	(11.940)	(10.199)	(6.400)	(12.595)	(16.709)
FIRMSIZE	-0.005*	0.001	-0.017***	-0.013***	-0.021***	-0.018***
	(-1.839)	(0.295)	(-10.331)	(-10.066)	(-6.012)	(-4.438)
IPO_DUM	0.001	0.003	0.018***	0.015***	0.009	0.011*
	(0.263)	(0.438)	(6.714)	(5.932)	(1.358)	(1.783)
ST_DUM	0.005	0.005	-0.004	-0.004	-0.001	0.001
	(0.761)	(0.775)	(-1.034)	(-1.321)	(-0.118)	(0.140)
Intercept	0.121***	0.003	0.068***	0.133***	0.195***	0.110**
	(3.178)	(0.075)	(3.128)	(5.985)	(4.268)	(2.111)
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Bsqreg	No	Yes	No	Yes	No	Yes
R-Squared	0.152		0.397		0.277	
Pseudo-R-squared		0.082		0.260		0.160
Observations	12,053	12,053	12,898	12,898	12,053	12,053

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variables are aggregate RM proxies. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 2.10 Difference-in-Difference design for the Accrual-Based Earning Management (DA)

	Model 1		Model 2		Model 3	
	Non-tradable	Tradable	Non-tradable	Tradable	Non-tradable	Tradable
SSSREF	-0.004**	0.004	-0.005***	-0.001	-0.007***	0.002
	(-2.034)	(0.644)	(-3.158)	(-0.234)	(-3.819)	(0.345)
*RM_PROXY*SSSREF*	-0.034***	0.014	-0.092***	0.087	-0.052***	0.044
	(-2.753)	(0.298)	(-6.039)	(1.329)	(-5.667)	(1.547)
RM_PROXY	0.123***	0.088*	0.526***	0.339***	0.217***	0.131***
	(13.462)	(1.916)	(51.981)	(5.343)	(31.880)	(4.809)
TOP1	-0.000	-0.026*	-0.006	-0.019	-0.002	-0.020
	(-0.018)	(-1.671)	(-1.279)	(-1.429)	(-0.413)	(-1.359)
PAY	0.009***	0.006	0.011***	0.008**	0.012***	0.008**
	(7.373)	(1.510)	(11.613)	(2.431)	(10.696)	(2.373)
IND	0.021	-0.053	-0.011	-0.058	0.012	-0.047
	(1.460)	(-1.224)	(-0.979)	(-1.414)	(0.888)	(-1.110)
DUALITY	-0.001	0.016**	-0.001	0.015**	0.001	0.015**
	(-0.288)	(2.375)	(-0.377)	(2.426)	(0.218)	(2.438)
BIG4	-0.004	-0.013	0.003	-0.005	-0.001	-0.006
	(-1.324)	(-1.362)	(1.248)	(-0.586)	(-0.424)	(-0.711)
STATE	-0.007***	0.066	-0.003*	0.049	-0.007***	0.048
	(-3.696)	(0.976)	(-1.851)	(1.596)	(-4.018)	(1.010)
TS	-0.020***	-0.004	-0.021***	-0.014***	-0.022***	-0.008*
	(-12.129)	(-0.915)	(-15.399)	(-3.354)	(-13.818)	(-1.951)
LEVERAGE	-0.095***	-0.095***	-0.102***	-0.124***	-0.111***	-0.116***
	(-23.764)	(-5.867)	(-29.277)	(-8.099)	(-28.057)	(-7.173)
TOBINQ	0.004***	0.005**	0.008***	0.009***	0.007***	0.008***
	(6.042)	(2.376)	(12.075)	(4.380)	(10.133)	(3.464)
ROA	0.001	0.088**	0.004	0.102**	0.002	0.110***
	(0.598)	(2.519)	(1.460)	(2.321)	(0.680)	(2.687)
BM	-0.028***	-0.040***	-0.029***	-0.047***	-0.035***	-0.052***
	(-7.716)	(-3.016)	(-9.651)	(-4.117)	(-10.282)	(-4.184)
FIRMSIZE	0.018***	0.015***	0.019***	0.018***	0.020***	0.015***
	(10.335)	(3.209)	(13.321)	(4.179)	(11.746)	(3.343)
ST_DUM	-0.005	0.009	-0.002	0.010	-0.004	0.007
	(-1.234)	(0.650)	(-0.659)	(0.857)	(-1.074)	(0.573)
Intercept	-0.081***	-0.252***	-0.095***	-0.147***	-0.118***	-0.189***
	(-3.760)	(-3.835)	(-5.441)	(-2.629)	(-5.854)	(-3.099)
R-squared	0.123	0.111	0.412	0.339	0.251	0.228
Observations	11,019	1,505	11,896	1,506	11,019	1,505

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variable is *DA*. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2.11 Difference-in-Difference design for Real Earnings Management (RM)

	Model 1		Model 2		Model 3	
	Non-tradable	Tradable	Non-tradable	Tradable	Non-tradable	Tradable
SSSREF	0.021***	-0.008	0.010***	0.005	0.028***	0.004
	(6.338)	(-0.635)	(5.221)	(0.570)	(6.934)	(0.251)
*DA*SSSREF*	-0.111***	-0.213	-0.166***	-0.126	-0.164***	-0.189
	(-2.934)	(-0.821)	(-7.817)	(-0.572)	(-3.727)	(-0.477)
DA	0.359***	0.520**	0.802***	0.786***	0.986***	1.100***
	(14.792)	(2.066)	(62.060)	(3.640)	(35.480)	(2.841)
TOP1	0.025**	0.001	0.016***	-0.001	0.026**	-0.017
	(2.430)	(0.030)	(2.668)	(-0.056)	(2.114)	(-0.480)
PAY	-0.034***	-0.028***	-0.016***	-0.013***	-0.038***	-0.033***
	(-17.603)	(-4.656)	(-14.617)	(-3.628)	(-16.508)	(-4.469)
IND	0.026	-0.024	0.046***	0.043	0.050*	0.001
	(1.069)	(-0.309)	(3.377)	(0.771)	(1.772)	(0.007)
DUALITY	-0.010**	0.004	-0.003	-0.005	-0.010**	-0.006
	(-2.318)	(0.312)	(-1.226)	(-0.665)	(-2.011)	(-0.417)
BIG4	-0.015**	-0.040**	-0.015***	-0.017	-0.021***	-0.046**
	(-2.342)	(-2.219)	(-3.939)	(-1.469)	(-2.693)	(-2.042)
STATE	0.011***	0.109***	-0.002	0.018	0.011***	0.105*
	(3.409)	(6.544)	(-0.909)	(0.383)	(2.981)	(1.706)
TS	0.019***	0.024***	0.018***	0.031***	0.032***	0.042***
	(6.678)	(2.901)	(11.626)	(5.459)	(9.470)	(3.931)
LEVERAGE	0.111***	0.180***	0.104***	0.160***	0.211***	0.282***
	(16.554)	(8.283)	(25.793)	(9.711)	(24.898)	(9.292)
TOBINQ	-0.018***	-0.019***	-0.013***	-0.016***	-0.028***	-0.028***
	(-14.727)	(-4.463)	(-17.798)	(-6.516)	(-17.875)	(-5.238)
ROA	-0.001	-0.205**	-0.006**	-0.117	-0.004	-0.303**
	(-0.484)	(-2.164)	(-2.274)	(-1.495)	(-0.800)	(-2.067)
BM	0.068***	0.122***	0.035***	0.064***	0.091***	0.163***
	(11.413)	(6.595)	(10.055)	(4.991)	(12.589)	(6.787)
FIRMSIZE	-0.008***	-0.009	-0.017***	-0.018***	-0.025***	-0.017
	(-2.645)	(-1.077)	(-10.136)	(-3.119)	(-7.123)	(-1.553)
ST_DUM	0.008	0.01	-0.003	-0.006	0.002	0.006
	(1.170)	(0.506)	(-0.659)	(-0.470)	(0.283)	(0.226)
Intercept	0.197***	-0.045	0.141***	-0.129*	0.332***	-0.213
	(5.102)	(-0.376)	(6.444)	(-1.788)	(7.190)	(-1.452)
R-squared	0.142	0.19	0.392	0.384	0.265	0.308
Observations	11,019	1,505	11,896	1,506	11,019	1,505

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variables are aggregate RM proxies. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2.12 Suspect Firm Analysis

Panel A. Just Avoid

Variable	Pre-reform	Post-reform	Difference (post–pre)	*p*-Value of *t*-test
DA	0.004	-0.010	-0.013	0.013**
RM_1	0.061	0.075	0.014	0.088*
RM_2	0.047	0.063	0.016	0.011**
RM_3	0.079	0.111	0.032	0.003***

Panel B. Meet or Beat

Variable	Pre-reform	Post-reform	Difference (post–pre)	*p*-Value of *t*-test
DA	0 .009	-0.001	-0.010	0.004***
RM_1	0.011	0.027	0.016	0.025**
RM_2	0.011	0.027	0.017	0.001***
RM_3	0.008	0.040	0.032	0.000***

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. This chapter constructs two groups of suspect firms from the sample, since they may be more likely to engage in earnings management according to these benchmarks: Just Avoid are those firms that managed their earnings to avoid reporting a loss, and Meet or Beat are those that managed their earnings to maintain earnings at the same level as or slightly higher than the previous year's earnings. The former group includes firms with value of net income divided by total assets in the interval [0, 0.005], while the latter group includes those firms with a change in net income divided by total assets in the interval [0, 0.005].

Table 2.13 Impact of the SSSREM on Accrual-Based Earnings Management (*DA*) with Aggregate Real Earnings Management Proxies, Modified Jones Model

RM_PROXY	RM_1	RM_2	RM_3
SSSREF	-0.005**	-0.007***	-0.009***
	(-2.572)	(-4.061)	(-4.452)
*RM_PROXY*SSSREF*	-0.032**	-0.085***	-0.048***
	(-2.522)	(-5.464)	(-5.216)
RM_PROXY	0.122***	0.538***	0.223***
	(12.772)	(49.710)	(31.811)
TOP1	0.008	0.001	0.006
	(1.179)	(0.140)	(0.957)
PAY	0.008***	0.010***	0.012***
	(6.594)	(9.964)	(10.006)
IND	0.017	-0.017	0.010
	(1.143)	(-1.356)	(0.697)
DUALITY	-0.004	-0.006***	-0.002
	(-1.329)	(-2.735)	(-0.964)
BIG4	-0.007**	0.003	-0.004
	(-2.008)	(0.868)	(-1.065)
STATE	-0.008***	-0.001	-0.008***
	(-4.199)	(-0.902)	(-4.328)
TS	-0.017***	-0.019***	-0.019***
	(-9.739)	(-13.054)	(-11.793)
LEVERAGE	-0.078***	-0.087***	-0.096***
	(-19.717)	(-25.956)	(-25.434)
TOBINQ	0.004***	0.008***	0.007***
	(5.535)	(12.652)	(10.159)
ROA	0.002	0.004	0.002
	(0.675)	(1.607)	(0.757)
BM	-0.031***	-0.030***	-0.039***
	(-8.106)	(-9.698)	(-11.104)
FIRMSIZE	0.018***	0.019***	0.019***
	(10.030)	(12.658)	(11.551)
IPO_DUM	-0.006*	-0.019***	-0.008**
	(-1.648)	(-7.041)	(-2.375)
ST_DUM	0.000	0.002	0.001
	(0.033)	(0.462)	(0.157)
Intercept	-0.133***	-0.141***	-0.158***
	(-5.631)	(-7.167)	(-7.167)
Industry	Y	Y	Y
R-Squared	0.076	0.313	0.193
Observations	12,522	13,400	12,522

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variable is *DA*. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2.14 Impact of the SSSREM on Aggregate Real Earnings Management Proxies (Aggregate RM, Modified Jones Model)

Dependent variable	RM_1	RM_2	RM_3
SSSREF	0.022***	0.014***	0.030***
	(6.682)	(7.334)	(7.689)
*DA*SSSREF*	-0.138***	-0.145***	-0.244***
	(-4.486)	(-7.527)	(-6.507)
DA	0.321***	0.650***	0.896***
	(14.601)	(48.430)	(33.585)
TOP1	0.019**	0.011*	0.014
	(1.969)	(1.856)	(1.169)
PAY	-0.034***	-0.015***	-0.038***
	(-18.226)	(-13.906)	(-16.970)
IND	0.014	0.038***	0.033
	(0.596)	(2.756)	(1.196)
DUALITY	-0.007*	0.000	-0.006
	(-1.813)	(0.170)	(-1.282)
BIG4	-0.018***	-0.016***	-0.024***
	(-3.011)	(-4.429)	(-3.230)
STATE	0.009***	-0.004***	0.008**
	(3.163)	(-2.589)	(2.341)
TS	0.019***	0.019***	0.032***
	(7.386)	(12.444)	(10.065)
LEVERAGE	0.109***	0.090***	0.195***
	(17.110)	(24.604)	(25.484)
TOBINQ	-0.018***	-0.013***	-0.028***
	(-15.640)	(-19.575)	(-19.092)
ROA	-0.001	-0.006***	-0.004
	(-0.519)	(-2.610)	(-0.843)
BM	0.071***	0.036***	0.095***
	(12.542)	(10.731)	(14.049)
FIRMSIZE	-0.007**	-0.015***	-0.021***
	(-2.538)	(-9.675)	(-6.626)
IPO_DUM	0.008	0.027***	0.021***
	(1.414)	(9.694)	(3.106)
ST_DUM	0.007	-0.004	0.001
	(1.218)	(-1.038)	(0.138)
Intercept	0.168***	0.130***	0.268***
	(4.653)	(6.098)	(6.164)
Industry	Y	Y	Y
R-Squared	0.138	0.335	0.247
Observations	12,522	13,400	12,522

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variables are aggregate RM proxies. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2.15 Impact of the SSSREM on Accrual-Based Earnings Management (*DA*) with Aggregate Real Earnings Management Proxies (IFRS, 2002–2007)

RM_PROXY	RM_1	RM_2	RM_3
SSSREF	-0.013***	-0.014***	-0.017***
	(-3.514)	(-6.300)	(-5.520)
*RM_PROXY*SSSREF*	-0.034**	-0.081***	-0.062***
	(-1.991)	(-5.494)	(-5.663)
RM_PROXY	0.232***	0.836***	0.400***
	(18.189)	(91.944)	(51.999)
TOP1	0.001	-0.002	0.002
	(0.070)	(-0.182)	(0.147)
PAY	0.012***	0.014***	0.018***
	(4.962)	(8.878)	(8.877)
IND	0.017	0.001	0.014
	(0.822)	(0.053)	(0.783)
DUALITY	0.005	0.006**	0.004
	(1.037)	(2.217)	(0.989)
BIG4	0.005	-0.008	-0.004
	(0.603)	(-1.590)	(-0.641)
STATE	-0.013**	-0.010***	-0.012***
	(-2.568)	(-3.219)	(-2.922)
TS	-0.012**	-0.018***	-0.012***
	(-2.496)	(-6.197)	(-2.845)
LEVERAGE	-0.095***	-0.069***	-0.101***
	(-12.481)	(-14.722)	(-16.170)
TOBINQ	0.002*	0.006***	0.004***
	(1.939)	(8.304)	(4.828)
ROA	0.027**	0.019**	0.018*
	(2.262)	(2.547)	(1.865)
BM	-0.038***	-0.024***	-0.042***
	(-6.044)	(-6.191)	(-8.006)
FIRMSIZE	0.030***	0.028***	0.022***
	(7.031)	(10.893)	(6.328)
IPO_DUM	-0.000	0.001	-0.002
	(-0.021)	(0.302)	(-0.568)
ST_DUM	0.007	0.012***	0.013***
	(1.529)	(4.100)	(3.328)
Intercept	-0.496***	-0.390***	-0.422***
	(-4.792)	(-6.210)	(-4.951)
Number of stkcd	1,352	1,413	1,352
R-Squared	0.125	0.656	0.406
Observations	6,670	7,023	6,670

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2007. The dependent variable is *DA*. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2.16 Impact of the SSSREM on Aggregate Real Earnings Management Proxies (Aggregate RM*;* IFRS, 2002–2007)

Dependent variable	RM_1	RM_2	RM_3
SSSREF	0.021***	0.014***	0.032***
	(4.907)	(6.421)	(6.440)
*DA*SSSREF*	-0.013	-0.105***	-0.077**
	(-0.385)	(-6.244)	(-2.094)
DA	0.300***	0.802***	0.970***
	(16.969)	(88.938)	(48.796)
TOP1	-0.045**	-0.001	-0.022
	(-2.115)	(-0.133)	(-0.920)
PAY	-0.024***	-0.014***	-0.036***
	(-8.413)	(-9.201)	(-11.085)
IND	-0.004	0.003	-0.013
	(-0.180)	(0.220)	(-0.459)
DUALITY	0.003	-0.006**	-0.001
	(0.485)	(-2.014)	(-0.148)
BIG4	0.014	0.012**	0.025**
	(1.431)	(2.533)	(2.382)
STATE	0.005	0.008***	0.011
	(0.808)	(2.598)	(1.568)
TS	0.000	0.017***	0.010
	(0.084)	(5.792)	(1.540)
LEVERAGE	0.003	0.042***	0.100***
	(0.355)	(9.142)	(10.032)
TOBINQ	-0.009***	-0.007***	-0.012***
	(-6.703)	(-10.605)	(-8.552)
ROA	-0.056***	-0.016**	-0.024
	(-4.007)	(-2.169)	(-1.553)
BM	0.019***	0.014***	0.050***
	(2.608)	(3.804)	(6.063)
FIRMSIZE	0.009*	-0.019***	-0.004
	(1.894)	(-7.677)	(-0.754)
IPO_DUM	0.005	0.000	0.008
	(0.935)	(0.054)	(1.219)
ST_DUM	0.005	-0.012***	-0.020***
	(0.958)	(-4.304)	(-3.175)
Intercept	0.131	0.260***	0.322**
	(1.092)	(4.242)	(2.388)
Number of stkcd	1,352	1,413	1,352
R-Squared	0.093	0.640	0.380
Observations	6,670	7,023	6,670

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2007. The dependent variables are aggregate RM proxies. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2.17 Impact of the SSSREM on Accrual-Based Earnings Management (*DA*) with Aggregate Real Earnings Management Proxies (IFRS Dummy)

RM_PROXY	RM_1	RM_2	RM_3
SSSREF	-0.007**	-0.006***	-0.009***
	(-2.440)	(-2.850)	(-3.491)
*RM_PROXY*SSSREF*	-0.055***	-0.149***	-0.087***
	(-4.907)	(-13.214)	(-11.291)
RM_PROXY	0.182***	0.729***	0.329***
	(17.356)	(78.027)	(47.427)
IFRS	-0.009***	-0.007***	-0.008***
	(-3.142)	(-3.373)	(-2.931)
TOP1	0.028**	0.019**	0.027**
	(2.400)	(2.157)	(2.565)
PAY	0.011***	0.013***	0.015***
	(5.855)	(9.980)	(9.619)
IND	0.023	0.021*	0.026*
	(1.363)	(1.685)	(1.782)
DUALITY	0.000	0.001	-0.000
	(0.020)	(0.463)	(-0.135)
BIG4	0.002	-0.002	-0.000
	(0.293)	(-0.438)	(-0.045)
STATE	-0.007***	-0.001	-0.006**
	(-2.582)	(-0.410)	(-2.497)
TS	-0.015***	-0.024***	-0.018***
	(-6.033)	(-13.314)	(-8.240)
LEVERAGE	-0.096***	-0.093***	-0.108***
	(-19.455)	(-25.617)	(-24.588)
TOBINQ	0.004***	0.007***	0.006***
	(5.301)	(12.600)	(9.454)
ROA	-0.000	0.003***	-0.000
	(-0.107)	(3.129)	(-0.158)
BM	-0.028***	-0.028***	-0.033***
	(-6.682)	(-9.245)	(-8.916)
FIRMSIZE	0.022***	0.017***	0.015***
	(9.561)	(10.224)	(7.356)
IPO_DUM	0.004	-0.002	-0.002
	(1.071)	(-0.881)	(-0.448)
ST_DUM	0.006*	0.011***	0.010***
	(1.777)	(4.376)	(3.151)
Intercept	-0.275***	-0.048	-0.129***
	(-5.501)	(-1.306)	(-2.889)
Number of stkcd	1,761	2,043	1,761
R-Squared	0.092	0.482	0.281
Observations	12,524	13,402	12,524

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variable is *DA*. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2.18 Impact of the SSSREM on Aggregate Real Earnings Management Proxies (Aggregate RM, IFRS dummy)

Dependent variable	RM_1	RM_2	RM_3
SSSREF	0.018***	0.006***	0.021***
	(4.753)	(2.672)	(4.597)
*DA*SSSREF*	-0.074***	-0.140***	-0.125***
	(-3.143)	(-10.225)	(-4.384)
DA	0.288***	0.764***	0.913***
	(15.942)	(73.851)	(41.907)
IFRS	-0.002	0.002	-0.000
	(-0.423)	(1.023)	(-0.014)
TOP1	-0.024	-0.009	-0.027
	(-1.593)	(-0.958)	(-1.455)
PAY	-0.026***	-0.014***	-0.037***
	(-11.288)	(-10.616)	(-13.102)
IND	-0.011	-0.020	-0.037
	(-0.500)	(-1.599)	(-1.425)
DUALITY	0.004	-0.002	0.002
	(0.822)	(-0.976)	(0.333)
BIG4	0.006	0.003	0.007
	(0.859)	(0.639)	(0.820)
STATE	0.009***	-0.003	0.006
	(2.700)	(-1.636)	(1.602)
TS	0.007**	0.027***	0.029***
	(2.272)	(14.333)	(7.359)
LEVERAGE	0.050***	0.074***	0.144***
	(7.597)	(19.238)	(18.237)
TOBINQ	-0.009***	-0.008***	-0.016***
	(-9.293)	(-15.119)	(-14.234)
ROA	0.002	-0.004***	0.001
	(1.312)	(-3.739)	(0.448)
BM	0.024***	0.025***	0.050***
	(4.446)	(7.721)	(7.642)
FIRMSIZE	0.008***	-0.006***	0.009***
	(2.853)	(-3.603)	(2.623)
IPO_DUM	0.011**	0.012***	0.023***
	(2.236)	(4.778)	(3.776)
ST_DUM	-0.000	-0.012***	-0.016***
	(-0.047)	(-4.295)	(-2.860)
Intercept	0.007	-0.201***	-0.313***
	(0.109)	(-5.288)	(-3.968)
Number of stkcd	1,761	2,043	1,761
R-Squared	0.062	0.463	0.263
Observations	12,524	13,402	12,524

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variables are aggregate RM proxies. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 2.19 Impact of the SSSREM on Accrual-Based Earnings Management (*DA*) with Aggregate Real Earnings Management Proxies (Firm Clustering)

RM_PROXY	RM_1	RM_2	RM_3
SSSREF	-0.005**	-0.007***	-0.008***
	(-2.340)	(-3.992)	(-3.892)
*RM_PROXY*SSSREF*	-0.032**	-0.094***	-0.049***
	(-2.568)	(-6.150)	(-5.015)
RM_PROXY	0.123***	0.522***	0.215***
	(12.174)	(40.869)	(25.422)
TOP1	-0.004	-0.010*	-0.006
	(-0.640)	(-1.673)	(-0.915)
PAY	0.009***	0.011***	0.012***
	(6.539)	(9.475)	(9.092)
IND	0.012	-0.012	0.006
	(0.810)	(-0.897)	(0.382)
DUALITY	0.001	0.001	0.002
	(0.528)	(0.641)	(0.965)
BIG4	-0.005	0.003	-0.002
	(-1.255)	(0.721)	(-0.425)
STATE	-0.005***	-0.001	-0.005**
	(-2.644)	(-0.368)	(-2.554)
TS	-0.020***	-0.022***	-0.022***
	(-11.219)	(-14.390)	(-12.612)
LEVERAGE	-0.095***	-0.107***	-0.112***
	(-22.255)	(-25.815)	(-24.394)
TOBINQ	0.005***	0.008***	0.008***
	(6.236)	(11.082)	(9.697)
ROA	0.002	0.005	0.002
	(0.635)	(1.444)	(0.714)
BM	-0.029***	-0.032***	-0.037***
	(-7.915)	(-9.879)	(-10.409)
FIRMSIZE	0.019***	0.021***	0.020***
	(9.893)	(12.114)	(10.716)
IPO_DUM	0.002	-0.006***	0.001
	(0.805)	(-2.835)	(0.182)
ST_DUM	-0.004	-0.002	-0.003
	(-0.866)	(-0.436)	(-0.776)
Intercept	-0.081***	-0.111***	-0.097***
	(-3.482)	(-4.947)	(-4.145)
Firm ID	y	y	y
R-Squared	0.119	0.401	0.245
Observations	12,524	13,402	12,524

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variable is *DA*. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using firm clustering standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2.20 Impact of the SSSREM on Aggregate Real Earnings Management Proxies (Aggregate RM, Firm Clustering)

Dependent variable	RM_1	RM_2	RM_3
SSSREF	0.022***	0.014***	0.030***
	(4.869)	(5.598)	(5.545)
*DA*SSSREF*	-0.110***	-0.160***	-0.155***
	(-2.972)	(-7.680)	(-3.680)
DA	0.366***	0.800***	0.992***
	(13.927)	(57.392)	(33.441)
TOP1	0.023	0.018*	0.024
	(1.274)	(1.860)	(1.151)
PAY	-0.034***	-0.016***	-0.039***
	(-11.054)	(-9.679)	(-10.626)
IND	0.014	0.034*	0.035
	(0.434)	(1.784)	(0.903)
DUALITY	-0.009	-0.004	-0.010
	(-1.414)	(-1.284)	(-1.434)
BIG4	-0.018	-0.015**	-0.024*
	(-1.541)	(-2.353)	(-1.722)
STATE	0.009*	-0.004	0.007
	(1.944)	(-1.518)	(1.284)
TS	0.021***	0.024***	0.037***
	(5.126)	(10.402)	(7.393)
LEVERAGE	0.118***	0.114***	0.220***
	(11.855)	(20.302)	(17.434)
TOBINQ	-0.019***	-0.014***	-0.029***
	(-10.801)	(-14.155)	(-13.425)
ROA	-0.002	-0.007**	-0.005
	(-0.530)	(-2.192)	(-0.823)
BM	0.072***	0.040***	0.097***
	(10.451)	(9.732)	(11.574)
FIRMSIZE	-0.009*	-0.019***	-0.026***
	(-1.958)	(-8.008)	(-4.909)
IPO_DUM	0.004	0.018***	0.012*
	(0.768)	(5.761)	(1.781)
ST_DUM	0.009	-0.001	0.004
	(1.247)	(-0.359)	(0.508)
Intercept	0.119*	0.127***	0.186**
	(1.858)	(3.544)	(2.467)
Firm ID	y	y	y
R-Squared	0.143	0.387	0.264
Observations	12,524	13,402	12,524

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variables are aggregate RM proxies. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using firm clustering standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 2.21 Impact of the SSSREM on Accrual-Based Earnings Management (*DA*) with Aggregate Real Earnings Management Proxies (with Outliers)

RM_PROXY	RM_1	RM_2	RM_3
SSSREF	-0.004**	-0.005***	-0.005***
	(-1.974)	(-2.941)	(-2.914)
*RM_PROXY*SSSREF*	-0.041***	-0.121***	-0.053***
	(-3.590)	(-8.086)	(-6.185)
RM_PROXY	0.101***	0.469***	0.180***
	(11.379)	(45.130)	(27.434)
TOP1	0.043***	0.045***	0.048***
	(7.298)	(8.975)	(8.648)
PAY	0.018***	0.022***	0.022***
	(14.745)	(21.312)	(19.582)
IND	-0.023	-0.047***	-0.034**
	(-1.594)	(-3.942)	(-2.539)
DUALITY	0.001	0.002	0.003
	(0.590)	(1.233)	(1.134)
BIG4	0.002	0.011***	0.007**
	(0.743)	(3.983)	(2.190)
STATE	-0.001	0.002	-0.001
	(-0.766)	(1.271)	(-0.610)
TS	-0.002	-0.002	-0.001
	(-1.455)	(-1.148)	(-0.920)
LEVERAGE	-0.000***	-0.000*	-0.000**
	(-2.854)	(-1.877)	(-2.565)
TOBINQ	-0.000**	-0.000***	-0.000
	(-2.406)	(-4.234)	(-1.516)
ROA	0.004	0.007	0.004
	(0.778)	(1.112)	(0.762)
BM	0.009**	0.009***	0.006*
	(2.482)	(2.830)	(1.933)
FIRMSIZE	-0.007***	-0.011***	-0.010***
	(-4.169)	(-7.565)	(-6.479)
IPO_DUM	0.020***	0.020***	0.021***
	(6.403)	(9.666)	(7.346)
ST_DUM	-0.018***	-0.017***	-0.019***
	(-4.496)	(-4.919)	(-4.956)
Intercept	-0.051**	-0.032*	-0.047**
	(-2.521)	(-1.845)	(-2.434)
R-Squared	0.050	0.309	0.154
Observations	12,524	13,402	12,524

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variable is *DA*. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 2.22 Impact of the SSSREM on Aggregate Real Earnings Management Proxies (Aggregate RM, with Outliers)

Dependent variable	RM_1	RM_2	RM_3
SSSREF	0.013***	0.010***	0.019***
	(3.743)	(4.466)	(4.246)
*DA*SSSREF*	-0.094**	-0.147***	-0.104**
	(-2.428)	(-6.187)	(-2.142)
DA	0.302***	0.762***	0.891***
	(11.965)	(51.120)	(28.945)
TOP1	-0.030***	-0.045***	-0.080***
	(-2.782)	(-6.906)	(-5.983)
PAY	-0.047***	-0.030***	-0.062***
	(-23.266)	(-22.921)	(-24.699)
IND	0.060**	0.077***	0.125***
	(2.429)	(5.012)	(3.988)
DUALITY	-0.013***	-0.007**	-0.015***
	(-2.920)	(-2.571)	(-2.689)
BIG4	-0.034***	-0.029***	-0.048***
	(-4.850)	(-6.894)	(-5.595)
STATE	0.009***	-0.007***	0.003
	(2.746)	(-3.544)	(0.774)
TS	0.001	-0.001	-0.004
	(0.268)	(-0.427)	(-1.185)
LEVERAGE	0.000	0.000	0.000
	(0.912)	(0.901)	(1.409)
TOBINQ	-0.000***	0.000***	-0.000***
	(-8.189)	(4.603)	(-3.249)
ROA	-0.002	-0.008	-0.007
	(-0.374)	(-1.320)	(-0.600)
BM	0.033***	0.000	0.024***
	(5.857)	(0.055)	(3.682)
FIRMSIZE	0.027***	0.020***	0.041***
	(10.056)	(11.593)	(12.061)
IPO_DUM	-0.021***	-0.010***	-0.031***
	(-3.465)	(-3.586)	(-4.266)
ST_DUM	0.020***	0.012***	0.028***
	(3.096)	(3.014)	(3.551)
Intercept	-0.022	-0.015	-0.034
	(-0.594)	(-0.640)	(-0.736)
R-Squared	0.085	0.303	0.170
Observations	12,524	13,402	12,524

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variables are aggregate RM proxies. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 2.23 Impact of the SSSREM on Accrual-Based Earnings Management (*DA*) with Aggregate Real Earnings Management Proxies (Dummy2006)

RM_PROXY	RM_1	RM_2	RM_3
Dummy2006	-0.005**	-0.012***	-0.008***
	(-2.439)	(-7.490)	(-4.104)
RM_PROXY*Dummy2006	-0.044***	-0.164***	-0.076***
	(-3.243)	(-10.770)	(-7.661)
RM_PROXY	0.136***	0.593***	0.243***
	(11.645)	(47.092)	(28.072)
TOP1	-0.004	-0.011**	-0.005
	(-0.707)	(-2.411)	(-0.951)
PAY	0.009***	0.012***	0.012***
	(7.456)	(12.835)	(10.908)
IND	0.014	-0.001	0.008
	(1.008)	(-0.101)	(0.632)
DUALITY	0.001	0.002	0.002
	(0.577)	(0.967)	(1.078)
BIG4	-0.005	0.002	-0.001
	(-1.502)	(0.863)	(-0.276)
STATE	-0.005***	-0.002	-0.005***
	(-3.095)	(-1.415)	(-3.207)
TS	-0.019***	-0.022***	-0.021***
	(-12.361)	(-16.905)	(-14.510)
LEVERAGE	-0.094***	-0.105***	-0.110***
	(-23.789)	(-29.656)	(-28.077)
TOBINQ	0.005***	0.008***	0.008***
	(6.557)	(13.325)	(10.662)
ROA	0.002	0.004	0.002
	(0.677)	(1.374)	(0.756)
BM	-0.028***	-0.029***	-0.034***
	(-7.775)	(-9.849)	(-10.226)
FIRMSIZE	0.018***	0.020***	0.019***
	(11.056)	(14.676)	(12.422)
IPO_DUM	0.004	-0.002	0.003
	(1.284)	(-1.080)	(1.028)
ST_DUM	-0.003	-0.000	-0.002
	(-0.813)	(-0.135)	(-0.624)
Intercept	-0.081***	-0.134***	-0.097***
	(-3.958)	(-8.002)	(-5.074)
R-squared	0.119	0.407	0.247
Observations	12,524	13,402	12,524

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variable is *DA*. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 2.24 Impact of the SSSREM on Aggregate Real Earnings Management Proxies (Aggregate RM, Dummy2006)

Dependent variable	RM_1	RM_2	RM_3
Dummy2006	0.020***	0.021***	0.028***
	(5.805)	(10.884)	(6.969)
DA*SSSREF	-0.142***	-0.161***	-0.203***
	(-4.012)	(-8.611)	(-5.117)
DA	0.404***	0.829***	1.047***
	(14.596)	(60.657)	(34.806)
TOP1	0.022**	0.019***	0.023**
	(2.287)	(3.506)	(2.024)
PAY	-0.034***	-0.018***	-0.039***
	(-18.058)	(-16.069)	(-17.189)
IND	0.008	0.019	0.026
	(0.342)	(1.375)	(0.931)
DUALITY	-0.010**	-0.005**	-0.012**
	(-2.372)	(-2.252)	(-2.416)
BIG4	-0.019***	-0.014***	-0.026***
	(-3.225)	(-3.930)	(-3.508)
STATE	0.010***	-0.003*	0.008**
	(3.293)	(-1.742)	(2.278)
TS	0.021***	0.023***	0.037***
	(8.130)	(15.281)	(11.611)
LEVERAGE	0.116***	0.113***	0.217***
	(17.829)	(27.938)	(26.274)
TOBINQ	-0.019***	-0.014***	-0.029***
	(-15.665)	(-20.188)	(-18.980)
ROA	-0.002	-0.007**	-0.005
	(-0.655)	(-2.355)	(-0.927)
BM	0.068***	0.036***	0.090***
	(11.710)	(10.359)	(12.846)
FIRMSIZE	-0.008***	-0.019***	-0.025***
	(-2.904)	(-11.913)	(-7.499)
IPO_DUM	-0.004	0.013***	0.001
	(-0.676)	(5.014)	(0.176)
ST_DUM	0.008	-0.002	0.004
	(1.380)	(-0.552)	(0.555)
Intercept	0.109***	0.153***	0.174***
	(3.028)	(7.221)	(4.041)
R-squared	0.143	0.389	0.264
Observations	12,524	13,402	12,524

Note: All variables are as defined in the Appendix. The sample period is from 2002 to 2011. The dependent variables are aggregate RM proxies. Models 1, 2, and 3 are the regressions that use RM_1, RM_2, and RM_3 as the aggregate RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Chapter 3

Mutual Fund Ownership and Controlling Shareholders' Tunnelling Behaviour

3.1 Introduction

In this chapter, the objective is to investigate the impact of mutual fund ownership on controlling shareholders' tunnelling behaviour and firm performance in the Chinese stock market. The corporate governance role of institutional or mutual fund investors in monitoring corporate management and improving firm performance has been widely discussed in the literature. For example, Ng et al. (2009) use past firm performance as an indicator of managerial effectiveness, and suggest that mutual fund ownership provides weaker support for management proposals in firms that underperform. They conclude that this finding is consistent with mutual funds playing a monitoring role, as the funds take into account a firm's prior performance when casting proxy votes. Chou et al. (2011) indicate that mutual fund ownership is significantly positively related with better corporate governance, since those funds prefer to invest in well-governed firms and would continue to actively monitor firms in which they invest. Another strand of

literature concentrates on the relation between mutual fund ownership and firm performance, but results are inconclusive. McConnell and Servaes (1990) find a significant positive correlation between Tobin's Q and mutual fund ownership. Woidtke (2002) classifies mutual fund ownership into two categories, private and public pension funds, and shows that these two types of mutual funds have opposite effects on firm performance based on minority shareholder incentives and political or social influence. Cornett et al. (2007) study the effect of institutional ownership on corporate operating performance and suggest that only pressure-insensitive institutional investors with a low level of business relationship with the invested firm have a positive impact on firm performance. Among Chinese studies, Yuan et al. (2008) find that mutual fund ownership in China is effective in monitoring controlling shareholders and has a positive effect on firm performance. The evidence given by Yuan et al. (2008) clarifies previous assumptions about the role of mutual fund ownership on the Chinese stock market and provides policy implications for related government agencies.

Therefore, based on previous literature, there are two main incentives for mutual fund managers to enhance firm performance. First, mutual fund managers conduct quality investigation in order to identify efficient firms to invest in, so directing limited capital to the most efficient investment. Second, large institutional stakes in public firms may provide strong economic incentives for mutual fund investors to monitor managers, and such monitoring could, in turn, improve managerial efficiency and the quality of firms' decision making.

However, recent studies find that mutual fund ownership is ineffective in corporate governance if the funds' incentives are aligned with those of controlling shareholders. In China, expropriation of minority shareholders by controlling shareholders and mutual fund investors is more likely than in other countries, for the following reasons. First, although fund unit holders should have voting rights on crucial investment issues according to China's Securities Investment Fund Law 2003, those rights are difficult to exercise, as strict requirements have to be met. In fact, most decisions are transferred to the investment decision committee, which is directly appointed by the CSRC. Such lack of power associated with the nominal voting rights may induce mutual funds to exert less influence on management actions or firm corporate governance (Morgan et al., 2011). Secondly, the CSRC has absolute rights to set up fund management firms, appoint senior management of those firms, or even revoke the licence of fund firms when it deems that necessary. In addition, the CSRC is under pressure to have close relations with controlling shareholders, especially in the case of state-owned firms, in order to save the costs of capital. As a consequence, mutual fund managers may act in the interest of the CSRC or controlling shareholders, and this may not be in the interest of minority shareholders. In their empirical research, Firth et al. (2010) conclude that mutual fund ownership is negatively related with the compensation given to tradable shareholders when non-tradable shares are converted to tradable shares during the process of split share structure reform. This finding implies that mutual fund managers prefer to align themselves with the interests of controlling shareholders and thus reduce the costs of share structure reform, in order to keep their own positions and increase individual profits.

In order to explore fully the role of mutual funds in corporate governance in Chinese listed firms, this chapter looks at controlling shareholders' tunnelling behaviour and tests whether monitoring by mutual fund ownership can effectively reduce such behaviour and improve firms' performance. On the one hand, controlling shareholders may pursue private interests through various self-dealing transactions, such as selling assets, goods and services to listed firms at high price, or stripping assets from listed firms to their affiliates at low price; such activities are defined as tunnelling behaviour by Johnson et al. (2000b). In addition, highly concentrated ownership is prevalent among Chinese listed firms, with 40% of shares held by the largest shareholders (Allen et al., 2005). This highly concentrated ownership, together with the existence of non-tradable shares, means that tunnelling behaviour is a particular feature of the Chinese market (Gao and Kling, 2008; Berkman et al., 2009; Jiang et al., 2010; Li, 2010a). However, high levels of tunnelling activities will result in poorer firm performance (Jiang et al., 2010; Wang and Xiao, 2011), and this is contrary to the interests of mutual fund managers. In other words, the performance of Chinese listed firms is influenced by the negotiation between mutual fund managers and controlling shareholders when mutual fund managers aim to improve the firm's quality.

Another incentive for mutual fund managers to play an effective role in corporate governance and to protect minority shareholders' interest is based on the fact that Chinese governance and the CSRC – the administrative role of which has been revised several times since the 2000s – strive to standardize the mutual fund industry and to control tunnelling behaviour to protect minority shareholder

interests. Furthermore, the rapidly developing mutual fund industry in China requires a transparent and fair management mechanism to protect minority investors' interests in order to expand its fund pool. In addition, with the improved investment environment for mutual funds, the number of fund management companies (mutual funds) in China has dramatically increased, from 6 (5) in 1998 to 57 (323) in 2006, with an increase in total net assets from RMB 469 billion in 2005 to RMB 1796.9 billion in 2007 (Yuan et al., 2008; Firth et al., 2010). The CSRC also issues several policies to restrict controlling shareholders' tunnelling behaviour, and since 2001 has required listed firms to gradually reduce other receivables (proxy of tunnelling behaviour) balances, a move which forced 399 listed firms to resolve other receivable balances of around RMB 39 billion by the end of 2006 (Jiang et al., 2010). As a result, with regard to the main research question of this chapter, it is expected that the external governance role of mutual funds in China will continue to be effective in improving firms' quality, even when controlling shareholders extract resources out of the listed firms.

The second research question addressed by this chapter is whether mutual fund ownership directly affects the tunnelling behaviour of controlling shareholders. Most previous literature on the determinants of tunnelling behaviour concentrates on firm characteristics and corporate governance, but few studies explain the relation between mutual fund ownership and tunnelling behaviour for the Chinese stock market. From empirical evidence, Gao and Kling (2008) find a significant negative relation between mutual fund ownership and tunnelling. Berkman et al. (2009) find the likelihood of expropriation by controlling shareholders is affected

by the presence of various blockholders. Jiang et al. (2010) discover that high levels of mutual fund ownership are associated with low tunnelling proxies and vice versa. Based on these empirical analyses, this chapter conjectures that mutual fund ownership can directly reduce tunnelling behaviour.

To answer the two main research questions above, this chapter follows Jiang et al. (2010) and constructs a measure of tunnelling behaviour, using other receivables as a proxy, for Chinese listed firms from 2003 to 2011. The multivariate regression includes mutual fund ownership, firm characteristics, and corporate governance variables. The results are in line with our expectations, indicating that mutual fund ownership is positively related with firm performance, but this relation is non-linear. Furthermore, this chapter finds that mutual fund ownership itself has a non-linear association with tunnelling behaviour. More precisely, mutual funds can effectively prevent the occurrence of tunnelling in the Chinese market. The results are robust to various measures of mutual fund ownership and firm performance.

This chapter contributes to the literature in the following aspects. First, compared with the linear relationship found in the previous literature for developed markets (McConnell and Servaes, 1990; Woidtke, 2002; Cornett et al., 2007), we find a non-linear association between mutual fund ownership and firm performance. In particular, a higher level of mutual fund ownership is associated with better firm performance, which indicates that mutual funds could serve as sophisticated investors to provide useful accounting information to outsiders, and are also capable of monitoring to improve the corporate governance mechanism. When the

mutual fund ownership reaches a certain level, the negative relation between high mutual fund ownership and firm performance may imply that mutual fund managers are more likely to expropriate value from minority shareholders when they have dominant controlling power (La Porta et al., 1999). In addition, in the case of appointment or dismissal of highly concentrated mutual fund managers there is a requirement to notify the supervision department, such as the CSRC or State-Owned Assets Supervision and Administration Commission (SASAC), which have close relations with controlling shareholders of listed firms, especially for state-owned listed firms. As a result, those managers may have an incentive to flatter controlling shareholders or the appointment commission of the supervision department, in order to maintain their position or avoid strict supervision. Second, the non-linear relation between mutual fund ownership and firm performance is still observable when controlling shareholders implement tunnelling behaviours, which indicates that mutual fund managers will protect minority shareholders' interests against controlling shareholders. Third, mutual fund ownership can effectively reduce controlling shareholders' tunnelling behaviour. The main policy implication of this chapter is that mutual fund ownership should be further promoted in order to improve its independent supervision of firms' quality. However, to realize fully the benefit of mutual fund ownership in improving corporate governance, it is necessary to further liberalize the mutual fund industry and to decentralize regulation by government agencies.

The rest of this chapter is organized as follows: Section 3.2 reviews the literature and explains the hypothesis development. Section 3.3 describes the methodology,

which comprises several regressions. Section 3.4 presents the data and primary data statistics. The empirical results are discussed in Section 3.5, and Section 3.6 concludes the chapter.

3.2 Literature Review and Hypothesis Development

3.2.1 Institutional Ownership

Existing studies have focused on the role of institutional investors in monitoring or influencing corporate managers. This may reflect the fact that they are willing to exert pressure on managers to make decisions in favour of boosting shareholders' wealth, while simultaneously increasing the percentage of their shareholding in the firm. The rationale for the role of institutional investors or mutual funds as corporate monitors is that, compared with individual investors, they have a dramatically larger incentive to monitor managers. This would prompt managers to be more concerned about their firms' performance and about shareholders, and thus discourage them from opportunism.

Brickley et al. (1988) divide institutional investors into three groups based on whether they have related business with the firm and are susceptible to management influence: pressure-insensitive institutions (public pension funds, mutual funds), pressure-sensitive institutions (insurance companies, banks, and

nonbank trusts owning at least 1% of the firm's stock), and pressure-indeterminate institutions (corporate pension funds, brokerage houses, investment counsel firms and miscellaneous firms, plus institutions owning less than 1% of the firm's stock). Their findings suggest that pressure-sensitive institutions are more likely to support management, as most will try to avoid losing business with the firms. In contrast, pressure-insensitive institutions prefer to protect minority shareholder interests, and are more likely to vote against management as experienced investors.

Following Brickley et al. (1988), Almazan et al. (2005) classify institutional investors into two main groups based on monitoring costs. The first group comprises active investors, who are better informed and less restricted during investment. The second consists of passive investors named by bank trust departments and insurance companies. Their results reveal that active institutional investors may provide stricter monitoring than passive institutional investors. Chen et al. (2007) consider institutional investors who might keep potential business relations with firms as grey investors, while those who do not seek such relations are defined as independent investors. Using pressure-insensitive and pressure-sensitive institutional investors as their two elementary groups, Cornett et al. (2007) find that a positive relation between institutional ownership and operating cash flow return is only observed where the institutional investors are pressure-insensitive. In other words, pressure-sensitive institutional investors are compromised as monitors by their desire to protect business relations.

Another main aspect to determining the degree of firm monitoring, as well as minority shareholder protection, is testing the relation between firm performance

and institutional investors. Pound (1988) proposes three hypotheses on the relation between institutional ownership and corporate value, based on main incentives: the efficient monitoring hypothesis, the conflict of interest hypothesis, and the strategic alignment hypothesis. In the efficient monitoring hypothesis, Pound expects a positive relation between institutional ownership and corporate value, since compared to individual investors, institutional investors have more experience to help them monitor firms with lower costs. According to the conflict of interest hypothesis, institutional investors are forced to agree with management decisions due to their business relations with the firm. The third, strategic alignment, hypothesis suggests that mutual benefits between institutional investors and managers may reduce the effect of monitoring by institutional investors. Therefore, the second and third of Pound's hypotheses predict a negative relation between institutional ownership and corporate value. Researching proxy contests, Pound (1988) finds that institutional investors may align with management against minority shareholder interests. However, McConnell and Servaes (1990) support the efficient monitoring hypothesis by finding a positive relation between Tobin's Q and institutional ownership.

Woidtke (2002) finds mixed results to support both the above assumptions of Pound (1988). Firm value measured by Tobin's Q is positively associated with private pension fund ownership and negatively associated with activist public pension fund ownership. In other words, minority shareholders may not be properly protected by institutional investors; instead, their benefits may be exploited when conflicts of interest exist between institutional investors and

minority shareholders. Elyasiani and Jia (2010) adjust measures of institutional ownership according to shareholding stability, since they note that the proportional ratio neglects ownership dimensions other than ownership level. Instead, shareholding stability may effectively strengthen institutional investors' monitoring of firms, and also helps firms to concentrate on longer-term investments and to improve performance. The authors' results indicate a positive relation between firm performance and institutional ownership stability. In addition, long-term institutional ownership is positively related to firm performance through the restriction of information asymmetry and the revision of executive incentives.

While a number of studies examine the correlation between institutional ownership and firm performance, many focus on other areas to examine how institutional ownership reflects and monitors opportunistic managerial behaviour. Chung et al. (2002) demonstrate that institutional ownership deters managers from adjusting earnings to beat or meet desired levels. In other words, institutional investors play an active role in monitoring opportunistic managerial behaviour. Koh (2003) indicates that managerial earnings management is non-linearly associated with the level of institutional ownership. A positive relation is found when institutional ownership is low and a negative relation reveals that long-term institutional investors care more about limiting listed firms' earnings management.

In contrast, Velury and Jenkins (2006) provide evidence revealing a positive relation between institutional ownership and earnings quality, but the relation may

become negative when ownership increases dramatically. Koh (2007) summarizes that institutional investors may have various attitudes to monitoring managerial opportunistic behaviour based on their investment horizons. Specifically, institutional investors with a long-term horizon may constrain aggressive earnings management, while transient institutional ownership is associated with such behaviour only when earnings are adjusted upward to meet or beat earnings benchmarks. Cornett et al. (2008) put forward a similar argument, whereby managerial earnings management is decreased by more monitoring by institutional shareholders. Hadani et al. (2011) determine that the highest levels of institutional ownership effectively protect minority shareholder interests through a negative relation with firm earnings management.

Voting is recognized as the most direct and cost-effective channel through which mutual funds can pressure corporate managers into taking account of shareholders' interests in investment decisions. Using the SEC's 2003 mandatory voting disclosure requirement as a mechanism for revealing mutual funds' governance activities, a number of studies have attempted to shed light on the effect of mutual funds or their voting decisions on corporate governance. Morgan et al. (2011) find that voting by mutual fund investors is indeed more supportive of shareholder-initiated proposals. This provides a potential opportunity for increasing shareholders' wealth, especially when portfolio firms manifest weaker corporate governance. Based on the proxy voting records of the 100 largest mutual fund families in the US between 2003 and 2006, Duan and Jiao (2011) find that mutual funds are more likely to vote against management when

management recommendations on proposals conflict with those of the independent proxy advisory firm (Institute Shareholder Services), which is consistent with the finding that mutual funds play an active role in monitoring managers' behaviour.

The evidence provided by Davis and Kim (2007) suggests that voting decisions have an impact on the quality of corporate governance in their targeted firms. In particular, the quality of a firm's corporate governance can be further strengthened by mutual fund investment, since their supportive voting can act as an essential determinant of a proposal's passage, as well as of the board implementing that proposal (Ertimur et al., 2010; Thomas and Cotter, 2007). Using the Morningstar stewardship grade and individual governance component grade, Chou et al. (2011) suggest that mutual funds with better quality governance practices are more likely to exercise their shareholder rights and their voting and investment decisions in favour of their fund investors. More importantly, they show that those portfolio firms invested in by mutual funds with higher quality governance tend to exhibit correspondingly higher corporate governance standards. This results not only from the tendency of such mutual funds to invest in firms with healthier governance, but also from the fact that they are more effective corporate monitors.

Prior findings on the role of institutional investors in corporate governance are mostly based on developed countries. Similar research for emerging markets is very limited, although the number of institutional investors in these markets has increased significantly in the past 10 years, as in the Chinese capital market. Wei

et al. (2005) study the correlation between ownership structure and firm performance from 1991 to 2001 for Chinese private listed firms. Their findings indicate that mutual fund ownership is significantly negatively related with firm performance, but positively related in terms of proper supervision to protect minority shareholders. The contradictory results are mainly due to the initial development of 'old funds' in China and extremely high levels of government ownership. Yuan et al. (2008) find that mutual ownership is positively related to firm performance, consistent with CSRC regulatory efforts to promote mutual funds as a proper corporate governance tool to protect minority shareholder interests.

In contrast with previous findings, Firth, Lin, and Zou (2010) suggest that mutual fund managers may seek to maximize their own benefits by helping listed companies complete the split share reform quickly, rather than protecting minority shareholder interests. In particular, that helping hand has been geared to the state-owned firms since the CSRC transferred fund managers' voting rights to the investment decision committee, with approval needed from the CSRC. Therefore, there is still the underlying question of whether institutional managers would protect minority shareholder interests or follow the direction of the CSRC to save their voting rights. Ding et al. (2013) discuss the effect of mutual ownership on improving stock price informativeness in China. Since state ownership can decrease firms' independence from capital, the results reveal that the relation between institutional ownership and stock price informativeness is weaker for

state-owned firms, although such an association is much more positive for the listed firms as a whole in China.

3.2.2 Tunnelling Behaviour

Compared with the uncertain findings regarding mutual ownership, a great deal of empirical evidence indicates that controlling shareholders can expropriate the wealth of minority shareholders through tunnelling behaviour (La Porta et al., 1997, 1998, 1999; Jonson et al., 2000). Shleifer and Vishny (1986) find that the major conflict between management and shareholders has been replaced by the problem of preventing principal shareholders from exploiting minority shareholders. In a later study (Shleifer and Vishny, 1997), the authors state that controlling shareholders can expropriate more firm resources from minority shareholders when there are serious discrepancies between voting rights and cash flow rights. Claessens et al. (2000) confirm previous studies and find that pyramid structures and cross-holding are usually present in East Asian countries. In addition, listed firms would have lower market valuation when controlling shareholders have greater control rights, especially when cash flow rights are weak and control rights strong. However, agency costs due to the separation of ownership are not the main factor in corporate governance and the exploitation of minority shareholders; instead, high ownership concentration among controlling shareholders is considered the primary issue.

According to Jonson et al. (2000b), who first defined such transfers of firm resources as tunnelling, several types of expropriation by controlling shareholders have been researched. First, controlling shareholders can expropriate corporate opportunities from a firm; second, most controlling shareholders can obtain abnormal benefits from selling assets, goods, or services in self-dealing transactions; third, preferential firm assets can be used as collateral for loan guarantees; fourth, firm assets can be transferred at unfair market prices to controlling shareholders; finally, controlling shareholders can dilute minority shareholder shares to protect their obsolete ownership by acquiring additional shares at low prices. The literature focused on China's stock market studies several types of tunnelling behaviour. Jonson et al. (2000b) also find that, under highly concentrated ownership, controlling shareholders can expropriate minority shareholder interests in several ways. In contrast, low ownership of controlling shareholders may provide less incentive to exploit the benefits of minority shareholders. Instead, such ownership would normally be observed under strong investor protection (La Porta et al., 1998, 1999; Claessens et al., 2000; Faccio and Lang, 2002; Shleifer and Wolfenzon, 2002; Djankov et al., 2008).

Another strand of research concerns the ways in which controlling shareholders may expropriate minority shareholders based on different legal origins. La Porta et al. (1998) use a sample of 49 countries and find that investors in common law systems are more efficiently protected than are those in civil law countries. Countries that implement German civil law and Scandinavian law are in the middle in terms of investor protection. The empirical evidence confirms that

minority shareholder interests are distinctly based on laws rather than on the securities themselves. The authors conclude that a legal approach is an effective way to clarify how shareholders and creditors are protected from expropriation by managers and controlling shareholders. They also point out that financial market reform alone is not sufficient to protect minority shareholder benefits. Instead, investor protection reform based on legal regimes may require significant improvements to combat interference by those with related interests, such as controlling shareholders.

Jonson et al. (2000b) find that common law countries require more detail about related-party transactions. Their protection of minority shareholders is comparable with that in civil law countries. In addition, the expropriation of minority shareholders in civil law countries is usually consistent with board duties, especially if controlling shareholders keep their status in the group. Related results indicate that common law countries can properly predict their stock price due to the fair information disclosure required under the law, which concentrates mainly on market discipline and private litigation. La Porta et al. (2006) find differences in the protection of investors according to different legal origins, based on the effects of securities laws. They reveal that legal origins have a bearing on stock market development. Djankov et al. (2008) provide an anti-self-dealing index, comprising legal origins, politics and media, for studying the legal protection of minority shareholders against expropriation by corporate insiders; their empirical evidence suggests the index is more effective than previous anti-director rights to predict stock market outcomes.

Compared with the markets in developed economies, China's stock market is considered to feature tunnelling behaviour. There are several reasons why controlling shareholders expropriate benefits from listed firms, and why such tunnelling behaviour cannot be properly eliminated from the Chinese stock market. First, most of China's listed firms are spin-offs from state-owned enterprises (SOEs), which are usually treated as controlling shareholders. Therefore, the central or local government has the absolute right to appoint firm management. The management thus appointed often expropriates benefits from minority shareholders as payback for obeying controlling shareholders or SOEs. Second, since China's special privatization in the early 1990s, only 30% of listed firm shares are tradable, with about 40% of shares belonging to controlling shareholders. Therefore, controlling shareholders' decisions are seldom challenged by other shareholders. Third, controlling shareholders may try to find other channels to increase their benefits, since most of their shares are non-tradable, with limited price appreciation. Fourth, minority shareholders cannot properly protect their interests, due to limited fines and a lack of pertinent security laws. Related empirical research also supports previous theories and indicates that tunnelling behaviour in China is serious and has been a major concern of government agencies and researchers.

Jiang et al. (2005) primarily use inter-corporate loans from financial statements to represent tunnelling. Their revised 2010 study makes a thorough analysis of tunnelling problems in China and the economic consequences on firm operating performance, market reaction, and corporate governance. The authors argue that

inter-corporate loans used as other receivables are traceable through sources and do not need a 'fair value' test. They find that firms with high tunnelling tendencies would experience worse operating performance and that investors cannot properly value the earnings of such firms. In addition, legal governance in China is still inadequate to prevent tunnelling behaviour. As an effective proxy for the protection of minority shareholder interests, institutional investor ownership is highest only in groups that are low in other receivables as a percentage of total assets (ORECTA).

Unlike La Porta et al. (2002) and Claessens et al. (2002), Cheung et al. (2006) use specific connected transactions as a proxy to investigate whether minority shareholders experience losses during the implementation of connected transactions by listed firms on the Hong Kong stock market. They divide connected transactions into three groups: transactions more likely to result in expropriation by controlling shareholders, transactions that may benefit minority shareholders, and transactions with a strategic plan. The results indicate that stock excess returns are negative when firms prefer to use connected transactions rather than neglect them. In addition, companies from mainland China are more likely to use connected transactions. Liu and Lu (2007) find that tunnelling behaviour accounts for a significant proportion of earnings management in China's stock market. Their evidence also indicates that capital raised by SEOs is diverted to controlling shareholders to accumulate interests from listed firms. Gao and Kling (2008) analyse the importance of corporate governance in managing tunnelling behaviour on China's stock market. Their results show that audits without non-

clean options signal financial health and that sound governance helps decrease the extent of asset appreciation.

The ownership of senior managers and institutional investors plays a crucial role in corporate governance by effectively restricting tunnelling behaviour. From the policy maker's perspective, Gao and Kling (2008) suggest that greater implementation of economic reforms and less state influence in public listed companies can also help improve corporate governance. Cheung et al. (2009) show that although minority shareholders in China may be expropriated by controlling shareholders through related-party transactions, they can also benefit from the propping up of firm performance. However, expropriation by controlling shareholders involves more than interests obtained from propping up. Furthermore, the authors conclude that information disclosure is greater when firms use related-party transactions with tunnelling than when the transactions are used with propping. Berkman et al. (2009) use the issuance of loan guarantees by listed firms to analyse which types of firms in China's stock market prefer tunnelling behaviour. They find that smaller firms, more profitable firms, and firms with greater growth prospects are more likely to be expropriated by controlling shareholders. Furthermore, they combine firm financial performance and tunnelling to find that these firms' performance is significantly lower when the firms issue related guarantees. Jian and Wong (2010) conclude that listed firms in China use abnormal related sales by controlling shareholders as a tunnelling proxy to prop up earnings, and this phenomenon is more serious among state-owned institutions and in areas with weaker economic institutions.

Aharony et al. (2010) use the non-repayment of net outstanding corporate debt by parent companies to newly listed companies as a proxy for tunnelling, mainly because parent companies seldom pay back such debt to listed companies. The authors conclude that earnings management before initial public offerings (IPOs) is mainly due to opportunistic tunnelling in the post-IPO period. The results also indicate that investors in China cannot properly perceive such earnings management due to tunnelling before IPOs. Li (2010a) chooses other receivables from financial statements as a tunnelling proxy to study such behaviour in public and private listed companies. The author's findings suggest that privately controlled public companies in China are more likely to adopt tunnelling, although they have better corporate governance than state-controlled public companies. Wang and Xiao (2011) explain board compensation through the contradiction between controlling and minority shareholders. They show that pay-performance sensitivity is lower when controlling shareholders transfer private benefits through tunnelling. Peng et al. (2011) consider connected and non-connected transactions as tunnelling proxies to detect market reactions based on various firm conditions. They classify transactions into five groups: asset acquisitions, assets sales, asset displacements, equity transfers, and cash payments. The results reveal that connected transactions are used by controlling shareholders to expropriate the wealth of minority shareholders under sound financial conditions. In contrast, controlling shareholders prefer to prop up listed firms to continually expropriate minority shareholder interests when the firm's financial condition is poor. From the perspective of investors, market reactions to the announcement of connected transactions are negative (positive) when firms start

to finance from rights issues (and face the threat of delisting). Du et al. (2012) use total related-party transactions over total assets as a tunnelling proxy to study stock market reactions when firms go private in the Hong Kong stock market. They find that controlling shareholders use connected transactions before privatization, which can cause negative abnormal returns, especially under conditions of weak corporate governance and more related-party transactions. In other words, controlling shareholders prefer privatization when they find that there is no need to keep a firm public to obtain spin-off benefits.

3.2.3 Institutional Background in China

3.2.3.1 Mutual Fund Ownership

In the early stages of its development, China's capital market was dominated by individual investors, which created unfavourable conditions for its long-term development. To formalize the fund industry and provide the capital market with international experience, in 1998 the CSRC launched reforms to speed up the growth of China's fund management industry, after clearing up old funds. During the initial stage of development, the fund industry suffered from low operational efficiency due to lack of experience, combined with high speculation and irregular trading. A number of fund scandals led the CSRC to investigate the fund management industry and punish the relevant parties.

In 2000, the CSRC made a strategic decision to accelerate the development of the mutual fund industry and to recognize the role of mutual funds in corporate governance, as well as in helping individual investors back to a formal channel to manage their funds. In the same year, the CSRC initiated an expert review system for auditing fund products more precisely. In 2002, it implemented the gradual liberalization of the funds approval system. In its 'Notification on Relevant Issues Concerning the Examination and Approval of Securities Investment Funds', the CSRC proposed simplifying the approval process and reducing control to initiate market reform in the mutual fund industry. In 2003, the CSRC issued the 'Administrative Measures of Expert Review System for Securities Investment Fund' to converge with internationally accepted registration systems. From the beginning of 2002 to the end of 2005, the mutual fund reforms unlocked the fund industry's potential, despite an overall downturn in the market. During this time, the total net value of funds increased from US$10 billion to US$57 billion, while the market value of tradable shares held by securities investment funds also increased from 5% to about 20% of the total market capitalization of tradable shares. In 2006, with the gradual recovery of the market US$50.5 billion of new funds were raised by the fund industry. By 2007, the mutual funds under management by fund companies had reached US$448.5 billion (CSRC 2008).

3.2.3.2 Tunnelling Behaviour

Previous studies indicate that controlling shareholders may expropriate minority shareholder interests when ownership structure is highly concentrated or when minority shareholders have few legal and regulatory channels to protect their benefits (La Porta et al., 1998, 1999, 2000, 2006; Claessens et al., 2000; Jonson et al., 2000b; Freidman et al., 2003). China's stock market is considered an appropriate environment for investigating tunnelling behaviour, based on both those factors, and others.

First, highly concentrated share ownership is the main incentive of controlling shareholders. At the beginning of the economic reforms, around 1978, Chinese firms were all governed by the state to protect a weak industry foundation. To accelerate reform, open up the economy and enrich the people of China, during the 1990s the Chinese government initiated the share-issuance privatizations, privatizing more than 1,000 large SOEs listed through two main stock exchanges. However, privatization in China has so far failed to achieve its original intention to fully authorize investors, rather than state agencies, to control listed firms. More than 80% of listed firms are still state owned (Peng et al., 2011). In addition, before the split share reform (from 1998 to 2004), most shares in listed firms were controlled by the states or legal persons.

With regard to ownership structure, major differences exist between the largest and second largest shareholders, who usually account for 40% and 10% of total shares, respectively. From the angle of corporate governance, listed firms' chief

executive officers are sometimes directly or indirectly appointed by the government or a government-related agency (Fan et al., 2007). Therefore, minority shareholders are unable to challenge the status of SOEs to protect themselves. Furthermore, there are few formal channels for minority shareholders to take actions against controlling shareholder decisions. MacNeil (2002) and Allen et al. (2005) both point out that the courts in China have a long tradition of protecting state interests and little experience with private plaintiff-driven litigation. Moreover, since the 2000s, corporate governance mechanisms have been proposed and executed by administrative regulations and laws, such as the 'Guidelines for Introducing Independent Directors to the Board of Directors of Listed Companies (2001)', 'Circular of the State Council on its Approval of the CSRC's Option on Improving the Quality of Listed Companies (2005)', the revised 'Company Law', and the 'Securities Law' (2006). In terms of the public corporate governance role, institutional investors account for only a small ownership percentage and have an ambiguous attitude towards limiting controlling shareholder tunnelling behaviour (Yuan et al., 2008; Firth et al., 2010). In addition, Jiang et al. (2010) demonstrate that public enforcement mechanisms in China have been limited by the security market regulators. Finally, to prevent national assets from draining away, until the end of 2004 about 64% of shares in China's stock market were non-tradable. Nearly 70% of these non-tradable shares were owned by the government, state agencies, and other legal entities, and could be transferred only to related parties, or traded through exchanges. Therefore, controlling shareholders could not obtain private interests from share price

appreciation related to improving firm performance, and most preferred to find other channels (e.g., tunnelling behaviour) to transfer firm benefits to themselves.

Since 1997, the CSRC has issued various administrative regulations regarding the management of controlling shareholder tunnelling behaviour to protect minority shareholder interests. Among these regulations, the split share structure reform is regarded as the most important reform towards improving the investment environment in the Chinese capital market. This is because the Chinese government required listed firms to convert all non-tradable shares into tradable shares, tying the benefits of the original controlling shareholders to firm performance; in other words, to the interests of the original tradable shareholders. Since this reform, few incentives remain for controlling shareholders to expropriate the interests of minority shareholders.

In addition to the split share structure reform, the CSRC first began governing related-party transactions with the regulation 'Content and Format Standards of Information Disclosure for Securities Issuing Companies No. 7 – Announcement on Related Party Transactions (1997)'. In the same year, the Chinese Ministry of Finance promulgated an accounting standard for issuing related-party transactions to the public based on the degree of such transactions. Where related-party transactions between a listed firm and its parent company are greater than RMB 300,000 (US$36,300), the firm must report the transaction agreement to its stock exchange within two workings days. If the related-party transaction is greater than RMB 3 million (US$363,000) or 0.5% of net assets, then the firm should publish this amount in its annual report. Finally, if a related-party

transaction between a firm and its parent company is greater than RMB 30 million (US$3.63 million) or 5% of net assets, the transaction price should be audited and discussed at the general shareholder meeting.

However, enforcement of these regulations was very limited, as the CSRC lacks the necessary investigative and prosecuting power, as well as resources. After a series of unsuccessful regulations on tunnelling behaviour and faster development in the stock market, the CSRC began eliminating and preventing such behaviour with more authority from the 2000s onwards, despite enormous resistance from state-owned firms. To take effective action against tunnelling behaviour, in 2003 the CSRC and the State-Owned Assets Supervision and Administration Commission (SASAC) jointly promulgated the 'Notice on Regulating Fund Transactions between Public Companies and Related Parties and Provisions of Loan Guarantees by Public Companies', to restrict fund transfers and loans between controlling shareholders and related parties. The regulation required listed firms to decrease other receivables (OREC) of controlling shareholders by 30% per year. In 2004, the State Council published a board directive underlining the importance of limiting tunnelling behaviour of controlling shareholders. Following these instructions, in the same year the CSRC mandated that listed companies with insufficient funds could repay their loans through debt for equity swaps. To strengthen the penalties, in 2005 the CSRC proposed disclosing the names of listed firms that could not reduce their loans to below RMB 100 million by the end of that year. Also in 2005, the State Council announced the 'Options on Improving the Quality of Public Companies', written by the CSRC. This

regulation states that any means of funds extraction by controlling shareholders are prohibited and current funds extracted from listed firms must be paid back by the end of 2006. Because of the close relation between controlling shareholders and top management, in late 2006 eight government ministries issued an announcement to control the tunnelling behaviour of top management. According to the announcement, the top management of controlling entities would face disciplinary punishment or even arrest if they could not fulfil the repayment by the deadline. However, despite the great efforts to protect minority shareholder interests by limiting tunnelling behaviour, empirical evidence indicates that there was only slow progress by controlling shareholders and top management in paying back funds. According to the CSRC's public report in mid-2005, 480 listed firms still had around RMB 48 billion in funds extracted by controlling shareholders. Yu (2006) reports that around RMB 36.5 billion in funds were tunnelled from 234 listed firms.

3.2.4. Hypothesis Development

This chapter begins by assuming that mutual fund ownership has a positive effect on improving firm performance in Chinese listed firms, for several reasons. First of all, mutual fund ownership is regarded as playing an effective role in monitoring financial activities, since it usually involves few business relations with portfolio firms and mutual funds are less pressure-sensitive than other institutions (Cornett et al., 2007). Secondly, according to instructions from the

National People's Congress (2003), mutual funds in China are now required quarterly to reveal more information to the public, such as investment styles and prospective returns, which directly increases the scrutiny from regulators. Thirdly, mutual fund managers would face pressure to deliver high returns to public investors, as their commission fees depend on the investment performance and fund size. Previous empirical studies support these assumptions based on various evidence. McConnell and Servaes (1990) and Elyasiani and Jia (2010) both find empirically that institutional ownership has a positive effect on adjusting firms' Tobin's Q. Yuan et al. (2008) clarify previous findings and conclude that mutual fund ownership in China can play an effective role in protecting minority shareholder interests. Their results are consistent with those of McConnell and Servaes (1990) and Elyasiani and Jia (2010) in confirming that the corporate monitoring of mutual fund ownership is evidenced by a positive relation between mutual fund ownership and firm performance. Therefore, this chapter argues that mutual fund managers have strong incentives to monitor their portfolio performance to protect their investment against erosion in value.

This chapter also tests whether mutual fund ownership can effectively strengthen corporate governance in Chinese listed firms and prevent tunnelling behaviours by controlling shareholders that extract firm resources to maximize personal interests. Since tunnelling behaviours can induce poor firm performance, as has been proved by previous studies (Cheung et al., 2006; Gao and Kling, 2008; Berkham et al., 2009; Jiang et al., 2010; Wang and Xiao, 2011), mutual fund managers would have an incentive to improve firm performance and reduce the tunnelling

behaviours of controlling shareholders. As a result, controlling shareholders engaging in tunnelling behaviours may have less incentive to transfer more voting rights to mutual fund managers to supervise their self-interested behaviour. Firm performance would then become less informative of mutual fund managers' effort, and thus less useful in setting those managers' compensation. This raises a contradictive issue about the role of mutual fund ownership in improving firms' quality. Consistent with the recent development of the mutual fund industry from the 2000s and the gradual restriction of the tunnelling behaviour of controlling shareholders by Chinese regulators, this chapter argues that mutual fund ownership would not only have a strong incentive to play a corporate governance role, but along with minority shareholder protection polices implemented by the CSRC, it would also enhance firm quality, protecting against controlling shareholder tunnelling behaviour. The aforementioned findings induce the following hypothesis:

H1(a): Mutual fund ownership has a positive effect on firm performance.

H1(b): For firms with tunnelling, the improvement in firm performance given by mutual fund ownership is higher.

Fama and Jensen (1983) argue that ownership concentration above a certain level would force managers to become entrenched and expropriate the wealth of minority shareholders. This issue has led researchers into a hot debate about the non-linear relation of ownership concentration and firm performance. For example, according to the monitoring theory, Shlerifer and Vishny (1986) argue

that monitoring incentives would increase with the rise of ownership concentration. However, Wu (2004) supports the private benefits hypothesis, and explains that monitoring incentives would not necessarily be improved if ownership were highly concentrated among passive shareholders. In other words, highly concentrated ownership would give more power to the corresponding shareholders to expropriate minority shareholders' interests (La Porta et al., 1999). Thomsen et al. (2006) find a negative impact of blockholder ownership on firm performance for continental Europe, which is explained as the conflict of interest between large investors and minority shareholders. In addition, in an empirical study in the field of institutional investment, Kim (1993) finds that institutional investors with high ownership are more likely to exploit private information to maximize their benefits, which could be expropriated for trading purposes. Bhojraj and Sengupta (2003) indicate that although institutional ownership has a positive effect on bond rating yields, they find a negative effect when institutional ownership is so high that it ignores its original responsibility. The findings of Bhojraj and Sengupta (2003) suggest that the corporate governance mechanism associated with institutional ownership is perceived as positive by bondholders, while concentrated ownership may be perceived to result in more self-interested behaviour on the part of institutions. Velury and Jenkins (2006) also suggest that highly concentrated institutional ownership has a negative effect on earnings quality, which implies that larger institutional investors are more likely to be perceived as engaging in self-interested behaviour and disclosing less information to the public, thereby harming earnings quality.

High levels of mutual fund ownership may induce expropriation for the following reasons. First, nearly all mutual fund management firms are funded by state-controlled agencies, such as securities, banks, and insurance companies (Kim et al., 2003). Therefore, the management of mutual fund firms needs to fully consider those ultimate controlling shareholders' interests, rather than acting in an external corporate governance role to independently improve firm quality. Second, the CSRC has the authority to require mutual fund firms to give notification of changes to concentrated shareholders as part of proper supervision; sometimes it even has the authority to appoint the senior manager of a mutual fund company. As a consequence, top managers of mutual fund firms may be restricted from following their original investment plan, and instead may need to pursue their political prospects, supporting government agencies and the related controlling shareholders. Although Wei et al. (2005) suggest that a highly concentrated mutual fund ownership improves firm value, their sample covers only private listed firms in China. Gul et al. (2010) also state that a high ownership concentration can weaken corporate transparency for Chinese listed firms. Therefore, when the mutual fund ownership is high, there can be more incentive for mutual fund managers to pursue their own interest rather than impede tunnelling behaviours of controlling shareholders.

As a result, this chapter studies the non-linear association between mutual fund ownership and firm performance. In addition to predicting a positive linear relation between mutual fund ownership and performance, we expect to find a negative relation between mutual fund ownership and firm performance when it

reaches a certain level (as a consequence of the expropriation effect). Hence the second hypothesis is as follows:

H2 (a): There is a concave association between mutual fund ownership and firm performance.

H2(b): The incremental effect of mutual fund ownership on firm performance is also concave for firms with tunnelling behaviour.

Furthermore, this chapter expects that higher mutual fund ownership can reduce firms' tunnelling behaviour in China and protect minority shareholders' interests. This is not only because mutual fund ownership is considered to play an effective corporate governance role in protecting minority shareholder interests and in helping managers enhance listed firm disclosure information, but also due to the increase in policy regulations on the mutual fund industry and tunnelling behaviours. Since 2000, the Chinese government has gradually revised several policies aimed at formalizing the mutual fund industry to protect minority shareholder interests and restrict controlling shareholder expropriation. Empirical evidence from Gao and Kling (2008) has also shown that institutional ownership, used as an endogenous variable, indirectly restricts tunnelling behaviour by improving the corporate governance of listed firms in China. Consistent with Gao and Kling (2008), Jiang et al. (2010) aggregate and split into deciles firms' ORECTA in 2004 and examine related institutional ownership. Their results show that institutional ownership is highest when firms have low ORECTA, which indicates that institutional investors prefer to keep their funds away from high-

ORECTA listed firms. Based on these arguments, we develop the third hypothesis as follows:

H3(a): Mutual fund ownership can effectively reduce tunnelling behaviour, as it can improve the corporate governance mechanism among Chinese listed firms.

Consistent with the second hypothesis, mutual fund managers with higher ownership can also transfer firm resources for their own interest. Therefore, we have the following hypothesis:

H3(b): Mutual fund ownership has a non-linear effect on tunnelling behaviour with increased ownership concentration by mutual fund managers.

3.3 Methodology

In order to calculate the mutual fund ownership, this chapter defines *INS_PER* as the percentage of mutual funds deflated by total shares. Following Yuan et al. (2008), another way to calculate mutual fund ownership is to use the ratio of the market value of mutual funds to the firm's market value at the end of the year. This has been used for testing the robustness of our results.

Another main variable is the proxy for tunnelling behaviour (*TUL*). Unlike the tunnelling of Johnson et al. (2000b), expropriation in China usually takes the form of corporate loans to controlling shareholders, payments made on behalf of controlling shareholders, and loan guarantees from controlling shareholders (Li, 2010a). The most routine tunnelling behaviour is from other receivables extracted from listed firms. China's Generally Accepted Accounting Principles (GAAP) consider other receivables from transactions other than the sale and purchase of goods and services to be improper receivables, and since 1997 the CSRC has also required related-party transactions to be recorded in listed firms' annual reports to limit tunnelling behaviour. However, the underdeveloped Chinese laws and related regulations cannot prevent tunnelling behaviour from using other receivables. From their empirical evidence, Jiang et al. (2010) conclude that inter-corporate loans (represented by other receivables) are an appropriate proxy for tunnelling behaviour, as they are traceable to public sources and do not require a 'fair value' test, which is needed to clarify asset transfers between related parties. The authors also demonstrate that other receivables from controlling shareholders can be approximately replaced by the value obtained from the annual report. Li (2010a) comes to the same conclusions using a randomly selected 50 firms, and finds that almost all other receivables are funds extracted by controlling shareholders. This chapter also uses other receivables from controlling shareholders and their affiliates (Wang and Xiao, 2011) to examine precisely whether mutual fund ownership can improve listed firms' profitability, given the tunnelling of controlling shareholders.

For testing the concave relationship, *INS_PER* and *INS_PER_2* (the square value of *INS_PER*) are introduced to capture the predicted concave relation, while *TUL_INS_PER* and *TUL_INS_PER_2* (the square value of *INS_PER* multiplied by *TUL*) are used to study such concave relation when controlling shareholders extract resources from listed firms. Furthermore, following prior studies such as those of Yuan et al. (2008), Elyasiani and Jia (2010), and Wang and Xiao (2011), this chapter uses firm characteristics and corporate governance variables to control for their effects on firm performance. To examine H1 and H2, we use the following regressions:

$$\begin{aligned} Firm\ Performance = {} & \alpha_0 + \alpha_1 INS\_PER + \alpha_2 INS\_PER\_2 + \alpha_3 TUL + \alpha_4 TUL \times INS\_PER + \\ & \alpha_5 TUL \times INS\_PER\_2 + \alpha_6 TS + \alpha_7 REFORM + \alpha_8 RET\_ADJ + \alpha_9 STATE + \alpha_{10} LEVERAGE \\ & + \alpha_{11} CHANGE\_SALES + \alpha_{12} BM + \alpha_{13} SIZE \end{aligned} \quad (1)$$

$$\begin{aligned} Firm\ Performance = {} & \alpha_0 + \alpha_1 INS\_PER + \alpha_2 INS\_PER\_2 + \alpha_3 TUL + \alpha_4 TUL \times INS\_PER + \\ & \alpha_5 TUL \times INS\_PER\_2 + \alpha_6 PAY + \alpha_7 HERF + \alpha_8 TOP\_1 + \alpha_9 IND + \alpha_{10} DSUP\_NUM \\ & + \alpha_{11} DSUP\_MEET + \alpha_{12} BIG\_5 + \alpha_{13} TS + \alpha_{14} REFORM + \alpha_{15} RET\_ADJ + \alpha_{16} STATE \\ & + \alpha_{17} LEVERAGE + \alpha_{18} CHANGE\_SALES + \alpha_{19} BM + \alpha_{20} SIZE \end{aligned} \quad (2)$$

In models (1) and (2), this chapter uses *ROA, ROE, ROS, Tobin_Q,* and *OPNIC_MV* as dependent variables to fully examine listed firm performance. More specifically, firm performance proxies are represented by five financial variables adopted in the previous studies (Yuan et al., 2008; Chen et al., 2008, 2009): earnings before interest and tax divided by total assets (*ROA*); total profits divided by the book value of equity (*ROE*); the market value of assets over the book value of assets (*Tobin_Q*); earnings before interest and tax divided by net sales (*ROS*), and operating income divided by the market value of assets

(*OPINC_MV*). In other words, *ROA*, *ROE,* and *ROS* measure the profitability of the listed firms, *Tobin's Q* is market value performance, and *OPINC* controls the time-series properties of earnings (cash flows). Because the relation between firm performance and mutual fund ownership may vary from industry to industry (Yuan et al., 2008; Chen et al., 2008), this chapter uses median-adjusted performance measures by industry for a robustness test; the industry classification is based on published CSRC codes.

Corresponding to the H1 and H2, the concave relation expects a positive coefficient for *INS_PER* and *TUL_INS_PER* if the shareholding of mutual funds can improve the quality of listed firms in their portfolios for firms with and without tunnelling behaviour. A negative coefficient for *INS_PER_2* and *TUL_INS_PER_2* implies that highly concentrated mutual fund ownership may induce managerial entrenchment effect and that fund managers are more likely to be influenced by their ultimate controlling shareholders' investment decision to expropriate minority shareholders' interests.

With regard to control variables, including corporate governance and firm characteristics, agency theory predicts that executive compensation is positively correlated with firm performance. In China, since 2001 and 2006, respectively, in coordination with the split share structure reform, listed firms have been required by the CSRC to disclose executive and individual compensation in their annual reports. The literature on China's stock market also reveals a positive relation between executive compensation and firm performance. Firth et al. (2006, 2007a) find that firm performance is affected by cash compensation and that ownership

structure affects the cash of pay. Conyon and He (2011) also confirm such a relation after controlling for management quality, ownership, and board structure. Shleifer and Vishny (1986) first point out that high ownership in board structure can help reduce the expropriation of controlling shareholders. The degree of such ownership may also improve firm performance. To control for the impact of ownership concentration on firm performance, this chapter follows Xu and Wang (1999) and Yuan et al. (2008), who find a positive relation between ownership concentration and firm performance in China. Therefore, this chapter considers the Herfindahl index, computed by the sum of the squared percentage of shares held by the top 10 shareholders, to determine the extent to which a high percentage of largest shareholders can adversely affect firm performance through raising firm capital costs or decreasing diversification opportunities (Fama and Jensen, 1983; McConnell and Servaes, 1995; Margaritis and Psillaki, 2010).

In China it is usually the case that the largest shareholder is dominant and has more influence than in other countries. Then, this chapter expects a negative relation between the largest shareholder's ownership and firm performance. Consistent with the development of China's capital market, since 2002 the CSRC has required listed firms to gradually adopt the Anglo-American style of internal corporate governance to protect minority shareholder interests, as in the assigning of independent directors to the main board of directors, and standardizing the supervision committee. Therefore, a positive correlation would be expected between a corporate governance variable (independent director, number of supervisors and number of supervisors' meetings) and firm performance. The

variable *Big4* indicates that an international Big 4 auditor supervises the firm's accounting, although few Chinese listed firms hire such auditors due to their high commission fees.

The other control variables consist of firm characteristics. Compared with tradable shareholders, non-tradable shareholders may have more incentive to transfer interests from listed firms to themselves (Firth et al., 2010; Li et al., 2011). However, Jiang et al. (2010) state that non-tradable shares, mostly owned by the government, are more likely to have better firm performance. To capture the effect on firm performance, this chapter includes the percentage of tradable shareholders. The split share structure reform is considered as a benchmark for gradually transforming non-tradable shares into tradable shares, and nearly 90% of non-tradable shares had become tradable by the end of 2010. Therefore, the objective of controlling shareholders changed from maximizing the value of net assets to maximizing market value, since stock price is directly related to firm performance. A positive correlation is expected between share reform and firm performance.

Following Cornett et al. (2007) and Yuan et al. (2008), market-adjusted stock returns can also control for firm performance expectations and lucky selections by mutual fund managers. The market index used to compute market-adjusted stock returns is obtained from the Shanghai and Shenzhen composite market index.

According to Dewenter and Malatesta (2001), who suggest that higher state ownership can result in firm operational inefficiency, the same empirical results

are found for China's stock market. Gul (1999), Xu and Wang (1999), and Yuan et al. (2008) claim the state has a negative effect on firm performance.

Morck et al. (1988) conclude that firm performance is affected by leverage from various directions, such as the increase in interest burden and operating risk, as well as the provision of tax shields. However, in China, the effect of leverage on firm performance is ambiguous. On the one hand, high leverage may reveal the ability to receive funding from government financial institutions and may therefore contribute to firm value. On the other hand, high leverage can also indicate that a firm is in financial trouble. The empirical evidence of Qi et al. (2000) and Sun and Tong (2003) shows a positive relation between leverage and the market-to-book ratio and a negative relation between leverage and accounting returns. In addition, Yuan et al. (2008) reveal a positive correlation between leverage and firm performance.

Sales growth serves as a proxy for growth prospects and investment opportunities. Claessens et al. (2002), Maury (2006), and King and Santor (2008) find a positive relation between sales growth and firm performance. To control for the effects of firm risk and growth opportunities, this chapter also includes the book-to-market ratio.

Xu and Wang (1999) argue that large firms in China may be supervised by more bureaucracy and may therefore be less efficient than small firms. Sun and Tong (2003) also find that firm size may have a negative correlation with firm performance, since large firms can suffer from more agency problems. Yuan et al.

(2008) find similar results to support the previous findings. Therefore, this chapter expects to observe a negative relation between firm size and firm performance.

The last hypothesis tests whether mutual fund (with highly concentrated) ownership may directly decrease (increase) tunnelling behaviour. Based on previous studies (Gao and Kling, 2008; Berkman et al., 2009; Jiang et al., 2010), this chapter provides a more comprehensive and persuasive logistic regression to examine this question. Consistent with regressions (1) and (2), the logistic regression used for testing the third hypothesis also controls for firm characteristics and the effect of corporate governance:

$$P(DTUL=1)=\alpha_0+\alpha_1 INS\_PER+\alpha_2 INS\_PER\_2+\alpha_3 STATE \\ +\alpha_4 LEVERAGE+\alpha_5 BM+\alpha_6 SIZE+\varepsilon \quad (3)$$

$$P(DTUL=1)=\alpha_0+\alpha_1 INS\_PER+\alpha_2 INS\_PER\_2+\alpha_3 TOP\_1+\alpha_4 BIG\_5 \\ +\alpha_5 PAY+\alpha_6 STATE+\alpha_7 LEVERAGE+\alpha_8 BM+\alpha_9 SIZE+\varepsilon \quad (4)$$

The dependent variable is the likelihood of controlling shareholders expropriating minority shareholder interests (*DTUL*), defined as one if the listed firm's *TUL* value is above the median value of the current year for all firms and zero otherwise. Following H3 and H4, this chapter predicts a non-linear association between tunnelling behaviour and mutual fund ownership with a quadratic function specification. The concave relation expects a negative coefficient for *INS_PER* and a positive coefficient for *INS_PER_2*. The negative coefficient of α_1 from regressions (3) and (4) indicates that mutual fund ownership could

properly limit expropriation by controlling shareholders (Pagano and Röell, 1998; Bennedsen and Wolfenzon, 2000; Berkman et al., 2008; Gao and Kling, 2008; Yuan et al., 2008; Jiang et al., 2010), while the positive coefficient of α_2 implies that the incentive alignment between mutual fund managers and controlling shareholders will force the ineffectiveness of mutual fund ownership in protecting minority shareholders' interests.

Berkman et al. (2008) and Jiang et al. (2010) argue that tunnelling behaviour is related to several firm characteristics. According to La Porta et al. (2002), in China the largest shareholder has effective control of a firm due to the lack of cumulative voting procedures. Berkman et al. (2008) also conclude that controlling shareholders have less incentive to exploit minority shareholders when cash flow rights and control rights are better aligned. Empirical evidence from La Porta et al. (2002) and Claessens et al. (2002) indicates a positive effect of controlling shareholder cash flow rights on firm performance. However, evidence from Peng et al. (2011) indicates that the largest shareholders may tunnel interests from minority shareholders, depending on the listed firm's financial condition. Therefore, the largest shareholder would have an ambiguous effect on tunnelling behaviour. Furthermore, since the variable *BIG4* is also considered a proper corporate governance variable to supervise controlling shareholder behaviour and accounting standards, it is expected to have a negative effect on tunnelling behaviour. With regard to the compensation of board directors, Wang and Xiao (2011) conclude that executive compensation is negatively associated with tunnelling behaviour, not only because controlling shareholders prefer to hire

docile executives rather than capable managers in order to seek private benefits, but also because executives may receive compensation in non-pecuniary form, such as promotion. In addition, state listed firms are more likely to use tunnelling behaviour to maximize their benefits from minority shareholders (Jiang et al., 2010; Wang and Xiao, 2011). Other control variables are leverage (*LEVERAGE*), the book-to-market (*BM*) ratio, and firm size (*FIRMSIZE*), which are also used to control for the effects of tunnelling behaviour (Berkman et al., 2008; Jiang et al., 2010; Wang and Xiao, 2011).

Wang and Xiao (2011) point out that tunnelling and pay-performance sensitivity might be affected by some common factors such as ownership structure. For example, a higher level of ownership of controlling shareholders makes it easier for them to tunnel resources from firms. In addition, when government is the controlling shareholder, related party transactions are relatively common, because most of the listed firms are carved out from their state-owned groups (Aharony et al., 2010). These factors could lead to simultaneous variations in tunnelling and executive compensation rather than tunnelling per se. Therefore, they employ a two-stage regression sensitivity test to further examine whether pay-performance is affected by these common factors instead of the tunnelling proxy itself.

Hence, this chapter also determines whether mutual fund ownership is still effective in improving firm performance for firms engaging in unexplained tunnelling behaviour after controlling for other factors, such as corporate governance variables or firm characteristics. The corresponding regressions are:

$$TUL = \alpha_0 + \alpha_1 INS\_PER + \alpha_2 INS\_PER\_2 + \alpha_3 TUL\_LAG + \alpha_4 TOP\_1 + \alpha_5 STATE + \alpha_6 ROA\_LAG + \alpha_7 LEVERAGE + \alpha_8 BM + \alpha_9 SIZE \quad (5)$$

$$Firm\ Performance = \alpha_0 + \alpha_1 INS\_PER + \alpha_2 INS\_PER\_2 + \alpha_3 UNEXP\_TUL + \alpha_4 UNEXP\_TUL \times INS\_PER + \alpha_5 UNEXP\_TUL \times INS\_PER\_2 + \alpha_6 PAY + \alpha_7 HERF + \alpha_8 TOP\_1 + \alpha_9 IND + \alpha_{10} DSUP\_NUM + \alpha_{11} DSUP\_MEET + \alpha_{12} BIG\_5 + \alpha_{13} TS + \alpha_{14} REFORM + \alpha_{15} RET\_ADJ + \alpha_{16} STATE + \alpha_{17} LEVERAGE + \alpha_{18} CHANGE\_SALES + \alpha_{19} BM + \alpha_{20} SIZE \quad (6)$$

Following Wang and Xiao (2011), when controlling for the influence of common factors on mutual fund, the unexplained tunnelling behaviour proxy can be redefined as a dummy variable (*UNEXP_TUL*) that equals one if the residual from regression (5) is greater than the mean, representing those firms that may have greater potential incentive to employ tunnelling behaviour compared with others, and zero otherwise. The predicted non-linear results will strongly support H1 and H2 if the corresponding coefficients (*INS_PER*, *INS_PER_2*, *UNEXP_TUL*INS_PER* and *UNEXP_TUL*INS_PER_2*) are significant and have the same signs as regressions (1) and (2).

3.4 Data and Sample

The sample used in the study consists of 9062 firm-years, representing 1806 A-share listed firms on the Shanghai and Shenzhen stock exchanges from 2003 to 2011. We collect the data from the China Securities Market and Accounting

Research (CSMAR) database. We use the sum of Open-end-Funds and Close-end-Funds[4] to define the mutual fund ownership for each listed company. The sample begins in 2003 mainly because the information about mutual fund ownership is available from this time point. With regard to tunnelling behaviour, we follow Liu and Lu (2007) and Jiang et al. (2010) and use other receivables deflated by total assets to measure inter-corporate lending to controlling shareholders and their affiliates. Following Wang and Xiao (2011), this chapter also obtains cash transferred from listed firms to controlling shareholders and their affiliates at the end of the year.

[Insert Table 3.1 around here]

Table 3.1 provides descriptive statistics of all the variables used in this study. Although the sample period is different from those in previous studies, panel A shows that the mean and median values of *ROA*, *ROE*, *ROS,* and *Tobin's Q* are quite similar to those reported by Chang and Wong (2004), Jiang et al. (2010), Peng et al. (2011), and Mirth et al. (2012). The values of the means of *ROA*, *ROE*, *ROS,* and *Tobin's Q* are 0.038, 0.070, 0.111, and 1.603, respectively. This chapter also uses the *OPNIC_MV* variable of Aboody et al. (2010) as an alternative measure of firm performance. In contrast to other papers that use *TUL* (other receivables deflated by total assets) as a tunnelling proxy, its mean value in this

[4] This paper does not investigate the impact of the two types of mutual funds, the open and close-end funds, on firm performance separately for two reasons: First, the share ownership of mutual funds in China is much lower than in developed markets. Secondly, this separation would further induce lower share ownership for both types of mutual funds and thus their impact would be significantly weakened. This chapter has also implemented empirical investigation and found that consistent with the expectations above, the impact of either open or close-end funds becomes insignificant.

chapter is only 0.032 across the entire sample period (2003-2011). The main reason is that CSRC policies restricting tunnelling behaviour and requiring listed firms to repay loans from other firms came into force in 2005, when most current papers' research periods end. Since not all controlling shareholders transfer their resources out of listed firms, the number of firm-year observations is reduced from 9,062 to 5,091 and the mean of the *TUL* value from controlling shareholders also decreases, to 0.017, very similar to the results of Wang and Xiao (2011).

On average, the mean value of mutual fund ownership is 0.053, with a standard deviation of 0.017, similar to Ding et al. (2013). The first quartile is 0.001 and the third quartile is 0.076, indicating that fund managers in China prefer large percentages of listed firms' tradable shares in their portfolios. The other independent variables are roughly similar to those of Firth et al. (2007b), Ding et al. (2013), and Hou et al. (2012). In detail, the average of *STATE* is 0.617, which reveals that the majority of listed firms in China belong to the state or the government. The percentage of tradable shares is about 61% for the whole sample period, and this high percentage is mainly due to the split share structure reform of 2005. Panel A of Table 3.1 also reveals that most Chinese listed firms seldom hire internationally known auditors to oversee their financial statements, since the mean of *BIG4* is only about 8.3%. The variable *Top_1* reveals that ownership of the largest shareholder among China's listed firms is high, about 38%. Panel B summarizes the statistics of annual other receivables from the financial statement. Consistent with Jiang et al. (2010) and Liu and Lu (2007), *ORECTA* decreases

dramatically from 0.053 to 0.023 after 2005, when the CSRC implemented several compulsory policies to eliminate controlling shareholder tunnelling behaviour.

Table 3.2 reports the Pearson correlation coefficients between variables. The correlation between the two mutual fund ownership measures is up to 0.937. This confirms that results are robust when either one of these two measures is adopted. It also reveals that mutual fund ownership by share and by market value are significantly positively related with all firm performance proxies and related industry-adjusted variables. This is consistent with the assumption in H1 that mutual fund managers are more willing to monitor firms in order to boost shareholders' wealth. On the other hand, Table 3.2 also observes a negative relation between *ORECTA* and firm performance, which is consistent with the findings of Gao and Kling (2008), Berkman et al. (2009), and Jiang et al. (2010) and shows that tunnelling by controlling shareholders decreases with firm quality. Furthermore, there is a negative association between mutual fund ownership and tunnelling proxy, which implies that mutual fund ownership may play a corporate governance role in restricting tunnelling, so acting against controlling shareholders' interests. In general, most of the correlations reported in Table 3.2 are below 0.2 and thus present no concerns about multicollinearity among the explanatory variables.

[Insert Table 3.2 around here]

3.5 Empirical Results

3.5.1 Relation between Mutual Fund Ownership and Firm Performance under Tunnelling Behaviour

Tables 3.3 and 3.4 report the results of the regression estimation for testing H1 and H2. These results are based on five measures of firm performance (*ROA*, *ROE*, *ROS, Tobin's Q* and *OPNIC_MV*) and two alternative proxies of mutual fund ownership (INS_PER and INS_MV_PER), controlled by industry and year effects.

In Table 3.3, mutual fund ownership is computed by the number of shares owned by mutual funds deflated by total shares. The results indicate a concave association between mutual fund ownership and firm performance and thus strongly support H1 and H2. In detail, mutual fund ownership has positive and significant effect on firm performance at the 1% level for all regressions. This is consistent with Yuan et al. (2008), and suggests that the mutual fund has the incentive and ability to improve firm performance through direct monitoring over management. However, when mutual fund ownership reaches a certain point, a negative association between mutual fund ownership and firm performance emerges, except for Tobin's Q, which still maintains a positive relation with firm performance. At this level of ownership, mutual fund managers have more influential power and can focus on their own interests instead of protecting small

shareholders and firm performance (Bhojraj and Sengupta, 2003; Velury and Jenkins, 2006).

[Insert Tables 3.3 and 3.4 around here]

The coefficient on the tunnelling proxy in the third row of Table 3.3 indicates a significantly negative correlation with firm performance, and this is in line with the findings of Jiang et al. (2010) and Wang and Xiao (2011). Consistent with the relation between mutual fund ownership and firm performance, the coefficients of *TUL_INS_PER* and *TUL_INS_PER_2* also indicate a non-linear relationship with firm performance. In other words, the coefficients of the interaction term between *TUL* and *INS_PER* and between *TUL* and *INS_PER_2* are significantly positive and negative respectively. This implies that among firms with tunnelling behaviour, firm performance can still be improved under the supervision of mutual fund ownership. To some extent, mutual fund managers prefer to obtain interests and higher compensation through improving firm performance rather than by aligning with controlling shareholders to expropriate minority shareholders' benefits. However, the coefficient on the squared mutual ownership is negative for all firm performance proxies, and this shows that the relationship becomes negative when mutual fund ownership reaches the critical point. The results are consistent with H2 and reveal that mutual fund managers prefer to be aligned with controlling shareholders or government agencies, not only because high ownership of mutual fund may drive the same benefits between the two

groups, but also because most mutual fund managers are under pressure from appointment issues and powerless voting rights. Therefore, mutual fund managers must relinquish supervisory power in order to keep their position and basic interests.

The other control variables in Table 3.3 are also consistent with the findings of previous studies. CEO compensation packages are viewed as playing an important role in restricting conflict between managers and shareholders. Consistent with empirical evidence (Shleifer and Vishny, 1997; Firth et al., 2006, 2007a; Conyon and He, 2011; Ozkan, 2011), which has shown that CEO compensation packages have a positive effect on firm performance owing to the enhanced motivation of managerial officers, a significantly positive correlation is observed between CEO compensation and firm performance. The development of China's corporate governance is another incentive for managers to pay more attention to improving firm performance than to exploiting firm resources. The results in Table 3.3 also show the effect of ownership concentration on firm performance, where a positive relation is found at the 5% level of significance for all regressions. The results yield negative coefficients at the 1% level of significance for the relation between the largest shareholders and firm performance. In addition, although firm performance is not influenced by the number of meetings held by supervisors, the scale of supervision is considered to play a proper role in protecting minority shareholder interests, due to a significantly positive coefficient. The effects of adjusted stock returns, leverage, and the book-to-market ratio are all consistent with the previous studies. In addition, the coefficients for tradable shares, the split

share structure reform, and the rates of change for sales and firm size also partly support the previous findings.

In Table 3.4, mutual fund ownership is computed as the market value of mutual fund shares owned deflated by the total market value of the listed firm. The results are highly consistent with those in Table 3.3 and support H1 and H2 on the effect of mutual fund ownership on promoting firm performance.

3.5.2 Logistic Regression Results from the Determinants of Tunnelling Behaviour

Table 3.5 provides the results of testing whether mutual fund ownership can effectively reduce tunnelling behaviour. It presents the results of logistic regressions where the dependent variable equals one if *TUL* is above the median value in the current year and zero otherwise. Consistent with the univariate analysis, mutual fund ownership has a strong negative effect on tunnelling behaviour after corporate governance variables are controlled. In addition, the results are robust to other measures of mutual fund ownership. These results support H3 and imply that the probability of tunnelling behaviour through controlling shareholders' other receivables is effectively restricted by mutual fund ownership. Moreover, mutual fund ownership is found to have a non-linear relation with tunnelling behaviour; in other words, tunnelling is significantly positively correlated with high mutual fund ownership concentration. These

findings suggest that the effect of corporate governance by mutual funds declines as mutual fund ownership reaches the critical turning point. This result is also consistent with the finding of Berkman et al. (2009) and Firth et al. (2010) that tunnelling behaviour is unrestricted when the costs greatly outweigh the benefits if high mutual fund ownership aligns with controlling shareholders.

The largest shareholder and executive compensation are negatively and positively associated with tunnelling at the 1% and 5% levels of significance respectively. The positive effect of executive compensation implies that controlling shareholders can prevent tunnelling of private interests from firms. Each of the firm characteristic variables is also statistically significant at the 1% level and has the expected sign. More precisely, controlling shareholders are significantly more likely to transfer funds out of listed firms when leverage is high. A significantly negative correlation is also found between tunnelling behaviour and growth opportunities. A plausible explanation is that the cost of tunnelling behaviour would be substantial if it decreased expected future cash flow from a potential investment. Based on the conclusion of Jiang et al. (2010) and Wang and Xiao (2011), tunnelling proxies are higher for smaller firms.

[Insert Table 3.5 around here]

3.5.3 Controlling the Determinants of Controlling Shareholder Tunnelling

Wang and Xiao (2011) state that the correlation between listed firms' pay-performance sensitivity and tunnelling behaviour is affected by some other factors, as previous studies (Gao and Kling, 2008; Jiang et al., 2010) find that tunnelling behaviour is determined by corporate governance and firm characteristics. Therefore, following the two-stage least-squares (2SLS) method of Wang and Xiao (2011), this chapter first controls for the effects of those factors on tunnelling proxy and then re-examines the association between mutual fund ownership and firm performance.

Panel A of Table 3.6 reports the results of regression (5). The coefficients on the mutual fund ownership and the squared term are still significantly negative and positive respectively, and thus mutual fund ownership still shows a non-linear relationship with tunnelling behaviour. This is consistent with Table 3.5. In addition, the coefficient of *TUL_LAG* is significantly positive and indicates that tunnelling behaviour is pushed up by the tunnelling in the previous period. The effect of state ownership on tunnelling behaviour is significantly negative at the 1% level, as shown by Jiang et al. (2010), although Jian and Wong (2010) report the opposite result.

After excluding the expected tunnelling, panel B of Table 3.6 re-estimates model (2) with an unexpected tunnelling proxy, *UNEXL_TUL*. The corresponding

coefficients between firm performance and *UNEXP_INS_PER*, as well as *UNEXP_INS_PER_2*, are consistent with those reported in Table 3.3, except for the insignificant results from *Tobin's Q*. Therefore, the results imply that mutual fund ownership is still effective in restricting controlling shareholders' tunnelling behaviour and in turn improves firm performance, even after controlling for the influence of corporate governance and firm characteristics variables. But higher mutual fund ownership can act in alignment with controlling shareholders and lower firms' performance. To test the robustness of these results, this chapter also uses a different mutual fund ownership measure based on market value of shares and firm performance proxies and adjusted by industry effect. Consistent with panel B, the results in panels C and D also support H1 and H2.

[Insert Table 3.6 around here]

3.5.4 Robustness Test

Tables 3.7 to 3.9 provide several alternative measures for testing H1 and H2. The main purpose of these tests is to ensure the findings in Tables 3.3 and 3.4 are still supportive of H1 and H2.

3.5.4.1 Alternative Measurements of the Tunnelling Proxy

Although Jiang et al. (2010) and Li (2010a) suggest that firms' overall other receivables obtained from the financial statement can approximately represent firms' tunnelling behaviour, some other studies adopt alternative measures to capture such activities. For example, Ye (2006) collected other receivables of controlling shareholders and their affiliates from the footnotes of financial statements. Wang and Xiao (2011) also manually collected the other receivables belonging to controlling shareholders and their affiliates with a larger sample size to conduct further empirical analysis. Instead of using other receivables from the entire firm and its controlling shareholder, this chapter uses other receivables from the China Listed Firms' Related Party Transactions Research Database. Furthermore, compared with previous literature, this chapter use a longer sample period, from 2003 to 2011, to test the robustness of the results of Tables 3.3 and 3.4. The correlation matrix in Table 3.2 shows a significant positive relation between the value of other receivables from the formal financial statement, and the value of that part of other receivables noted in the footnote as relating to controlling shareholders, which implies a reasonable substitution for these two variables. In Table 3.7, most coefficients of *TUL_INS_PER* and *TUL_INS_PER_2* are positive and negative at the 1% level of significance, respectively. These findings indicate that mutual fund ownership can still enhance the performance of listed firms if other receivables are collected directly from controlling shareholders when mutual fund managers hold a high percentage of a listed firm's

shares. The improvement in firm performance is even higher for those firms with tunnelling behaviour.

[Insert Table 3.7 around here]

3.5.4.2 Alternative Measurements of Firm Performance and Fixed Effects

Because mutual fund ownership may vary across different industries, it is important to control for such variation. Following Allayannis and Weston (2001), Woidtke (2002), and Yuan et al. (2008), industry-adjusted firm performance proxies are defined as the difference between listed firm performance and the corresponding industry median in the same year. The main coefficients reported in Tables 3.8 and 3.9 suggest the same findings regarding H1 and H2 when the influence of industry is controlled. In addition, following Bond and Meghir (1994) and Harrison and McMillan (2003), this chapter also estimates the multivariate panel regressions with fixed effects. The corresponding findings also support the results of Tables 3.3 and 3.4 when the estimation with the control of fixed effects is used.

[Insert Tables 3.8 and 3.9 around here]

3.5.4.3 More Restricted Variables as the Determinants of Controlling Shareholder Tunnelling Behaviour

Jiang et al. (2010) and Wang and Xiao (2011) both test the determinants of tunnelling behaviour with the same set of factors: *ROA, STATE, SIZE, LEVERAGE, MARKETIZATION INDEX,* and *LARGEST SHAREHOLDER*. Regression (5) includes all these variables to control for effects on tunnelling, except for the marketization index, which measures the development of the regional market, where higher values indicate greater regional market development (Fan and Wang, 2011). Since the marketization index is only available until 2009, this chapter includes it to fully control for tunnelling behaviour in a further empirical analysis over the period from 2003 to 2009. The results in Table 3.10 further confirm that the negative impact of unexplained tunnelling can be weakened by the increase in mutual fund ownership and thus firm performance can be improved even when *MARKETIZATION INDEX* has been considered as one of the determinants of tunnelling behaviour.

[Insert Table 3.10 around here]

3.6 Conclusion

Mutual fund ownership is considered in the previous studies to play an important corporate governance role in protecting minority shareholders. However, the

situation for the Chinese stock market is ambiguous, since mutual fund managers cannot properly address the contradiction in benefits between controlling shareholders and themselves (Firth et al., 2010; Ding et al., 2013). In order to resolve the puzzling role of mutual fund ownership, this chapter provides empirical evidence to show that there is a non-linear association between mutual fund ownership and firm performance in China. Furthermore, the positive association between mutual fund ownership and firm performance indicates that mutual fund ownership is effective in improving firm performance, and the improvement is even greater for those firms that have controlling shareholders exploiting tunnelling behaviour to maximize their own interests.

This monitoring effect of mutual fund ownership can be induced by the following factors: First, compared with individual investors, mutual fund investors have more experience and expertise to monitor listed firms' performance. More precisely, given the unique ownership structure of Chinese firms, agency problems can be effectively decreased as mutual fund ownership plays an external corporate governance role. Second, in the gradual reform by the Chinese government and the CSRC, more attention has been paid to the supervision of mutual fund managers regarding the protection of minority shareholders' interests. Third, the performance of invested forms can also affect the income of mutual fund managers, because their compensation depends primarily on the size of the fund and the performance of the managed funds. Finally, since 2001 tunnelling behaviour has been gradually restricted by the CSRC, with several related policies for the protection of minority shareholders' interests (Jiang et al., 2010).

Therefore, mutual fund managers are less likely to align with controlling shareholders in order to expropriate firms' resources.

On the other hand, the negative relation between the squared mutual fund ownership and firm performance suggests that a high level of mutual fund ownership can increase the probability that the wealth of minority shareholders will be expropriated, rather than that firm performance will be improved. It is argued here that a high level of mutual fund ownership may create an agency problem that directly induces expropriation of minority shareholders. In addition, the effectiveness of monitoring by mutual fund ownership in China is more likely to be affected by government agencies or the CSRC, which has the right to appoint mutual managers and a strong incentive to protect controlling shareholder interests against the corporate governance mechanism. Moreover, most mutual fund managers in China have less power than those in developed countries. To protect against the potential hazards listed above, mutual fund managers may prefer to align with controlling shareholders or government agencies to extract resources out of firms when they have a high level of ownership.

The findings in this chapter also confirm that mutual fund ownership can act directly as proper corporate governance to limit the probability of tunnelling behaviour of controlling shareholders. In line with H2(b), however, mutual fund managers' individual incentive, and the lack of voting rights, may explain why mutual fund managers act in the interests of controlling shareholders.

The policy implication of this chapter is that although mutual fund ownership in China is effective in restricting controlling shareholders' tunnelling and in improving firm performance, greater direct enforcement and more transparent appointments should be further imposed and strengthened by government agencies. Greater direct enforcement can further push mutual fund managers with a high level of ownership to provide more constructive suggestions on firm operation and monitoring, and more protection for minority shareholders, instead of aligning with controlling shareholders' interests.

Table 3.1 Summary Statistics and Distribution of TUL

Panel A. Summary Statistics

Variable	Obs.	Mean	Median	Std. dev.	P25	P75
ROA	9062	0.038	0.037	0.057	0.014	0.065
ROA_ADJ	9062	0.003	0.002	0.056	-0.018	0.030
ROE	9006	0.070	0.077	0.124	0.032	0.129
ROE_ADJ	9006	0.000	0.006	0.122	-0.034	0.057
ROS	9062	0.111	0.094	0.174	0.046	0.170
ROS_ADJ	9062	0.008	0.001	0.166	-0.044	0.065
TOBIN_Q	9062	1.603	1.265	0.863	1.036	1.824
TOBIN_Q_ADJ	9062	0.206	-0.004	0.728	-0.162	0.310
OPNIC_MV	9062	0.029	0.029	0.042	0.011	0.050
OPNIC_MV_ADJ	9062	0.002	0.003	0.042	-0.014	0.023
INS_PER	9062	0.053	0.017	0.076	0.001	0.076
INS_MV_PER	9062	0.053	0.013	0.082	0.001	0.069
TUL	9062	0.032	0.013	0.056	0.004	0.034
DTUL	9062	0.481	0.000	0.500	0.000	1.000
TUL_LAR	5091	0.017	0.001	0.048	0.000	0.010
DTUL_LAR	5091	0.466	0.000	0.499	0.000	1.000
PAY	9062	13.428	13.481	0.951	12.819	14.064
HERF	9062	0.193	0.162	0.133	0.090	0.270
TOP_1	9062	0.386	0.370	0.157	0.258	0.505
IND	9062	0.357	0.333	0.053	0.333	0.375
DSUP_NUM	9062	0.922	1.000	0.268	1.000	1.000
DSUP_MEET	9062	0.659	1.000	0.474	0.000	1.000
BIG4	9062	0.083	0.000	0.276	0.000	0.000
TS	9062	0.607	0.550	0.256	0.395	0.841
REFORM	9062	0.634	1.000	0.482	0.000	1.000
RET_ADJ	9062	0.048	-0.032	0.489	-0.200	0.216
STATE	9062	0.617	1.000	0.486	0.000	1.000
LEVERAGE	9062	0.494	0.504	0.191	0.358	0.633
CHANGE_SALES	9062	0.099	0.148	0.387	0.031	0.261
BM	9062	0.424	0.371	0.268	0.226	0.573
FIRMSIZE	9062	21.797	21.658	1.144	20.982	22.446
MAK	6296	8.235	8.330	2.053	6.610	10.180

Note: All variables are as defined in the Appendix.

Panel B. TUL Distribution by Year

Year	Obs.	Mean	Median	Std. dev.	P25	P75
2003	382	0.033	0.013	0.052	0.003	0.039
2004	1008	0.052	0.020	0.079	0.005	0.062
2005	1139	0.053	0.020	0.084	0.005	0.058
2006	1083	0.035	0.015	0.059	0.004	0.041
2007	762	0.026	0.011	0.043	0.004	0.030
2008	794	0.023	0.011	0.038	0.004	0.027
2009	1128	0.022	0.010	0.034	0.004	0.026
2010	1215	0.022	0.010	0.037	0.003	0.025
2011	1551	0.023	0.011	0.039	0.005	0.025
Total	9062	0.032	0.013	0.056	0.004	0.034

Table 3.2 Correlation Matrix

	ROA	ROA_ADJ	ROE	ROE_ADJ	ROS	ROS_ADJ	TOBIN_Q	TOBIN_Q_ADJ	OPNIC_MV	OPNIC_MV_ADJ	INS_PER	INS_MV_PER	TUL	DTUL	TUL_LAR	DTUL_LAR	PAY	HERF	TOP_1	IND	DSUP_NUM	DSUP_MEET	BIG4	TS	REFORM	RET_ADJ	STATE	LEVERAGE	CHANGE_SALES	BM	FIRMSIZE	MAK
ROA	1.000																															
ROA_ADJ	**0.988**	1.000																														
ROE	**0.917**	**0.911**	1.000																													
ROE_ADJ	**0.907**	**0.917**	**0.994**	1.000																												
ROS	**0.765**	**0.743**	**0.720**	**0.703**	1.000																											
ROS_ADJ	**0.758**	**0.763**	**0.725**	**0.727**	**0.964**	1.000																										
TOBIN_Q	**0.289**	**0.234**	**0.220**	**0.178**	**0.177**	**0.150**	1.000																									
TOBIN_Q_ADJ	**0.241**	**0.231**	**0.151**	**0.142**	**0.124**	**0.121**	**0.863**	1.000																								
OPNIC_MV	**0.896**	**0.895**	**0.845**	**0.844**	**0.699**	**0.692**	0.040	0.032	1.000																							
OPNIC_MV_ADJ	**0.895**	**0.906**	**0.852**	**0.859**	**0.676**	**0.695**	**0.076**	**0.042**	**0.984**	1.000																						
INS_PER	**0.373**	**0.344**	**0.350**	**0.326**	**0.207**	**0.196**	**0.386**	**0.296**	**0.258**	**0.271**	1.000																					
INS_MV_PER	**0.427**	**0.394**	**0.361**	**0.334**	**0.242**	**0.226**	**0.455**	**0.371**	**0.287**	**0.298**	**0.937**	1.000																				
TUL	**-0.370**	**-0.355**	**-0.382**	**-0.372**	**-0.308**	**-0.312**	**-0.059**	0.008	**-0.357**	**-0.358**	**-0.182**	**-0.169**	1.000																			
DTUL	**-0.182**	**-0.173**	**-0.156**	**-0.153**	**-0.148**	**-0.144**	**0.051**	**0.044**	**-0.214**	**-0.202**	**-0.086**	**-0.087**	**0.513**	1.000																		
TUL_LAR	**-0.282**	**-0.278**	**-0.297**	**-0.294**	**-0.248**	**-0.259**	**-0.048**	0.002	**-0.269**	**-0.275**	**-0.123**	**-0.113**	**0.599**	**0.224**	1.000																	
DTUL_LAR	**-0.211**	**-0.212**	**-0.202**	**-0.206**	**-0.140**	**-0.145**	-0.011	-0.026	**-0.225**	**-0.222**	**-0.127**	**-0.130**	**0.360**	**0.377**	**0.401**	1.000																
PAY	**0.283**	**0.260**	**0.277**	**0.257**	**0.208**	**0.192**	**0.144**	0.021	**0.247**	**0.263**	**0.318**	**0.286**	**-0.160**	-0.020	**-0.119**	**-0.039**	1.000															
HERF	**0.159**	**0.158**	**0.136**	**0.140**	**0.119**	**0.104**	**-0.163**	**-0.141**	**0.210**	**0.194**	**-0.045**	0.010	**-0.128**	**-0.252**	-0.008	**-0.117**	**-0.070**	1.000														
TOP_1	**0.149**	**0.148**	**0.129**	**0.132**	**0.111**	**0.099**	**-0.150**	**-0.132**	**0.197**	**0.182**	-0.023	0.024	**-0.139**	**-0.245**	-0.014	**-0.109**	**-0.090**	**0.955**	1.000													
IND	0.026	0.018	0.029	0.022	0.020	0.018	**0.080**	0.016	-0.006	0.010	0.038	0.025	-0.023	0.010	**-0.076**	-0.006	**0.050**	0.003	-0.004	1.000												
DSUP_NUM	**0.065**	**0.048**	**0.066**	**0.053**	**0.049**	**0.044**	**0.121**	0.030	0.024	**0.043**	**0.133**	**0.120**	**-0.106**	-0.021	**-0.081**	-0.002	**0.078**	**-0.050**	-0.040	**0.052**	1.000											
DSUP_MEET	**0.050**	0.033	**0.051**	0.038	0.039	0.026	**0.124**	0.023	0.023	0.037	**0.060**	**0.062**	-0.031	0.025	-0.019	0.007	**0.074**	-0.004	0.000	**0.048**	0.033	1.000										
BIG4	**0.140**	**0.124**	**0.104**	**0.094**	**0.146**	**0.117**	**-0.070**	**-0.106**	**0.165**	**0.154**	**0.068**	**0.072**	**-0.135**	**-0.129**	**-0.072**	-0.034	**0.247**	**0.130**	**0.082**	**0.063**	0.017	0.025	1.000								
TS	0.021	-0.012	0.040	0.010	0.014	0.001	**0.405**	**0.216**	**-0.088**	**-0.044**	**0.228**	**0.119**	**-0.046**	**0.131**	**-0.061**	**0.071**	**0.241**	**-0.506**	**-0.460**	**0.101**	**0.163**	**0.101**	0.000	1.000							
REFORM	**0.168**	**0.123**	**0.176**	**0.135**	**0.144**	**0.120**	**0.318**	**0.114**	**0.080**	**0.109**	**0.276**	**0.239**	**-0.175**	0.002	**-0.167**	-0.015	**0.211**	**-0.187**	**-0.152**	**0.135**	**0.383**	**0.065**	-0.015	**0.430**	1.000							
RET_ADJ	**0.236**	**0.222**	**0.244**	**0.234**	**0.150**	**0.142**	**0.311**	**0.270**	**0.179**	**0.191**	**0.274**	**0.287**	**-0.070**	-0.016	**-0.059**	**-0.050**	**0.092**	**0.042**	0.040	-0.004	-0.003	**0.060**	-0.010	**0.088**	**0.072**	1.000						
STATE	0.025	0.017	0.027	0.022	0.033	0.029	**-0.086**	**-0.091**	0.039	0.025	-0.001	-0.004	**-0.104**	**-0.067**	-0.023	0.035	**-0.044**	**0.262**	**0.274**	**-0.043**	0.036	-0.021	**0.095**	**-0.068**	-0.021	-0.011	1.000					
LEVERAGE	**-0.363**	**-0.358**	**-0.226**	**-0.224**	**-0.271**	**-0.259**	**-0.212**	**-0.266**	**-0.315**	**-0.301**	-0.003	**-0.116**	**0.156**	**0.100**	**0.098**	**0.072**	0.024	**-0.083**	**-0.068**	0.036	0.030	0.009	**-0.069**	**0.063**	**0.045**	0.024	0.007	1.000				
CHANGE_SALES	**0.330**	**0.329**	**0.331**	**0.331**	**0.275**	**0.292**	-0.003	-0.014	**0.332**	**0.325**	**0.134**	**0.136**	**-0.190**	**-0.087**	**-0.150**	**-0.110**	**0.072**	**0.081**	**0.083**	-0.021	-0.013	0.009	0.034	**-0.052**	0.009	**0.098**	**0.071**	0.019	1.000			
BM	**-0.222**	**-0.163**	**-0.175**	**-0.129**	**-0.133**	**-0.092**	**-0.587**	**-0.399**	**-0.097**	**-0.116**	**-0.340**	**-0.401**	-0.029	**-0.045**	0.005	0.020	**-0.178**	0.039	**0.053**	**-0.067**	-0.037	**-0.111**	-0.025	**-0.146**	**-0.240**	**-0.327**	**0.069**	**-0.080**	**-0.043**	1.000		
FIRMSIZE	**0.170**	**0.136**	**0.198**	**0.174**	**0.190**	**0.144**	**-0.125**	**-0.290**	**0.199**	**0.203**	**0.265**	**0.180**	**-0.252**	**-0.198**	**-0.134**	**-0.070**	**0.378**	**0.243**	**0.212**	**0.098**	**0.123**	**0.092**	**0.412**	**0.136**	**0.162**	**0.086**	**0.206**	**0.271**	**0.113**	**0.055**	1.000	
MAK	**0.128**	**0.108**	**0.120**	**0.099**	**0.115**	**0.098**	**0.164**	**0.044**	**0.072**	**0.090**	**0.114**	**0.104**	**-0.072**	0.019	**-0.072**	0.008	**0.366**	**-0.066**	**-0.064**	**0.107**	**0.155**	**0.078**	**0.139**	**0.209**	**0.274**	0.000	**-0.077**	-0.019	**-0.046**	**-0.161**	**0.182**	1.000

Note: All variables are as defined in the Appendix. Coefficients in bold are statistically significant at the 1% level.

Table 3.3 Relation between Mutual Fund Ownership and Firm Performance

Dependent variable	ROA	ROA	ROE	ROE	ROS	ROS	TOBIN_Q	TOBIN_Q	OPINC	OPINC
INS_PER	0.310***	0.303***	0.567***	0.546***	0.438***	0.424***	0.899***	1.046***	0.215***	0.207***
	(11.859)	(11.874)	(9.019)	(8.693)	(5.155)	(5.016)	(2.702)	(3.047)	(11.325)	(11.191)
INS_PER_2	-0.489***	-0.484***	-0.822***	-0.814***	-0.845**	-0.827**	5.948***	5.753***	-0.627***	-0.609***
	(-4.902)	(-5.037)	(-3.672)	(-3.642)	(-2.494)	(-2.485)	(4.111)	(3.928)	(-9.483)	(-9.472)
TUL	-0.225***	-0.207***	-0.586***	-0.547***	-0.659***	-0.634***	-0.268**	-0.237**	-0.180***	-0.168***
	(-11.858)	(-10.748)	(-11.506)	(-10.606)	(-9.248)	(-8.722)	(-2.444)	(-2.118)	(-13.756)	(-12.710)
TUL×INS_PER	2.172***	2.102***	7.269***	7.238***	9.142***	9.873***	27.521***	27.048***	2.513***	2.508***
	(2.627)	(2.753)	(3.091)	(3.117)	(3.203)	(3.752)	(3.126)	(3.007)	(4.534)	(4.972)
TUL×INS_PER_2	-9.718**	-9.209***	-27.929***	-27.227***	-38.860***	-41.501***	-110.402**	-109.850**	-7.941***	-7.771***
	(-2.550)	(-2.595)	(-3.084)	(-3.048)	(-2.872)	(-3.238)	(-2.552)	(-2.523)	(-3.771)	(-4.013)
PAY		0.011***		0.024***		0.016***		-0.006		0.008***
		(15.145)		(13.890)		(6.618)		(-0.798)		(15.527)
HERF		0.084***		0.179***		0.170***		0.401**		0.065***
		(6.367)		(6.243)		(3.828)		(2.542)		(6.181)
TOP_1		-0.030***		-0.067***		-0.129***		-0.156		-0.023***
		(-2.830)		(-2.829)		(-3.584)		(-1.213)		(-2.772)
IND		-0.005		-0.001		-0.017		0.226*		-0.008
		(-0.455)		(-0.048)		(-0.445)		(1.789)		(-0.973)
DSUP_NUM		0.006**		0.010*		0.015*		0.049***		0.005**
		(2.393)		(1.759)		(1.868)		(2.729)		(2.369)
DSUP_MEET		0.000		0.002		0.002		0.011		0.001
		(0.451)		(0.907)		(0.454)		(0.870)		(1.197)
BIG4		0.004**		0.001		0.005		0.058***		0.004**
		(2.205)		(0.256)		(0.833)		(2.583)		(2.522)
TS	-0.021***	-0.009***	-0.052***	-0.027***	-0.055***	-0.050***	0.506***	0.579***	-0.023***	-0.014***
	(-8.205)	(-3.292)	(-8.585)	(-4.100)	(-6.372)	(-5.158)	(13.853)	(13.560)	(-11.308)	(-6.192)
REFORM	0.005***	0.007***	0.017***	0.020***	0.036***	0.038***	-0.036*	-0.038*	0.009***	0.010***
	(3.133)	(3.983)	(4.860)	(5.743)	(7.268)	(7.487)	(-1.734)	(-1.808)	(7.359)	(8.290)
RET_ADJ	0.010***	0.010***	0.023***	0.022***	0.016***	0.017***	0.153***	0.154***	0.006***	0.005***
	(9.265)	(9.093)	(8.642)	(8.168)	(4.718)	(4.888)	(9.992)	(9.770)	(6.816)	(6.520)
STATE	-0.004***	-0.004***	-0.009***	-0.007***	-0.011***	-0.007*	-0.023*	-0.031**	-0.004***	-0.003***
	(-3.877)	(-3.418)	(-3.299)	(-2.708)	(-3.035)	(-1.908)	(-1.756)	(-2.261)	(-4.382)	(-4.015)
LEVERAGE	-0.090***	-0.081***	-0.067***	-0.052***	-0.193***	-0.180***	-0.987***	-0.960***	-0.058***	-0.051***
	(-25.734)	(-23.178)	(-8.476)	(-6.539)	(-15.506)	(-13.766)	(-23.284)	(-21.021)	(-23.520)	(-20.718)
CHANGE_SALES	0.030***	0.031***	0.065***	0.067***	0.068***	0.073***	-0.030*	-0.023	0.023***	0.023***
	(11.910)	(11.833)	(10.903)	(10.977)	(5.839)	(6.084)	(-1.663)	(-1.309)	(13.405)	(13.466)
BM	-0.017***	-0.009**	-0.030***	-0.014*	-0.002	0.012	-0.983***	-0.962***	-0.006**	0.001
	(-5.068)	(-2.565)	(-4.108)	(-1.825)	(-0.214)	(1.018)	(-31.260)	(-28.941)	(-2.225)	(0.286)
FIRMSIZE	0.005***	-0.001	0.012***	0.001	0.016***	0.007***	-0.197***	-0.217***	0.008***	0.003***
	(7.726)	(-1.342)	(8.663)	(0.409)	(7.775)	(2.807)	(-26.355)	(-23.277)	(15.619)	(5.562)
Intercept	-0.003	-0.055***	-0.106***	-0.246***	-0.118***	-0.184***	6.046***	7.055***	-0.077***	-0.133***
	(-0.279)	(-3.188)	(-3.586)	(-6.212)	(-2.906)	(-3.170)	(39.814)	(34.015)	(-7.822)	(-10.595)
Year dummy	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry dummy	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
R-Squared	0.385	0.420	0.299	0.329	0.284	0.294	0.627	0.630	0.338	0.369
Observations	8,826	8,412	8,767	8,355	8,826	8,412	8,826	8,412	8,826	8,412

Note: All variables are as defined in the Appendix. The sample period is between 2003 and 2011. The dependent variables are the proxies of firm performance, represented by *ROA, ROE, ROS, TOBIN_Q,* and *OPNIC*. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes, and a year dummy to control for the year. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 3.4 Relation between Mutual Fund Ownership and Firm Performance (Mutual Fund Market Value as a Substitutable Variable for Mutual Fund Ownership)

Dependent variable	ROA	ROE	ROS	TOBIN_Q	OPINC
INS_MV_PER	0.312***	0.597***	0.356***	0.805**	0.222***
	(13.179)	(10.209)	(4.466)	(2.414)	(12.979)
INS_MV_PER_2	-0.417***	-0.969***	-0.318	5.661***	-0.583***
	(-5.151)	(-5.117)	(-1.108)	(4.528)	(-10.656)
TUL	-0.203***	-0.540***	-0.629***	-0.287***	-0.163***
	(-10.748)	(-10.605)	(-8.785)	(-2.626)	(-12.527)
TUL×INS_MV_PER	1.663**	5.932***	9.713***	28.589***	1.964***
	(2.339)	(2.671)	(3.937)	(3.344)	(4.174)
TUL×INS_MV_PER_2	-6.869**	-20.042**	-39.158***	-96.958***	-5.334***
	(-2.190)	(-2.517)	(-3.471)	(-2.693)	(-3.154)
PAY	0.011***	0.024***	0.015***	-0.006	0.008***
	(14.919)	(13.875)	(6.372)	(-0.712)	(15.297)
HERF	0.077***	0.159***	0.161***	0.292*	0.061***
	(5.983)	(5.661)	(3.659)	(1.860)	(5.940)
TOP_1	-0.027**	-0.056**	-0.122***	-0.112	-0.021**
	(-2.539)	(-2.416)	(-3.413)	(-0.875)	(-2.507)
IND	-0.003	0.001	-0.012	0.240*	-0.007
	(-0.307)	(0.048)	(-0.322)	(1.896)	(-0.861)
DSUP_NUM	0.005**	0.010*	0.015*	0.050***	0.005**
	(2.389)	(1.738)	(1.872)	(2.758)	(2.342)
DSUP_MEET	0.000	0.002	0.001	0.010	0.001
	(0.283)	(0.795)	(0.362)	(0.792)	(1.097)
BIG4	0.004*	-0.001	0.005	0.038*	0.004**
	(1.815)	(-0.274)	(0.785)	(1.721)	(2.435)
TS	-0.006**	-0.020***	-0.046***	0.645***	-0.013***
	(-2.056)	(-3.115)	(-4.797)	(14.990)	(-5.936)
REFORM	0.007***	0.021***	0.039***	-0.031	0.011***
	(4.321)	(6.028)	(7.630)	(-1.464)	(8.466)
RET_ADJ	0.009***	0.021***	0.016***	0.143***	0.005***
	(8.475)	(7.829)	(4.546)	(9.167)	(6.354)
STATE	-0.004***	-0.007***	-0.007*	-0.028**	-0.003***
	(-3.294)	(-2.603)	(-1.878)	(-2.064)	(-3.998)
LEVERAGE	-0.072***	-0.038***	-0.167***	-0.875***	-0.047***
	(-20.407)	(-4.765)	(-12.562)	(-18.982)	(-18.824)
CHANGE_SALES	0.030***	0.067***	0.072***	-0.025	0.023***
	(11.783)	(10.970)	(6.038)	(-1.419)	(13.411)
BM	-0.002	-0.006	0.022*	-0.931***	0.004
	(-0.720)	(-0.736)	(1.803)	(-28.013)	(1.480)
FIRMSIZE	-0.000	0.002	0.008***	-0.204***	0.003***
	(-0.632)	(1.395)	(3.063)	(-22.367)	(6.023)
Intercept	-0.077***	-0.299***	-0.208***	6.630***	-0.140***
	(-4.618)	(-7.713)	(-3.678)	(32.866)	(-11.549)
Year dummy	Y	Y	Y	Y	Y
Industry dummy	Y	Y	Y	Y	Y
R-Squared	0.431	0.330	0.296	0.633	0.372
Observations	8,412	8,355	8,412	8,412	8,412

Note: All variables are as defined in the Appendix. The sample period is between 2003 and 2011. The dependent variables are the proxies of firm performance, represented by *ROA, ROE, ROS, TOBIN_Q*, and *OPNIC*. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes, and a year dummy to control for the year. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 3.5 Logistic Regression Results for Tunnelling Behaviour in Mutual Fund Ownership

Dependent variable	DTUL	DTUL	DTUL	DTUL
INS_PER	-5.675***	-5.732***		
	(-5.738)	(-5.740)		
INS_PER_2	18.144***	15.508***		
	(4.767)	(4.055)		
INS_MV_PER			-3.844***	-4.180***
			(-4.090)	(-4.389)
INS_MV_PER_2			8.986***	8.784***
			(2.814)	(2.725)
TOP_1		-1.980***		-1.953***
		(-12.520)		(-12.449)
BIG4		0.022		0.034
		(0.239)		(0.370)
PAY		0.069**		0.068**
		(2.362)		(2.342)
STATE	-0.045	0.084	-0.045	0.082
	(-0.905)	(1.621)	(-0.899)	(1.596)
LEVERAGE	1.986***	1.849***	1.915***	1.778***
	(14.334)	(12.989)	(13.380)	(12.127)
BM	-0.316***	-0.465***	-0.361***	-0.491***
	(-2.646)	(-3.778)	(-2.917)	(-3.870)
FIRMSIZE	-0.324***	-0.266***	-0.331***	-0.281***
	(-11.152)	(-7.992)	(-11.499)	(-8.548)
Year dummy	Y	Y	Y	Y
Industry dummy	Y	Y	Y	Y
Observations	9,061	9,061	9,061	9,061

Note: All variables are as defined in the Appendix. The sample period is between 2003 and 2011. The dependent variable is the likelihood of the expropriation of minority shareholder interests by controlling shareholders. It is set to 1 if the OREC is over mean value, otherwise 0. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes, and a year dummy to control for the year. The numbers are followed by ***, **, * if they are significantly different from zero with 1%, 5%, and 10% confidence level respectively.

Table 3.6 2SLS Sensitivity Tests

Panel A. Determinants of Tunnelling Behaviour

Dependent variable	TUL
INS_PER	-0.071***
	(-5.483)
INS_PER_2	0.229***
	(5.289)
TUL_LAG	0.766***
	(37.946)
TOP_1	-0.002
	(-0.710)
STATE	-0.003***
	(-3.934)
ROA_LAG	-0.032**
	(-2.150)
LEVERAGE	0.025***
	(6.002)
BM	-0.002
	(-1.251)
FIRMSIZE	-0.004***
	(-7.538)
Intercept	0.086***
	(9.096)
R-Squared	0.623
Observations	9,376

Note: All variables are as defined in the Appendix. The sample period is between 2003 and 2011. The dependent variable is the proxy for tunnelling behaviour, calculated as other receivables deflated by total assets. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes, and a year dummy to control for the year. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Panel B. Relation between Mutual Fund Ownership and Firm Performance (Evidence from Unexplained Tunnelling)

Dependent variable	ROA	ROE	ROS	TOBIN_Q	OPINC
INS_PER	0.305***	0.686***	0.607***	1.696***	0.224***
	(11.861)	(11.110)	(7.570)	(4.521)	(11.696)
INS_PER_2	-0.578***	-1.337***	-1.754***	2.555*	-0.648***
	(-6.375)	(-6.338)	(-6.361)	(1.682)	(-9.867)
UNEXP_TUL	-0.010***	-0.028***	-0.035***	0.009	-0.007***
	(-5.120)	(-6.069)	(-5.345)	(0.560)	(-4.932)
UNEXP_TUL×INS_PER	0.195***	0.345***	0.448***	-0.012	0.164***
	(4.731)	(3.703)	(3.246)	(-0.020)	(5.403)
UNEXP_TUL×INS_PER_2	-0.473***	-0.992***	-0.900*	1.742	-0.512***
	(-3.049)	(-2.986)	(-1.719)	(0.730)	(-4.729)
PAY	0.011***	0.025***	0.018***	-0.005	0.008***
	(14.888)	(13.972)	(6.886)	(-0.659)	(15.374)
HERF	0.079***	0.173***	0.165***	0.470***	0.062***
	(5.575)	(5.583)	(3.562)	(2.765)	(5.536)
TOP_1	-0.021*	-0.050**	-0.109***	-0.190	-0.018**
	(-1.862)	(-1.970)	(-2.910)	(-1.388)	(-2.023)
IND	-0.008	-0.006	-0.017	0.255*	-0.010
	(-0.630)	(-0.225)	(-0.422)	(1.918)	(-1.107)
DSUP_NUM	0.008***	0.017**	0.023**	0.062***	0.006***
	(2.817)	(2.387)	(2.414)	(2.868)	(2.614)
DSUP_MEET	0.001	0.002	0.001	0.010	0.001
	(0.566)	(0.794)	(0.337)	(0.828)	(1.206)
BIG4	0.006***	0.004	0.009	0.066***	0.005***
	(2.715)	(0.950)	(1.396)	(2.772)	(2.874)
TS	-0.011***	-0.031***	-0.053***	0.580***	-0.015***
	(-3.886)	(-4.591)	(-5.390)	(13.415)	(-6.544)
REFORM	0.008***	0.023***	0.042***	-0.033	0.012***
	(4.782)	(6.465)	(8.120)	(-1.571)	(9.062)
RET_ADJ	0.011***	0.023***	0.019***	0.156***	0.006***
	(9.603)	(8.573)	(5.435)	(9.897)	(7.273)
STATE	-0.004***	-0.006**	-0.007*	-0.033**	-0.003***
	(-3.262)	(-2.175)	(-1.713)	(-2.289)	(-3.699)
LEVERAGE	-0.091***	-0.081***	-0.208***	-0.947***	-0.057***
	(-24.272)	(-9.339)	(-14.921)	(-19.332)	(-22.203)
CHANGE_SALES	0.034***	0.073***	0.084***	-0.019	0.026***
	(12.982)	(11.987)	(6.972)	(-0.996)	(15.139)
BM	0.000	0.001	0.040***	-0.942***	0.008***
	(0.023)	(0.151)	(3.090)	(-27.683)	(2.775)
FIRMSIZE	-0.000	0.004**	0.010***	-0.227***	0.004***
	(-0.088)	(2.284)	(3.555)	(-22.777)	(6.292)
Intercept	-0.090***	-0.355***	-0.177***	6.465***	-0.133***
	(-4.976)	(-8.530)	(-2.930)	(31.009)	(-10.385)
Year dummy	Y	Y	Y	Y	Y
Industry dummy	Y	Y	Y	Y	Y
R-Squared	0.394	0.296	0.269	0.629	0.334
Observations	8,056	7,999	8,056	8,056	8,056

Note: All variables are as defined in the Appendix. The sample period is between 2003 and 2011. The dependent variables are the proxies of firm performance, represented by *ROA, ROE, ROS, TOBIN_Q*, and *OPNIC*. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes, and a year dummy to control for the year. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Panel C. Relation between Mutual Fund Ownership and Firm Performance (Evidence from Unexplained Tunnelling, with Mutual Fund Market Value as a Replaceable Variable for Mutual Fund Ownership)

Dependent variable	ROA	ROE	ROS	TOBIN_Q	OPINC
INS_MV_PER	0.314***	0.743***	0.564***	1.400***	0.240***
	(12.741)	(12.986)	(7.253)	(3.725)	(13.343)
INS_MV_PER_2	-0.495***	-1.439***	-1.344***	3.854***	-0.638***
	(-6.210)	(-8.157)	(-5.388)	(2.761)	(-11.228)
UNEXP_TUL	-0.009***	-0.026***	-0.034***	0.016	-0.007***
	(-5.141)	(-5.839)	(-5.483)	(1.035)	(-4.820)
UNEXP_TUL×INS_MV_PER	0.165***	0.231***	0.351***	0.264	0.125***
	(4.424)	(2.762)	(2.783)	(0.481)	(4.511)
UNEXP_TUL×INS_MV_PER_2	-0.356***	-0.558**	-0.390	-1.117	-0.300***
	(-2.807)	(-2.071)	(-0.889)	(-0.539)	(-3.316)
PAY	0.011***	0.025***	0.017***	-0.005	0.008***
	(14.699)	(13.973)	(6.687)	(-0.603)	(15.205)
HERF	0.071***	0.151***	0.153***	0.359**	0.057***
	(5.132)	(4.939)	(3.328)	(2.130)	(5.206)
TOP_1	-0.017	-0.037	-0.099***	-0.147	-0.015*
	(-1.516)	(-1.471)	(-2.678)	(-1.083)	(-1.650)
IND	-0.006	-0.005	-0.013	0.268**	-0.009
	(-0.501)	(-0.176)	(-0.325)	(2.004)	(-1.050)
DSUP_NUM	0.008***	0.016**	0.023**	0.061***	0.006**
	(2.766)	(2.314)	(2.413)	(2.823)	(2.556)
DSUP_MEET	0.000	0.002	0.001	0.009	0.001
	(0.403)	(0.669)	(0.294)	(0.722)	(1.093)
BIG4	0.005**	0.002	0.009	0.044*	0.005***
	(2.282)	(0.405)	(1.282)	(1.883)	(2.760)
TS	-0.008***	-0.025***	-0.049***	0.645***	-0.014***
	(-2.644)	(-3.642)	(-4.966)	(14.800)	(-6.317)
REFORM	0.009***	0.025***	0.043***	-0.025	0.012***
	(5.151)	(6.785)	(8.319)	(-1.173)	(9.255)
RET_ADJ	0.010***	0.022***	0.018***	0.146***	0.006***
	(8.971)	(8.251)	(5.158)	(9.284)	(7.115)
STATE	-0.004***	-0.006**	-0.007*	-0.029**	-0.003***
	(-3.099)	(-2.045)	(-1.701)	(-2.033)	(-3.679)
LEVERAGE	-0.082***	-0.066***	-0.192***	-0.866***	-0.053***
	(-21.671)	(-7.673)	(-13.638)	(-17.482)	(-20.404)
CHANGE_SALES	0.034***	0.073***	0.084***	-0.020	0.026***
	(12.919)	(11.975)	(6.922)	(-1.063)	(15.078)
BM	0.006*	0.010	0.051***	-0.910***	0.011***
	(1.720)	(1.237)	(3.901)	(-26.677)	(3.891)
FIRMSIZE	0.001	0.006***	0.011***	-0.212***	0.004***
	(0.907)	(3.554)	(4.011)	(-21.818)	(7.041)
Intercept	-0.112***	-0.421***	-0.208***	6.083***	-0.142***
	(-6.429)	(-10.365)	(-3.531)	(30.009)	(-11.483)
Year dummy	Y	Y	Y	Y	Y
Industry dummy	Y	Y	Y	Y	Y
R-Squared	0.405	0.297	0.272	0.631	0.337
Observations	8,056	7,999	8,056	8,056	8,056

Note: All variables are as defined in the Appendix. The sample period is between 2003 and 2011. The dependent variables are the proxies of firm performance, represented by *ROA, ROE, ROS, TOBIN_Q*, and *OPNIC*. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes, and a year dummy to control for the year. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Panel D. Relation between Mutual Fund Ownership and Firm Performance (Evidence from Unexplained Tunnelling, with Industry-Adjusted Dependent Variables)

Dependent variable	ROA_ADJ	ROE_ADJ	ROS_ADJ	TOBIN_Q_ADJ	OPINC_ADJ
INS_PER	0.302***	0.677***	0.595***	1.598***	0.220***
	(11.637)	(10.976)	(7.350)	(4.152)	(11.476)
INS_PER_2	-0.570***	-1.321***	-1.712***	2.650*	-0.635***
	(-6.215)	(-6.250)	(-6.153)	(1.703)	(-9.625)
UNEXP_TUL	-0.010***	-0.028***	-0.035***	0.011	-0.007***
	(-5.051)	(-5.983)	(-5.277)	(0.641)	(-4.727)
UNEXP_TUL×INS_PER	0.193***	0.333***	0.451***	-0.098	0.159***
	(4.629)	(3.579)	(3.263)	(-0.172)	(5.198)
UNEXP_TUL×INS_PER_2	-0.460***	-0.949***	-0.966*	1.966	-0.496***
	(-2.911)	(-2.844)	(-1.853)	(0.810)	(-4.543)
PAY	0.011***	0.025***	0.018***	-0.003	0.008***
	(14.700)	(13.928)	(6.729)	(-0.319)	(15.222)
HERF	0.078***	0.167***	0.155***	0.495***	0.062***
	(5.573)	(5.437)	(3.353)	(2.919)	(5.518)
TOP_1	-0.020*	-0.046*	-0.102***	-0.192	-0.018**
	(-1.772)	(-1.854)	(-2.743)	(-1.392)	(-2.008)
IND	-0.008	-0.008	-0.012	0.255*	-0.011
	(-0.633)	(-0.282)	(-0.306)	(1.903)	(-1.244)
DSUP_NUM	0.008***	0.016**	0.022**	0.061***	0.006**
	(2.673)	(2.266)	(2.263)	(2.836)	(2.328)
DSUP_MEET	0.001	0.002	0.001	0.008	0.001
	(0.466)	(0.898)	(0.314)	(0.640)	(1.271)
BIG4	0.006***	0.004	0.010	0.063***	0.005***
	(2.634)	(0.913)	(1.497)	(2.684)	(2.905)
TS	-0.012***	-0.032***	-0.055***	0.563***	-0.015***
	(-3.958)	(-4.753)	(-5.561)	(12.858)	(-6.616)
REFORM	0.008***	0.023***	0.042***	-0.031	0.012***
	(4.821)	(6.380)	(7.995)	(-1.429)	(8.903)
RET_ADJ	0.011***	0.023***	0.019***	0.156***	0.006***
	(9.433)	(8.715)	(5.369)	(9.648)	(7.206)
STATE	-0.004***	-0.006**	-0.006*	-0.034**	-0.003***
	(-3.365)	(-2.268)	(-1.657)	(-2.348)	(-3.639)
LEVERAGE	-0.091***	-0.079***	-0.205***	-0.927***	-0.057***
	(-24.072)	(-9.129)	(-14.802)	(-18.799)	(-22.031)
CHANGE_SALES	0.034***	0.073***	0.084***	-0.016	0.025***
	(12.985)	(12.015)	(6.926)	(-0.858)	(15.111)
BM	0.001	0.001	0.045***	-0.913***	0.007***
	(0.371)	(0.114)	(3.392)	(-27.361)	(2.674)
FIRMSIZE	-0.000	0.004**	0.009***	-0.222***	0.004***
	(-0.216)	(2.268)	(3.375)	(-22.009)	(6.355)
Intercept	-0.111***	-0.447***	-0.341***	5.406***	-0.164***
	(-6.169)	(-10.764)	(-5.606)	(25.658)	(-12.865)
Year dummy	Y	Y	Y	Y	Y
Industry dummy	Y	Y	Y	Y	Y
R-Squared	0.361	0.269	0.187	0.470	0.317
Observations	8,056	7,999	8,056	8,056	8,056

Note: All variables are as defined in the Appendix. The sample period is between 2003 and 2011. The dependent variables are the proxies of firm performance, represented by *ROA_ADJ, ROE_ADJ, ROS_ADJ, TOBIN_Q_ADJ,* and *OPNIC_ADJ*. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes, and a year dummy to control for the year. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 3.7 Relation between Mutual Fund Ownership and Firm Performance (Robustness Test with Controlling Shareholders' Other Receivables as a Tunnelling Proxy)

Dependent variable	ROA	ROE	ROS	TOBIN_Q	OPINC
INS_PER	0.339***	0.759***	0.536***	1.422***	0.285***
	(11.459)	(10.874)	(5.742)	(3.490)	(12.426)
INS_PER_2	-0.681***	-1.565***	-1.365***	2.586	-0.816***
	(-6.095)	(-6.318)	(-3.850)	(1.495)	(-10.244)
TUL	-0.255***	-0.630***	-0.828***	-0.481***	-0.194***
	(-8.516)	(-7.456)	(-7.195)	(-3.339)	(-9.194)
TUL×INS_PER	4.680***	10.940***	19.600***	27.163**	3.843***
	(4.116)	(3.038)	(5.432)	(2.169)	(5.201)
TUL×INS_PER_2	-15.837***	-39.958**	-77.068***	-42.414	-15.728***
	(-3.087)	(-2.552)	(-5.106)	(-0.669)	(-4.897)
PAY	0.011***	0.024***	0.021***	-0.008	0.008***
	(10.389)	(9.517)	(6.077)	(-0.815)	(10.812)
HERF	0.071***	0.180***	0.079	0.029	0.058***
	(4.080)	(4.632)	(1.407)	(0.161)	(4.193)
TOP_1	-0.014	-0.045	-0.013	0.017	-0.011
	(-0.963)	(-1.393)	(-0.277)	(0.113)	(-0.989)
IND	-0.008	-0.002	-0.022	0.274*	-0.012
	(-0.468)	(-0.051)	(-0.401)	(1.883)	(-0.922)
DSUP_NUM	0.006**	0.015**	0.018*	0.035*	0.005**
	(2.219)	(2.025)	(1.772)	(1.828)	(2.104)
DSUP_MEET	0.001	0.002	-0.002	0.001	0.001
	(0.587)	(0.417)	(-0.494)	(0.091)	(1.280)
BIG4	0.006**	0.008	0.016*	-0.012	0.008***
	(2.333)	(1.525)	(1.894)	(-0.486)	(3.449)
TS	-0.009**	-0.028***	-0.047***	0.455***	-0.011***
	(-2.314)	(-2.861)	(-3.459)	(7.943)	(-3.524)
REFORM	0.014***	0.036***	0.050***	-0.021	0.014***
	(5.862)	(6.656)	(6.986)	(-0.838)	(7.168)
RET_ADJ	0.010***	0.024***	0.016***	0.151***	0.006***
	(6.341)	(6.127)	(3.241)	(7.246)	(4.580)
STATE	-0.002	-0.003	-0.001	-0.004	-0.002**
	(-1.157)	(-0.866)	(-0.184)	(-0.246)	(-2.090)
LEVERAGE	-0.080***	-0.063***	-0.165***	-0.789***	-0.054***
	(-17.251)	(-5.615)	(-9.481)	(-13.221)	(-15.998)
CHANGE_SALES	0.036***	0.077***	0.100***	-0.052**	0.025***
	(11.907)	(9.799)	(6.990)	(-2.254)	(12.186)
BM	-0.006	0.006	0.028*	-0.805***	0.001
	(-1.370)	(0.557)	(1.928)	(-22.249)	(0.410)
FIRMSIZE	-0.000	0.000	0.005	-0.191***	0.003***
	(-0.084)	(0.149)	(1.290)	(-16.096)	(4.065)
Intercept	-0.096***	-0.262***	-0.263***	6.448***	-0.144***
	(-3.970)	(-4.982)	(-3.285)	(24.375)	(-8.361)
Year dummy	Y	Y	Y	Y	Y
Industry dummy	Y	Y	Y	Y	Y
R-Squared	0.423	0.324	0.319	0.611	0.381
Observations	4,860	4,814	4,860	4,860	4,860

Note: All variables are as defined in the Appendix. The sample period is between 2003 and 2011. The dependent variables are the proxies of firm performance, represented by *ROA, ROE, ROS, TOBIN_Q,* and *OPNIC*. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes, and a year dummy to control for the year. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 3.8 Relation between Mutual Fund Ownership and Firm Performance (Robustness Test, with Industry-Adjusted Dependent Variables)

Dependent variable	ROA_ADJ	ROE_ADJ	ROS_ADJ	TOBIN_Q_ADJ	OPINC_ADJ
INS_PER	0.296***	0.535***	0.407***	0.911***	0.205***
	(11.498)	(8.561)	(4.815)	(2.618)	(11.049)
INS_PER_2	-0.459***	-0.785***	-0.793**	5.991***	-0.604***
	(-4.719)	(-3.521)	(-2.401)	(4.046)	(-9.307)
TUL	-0.206***	-0.544***	-0.639***	-0.226**	-0.165***
	(-10.606)	(-10.503)	(-8.723)	(-2.054)	(-12.617)
TUL×INS_PER	2.213***	7.153***	9.880***	27.169***	2.343***
	(2.883)	(3.121)	(3.854)	(3.081)	(4.598)
TUL×INS_PER_2	-9.864***	-27.129***	-41.615***	-113.140***	-7.281***
	(-2.794)	(-3.062)	(-3.293)	(-2.644)	(-3.702)
PAY	0.011***	0.024***	0.016***	-0.004	0.008***
	(14.954)	(13.851)	(6.506)	(-0.447)	(15.397)
HERF	0.083***	0.172***	0.161***	0.422***	0.065***
	(6.316)	(6.053)	(3.619)	(2.676)	(6.149)
TOP_1	-0.029***	-0.063***	-0.123***	-0.156	-0.023***
	(-2.699)	(-2.683)	(-3.425)	(-1.201)	(-2.746)
IND	-0.005	-0.003	-0.013	0.229*	-0.009
	(-0.447)	(-0.101)	(-0.350)	(1.797)	(-1.073)
DSUP_NUM	0.005**	0.009	0.013*	0.048***	0.004**
	(2.177)	(1.590)	(1.655)	(2.658)	(2.012)
DSUP_MEET	0.000	0.003	0.002	0.008	0.001
	(0.337)	(1.005)	(0.424)	(0.659)	(1.257)
BIG4	0.004**	0.001	0.006	0.055**	0.004**
	(2.126)	(0.207)	(0.905)	(2.504)	(2.566)
TS	-0.010***	-0.028***	-0.052***	0.561***	-0.014***
	(-3.385)	(-4.267)	(-5.323)	(12.987)	(-6.253)
REFORM	0.007***	0.020***	0.038***	-0.036*	0.010***
	(4.013)	(5.640)	(7.349)	(-1.658)	(8.126)
RET_ADJ	0.010***	0.022***	0.017***	0.154***	0.005***
	(8.936)	(8.340)	(4.847)	(9.527)	(6.503)
STATE	-0.004***	-0.008***	-0.007*	-0.033**	-0.003***
	(-3.504)	(-2.794)	(-1.835)	(-2.316)	(-3.913)
LEVERAGE	-0.081***	-0.050***	-0.177***	-0.938***	-0.051***
	(-22.880)	(-6.303)	(-13.610)	(-20.445)	(-20.565)
CHANGE_SALES	0.030***	0.067***	0.072***	-0.021	0.023***
	(11.820)	(10.984)	(6.043)	(-1.155)	(13.452)
BM	-0.007**	-0.014*	0.017	-0.931***	0.001
	(-2.138)	(-1.831)	(1.382)	(-28.581)	(0.238)
FIRMSIZE	-0.001	0.001	0.007***	-0.212***	0.003***
	(-1.441)	(0.383)	(2.592)	(-22.432)	(5.610)
Intercept	-0.096***	-0.337***	-0.249***	4.996***	-0.159***
	(-5.522)	(-8.523)	(-4.251)	(23.726)	(-12.639)
Year dummy	Y	Y	Y	Y	Y
Industry dummy	Y	Y	Y	Y	Y
R-Squared	0.389	0.304	0.214	0.470	0.352
Observations	8,412	8,355	8,412	8,412	8,412

Note: All variables are as defined in the Appendix. The sample period is between 2003 and 2011. The dependent variables are the proxies of firm performance, represented by *ROA_ADJ, ROE_ADJ, ROS_ADJ, TOBIN_Q_ADJ,* and *OPNIC_ADJ*. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes, and a year dummy to control for the year. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 3.9 Relation between Mutual Fund Ownership and Firm Performance (Robustness Test, with Fixed Effects)

Dependent variable	ROA	ROE	ROS	TOBIN_Q	OPINC
INS_PER	0.188***	0.351***	0.373***	1.001**	0.115***
	(5.814)	(4.309)	(4.238)	(2.431)	(5.111)
INS_PER_2	-0.178	-0.283	-0.533*	6.457***	-0.363***
	(-1.568)	(-1.041)	(-1.728)	(3.763)	(-4.817)
TUL	-0.204***	-0.575***	-0.676***	-0.580**	-0.176***
	(-7.217)	(-7.396)	(-6.822)	(-2.429)	(-9.161)
TUL×INS_PER	1.651*	7.010***	7.510***	17.495*	2.346***
	(1.738)	(3.040)	(2.761)	(1.659)	(4.583)
TUL×INS_PER_2	-7.442*	-25.824***	-33.418***	-62.017	-7.398***
	(-1.887)	(-3.013)	(-2.754)	(-1.205)	(-4.122)
PAY	0.011***	0.025***	0.021***	0.019	0.009***
	(7.348)	(7.248)	(5.075)	(1.272)	(8.867)
HERF	0.040	0.066	0.143*	-0.228	0.043*
	(1.417)	(0.996)	(1.803)	(-0.722)	(1.799)
TOP_1	0.017	0.096	0.001	0.093	0.010
	(0.707)	(1.627)	(0.014)	(0.332)	(0.515)
IND	0.011	0.012	0.038	0.175	0.009
	(0.627)	(0.299)	(0.777)	(0.935)	(0.681)
DSUP_NUM	-0.001	0.001	-0.006	0.019	0.000
	(-0.287)	(0.086)	(-0.706)	(0.744)	(0.167)
DSUP_MEET	0.000	0.002	-0.000	0.017	0.001
	(0.407)	(0.668)	(-0.111)	(1.297)	(1.534)
BIG4	-0.001	-0.012	0.002	0.004	-0.001
	(-0.307)	(-1.064)	(0.179)	(0.093)	(-0.311)
TS	-0.013***	-0.033***	-0.042***	0.349***	-0.016***
	(-3.169)	(-3.251)	(-3.298)	(6.115)	(-4.820)
REFORM	0.017***	0.046***	0.043***	0.053*	0.017***
	(5.396)	(6.950)	(4.144)	(1.876)	(7.433)
RET_ADJ	0.009***	0.018***	0.019***	0.123***	0.005***
	(8.764)	(7.232)	(6.549)	(9.471)	(6.675)
STATE	0.001	0.005	0.003	-0.006	0.001
	(0.485)	(0.760)	(0.436)	(-0.210)	(0.284)
LEVERAGE	-0.031***	-0.007	-0.044	-0.498***	-0.023***
	(-3.725)	(-0.387)	(-1.457)	(-6.221)	(-4.013)
CHANGE_SALES	0.025***	0.056***	0.047***	0.002	0.019***
	(9.487)	(8.995)	(3.946)	(0.120)	(10.800)
BM	0.008	0.017	0.050***	-0.421***	0.000
	(1.498)	(1.363)	(3.036)	(-9.333)	(0.047)
FIRMSIZE	-0.009***	-0.003	-0.001	-0.433***	-0.004***
	(-3.849)	(-0.518)	(-0.142)	(-17.598)	(-2.687)
Intercept	0.073	-0.299**	-0.195	10.936***	-0.012
	(1.324)	(-2.508)	(-0.990)	(19.740)	(-0.323)
Year dummy	Y	Y	Y	Y	Y
Fixed effect	Y	Y	Y	Y	Y
R-Squared	0.213	0.189	0.146	0.593	0.214
Observations	8,412	8,355	8,412	8,412	8,412

Note: All variables are as defined in the Appendix. The sample period is between 2003 and 2011. The dependent variables are the proxies of firm performance, represented by *ROA, ROE, ROS, TOBIN_Q,* and *OPNIC*. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes, and a year dummy to control for the year. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 3.10 2SLS Sensitivity Tests

Panel A. Determinants of Tunnelling (Robustness Test with MAK, 2003-2009)

Dependent variable	TUL
INS_PER	-0.117***
	(-6.696)
INS_PER_2	0.362***
	(6.272)
TUL_LAG	0.776***
	(34.787)
TOP_1	-0.000
	(-0.029)
STATE	-0.005***
	(-3.762)
ROA_LAG	-0.018
	(-0.941)
LEVERAGE	0.028***
	(4.649)
BM	-0.005**
	(-2.356)
FIRMSIZE	-0.004***
	(-5.069)
MAK	-0.001***
	(-3.840)
Intercept	0.090***
	(7.314)
R-Squared	0.627
Observations	6,249

Note: All variables are as defined in the Appendix. The sample period is between 2003 and 2009. The dependent variable is the proxy of tunnelling behaviour, calculated as other receivables deflated by total assets. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes, and a year dummy to control for the year. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Panel B. Relation between Mutual Fund Ownership and Firm Performance (Evidence from Unexplained Tunnelling, Robustness Test with MAK, 2003–2009)

Dependent variable	ROA	ROE	ROS	TOBIN_Q	OPINC
INS_PER	0.356***	0.820***	0.730***	0.857*	0.275***
	(10.662)	(10.194)	(7.235)	(1.942)	(10.784)
INS_PER_2	-0.744***	-1.769***	-2.352***	4.347**	-0.805***
	(-6.383)	(-6.469)	(-6.654)	(2.405)	(-9.246)
UNEXP_TUL	-0.015***	-0.041***	-0.051***	0.000	-0.012***
	(-6.807)	(-7.306)	(-6.520)	(0.008)	(-6.644)
UNEXP_TUL×INS_PER	0.199***	0.338***	0.422***	-0.661	0.190***
	(4.028)	(2.973)	(2.593)	(-1.061)	(5.026)
UNEXP_TUL×INS_PER_2	-0.479***	-0.945**	-0.479	4.432	-0.604***
	(-2.603)	(-2.346)	(-0.781)	(1.603)	(-4.445)
PAY	0.011***	0.024***	0.020***	-0.002	0.008***
	(11.101)	(10.485)	(6.329)	(-0.261)	(11.891)
HERF	0.080***	0.169***	0.149**	0.344*	0.058***
	(4.368)	(4.228)	(2.506)	(1.892)	(3.954)
TOP_1	-0.029**	-0.059*	-0.107**	-0.192	-0.016
	(-1.989)	(-1.862)	(-2.273)	(-1.303)	(-1.379)
IND	0.002	0.004	-0.013	0.022	-0.005
	(0.106)	(0.112)	(-0.222)	(0.145)	(-0.385)
DSUP_NUM	0.007**	0.016**	0.020*	0.018	0.006**
	(2.403)	(2.184)	(1.955)	(0.892)	(2.529)
DSUP_MEET	0.000	0.001	0.001	0.004	0.001
	(0.175)	(0.158)	(0.254)	(0.339)	(0.844)
BIG4	0.006**	0.008	0.016*	0.006	0.004**
	(2.370)	(1.421)	(1.852)	(0.237)	(1.985)
TS	-0.020***	-0.045***	-0.076***	0.540***	-0.018***
	(-3.859)	(-3.723)	(-4.315)	(8.374)	(-4.169)
REFORM	0.015***	0.038***	0.050***	0.015	0.017***
	(5.895)	(7.305)	(6.685)	(0.640)	(8.536)
RET_ADJ	0.012***	0.023***	0.023***	0.176***	0.006***
	(7.496)	(6.253)	(4.977)	(10.040)	(4.899)
STATE	-0.005***	-0.008**	-0.004	-0.039**	-0.004***
	(-2.922)	(-2.139)	(-0.873)	(-2.389)	(-3.739)
LEVERAGE	-0.089***	-0.088***	-0.213***	-0.868***	-0.064***
	(-18.523)	(-7.979)	(-11.821)	(-16.661)	(-19.103)
CHANGE_SALES	0.035***	0.077***	0.100***	-0.011	0.029***
	(11.681)	(10.810)	(7.306)	(-0.588)	(14.924)
BM	0.006	0.011	0.054***	-0.722***	0.006*
	(1.269)	(1.149)	(3.524)	(-22.841)	(1.757)
FIRMSIZE	-0.000	0.003	0.011***	-0.171***	0.004***
	(-0.294)	(1.109)	(3.038)	(-16.068)	(4.855)
Intercept	-0.072***	-0.309***	-0.315***	6.085***	-0.152***
	(-3.043)	(-5.847)	(-3.992)	(26.166)	(-8.895)
R-Squared	0.396	0.304	0.300	0.629	0.352
Observations	5,541	5,500	5,541	5,541	5,541

Note: All variables are as defined in the Appendix. The sample period is between 2003 and 2009. The dependent variables are the proxies of firm performance, represented by *ROA, ROE, ROS, TOBIN_Q,* and OPNIC. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes, and a year dummy to control for the year. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Chapter 4

Earnings Management and M&As in China

4.1 Introduction

The quality of accounting disclosure plays a critical role in maintaining the efficiency of a capital market. A market with pervasive accounting fraud and misrepresentation can significantly increase the cost of capital. Earnings management activities on the part of companies can damage the quality of corporate financial information and lead to information asymmetry. Prior studies have examined various incentives and approaches of earnings management activities and have shown that the pervasiveness of earnings management has reached a level that significantly compromises the integrity of financial reporting (Healy and Wahlen, 1999).

The main objective of this chapter is to investigate the environment of investor protection in the Chinese stock market by looking at the relation between earnings management and M&A. There are two reasons for this. First of all, investor protection in China is much weaker compared with that in developed countries. Allen et al. (2005) and Firth et al. (2007) both provide empirical evidence and

conclude that the system of investor protection in China is far behind that of most countries in the sample used by the substantial studies by La Porta et al. (1997, 1998). Although the Chinese government is taking measures to improve the market environment and regulate business practice, the overall market transparency remains low and disclosure quality continues to be substandard. The need to improve accounting quality has become a key concern for Chinese regulators.

Secondly, due to the speedy development of the Chinese capital market, there are more alternative channels available for the listed firms to obtain external financing when expanding their investment. As a result of the more restrictive requirements imposed by the China Securities Regulatory Commission (CSRC) on suspended initial public offerings (IPOs) in recent years, Chinese firms have gradually moved to other methods of financing which can get approval from regulators more easily and quickly, for example Merger and Acquisition (M&A). The number of M&A deals in China has dramatically increased, from 171 in 2006 to 991 in 2012.[5] In addition, compared with IPO or SEO in China, while M&As involving the acquisition of less than 30% of the total assets of target firms need to be kept on record and undergo simple auditing by the CSRC, only those deals acquiring more than 30% of the total assets of target firms need to report to and gain approval from the CSRC. Therefore, Chinese listed acquirers may have more opportunities and incentives to overstate their earnings and manipulate accounting information prior to M&A to meet or beat the regulatory benchmark requirements and reduce the deal costs. More importantly, to the best of our knowledge, this is

[5] Data Source: Thomson One Banker M&A dataset.

the first study to explore the earnings management activities surrounding M&A events in the Chinese market. This chapter aims to fill this gap by examining earnings management activities and earnings quality during M&A, as well as the corresponding market reactions in the post-M&A period.

Furthermore, this chapter expands the examination of earnings management activities around M&A by looking at both accrual- and real-based earnings strategies. Many empirical studies have considered accrual-based earnings management as the only channel for acquirers to manipulate earnings before M&A. Erickson and Wang (1999) explain that accounting earnings manipulation before M&A is beneficial to decrease deal costs through employing fewer shares with higher price to purchase the target firm. The authors also note that earnings management is less costly than other ways to increase stock price, since the earnings activities can be completed in the absence of disruptive economic events. Louis (2004) supports the conclusion of Erickson and Wang (1999) and further suggests that underperformance after M&A may be caused by manipulated accounting information through earnings management. Their results indicate that reversals in discretionary accruals before M&A are the main determinant of both short-term and long-term performance for stock-for-stock acquisitions. Gong et al. (2008) extend the study and investigate the association between earnings manipulation prior to M&A and lawsuits after M&A. The results show a significantly negative relation between the probability of lawsuit announcements and market reactions to M&A announcements, as well as long-term post-M&A underperformance. Their findings also imply that investors should pay attention

not only to adjusted earnings management before M&A, but also to contingent losses from earnings management through lawsuits. Botsari and Meeks (2008) provide empirical evidence for the UK M&A market which is similar to that of Erickson and Wang (1999). More specifically, the authors suggest that managers may adjust earnings in the year of the M&A.

Although previous studies suggest that firms have incentives to manipulate accounting earnings before M&A in order to raise the market price of its own stocks and then reduce the costs of deals, none reach their conclusions by considering the effect of real-based earnings management. Managers prefer to use real earnings management rather than accrual-based earnings management, since it is less detectable and departs from normal operational practice, occurring when managers alter the timing or structuring of transactions, investment and allocation of resources to boost accounting earnings in the current period (Dechow and Skinner, 2000; Roychowdhury, 2006). As a consequence, it has a direct effect on operating activities and cash flow. Cohen et al. (2008), Cohen and Zarowin (2010), and Ipino and Parbonetti (2011) also suggest that managers prefer real earnings management activities when the implementation of accrual-based earnings strategies is constrained by accounting regulations, such as the Sarbanes-Oxley Act (SOX) or International Financial Reporting Standards (IFRS). Ball and Shivakumar (2008) also conclude that acquirers face heightened litigation and regulatory risk (from inflating earnings), and more scrutiny by regulators and market monitors such as analysts, underwriters, auditors, the press, and other parties of the transaction during the M&A.

In addition, the environment of M&A activities in China provides favourable conditions for testing whether acquirers may prefer real earnings management. On the one hand, firms need to process M&A deals on the basis of local regulations set by the CSRC. For example, M&A activities must be submitted to the CSRC (or even to a review subcommittee) when the deals involve the transfer of over 50% (or 70%) of the target company's assets. In addition, acquirers in China are supervised by audit committee in the pre- and post-M&A periods. On the other hand, the majority of M&A payments in China are made by cash rather than by stock, to lower the cost of processing deals.[6] Therefore, in order to complete the deal, the main aim for acquirers is to collect sufficient funds, which provides the incentive for firms to adopt real earnings management that can manipulate earnings upwards to firm's cash flow in a short time without violating accounting standards.

In addition to studying real earnings management around M&A, this chapter makes several contributions to the literature. This is the first study to investigate the earnings management activities around M&A in the Chinese stock market with a weak investor protection environment. Secondly, in line with the findings of Cohen et al. (2008), Cohen and Zarowin (2010) and Zang (2012) that firms use multiple earnings management strategies, this chapter finds that acquirers employ both real and accrual-based earnings management strategies around M&A. Thirdly, this chapter examines the relation between accrual-based and real

[6] According to the 'Measure for the Administration of the Takeover of Listed Companies' published by the CSRC, acquirers have to submit their deals to the CSRC to obtain administrative permission if they use more than 30% of shares to merge target firms. In other words, employing cash as the only payment method will indirectly reduce the time costs during the application of M&A.

earnings management during M&A and investigates whether acquirers engage in more real earnings management instead of more easily detectable accrual-based earnings activities. Finally, we test whether earnings informativeness is reduced if managers manipulate earnings before M&A, and the corresponding market reactions to the earnings management activities.

This chapter obtains Chinese domestic M&A deals from the Thomson One Banker database and collects financial and corporate governance variables from the China Securities Market and Accounting Research (CSMAR) database. As the corporate governance variables are not available for all firms before 2002, we consider the M&A deals over the period 2002-2011, with 964 deals and a total of 6,572 firm-year observations. Similar to Chapter 2, the accrual-based and real earnings proxies are calculated by the cross-sectional Jones model (1991) and the model developed by Roychowdhury (2006), respectively. Regarding earnings informativeness and market reactions after M&A, this chapter follows the method of Firth et al. (2007b) and Louis (2004) to test acquirer's earnings quality and stock performance around the M&A.

Consistent with previous studies (Cohen et al., 2008; Cohen and Zarowin, 2010; Ipino and Parbonetti, 2011), the results in this chapter show that M&As in China have a positive effect on promoting real earnings management and a negative effect on limiting accrual-based earnings management during the year of M&A. This finding indicates that acquirers in China prefer to engage in more real earnings management mainly because of strict regulatory supervision by the CSRC and the high percentage of deals paid by cash, which requires acquirers to

collect cash in a short time before the M&A. However, accrual-based earnings management yields a significantly positive correlation with both real earnings proxies and their interaction with M&A, rather than a substitution effect between accrual-based and real earnings management around M&A. This further reflects the weak investor protection and absence of effective corporate governance for the Chinese stock market. In other words, the supervision over M&A cannot fundamentally improve the quality of financial information of Chinese listed firms. Otherwise, we would expect to observe a reduction in the level of both accrual-based and real earnings management simultaneously. The findings imply that policy makers and regulators in China should pay more attention to the earnings management activities around M&A and strengthen corporate governance to protect minority shareholders' interests. In addition, the results show a decrease in earnings informativeness in the year of the M&A, and this further supports the conclusion that the adjustment of earnings upwards around M&A can lower the firm's informational quality. Finally, due to the increase in real earnings management activities around M&A, the market is more likely to react negatively to such earnings strategies, especially in the year of the M&A.

This chapter proceeds as follows. Section 4.2 reviews the related studies and develops the main hypotheses. Section 4.3 outlines the methodology and data statistics. Section 4.4 discusses the empirical results for the regressions in Section 4.3. Section 4.5 concludes the chapter.

4.2 Literature Review and Hypotheses Development

4.2.1 Accrual-Based and Real Earnings Management

The motivations for altering financial information range from meeting regulatory thresholds and analysts' forecasts, to smoothing managerial compensation and obtaining desirable stock valuations in capital markets (Dechow and Skinner, 2000; Healy et al., 1999; Lo, 2008). Firms manipulate accruals by exploiting the flexibility of accounting rules to temporarily 'mask' true firm performance (Dechow and Skinner, 2000; Boonlert-U-Thai et al., 2006). Accruals manipulation is not achieved by altering underlying operating activities with direct effect on cash flow, but via the exercise of managers' discretion and judgment regarding accounting choices (Gunny, 2010). Empirical evidence on accrual-based earnings management mainly relies on financial activities, which may provide benchmarks of earnings for managers to beat or meet, for example seasoned equity offerings (SEOs), IPOs, and share repurchases (Rangan, 1998; Teoh et al., 1998; Brav et al., 2000; Shivakumar, 2000).

Firms may engage in not only accrual-based but also real-based earnings management activities. Unlike accruals manipulation, real activities manipulation departs from normal operational practice and occurs when managers alter the timing or structuring of transactions, investment and allocation of resources to boost accounting earnings in the current period (Dechow & Skinner, 2000; Roychowdhury, 2006). Roychowdhury (2006) directly measures real earnings

management activities and their capital market consequences. Following Roychowdhury (2006), Gunny (2010) provides further empirical evidence that real activities are associated with meeting earnings benchmarks and will allow firms engaging in real earnings management to have relatively higher subsequent performance. Cohen et al. (2008) document that after the passage of the Sarbanes-Oxley Act in 2002 following highly publicized accounting scandals, firms tended to use less accrual-based and more real-based earnings management methods to avoid detection of accrual-based management. Ipino et al. (2011) find the same tendency in the context of mandatory IFRS adoption in countries with strict enforcement regimes. A similar trend is reported by Cohen and Zarowin (2010), whereby firms make seasoned equity offerings (SEO) in order to achieve critical earnings benchmarks.

4.2.2 Earnings Management and M&As

Previous studies state that acquiring managers have strong incentives to manipulate earnings upwards before stock-for-stock M&As (Erickson and Wang, 1999; Louis, 2004; Jensen, 2005; Gong et al., 2008). Erickson and Wang (1999) argue that M&As consider stock to be contingent on the market value of acquirer firms, which means that a higher stock price for the acquirer is helpful to decrease the number of shares used in the stock exchange. To increase accounting earnings, pushing up stock price is considered the main and inevitable way for acquirers to adjust firm market value. Consistent with previous findings, Erickson and Wang

(1999) indicate that acquiring firms prefer to manage earnings prior to M&A to boost the stock price, and that income-increasing accounting manipulations are significantly positively related to the relative deal size. Louis (2004) concludes that the reversal of adjusted abnormal accruals after M&A is a crucial factor in stock-for-stock acquirers' long-term underperformance. In addition, his results confirm that acquirers can exploit overestimated earnings in the quarter of the stock swap announcement to decrease the cost of the deal. Jensen (2005) argues that overvaluation can encourage managers to manipulate earnings to sustain a firm's overvalued stock price. Gong et al. (2008) consider the effects of lawsuits in the post-merger performance and find that accrual inflation before M&A is significantly positively related with post-merger announcement lawsuits. In addition, their paper proves a negative association between market reactions to M&A announcements and post-merger announcement lawsuits, and that relation still holds when short-term reactions are replaced by long-term performance.

4.2.3 Earnings Management and Chinese M&As

There is as yet no empirical evidence to examine the effects of M&A in Chinese firm earnings manipulation, other than for financial activities, such as IPOs, SEOs, special treatment (ST), and tunnelling behaviour. Liu and Lu (2007) list two main situations, rights issues and special treatment, which create incentives for Chinese managers to exploit earnings management. Their results show that agency conflicts between controlling and minority shareholders are the primary driver of

managerial earnings manipulation. Aharony et al. (2010) use IPOs as a study event and arrive at the same conclusion as Liu and Lu (2007), that tunnelling behaviour is the main incentive for controlling shareholders, as well as managers, to adjust earnings upward prior to an IPO period. Shen et al. (2012) select Chinese IPOs between 1998 and 2003 and empirically determine a positive relation between initial returns and discretionary accruals, as well as a negative relation between long-term stock performance and initial returns. Chen et al. (2013) examine the relations between adjusted accruals prior to IPOs and issuer's underwriter reputation under the various ownership structures for Chinese listed firms. Their findings reveal that adjusted accruals are only significantly negatively related to underwriter reputation for privately controlled firms.

To date there are few studies that research firm performance and ownership structure during domestic M&As in China. Chi et al. (2011) collect data on 1148 M&A deals to determine market reactions after M&A using the capital asset pricing model and buy-and-hold abnormal returns. The authors find a significant positive abnormal return six months prior to M&A, with insignificant long-term abnormal returns within a six-month period after M&A. In addition, politically connected acquirers have a positive effect on deal performance while firms can create more value after M&A if the deals are cross-provincial or with better corporate governance. Zhou et al. (2012) test the effects of state ownership on the short- and long-term performance of Chinese M&As. Their findings indicate that state-owned acquirers outperform privately owned acquirers in long-run stock and

operating performance, because acquirers with political connections may obtain more benefits from government intervention.

We conjecture that Chinese listed acquirers also have incentives to manipulate earnings (both accrual-based and real earnings management) upwards around M&A to reduce the costs of deals and pursue individual benefits. First, the corporate governance and investor protection environment in China are much weaker than in developed markets (La Porta et al., 1997; La Porta et al., 1998; Allen et al., 2005; Firth et al., 2007). As earnings management is the commonly used indicator representing the quality of financial information, this chapter measures both accrual-based and real earnings management strategies to examine whether Chinese acquirers exploit the imperfect market mechanism to adjust earnings to inflate stock prices around M&A. Secondly, acquirers may manage their earnings to inflate their share prices and thus pay fewer shares to the target firms. In addition, the high cost of detection of earnings management within the bounds of generally accepted accounting procedures, and the target's expectation that the acquiring firm will manage earnings also suggest that acquirers will manage earnings before M&A.

So far, there have been few studies addressing earnings management (either accrual-based or real earnings management) around Chinese domestic M&A deals with weak investor protection. There is strong evidence of real earnings management activities, achieved via multiple means and probably linked to meeting certain earnings benchmarks (Cohen et al., 2008; Cohen and Zarowin et al., 2010; Ipino et al., 2011). Therefore, in order to provide a more comprehensive

investigation of the earnings management activities around M&As in China, we first test whether acquirers in China implement both accrual-based and real earnings management.

H1: Chinese acquirers engage in both real and accrual-based earnings management to manipulate earnings around M&A.

Ball and Shivakumar (2008) argue that the measure of earnings management (discretionary accruals) is likely to be unreliable around large corporate events. Further, they point out that acquirers do not have an unequivocal incentive to manage earnings close to acquisitions, owing to heightened scrutiny and litigation risks. Acquirers in China may face stricter scrutiny from both regulators and audit committees around M&A, and compared with real earnings management, accrual earnings management is more detectable. Hence, Chinese acquirers are more likely to adopt real earnings management rather than an accrual-based earnings strategy in order to avoid possible scrutiny, even though real earnings management is more costly to the firm (Graham et al., 2005). At the same time, previous empirical evidence suggests that in the majority of Chinese M&As, cash is the preferred payment method, rather than stocks. Chi et al. (2011) report that nearly 88% of M&A deals from 1998 to 2003 used cash as the only payment. Emma et al. (2013) also note that about 57% of domestic deals and 70% of foreign deals acquired by Chinese firms used only cash as the transaction method. As a consequence, acquirers are more likely to adopt real earnings management, since such earnings manipulation has a direct effect on current cash flow in a

situation where firms prefer to structure the investment or gather deal funds in a short period (Dechow & Skinner, 2000; Roychowdhury, 2006).

Furthermore, previous empirical studies examining the relation between accrual-based and real earnings management also find that a decline in one type of earnings management may lead to a substitution of the other earnings management method. Cohen et al. (2008) and Zang (2012) find a negative correlation between these two earnings management approaches, given regulatory scrutiny and the need to adjust earnings within a short period. Cohen and Zarowin (2010) extend the research of Cohen et al. (2008) and confirm that strict scrutiny, as under SOX, can result in more managers engaging in real earnings management instead of accrual-based earnings management. Fan et al. (2010) and Badertscher (2011) both indicate that more scrutiny and further constraints on accrual-based earnings management would not be effective in preventing managers from using other earnings management strategies.

In the light of the above discussion, this chapter postulates that the level of accrual-based earnings management (real earnings management) may decrease (increase) in the year of M&A owing to the strict scrutiny of regulators and audit committee as well as the high percentage of cash payment, which results in higher costs of accrual-based earnings management. In addition, in order to continue earnings manipulation to beat or meet the benchmark, the acquirer may switch to implement real earnings management, which is less subject to scrutiny and less detectable. Then the second hypothesis is as follows:

H2: During the year of M&A, Chinese acquirers prefer to use less accrual-based earnings management but favour more real earnings management.

4.2.4 Earnings Informativeness and M&As

The development of the capital markets depends on investor confidence, and in turn, investors rely on credible corporate financial information to make investment decisions. Therefore, effective monitoring of the credibility of financial reporting is fundamental to a vibrant capital market. However, oversight of the financial-reporting process before M&A is not emphasized by the market (Erickson and Wang, 1999; Louis 2004; Botsari and Meeks, 2008; Gong et al., 2008), despite evidence that acquirers seek to lower the costs of deals or increase individual benefits by exaggerating earnings before the M&A. Although a wave of earnings management among financial reports before M&A have attracted the attention of regulators and researchers, acquirers may find substitute earnings manipulation methods, such as real earnings management, to meet or beat benchmarks required by regulators.

In China, the structure of M&A payment is quite different from that in most developed economies, but all acquirers have the same goal of improving firm earnings to reduce deal transaction costs. In addition, with the stagnant development of IPOs in China, M&A has become an alternative way for Chinese firms to finance or to acquire listed status in a short time. Moreover, in order to adjust the industrial structure and solve the problem of excess capacity, in 2013 the Chinese regulator widened the review procedure on M&A to encourage more

firms to rely on this method. However, the improved regulation mainly concentrates on the payment method; the related complex review procedure to strengthen financial disclosure, especially with regard to real earnings management, has been largely ignored. Therefore, the quality of accounting information and corporate transparency is still a challenge for current regulators and investors. The earnings may also bias to original levels due to over adjustment before M&As.

Previous studies relate earnings informativeness to the issue of information disclosure or corporate governance. For example, Fan and Wong (2002) examine the relation between ownership structure and earnings quality, represented by earnings informativeness, and indicate that controlling shareholders prefer to adjust earnings for individual interests, leading to low credibility among minority shareholders. In addition, highly concentrated ownership can cause low earnings informativeness, since such ownership may keep rent-seeking information from the public and provide camouflage in financial statements. Chang and Sun (2009) consider the passage of SOX as their research context and find that, after SOX, cross-listed firms' earnings informativeness is associated with audit committee independence and board independence. Armstrong et al. (2012) consider the passage of anti-takeover laws as a benchmark to measure whether earnings informativeness can be improved after the implementation of such laws. Their results are in accordance with previous conclusions that lower information asymmetry and reduced amounts of private information are helpful in increasing financial statement informativeness following the passage of anti-takeover laws.

Firth et al. (2007b) focus on the Chinese stock market and suggest that special ownership structure, a two-tier board structure, and auditor, all affect earnings informativeness. Specifically, ownership concentration, foreign ownership, the percentage of tradable shares, and several corporate governance variables are related to the implementation of discretionary accruals. Hence, compared with previous conclusions and assumptions, during the period of M&A in China, lack of investor protection and effective corporate governance means that the quality of accounting disclosure cannot be properly supervised. Therefore, the third hypothesis is as follows.

H3: Earnings informativeness of Chinese listed acquirers would be significantly decreased by their involvement in earnings management before M&A.

4.2.5 Earnings Management and Stock Returns

Previous studies find significant long-run stock-for-stock M&A underperformance, which can be partly explained by the reversal effects of accrual-based earnings management after the M&A (Louis, 2004; Gong et al., 2008). Similar evidence can be found in the Chinese market. Although Chi et al. (2011) suggest non-negative market performance after M&A, their sample period extends only six months before and after M&As. Emma et al. (2013) extend the period to 24 months and observe significant long-run underperformance for domestic M&As in China. When taking payment method into consideration,

Louis (2004) observes that stock-for-stock acquirers fare worse than cash acquirers over the three years subsequent to merger announcement. He also confirms that a significant negative correlation can be found between the abnormal accruals and the long-term stock performance for stock-for-stock acquirers.

However, the market reaction during M&A in China can differ from that in other countries, as most deals in China are completed via cash payment. Furthermore, real-based earnings management has a direct effect on increasing firms' cash flow, which is the main fund source for acquirers. Consequently, the implementation of accrual-based earnings management during M&A is more likely to be replaced by a real earnings strategy. The final hypothesis for this chapter is as follows.

H4: Market reactions during M&A are more likely to be affected by real earnings management than by accrual-based earnings management.

4.3 Empirical Methodology

4.3.1 Earnings Management

The earnings management proxies are discretionary accruals, calculated according to Hribar and Collins (2002), and abnormal cash flow from operations, abnormal production costs, abnormal discretionary expenses, and three aggregate real

proxies, calculated according to Roychowdhury (2006). More specifically, discretionary accruals are computed as:

$$TA_{it} = NDA_{it} + DA_{it} \tag{1}$$

where TA_{it} is total accruals for firm i in year t, NDA_{it} is non-discretionary accruals for firm i in year t, and DA_{it} is discretionary accruals for firm i in year t. Therefore:

$$\frac{TA_{it}}{Assets_{i,t-1}} = k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{\Delta SALES_{it}}{Assets_{i,t-1}} + k_3 \frac{PPE_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \tag{2}$$

where $Assets_{i,t-1}$ is total assets for firm i in year t, ΔREV_{it} is change in revenue for firm i in year t, ΔREC_{it} is change in receivables for firm i in year t, and PPE_{it} is gross property, plant, and equipment for firm i in year t.

The coefficients estimated by equation (2) are used to calculate the firm-specific normal accruals (NA_{it}) for the sample firms:

$$NA_{it} = \hat{k}_1 \frac{1}{Assets_{i,t-1}} + \hat{k}_2 \frac{\Delta SALES_{it}}{Assets_{i,t-1}} + \hat{k}_3 \frac{PPE_{it}}{Assets_{i,t-1}} \tag{3}$$

The measure of discretionary accruals (DA_{it}) is the difference between total accruals and fitted normal accruals (NA_{it}), defined as:

$$DA_{it} = \frac{TA_{it}}{Assets_{i,t-1}} - NA_{it} \quad (4)$$

Regarding the calculation of real earnings proxies, this chapter first obtains individual real proxies and combines them in three ways to represent a total effect:

$$\frac{CFO_{it}}{Assets_{i,t-1}} = \alpha_1 + k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{Sales_{it}}{Assets_{i,t-1}} + k_3 \frac{\Delta Sales_{it}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (5)$$

where CFO_{it} is cash flow from operations taken from the statement of cash flows for firm i in year t, $Asset_{i,t-1}$ represents total assets at the end of year t - 1, $Sales_{\text{it}}$ is net sales for firm i in year t, $\Delta Sales_{it}$ is firm i's change in net sales between years t - 1 and t, and ε_{it} is the error term. The abnormal cash flow from operations is the actual CFO value minus the normal CFO level calculated using the coefficient estimated by equation (5) for each industry and year.

The second individual proxy is abnormally high production costs, expressed in the following regression:

$$\frac{PROD_{it}}{Assets_{i,t-1}} = \alpha_1 + k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{Sales_{it}}{Assets_{i,t-1}} + k_3 \frac{\Delta Sales_{it}}{Assets_{i,t-1}} + k_4 \frac{\Delta Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (6)$$

where $PROD_{it}$ is firm i's production costs in year t, equal to the sum of the costs of goods sold plus changes in inventory.

The third proxy is abnormal discretionary expenses *(ADISX),* which is estimated using the following equation:

$$\frac{DISX_{it}}{Assets_{i,t-1}} = \alpha_1 + k_1 \frac{1}{Assets_{i,t-1}} + k_2 \frac{Sales_{i,t-1}}{Assets_{i,t-1}} + \varepsilon_{it} \quad (7)$$

where $DISX_{it}$ is discretionary expenditures, including sales, general and administrative expenses, research and development, and advertising, for firm *i* in year *t*.

Consistent with Cohen et al. (2008), Cohen and Zarowin (2010), and Zang (2012), three aggregate proxies are obtained by combining the above individual proxies to capture the total effects of real earnings management[7]:

$$RM\_1 = -abnormal\ cash\ flow\ from\ operations + abnormal\ production\ costs \quad (8)$$

$$RM\_2 = -abnormal\ cash\ flow\ from\ operations - abnormal\ discretionary\ expenses \quad (9)$$

$$RM\_3 = -abnormal\ cash\ flow\ from\ operations + abnormal\ production\ costs - abnormal\ discretionary\ expenses \quad (10)$$

[7] Please refer to Chapter 2 for more details.

4.3.2 Research Design

This chapter examines both accrual- and real-based earnings management activities around M&A, and their dynamic relation, using the following regressions:

$$DA = \alpha + \beta_1 MA\_Dummy + \beta_2 RM\_PROXY \times MA\_Dummy + \beta_3 RM\_PROXY + \beta_4 BIG4 + \beta_5 PAY + \beta_6 TS + \beta_7 STATE + \beta_8 LEVERAGE + \beta_9 DUALITY + \beta_{10} IPO\_DUM + \beta_{11} ROE + \beta_{12} ST\_DUM + \beta_{13} TOBINQ + \beta_{14} FIRMSIZE + \beta_{15} BIND \quad (11)$$

$$RM\_PROXY = \alpha + \beta_1 MA\_Dummy + \beta_2 DA \times MA\_Dummy + \beta_3 DA + \beta_4 BIG4 + \beta_5 PAY + \beta_6 TS + \beta_7 STATE + \beta_8 LEVERAGE + \beta_9 DUALITY + \beta_{10} IPO\_DUM + \beta_{11} ROE + \beta_{12} ST\_DUM + \beta_{13} TOBINQ + \beta_{14} FIRMSIZE + \beta_{15} BIND \quad (12)$$

where *MA_Dummy* is a dummy variable equal to one when the Chinese listed firms are involved in an M&A in year *t* and zero otherwise. This dummy variable captures the effect of M&A on earnings manipulation. To be consistent with H1, this chapter expects to find a significant association between accrual-based (*DA*) and real earnings managements (*RM_PROXY*) across the whole sample period, indicating that managers in China may have flexibility when choosing earnings management approaches for beating or meeting benchmarks. The independent variables of *RM_PROXY* (*DA*) and *RM_PROXY*MA_Dummy* (*DA*MA_Dummy*) measure the long-term relation between the two earnings management approaches over the whole sample period and their substitution or complementary effect during the M&A. The above regressions also control for the effect of corporate governance and firm characteristics. Section 2.3.2 of Chapter 2 discusses the details of how corporate governance variables and firm characteristics affect firm earnings management.

To determine the earnings informativeness around M&A, this chapter follows the method adopted by Firth et al. (2007b) and Armstrong et al. (2012) and uses the following regression:

$$RETURN\_15\ (12) = \beta_0 + \beta_1 MA\_Dummy + \beta_2 EARN + \beta_3 EARN \times MA\_Dummy + \beta_4 EARN \times MARLET\_VALUR + \beta_5 EARN \times LEVERAGE + \beta_6 EARN \times MB + \beta_7 EARN \times ROE \quad (13)$$

where *RETURN_15* is the 15-month cumulative raw return during the interval that begins three months following the end of fiscal year *t* - 1 and ends six months after the end of fiscal year *t*, with year *t* being the year of the M&A. To test support for H3, we also use *RETURN_12* as an alternative measure of cumulative raw return through the 12-month period during the interval that begins three months following the end of fiscal year *t* - 1 and ends three months after the end of fiscal year *t*. The variable *MA_Dummy* is a dummy variable, which is set to one if the listed firm acquires other firms in the year t; *EARN* represents firm earnings, calculated as the operating income of year *t* divided by total assets for year *t* - 1; *MARKET_VALUE* is the natural logarithm of the firm's market value in year *t*; *LEVERAGE* is total liability divided by total assets in year *t*; *MB* is the market-to-book ratio in year *t*; and *ROE* is computed as total profit divided by the book value of equity in year *t*. Atiase (1985) and Freeman (1987) indicate that public disclosure and the private development of non-earnings information are positively related to firm size. Leverage has also been shown to have an impact on the relation between earnings and returns. Results from Fan and Wong (2002) and Marquardt and Wiedman (2004) reveal that leverage can be considered as an investment opportunity to negatively affect earnings informativeness. In addition, the market-to-book ratio *MB* represents the firm's growth opportunities, which are

more likely to be positively related to earnings persistence (Collins and Kothari, 1989). The variable *ROE* is the proxy for profitability. For H3, we expect a negative correlation between *RETURN* and *EARN*MA_Dummy* if there is a reduction in earnings quality during M&A.

We use the following regression to test the relation between market reactions and the two earnings strategies, accrual-based and real earnings management:

$$\begin{aligned} RETURN = {} & \beta_0 + \beta_1 MA\_Dummy + \beta_2 RM\_PROXY \times MA\_Dummy + \beta_3 RM\_PROXY \\ & + \beta_4 BM + \beta_5 NOA\_ASSETS + \beta_6 LEVERAGE + \beta_7 FIRMSIZE + \beta_8 ROE + \beta_9 BOARD\_SHARE \\ & + \beta_{10} BIND + \beta_{11} DUALITY + \beta_{12} SUPER\_MEETINGS \end{aligned} \quad (14)$$

$$\begin{aligned} RETURN = {} & \beta_0 + \beta_1 MA\_Dummy + \beta_2 DA \times MA\_Dummy + \beta_3 DA + \beta_4 BM + \beta_5 NOA\_ASSETS \\ & + \beta_6 LEVERAGE + \beta_7 FIRMSIZE + \beta_8 ROE + \beta_9 BOARD\_SHARE + \beta_{10} BIND + \beta_{11} DUALITY \\ & + \beta_{12} SUPER\_MEETINGS \end{aligned} \quad (15)$$

where *RETURN* is the cumulative raw return for year $t + 1$ after the acquirer completes the deal; *NOA_ASSETS* is calculated as net operating assets divided by total assets for year *t*; and *SUPER_MEETINGS* is the number of meetings held by supervisors. According to previous studies (Louis, 2004, 2005; Gong et al., 2008; Li, 2012), we may expect to observe a negative relation between *RETURN* following the M&A and the interaction terms *RM_PROXY*MA_Dummy* and *DA*MA_Dummy* respectively, as the market may react negatively to M&As due to the engagement in earnings management activities.

4.3.3 Data Selection and Summary Statistics

This chapter uses a sample of 964 successful Chinese domestic M&A deals from 2002 to 2011 obtained from the Thomson One Banker (SDC) database. Following Chi et al. (2011), Zhou et al. (2012), and Emma et al. (2013), this chapter restricts acquirers to those listed on either the Shenzhen or Shanghai stock exchange and deal values must be over US$1 million to control for size effects. Consistent with Chapters 2 and 3, the financial accounting information of Chinese listed firms is obtained from the CSMAR database. To merge SDC deals with the CSMAR database, Datastream codes are first downloaded from the SDC and the related Chinese stock codes are obtained from the Datastream database, then these are combined with the SDC and CSMAR databases by Chinese stock code. Hence, the final sample consists of 964 M&A deals, for a total of 6,572 firm-year observations. The main reason the data begin in 2002 is that most data for corporate governance variables from the CSMAR are not available before that year.

Table 4.1 shows the general characteristics of M&A transactions and acquirers in China from 2002 to 2011. Panel A reports the number of M&As in each year during the sample period. More specifically, M&As in China are observed in two increasing waves from 2002 to 2011, consistent with the previous studies (Chi et al., 2011; Zhou et al., 2012; Emma et al., 2013). The most important finding of Panel A is that the main payment method used in China is cash, and the other payment methods account for only 23.24% of M&A deals. The percentage of cash

payment employed during M&A in China is similar to the 87.28% reported by Chi et al. (2011) and the 57% found by Emma et al. (2013). Panel B shows the distribution of M&As across industries in China, with nearly 62% of deals coming from industrials and the second largest percentage, 16.08%, from conglomerates.

[Insert Table 4.1 around here]

Table 4.2 describes the variable statistics and reveals similar results to Chapters 2 and 3, as well as previous studies looking at the Chinese stock market (Firth et al., 2007b; Gul et al., 2010; Hou et al., 2012). BSC_b represents accounting flexibility, which is different from the measurement of BSC_a in Chapter 2, calculated as the firm ratio $NOA_{t-1} / Sales_{t-1}$ minus its corresponding industrial median value. Regarding earnings informativeness, the mean and median values of *EARN*, *RETURN_15,* and *RETURN_12* are relatively higher than the values described by Firth et al. (2007b), indicating an improvement in firm performance. The main reason for this difference may be the different sample periods.

[Insert Table 4.2 around here]

Table 4.3 shows the Pearson correlation matrix for all the variables considered in the chapter, from 2002 to 2011. The relation between accrual-based and real proxies is consistent with Chapter 2 and previous studies, such as Cohen et al. (2008) and Cohen and Zarowin (2010). For example, a positive significant association between discretionary accruals and real earnings proxies indicates that listed firms in China prefer to use both earnings strategies simultaneously, and

this relation holds even after real earnings proxies are replaced by their individual proxies (*ACFO, APROD*, and *ADISX*). Furthermore, the correlations between other accounting and corporate governance variables are consistent with previous findings (Firth et al., 2006, 2007b).

[Insert Table 4.3 around here]

4.4 Empirical Results

4.4.1 Impact of M&As on Accrual-Based Earnings Management

Table 4.4 shows the association between the M&As in China and the behaviour of discretionary accruals. In regressions (11) and (12), this chapter controls for similar corporate governance, firm characteristics, and industry effects as in Chapter 2. In order to test the hypotheses of this chapter, six real earnings proxies – *ACFO, APROD, ADISX, RM_1, RM_2,* and *RM_3* – are used to examine the relation between real and accrual-based earnings management. The results show that there is a long-term positive association between accrual-based and real earnings management at the 1% level of significance. This implies that listed firms with more accrual-based earnings management tend also to engage in real earnings activities.

In addition, the results show a significantly negative coefficient on the M&A dummy for all regressions in Table 4.4. This finding indicates that during the year of M&A the listed firms in China are likely to engage in less accrual-based earnings management than suggested in the literature. Therefore, accrual-based earnings management around M&As in China can be limited by the scrutiny under the supervision of the CSRC and audit committee. Compared with previous studies (Cohen et al. 2008; Cohen and Zarowin, 2010; Chapter 2), however, the correlation between accrual-based and real earnings management is still significantly positive rather than negative during the year of the M&A. Consequently, the results show that although M&As result in less implementation of accrual-based earnings management, rather than a substitution effect between the two earnings management approaches, those firms involved in more real-based earnings management would also use more accrual-based earnings management. In other words, accrual-based earnings management cannot be effectively restricted by the scrutiny and regulations related to M&A, although it is more detectable. This supports our H1 that Chinese acquirers engage in both real and accrual-based earnings management to manipulate earnings around M&A. However, this is different from the previous finding of a substitution correlation between the two earnings strategies caused by changes in accounting reporting practice such as SOX and IFRS (Cohen et al. 2008; Cohen and Zarowin, 2010; Ipino and Parbonetti, 2011), or the incentive alignment effect between controlling and minority shareholders caused by the split share structure reform. The difference may be caused by the weak investor protection environment and corporate governance mechanism.

[Insert Table 4.4 around here]

4.4.2 Impact of M&As on Real Earnings Management

Table 4.5 reports the effects of M&As on real earnings management in China using regression (12). Similar to the results of accrual-based earnings management, the coefficient on *DA* is significantly positive for all real earnings management proxies, and this implies that acquirers in China can use both earnings strategies at the same time to beat or meet benchmarks. In addition, the results empirically show a positive coefficient for the M&A dummy for all regressions in Table 4.5, which reconfirms that Chinese listed firms prefer to exploit more real earnings management to boost current earnings in the year of M&A. This is consistent with our expectation expressed in H2. The relation between accrual-based and real earnings management is still significant positive during the year of M&A, which is consistent with the results in Table 4.4 and supports our H1. The unchanged relation between the two earnings management strategies also indicates that greater real earnings management during M&A cannot prevent acquirers from engaging in accrual-based earnings management.

[Insert Table 4.5 around here]

4.4.3 Sensitivity Test for the Impact of M&As on Earnings Management Strategies

Both Barton and Simko (2002) and Wang and D'Souza (2006) point out that listed firms are more likely to engage in real earnings management when accounting flexibility is low. Consistent with Chapter 2, this chapter also considers BSC_b a proxy for accounting flexibility and uses its interaction term with *MA_Dummy* to examine whether H1 and H2 still hold after controlling for the effect of accounting flexibility. The empirical results in Table 4.6 show a significant negative correlation between accounting flexibility and discretionary accruals. These results lead to similar arguments as in Chapter 2, and suggest that listed firms tend to have lower discretionary accruals when there is accounting flexibility. However, the coefficients on RM and the interaction term *RM*MA_dummy* remain positive and the coefficient on *MA_dummy* is negative, which still support our H1 and H2.

The results in Table 4.7 show a significantly positive coefficient on BSC_b but insignificant coefficient on the interaction term of BSC_b**MA_Dummy*. These imply that Chinese listed firms prefer real earnings management when there are few opportunities for managers to adopt accrual-based earnings management and changes in accounting flexibility have no incremental effects on real earnings management in the year of M&A. More importantly, the coefficients of *MA_Dummy, DA, and DA*M&A_Dummy* remain significant and keep the same

signs as in Tables 4.4 and 4.5, and thus the results still support our hypotheses H1 and H2.

[Insert Tables 4.6 and 4.7 around here]

4.4.4 Impact of M&As on Earnings Informativeness

We report the results of testing H3 in Table 4.8. The table shows that *EARN* is significantly positive with *RETURN* (*RETURN_15)*, while a significantly negative correlation is found between *RETURN* and *EARN*MA_Dummy* for both *RETURN_15* and *RETURN_12* in the year of M&A. In contrast, except for the year of M&A, the quality of earnings is positively correlated with market reactions, which indicates that manipulation by acquirers to exaggerate financial information during the M&A has been detected by market investors. In other words, the decreased quality of financial disclosure during the year of M&A may be caused by the incentive to lower the cost of deals. In addition, in China, the lower detectability of real earnings management and the high percentage of cash payment provide incentives for acquirers to engage in more earnings manipulation during the M&A. In other words, acquirers prefer to boost the current year's earnings to inflate their stock prices via earnings management.

[Insert Table 4.8 around here]

4.4.5 Sensitivity Test for the Impact of M&As on Earnings Informativeness

Studies to date offer empirical evidence that ownership structure and a two-tier board structure affect earnings informativeness for listed firms. Specifically, two strands of research discuss the effect of ownership structure on earnings informativeness. On the one hand, Fan and Wong (2002) and Donnelly and Lynch (2002) indicate that high ownership concentration influences the level of information asymmetry between managers and investors, which can result in various levels of earnings informativeness and accounting choices. On the other hand, different types of ownership may have positive or negative effects on earnings informativeness. Warfield et al. (1995) observe a positive association between management ownership and earnings informativeness, while Gabrielsen et al. (2002) find the opposite effect due to entrenchment or expropriation effects. Firth et al. (2007b) and Chang and Sun (2009) directly explain earnings informativeness by including ownership structure in the earnings return regression. Therefore, to fully test whether M&As in China can reduce earnings informativeness, this chapter controls for ownership structure as well as for other corporate governance variables in regression (13).

The main results in Table 4.9 lead to a similar conclusion as suggested by the results in Table 4.8. More precisely, there is a significant negative correlation

between *EARN* and *EARN*MA_Dummy* when listed firms launch their M&A in year 0, while this interaction term is insignificant during other periods. These results indicate that earnings informativeness is reduced when managers adjust firm accounting information in the year of M&A. In addition, the overestimated earnings during M&A would be beneficial for lowering deal costs, and the positive relation with *EARN* and *EARN*MA_Dummy* in other periods also suggests that earnings quality would recover, owing to the reduced incentives for acquirers to manipulate earnings. Furthermore, the signals of control variables in Table 4.9 are also consistent with those of previous studies. More specifically, the significant negative association between *RETURN* and *EARN*TOP_1* reveals that investors become less interested in the accounting information provided by listed firms when the largest shareholders hold more shares. The positive correlation between *RETURN* and *EARN*STATE* at 1% significance level is consistent with the results of Ding et al. (2007) and Armstrong et al. (2010), who find that state-owned firms have less incentive to adjust earnings due to subsidies provided by the government, while the significant positive coefficient on *EARN*IND_NUM* indicates that independent directors improve the quality of accounting information available to investors.

[Insert Table 4.9 around here]

4.4.6 Earnings Management and Stock Returns

Table 4.10 shows the relation between real earnings management and stock performance during the sample period, which is from two years before to two years after the M&A. More precisely, a significant negative correlation is observed between *RETURN* and *MA_Dummy* in the year of M&A, while a positive coefficient for *MA_Dummy* for the years -2, +1, and +2 confirms the results in Table 4.9. These results suggest that the implementation of M&A has a negative effect on market reactions. In addition, although there is a negative association between *RM_PROXY* and *RETURN* at 1% significance level across all regressions, the interaction term *RM*MA_Dummy* has a significantly positive coefficient in year 0. To compare the different effects of earnings management on market reactions, Table 4.11 replaces the dependent variable with discretionary accruals. The results reveal a similar relation between *RETURN* and *MA_Dummy*, but insignificant correlations for both *DA* and *DA*MA_Dummy* with stock returns. The findings indicate that, compared with real earnings management, the acquirer's underperformance may not be explained by accrual-based earnings management.

Louis (2004) and Gong et al. (2008) suggest that poor market reaction after M&A is mainly due to overestimated earnings before the completion of the deal. Similarly, we find significant and insignificant correlation of *RM* and *DA*, respectively, with stock returns, and this suggests that poor stock returns of Chinese listed firms can be caused by the use of real earnings management.

However, the significant positive coefficient on the interaction term of *RM*MA_dummy* for the year of M&A shows that the involvement of real earnings management can indeed provide better earnings reports and thus reduce the decrease in share prices. This effect is not found for the accrual-based earnings management activities.

[Insert Table 4.10 and 4.11 around here]

Table 4.12 re-examines regression (14) when including *DA* and *DA_Dummy* to observe whether the outcomes are robust. Consistent with the results in Tables 4.10 and 4.11, results in Table 12 show a significant positive coefficient for *RM*MA_Dummy* and an insignificant correlation with *DA*MA_Dummy*.

[Insert Table 4.12 around here]

4.5 Conclusion

The adjustment of financial reports to beat or meet benchmarks has been considered the main incentive for managers to implement earnings management. In China, there are two main reasons for managers of listed firms to employ earnings manipulation to achieve individual benefits. First, the investor protection mechanism in China is much weaker than in developed economics, which implies that the Chinese regulator could not effectively restrict expropriation of minority shareholders' interests by controlling shareholders or managers. Secondly, the fast

development of M&A in the Chinese stock market attracts more managers to adjust earnings in order to achieve the benchmark required by regulators.

Therefore, this chapter analyses the effect of Chinese domestic M&As on earnings management in order to provide policy implications for improving the investor protection mechanism. Compared with previous studies, which focus solely on the influence of stock-for-stock M&As on earnings management, this chapter not only considers all payment methods, but also takes real earnings management into consideration to fully examine earnings activities around M&As. The results show a significantly positive relation between accrual-based and real earnings proxies across the whole research period as well as in the year of M&A, which indicates that acquirers in China prefer to use both earnings strategies to lower the costs of M&A deals. More importantly, although we find that M&A has significant negative and positive effect on accrual-based and real earnings management respectively in the year of the M&A, the relation between these two earnings strategies is still significant positive, as in the period without M&A. The findings indicate that Chinese acquirers prefer to engage in more real earnings management and less detectable accrual-based earnings management in the year of the M&A, but those firms with more accrual-based (or real based) earnings management tend to make greater use of the other earnings management approach. This is very different from the effects of changes in accounting reporting practice or incentive alignment on earnings management brought about by SOX and IFRS or by the split share structure reform. Therefore, acquirers in China may still

implement both earnings strategies simultaneously, even during the year of the M&A, due to the weak investor protection environment.

The results of this chapter also support the conclusions in previous studies by finding lower earnings informativeness in the year of M&A, and this implies that market reactions can be negatively affected by lower quality of accounting information provided by acquirers during the M&A. In addition, the chapter finds a significant negative association between stock returns and real earnings management, but an insignificant coefficient for *DA*. The results suggest that market reactions are more likely to detect a real earnings management strategy.

Consequently, the implication of this chapter is that regulators and the CSRC should pay more attention to the supervision of earnings management behaviour during M&As. At least, they should formalize the publication of accounting information to limit accrual-based earnings management when acquirers can engage in both accrual-based and real earnings management to lower the costs of M&A. Furthermore, investors should be concerned about the accounting information published by acquirers, who may exploit less detectable methods to manipulate earnings to maximize their own interest.

Table 4.1 Time and Industry Distribution of Deals

This table illustrates the time series and industry distribution of the whole sample. Only successful deals are included and those pending are excluded. All samples are selected from the Thomson One Banker database for Chinese domestic M&As from 2002 to 2011, with 964 events. Transaction value is calculated in millions of US dollars. The industry code is obtained from the Datastream database, using the first two digits of the Standard Industrial Classification code.

Panel A: Number of M&As

Year	M&A	Transaction value (mil)	Cash only	Cash and stock only	Stock only	Other	unknown	Total
2002	23	115.1537	19		1		3	23
2003	90	100.4903	76		4		10	90
2004	116	93.65893	90	2	9	1	14	116
2005	55	69.0295	47		2		6	55
2006	45	399.2289	32		4		9	45
2007	91	400.009	60	2	5	8	16	91
2008	120	577.9128	76	1	3	17	23	120
2009	86	844.9831	51		10	13	12	86
2010	136	759.8671	95	1	11	15	14	136
2011	202	492.7309	174	5	3	11	9	202
Total	964	506.1328	720	11	52	65	116	964

Panel B: Industry Distribution

No. of M&As	Percentage	Industry sector
80	8.30	Utilities
49	5.08	Properties
155	16.08	Conglomerates
597	61.93	Industrials
83	8.61	Commerce
Total	964	

Table 4.2 Summary Statistics

	Observations	Mean	Standard deviation	p25	p50	p75
DA	6520	0.002	0.088	-0.043	0.003	0.049
RM_1	6121	-0.002	0.171	-0.080	0.014	0.096
RM_2	6453	0.007	0.121	-0.056	0.013	0.077
RM_3	6121	0.003	0.224	-0.108	0.017	0.129
ACFO	6570	-0.001	0.084	-0.046	0.000	0.047
APROD	6230	0.005	0.136	-0.052	0.006	0.059
ADISX	6455	-0.001	0.061	-0.037	-0.010	0.022
BIG4	6572	0.046	0.209	0.000	0.000	0.000
PAY	6572	14.271	0.893	13.669	14.296	14.880
TS	6572	19.005	0.964	18.312	18.928	19.606
STATE	6572	0.522	0.500	0.000	1.000	1.000
LEVERAGE	6572	0.503	0.193	0.369	0.516	0.644
DUALITY	6572	0.141	0.348	0.000	0.000	0.000
IPO_DUM	6572	0.110	0.313	0.000	0.000	0.000
ROE	6572	0.051	0.179	0.023	0.068	0.122
ST_DUM	6572	0.061	0.239	0.000	0.000	0.000
TOBINQ	6572	2.106	1.422	1.233	1.649	2.442
FIRMSIZE	6572	21.490	1.075	20.757	21.378	22.101
BIND	6572	0.345	0.063	0.333	0.333	0.364
BSC_b	6572	0.402	1.411	-0.416	0.006	0.711
RETURN_15	6572	0.210	0.873	-0.316	-0.100	0.358
RETURN_12	6572	0.212	0.711	-0.261	-0.033	0.432
MARKET_VALUE	6572	22.086	0.988	21.392	21.978	22.653
BM	6572	0.403	0.252	0.215	0.350	0.540
EARN	6572	0.038	0.067	0.011	0.035	0.068
BOARD_NUM	6572	9.479	2.046	9.000	9.000	11.000
SUPER_NUM	6572	4.375	1.820	3.000	4.000	5.000
NOA_ASSETS	6572	0.669	0.632	0.490	0.647	0.787
BOARD_MEETINGS	6572	8.602	3.378	6.000	8.000	10.000
RELATIVE_SIZE	990	0.531	0.338	0.230	0.500	0.900

Note: All variables are as defined in the Appendix.

Table 4.3 Correlation Matrix

	DA	RM_1	RM_2	RM_3	ACFO	APROD	ADISX	BIG4	PAY	TS	STATE	LEVERAGE	DUALITY	IPO_DUM	ROE	ST_DUM	TOBINQ	FIRMSIZE	BIND	BSC_b	RETURN_15	RETURN_12	MARKET_VALUE	BM	EARN	BOARD_NUM	SUPER_NUM	NOA_ASSETS	BOARD_MEETINGS	RELATIVE_SIZE
DA	1.000																													
RM_1	**0.166**	1.000																												
RM_2	**0.608**	**0.651**	1.000																											
RM_3	**0.406**	**0.915**	**0.862**	1.000																										
ACFO	**-0.757**	**-0.369**	**-0.809**	**-0.648**	1.000																									
APROD	**0.159**	**0.709**	**0.500**	**0.701**	**-0.381**	1.000																								
ADISX	-0.079	**-0.682**	**-0.532**	**-0.566**	**0.128**	**-0.423**	1.000																							
BIG4	0.049	-0.021	-0.001	-0.015	-0.006	-0.019	-0.002	1.000																						
PAY	**0.164**	**-0.124**	0.019	-0.043	-0.072	-0.047	**0.165**	**0.089**	1.000																					
TS	0.010	0.074	**0.113**	**0.114**	-0.037	0.056	-0.022	**0.126**	**0.410**	1.000																				
STATE	0.009	0.051	0.000	0.022	0.005	0.052	-0.036	**0.123**	**-0.128**	**-0.109**	1.000																			
LEVERAGE	-0.075	**0.289**	**0.220**	**0.295**	**-0.191**	**0.296**	**-0.140**	-0.038	0.038	**0.175**	0.017	1.000																		
DUALITY	0.052	-0.051	-0.033	-0.040	-0.023	-0.029	0.044	-0.025	0.005	**-0.099**	**-0.162**	**-0.113**	1.000																	
IPO_DUM	0.067	**-0.110**	-0.043	**-0.090**	-0.001	-0.049	0.079	-0.003	**0.088**	**-0.320**	-0.049	**-0.226**	**0.138**	1.000																
ROE	**0.271**	**-0.158**	-0.082	**-0.140**	0.084	**-0.125**	0.055	0.053	**0.253**	0.081	0.003	**-0.178**	0.048	0.053	1.000															
ST_DUM	**-0.087**	0.033	-0.002	0.020	0.017	0.074	-0.054	-0.019	**-0.261**	**-0.143**	0.000	0.034	0.039	-0.075	-0.008	1.000														
TOBINQ	-0.028	**-0.241**	**-0.245**	**-0.270**	**0.170**	**-0.219**	**0.147**	-0.044	-0.080	**-0.157**	**-0.103**	**-0.323**	0.028	0.030	**0.112**	**0.148**	1.000													
FIRMSIZE	0.087	**0.123**	**0.151**	**0.173**	**-0.112**	**0.149**	0.011	**0.189**	**0.474**	**0.728**	**0.088**	**0.399**	**-0.112**	**-0.107**	**0.163**	**-0.257**	**-0.427**	1.000												
BIND	-0.007	0.053	0.062	0.066	-0.049	**0.093**	-0.048	-0.051	0.056	**0.099**	**-0.107**	0.032	**0.111**	0.042	0.040	0.058	0.064	0.011	1.000											
BSC_b	**-0.152**	0.083	-0.032	0.026	0.086	0.046	**-0.100**	-0.043	**-0.187**	-0.023	-0.017	-0.061	-0.003	-0.049	**-0.157**	0.068	0.016	**-0.091**	-0.070	1.000										
RETURN_15	-0.045	-0.017	-0.049	-0.036	0.050	0.004	0.025	-0.019	**-0.139**	**-0.106**	0.029	0.025	-0.056	-0.084	0.015	0.058	**0.157**	**-0.144**	0.021	-0.029	1.000									
RETURN_12	-0.031	-0.028	-0.056	-0.046	0.036	0.012	0.032	-0.033	**-0.140**	-0.087	0.007	0.009	-0.047	**-0.106**	0.050	0.077	**0.322**	**-0.160**	0.029	-0.022	**0.869**	1.000								
MARKET_VALUE	0.083	-0.027	0.018	0.018	-0.025	0.031	**0.119**	**0.192**	**0.508**	**0.733**	0.029	**0.239**	**-0.099**	-0.085	**0.266**	**-0.214**	0.049	**0.863**	0.043	**-0.105**	-0.084	0.005	1.000							
BM	0.036	**0.187**	**0.166**	**0.192**	-0.077	**0.094**	**-0.172**	0.032	-0.025	0.065	**0.131**	-0.000	-0.015	-0.005	**-0.101**	**-0.148**	**-0.595**	**0.280**	-0.051	0.050	-0.081	**-0.272**	**-0.120**	1.000						
EARN	**0.277**	**-0.302**	**-0.198**	**-0.274**	**0.163**	**-0.212**	**0.192**	**0.089**	**0.258**	0.039	0.005	**-0.324**	0.049	**0.153**	**0.824**	-0.015	**0.245**	**0.101**	0.017	**-0.239**	0.005	0.041	**0.281**	**-0.209**	1.000					
BOARD_NUM	0.011	0.002	0.017	0.005	0.008	-0.053	0.005	0.074	**0.140**	**0.150**	**0.168**	**0.097**	**-0.097**	-0.070	-0.059	**-0.088**	**-0.111**	**0.226**	**-0.252**	0.006	-0.063	-0.049	**0.183**	**0.091**	-0.073	1.000				
SUPER_NUM	**0.088**	-0.006	0.075	0.040	-0.066	0.012	0.008	-0.049	**0.133**	0.077	**-0.152**	-0.066	0.056	**0.103**	**0.091**	-0.043	**0.099**	0.031	**0.093**	-0.019	-0.004	0.014	**0.095**	**-0.092**	**0.115**	**-0.100**	1.000			
NOA_ASSETS	-0.019	-0.053	**-0.093**	-0.069	0.079	**0.102**	0.050	-0.013	**-0.089**	**-0.094**	**0.092**	-0.081	-0.001	0.009	0.072	0.084	-0.028	-0.032	-0.065	**0.093**	-0.005	0.006	-0.048	-0.007	**0.198**	-0.016	0.014	1.000		
BOARD_MEETINGS	0.046	0.051	0.064	0.081	**-0.095**	**0.105**	-0.006	-0.059	**0.138**	0.073	**-0.112**	**0.100**	0.035	-0.002	0.044	0.001	-0.048	**0.097**	0.072	0.019	-0.032	-0.037	0.084	0.009	-0.018	**-0.105**	**0.316**	-0.012	1.000	
RELATIVE_SIZE	**-0.108**	0.032	-0.023	0.021	0.023	0.050	0.033	-0.016	**-0.125**	-0.006	0.002	0.019	0.003	-0.033	-0.081	0.079	0.086	-0.050	0.079	0.042	0.031	0.055	-0.008	-0.059*	-0.064	-0.075	0.037	0.011	-0.009	1.000

Note: All variables are as defined in the Appendix. The sample period is between 2002 and 2011. Coefficients in bold are statistically significant at the 1% level.

Table 4.4 Impact of M&As on Accrual-Based Earnings Management

RM_PROXY	RM_1	RM_2	RM_3	ACFO	APROD	ADISX
MA_Dummy	-0.006*	-0.008***	-0.007**	-0.007***	-0.007**	-0.007**
	(-1.757)	(-3.326)	(-2.278)	(-3.336)	(-2.080)	(-2.194)
RM_PROXY×MA_Dummy	0.057***	0.048*	0.044***	-0.021	0.086***	-0.033
	(2.650)	(1.881)	(2.979)	(-0.730)	(3.151)	(-0.569)
RM_PROXY	0.100***	0.419***	0.159***	-0.708***	0.093***	-0.234***
	(10.956)	(39.480)	(24.382)	(-55.897)	(6.254)	(-9.934)
BIG4	0.006	0.012***	0.009*	0.012***	0.005	0.007
	(1.291)	(3.098)	(1.947)	(3.574)	(1.149)	(1.534)
PAY	0.013***	0.015***	0.015***	0.010***	0.010***	0.012***
	(7.865)	(11.368)	(10.063)	(8.078)	(6.249)	(7.373)
TS	-0.014***	-0.013***	-0.015***	-0.007***	-0.013***	-0.012***
	(-7.106)	(-8.421)	(-8.321)	(-5.366)	(-6.493)	(-6.232)
STATE	-0.001	0.004**	-0.000	0.004**	-0.001	-0.000
	(-0.493)	(1.976)	(-0.060)	(2.296)	(-0.268)	(-0.187)
LEVERAGE	-0.062***	-0.077***	-0.075***	-0.083***	-0.062***	-0.051***
	(-8.383)	(-12.657)	(-10.887)	(-15.473)	(-8.466)	(-7.081)
DUALITY	0.003	0.002	0.003	-0.002	0.002	0.003
	(0.904)	(0.565)	(0.962)	(-0.836)	(0.565)	(0.802)
IPO_DUM	0.006	-0.002	0.005	0.001	0.006	0.006
	(1.264)	(-0.712)	(1.121)	(0.433)	(1.301)	(1.335)
ROE	0.076***	0.076***	0.079***	0.093***	0.078***	0.072***
	(8.642)	(9.937)	(9.566)	(12.778)	(8.965)	(8.293)
ST_DUM	0.005	0.006	0.006	0.009**	0.004	0.004
	(0.861)	(1.197)	(1.085)	(1.996)	(0.656)	(0.760)
TOBINQ	0.005***	0.007***	0.008***	0.005***	0.004***	0.003***
	(4.940)	(8.134)	(7.825)	(6.274)	(4.111)	(3.476)
FIRMSIZE	0.004*	0.001	0.004*	0.002	0.004**	0.002
	(1.853)	(0.748)	(1.865)	(1.595)	(2.083)	(1.002)
IND	0.003	-0.017	-0.002	-0.009	0.001	-0.004
	(0.166)	(-1.228)	(-0.147)	(-0.738)	(0.068)	(-0.242)
Intercept	0.020	0.017	0.021	-0.021	0.023	0.017
	(0.683)	(0.730)	(0.770)	(-0.963)	(0.793)	(0.592)
Industry	yes	yes	yes	yes	Yes	yes
R-Squared	0.110	0.393	0.234	0.513	0.097	0.099
Observations	6,024	6,314	6,024	6,425	6,130	6,314

Note: All variables are as defined in the Appendix. The sample period is between 2002 and 2011. The dependent variable is *DA*. The regressions use RM*_1, RM_2, RM_3, ACFO, APROD,* and *ADISX* as proxies for real earnings management. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 4.5 Impact of M&As on Real Earnings Management

Dependent variable	RM_1	RM_2	RM_3	ACFO	APROD	ADISX
MA_Dummy	0.013**	0.010***	0.017**	-0.006***	0.013**	-0.005**
	(2.088)	(2.792)	(2.326)	(-2.684)	(2.575)	(-2.143)
DA×MA_Dummy	0.128	0.119***	0.239**	-0.085***	0.216**	-0.002
	(1.586)	(2.734)	(2.523)	(-2.817)	(2.189)	(-0.060)
DA	0.378***	0.788***	1.020***	-0.654***	0.226***	-0.115***
	(10.900)	(40.357)	(24.188)	(-48.380)	(6.345)	(-9.485)
BIG4	-0.016	-0.020***	-0.031**	0.013***	-0.013*	0.004
	(-1.607)	(-3.352)	(-2.486)	(4.041)	(-1.663)	(1.044)
PAY	-0.040***	-0.023***	-0.046***	0.008***	-0.017***	0.016***
	(-12.976)	(-12.901)	(-12.474)	(6.829)	(-7.012)	(15.119)
TS	0.024***	0.016***	0.032***	-0.003**	0.013***	-0.008***
	(6.150)	(6.882)	(6.716)	(-2.274)	(4.161)	(-6.294)
STATE	0.011**	-0.009***	0.001	0.006***	0.009**	-0.000
	(2.474)	(-3.577)	(0.146)	(3.361)	(2.255)	(-0.228)
LEVERAGE	0.120***	0.110***	0.198***	-0.082***	0.106***	-0.030***
	(8.732)	(13.768)	(11.706)	(-16.066)	(9.104)	(-6.196)
DUALITY	-0.003	-0.000	-0.004	-0.004*	0.007	0.001
	(-0.506)	(-0.010)	(-0.556)	(-1.927)	(1.184)	(0.633)
IPO_DUM	-0.004	0.017***	0.000	-0.004	0.003	-0.008***
	(-0.404)	(3.611)	(0.017)	(-1.501)	(0.395)	(-2.905)
ROE	-0.042***	-0.056***	-0.108***	0.073***	-0.049***	-0.020***
	(-2.712)	(-5.845)	(-5.720)	(11.132)	(-3.303)	(-3.425)
ST_DUM	-0.017	-0.009	-0.019	0.010**	-0.001	0.005
	(-1.608)	(-1.324)	(-1.463)	(2.263)	(-0.120)	(1.254)
TOBINQ	-0.022***	-0.014***	-0.032***	0.006***	-0.014***	0.006***
	(-10.252)	(-10.996)	(-12.556)	(6.932)	(-7.322)	(8.004)
FIRMSIZE	0.003	0.000	-0.001	0.002	-0.002	0.000
	(0.667)	(0.002)	(-0.105)	(1.401)	(-0.561)	(0.143)
IND	0.023	0.042**	0.044	-0.013	0.033	-0.023**
	(0.727)	(2.365)	(1.129)	(-1.126)	(1.242)	(-1.965)
Intercept	-0.014	0.015	-0.020	-0.064***	-0.018	-0.070***
	(-0.245)	(0.458)	(-0.291)	(-3.165)	(-0.432)	(-3.580)
Industry	yes	yes	yes	yes	Yes	yes
R-Squared	0.141	0.383	0.255	0.493	0.094	0.093
Observations	6,024	6,314	6,024	6,425	6,130	6,314

Note: All variables are as defined in the Appendix. The sample period is between 2002 and 2011. The dependent variables are aggregate RM proxies, represented by *RM_1, RM_2, RM_3, ACFO, APROD,* and *ADISX*. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 4.6 Impact of M&As on Accrual-Based Earnings Management, Controlling for Accounting Flexibility

RM_PROXY	RM_1	RM_2	RM_3	ACFO	APROD	ADISX
MA_Dummy	-0.004	-0.008***	-0.005*	-0.007***	-0.005	-0.005*
	(-1.111)	(-2.971)	(-1.748)	(-3.204)	(-1.419)	(-1.663)
RM_PROXY×MA_Dummy	0.056***	0.043*	0.042***	-0.023	0.083***	-0.035
	(2.616)	(1.660)	(2.780)	(-0.805)	(3.079)	(-0.604)
RM_PROXY	0.101***	0.425***	0.162***	-0.709***	0.094***	-0.242***
	(10.888)	(39.238)	(24.200)	(-54.850)	(6.107)	(-9.932)
BSC_b×*MA_Dummy*	-0.006**	-0.003	-0.004*	-0.002	-0.005**	-0.006**
	(-2.065)	(-1.375)	(-1.691)	(-1.129)	(-2.057)	(-2.027)
BSC_b	-0.001	-0.002***	-0.002**	-0.001	-0.001	-0.001
	(-1.292)	(-2.757)	(-2.255)	(-0.830)	(-0.643)	(-0.697)
BIG4	0.012**	0.019***	0.015***	0.016***	0.010**	0.013***
	(2.300)	(4.536)	(3.018)	(4.336)	(2.099)	(2.582)
PAY	0.012***	0.014***	0.014***	0.009***	0.010***	0.011***
	(7.298)	(10.681)	(9.326)	(7.764)	(5.886)	(6.945)
TS	-0.014***	-0.013***	-0.015***	-0.007***	-0.013***	-0.012***
	(-6.807)	(-8.106)	(-7.932)	(-5.049)	(-6.254)	(-5.986)
STATE	-0.001	0.004*	-0.000	0.005***	-0.000	-0.000
	(-0.417)	(1.906)	(-0.010)	(2.655)	(-0.117)	(-0.087)
LEVERAGE	-0.062***	-0.078***	-0.076***	-0.081***	-0.061***	-0.052***
	(-8.406)	(-12.798)	(-10.891)	(-14.933)	(-8.348)	(-7.063)
DUALITY	0.003	0.002	0.003	-0.002	0.002	0.003
	(1.030)	(0.745)	(1.112)	(-0.940)	(0.614)	(0.901)
IPO_DUM	0.007	-0.002	0.006	0.002	0.007	0.006
	(1.403)	(-0.535)	(1.302)	(0.827)	(1.446)	(1.362)
ROE	0.074***	0.072***	0.076***	0.092***	0.076***	0.070***
	(8.245)	(9.222)	(9.024)	(12.348)	(8.624)	(7.914)
ST_DUM	0.005	0.006	0.006	0.008*	0.004	0.005
	(0.963)	(1.218)	(1.127)	(1.836)	(0.711)	(0.887)
TOBINQ	0.005***	0.007***	0.008***	0.005***	0.004***	0.004***
	(4.922)	(8.038)	(7.825)	(6.051)	(3.947)	(3.458)
FIRMSIZE	0.004*	0.001	0.003*	0.002	0.004*	0.002
	(1.715)	(0.713)	(1.692)	(1.266)	(1.875)	(0.937)
BIND	0.008	-0.012	0.002	-0.003	0.007	0.000
	(0.430)	(-0.901)	(0.150)	(-0.212)	(0.385)	(0.023)
Intercept	0.016	0.045*	0.014	-0.013	0.025	0.035
	(0.534)	(1.814)	(0.494)	(-0.588)	(0.831)	(1.183)
Industry	yes	Yes	yes	yes	yes	yes
R-Squared	0.113	0.399	0.238	0.516	0.099	0.102
Observations	5,820	6,099	5,820	6,200	5,916	6,099

Note: All variables are as defined in the Appendix. The sample period is between 2002 and 2011. The dependent variable is *DA*. The regressions use *RM_1, RM_2, RM_3, ACFO, APROD,* and *ADISX* as RM proxies, respectively. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 4.7 Impact of M&As on Real Earnings Management, Controlling for Accounting Flexibility

Dependent variable	RM_1	RM_2	RM_3	ACFO	APROD	ADISX
MA_Dummy	0.013*	0.010***	0.018**	-0.006***	0.014**	-0.004
	(1.885)	(2.706)	(2.261)	(-2.835)	(2.509)	(-1.465)
DA×MA_Dummy	0.142*	0.123***	0.251***	-0.086***	0.225**	-0.007
	(1.713)	(2.805)	(2.625)	(-2.842)	(2.190)	(-0.235)
DA	0.380***	0.791***	1.023***	-0.655***	0.226***	-0.117***
	(10.870)	(40.231)	(24.075)	(-47.559)	(6.208)	(-9.501)
BSC_b×*MA_Dummy*	-0.003	-0.001	-0.003	0.000	-0.003	-0.001
	(-0.615)	(-0.313)	(-0.574)	(0.222)	(-0.780)	(-0.570)
BSC_b	0.012***	0.006***	0.013***	-0.001	0.007***	-0.003***
	(7.035)	(5.588)	(5.840)	(-1.528)	(5.480)	(-5.891)
BIG4	-0.020*	-0.027***	-0.039***	0.014***	-0.011	0.005
	(-1.700)	(-4.137)	(-2.721)	(3.894)	(-1.172)	(1.295)
PAY	-0.036***	-0.021***	-0.043***	0.008***	-0.014***	0.015***
	(-11.445)	(-11.971)	(-11.191)	(6.537)	(-5.988)	(13.963)
TS	0.024***	0.015***	0.031***	-0.003**	0.014***	-0.009***
	(5.875)	(6.731)	(6.410)	(-2.115)	(4.284)	(-6.279)
STATE	0.013***	-0.008***	0.002	0.006***	0.009**	-0.002
	(2.910)	(-3.109)	(0.418)	(3.646)	(2.431)	(-0.926)
LEVERAGE	0.127***	0.114***	0.203***	-0.080***	0.110***	-0.034***
	(9.085)	(14.154)	(11.813)	(-15.506)	(9.126)	(-6.831)
DUALITY	-0.006	-0.001	-0.006	-0.005**	0.006	0.002
	(-0.967)	(-0.260)	(-0.838)	(-2.105)	(1.061)	(0.991)
IPO_DUM	-0.002	0.017***	0.000	-0.003	0.004	-0.010***
	(-0.178)	(3.472)	(0.012)	(-1.106)	(0.595)	(-3.213)
ROE	-0.028*	-0.049***	-0.093***	0.071***	-0.039**	-0.025***
	(-1.796)	(-4.943)	(-4.867)	(10.734)	(-2.532)	(-4.260)
ST_DUM	-0.018*	-0.008	-0.018	0.008**	-0.000	0.006
	(-1.714)	(-1.273)	(-1.397)	(1.978)	(-0.045)	(1.564)
TOBINQ	-0.023***	-0.014***	-0.033***	0.006***	-0.015***	0.006***
	(-10.389)	(-10.782)	(-12.658)	(6.858)	(-7.288)	(8.136)
FIRMSIZE	0.003	-0.000	-0.000	0.002	-0.002	0.001
	(0.659)	(-0.122)	(-0.038)	(1.110)	(-0.546)	(0.517)
BIND	0.021	0.039**	0.038	-0.008	0.026	-0.021*
	(0.633)	(2.163)	(0.975)	(-0.681)	(0.963)	(-1.815)
Intercept	-0.005	-0.026	0.008	-0.057***	-0.041	-0.051**
	(-0.094)	(-0.780)	(0.117)	(-2.738)	(-0.963)	(-2.522)
Industry	yes	yes	yes	Yes	yes	yes
R-Squared	0.150	0.391	0.262	0.494	0.099	0.100
Observations	5,820	6,099	5,820	6,200	5,916	6,099

Note: All variables are as defined in the Appendix. The sample period is between 2002 and 2011. The dependent variables are aggregate RM proxies, represented by *RM_1, RM_2, RM_3, ACFO, APROD,* and *ADISX*. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.0101.

Table 4.8 Impact of M&As on Earnings Informativeness

Dependent variable	RETURN_15	RETURN_12	RETURN_15	RETURN_12	RETURN_15	RETURN_12	RETURN_15	RETURN_12	RETURN_15	RETURN_12
Year	-2	-2	-1	-1	0	0	1	1	2	2
MA_Dummy	0.222***	0.158***	0.031	0.098***	-0.154***	-0.095***	-0.020	-0.070**	0.335***	0.260***
	(4.901)	(4.364)	(0.844)	(3.189)	(-4.540)	(-3.098)	(-0.574)	(-2.452)	(6.685)	(6.268)
EARN	6.086*	0.427	6.023	0.364	6.492*	0.816	6.223*	0.559	7.549**	1.410
	(1.661)	(0.151)	(1.632)	(0.129)	(1.768)	(0.289)	(1.684)	(0.197)	(2.056)	(0.496)
EARN×MA_Dummy	-0.153	-0.047	0.708	0.813**	-0.804*	-0.926**	-0.014	-0.047	-0.062	-0.483
	(-0.226)	(-0.092)	(1.518)	(1.980)	(-1.802)	(-2.466)	(-0.032)	(-0.140)	(-0.097)	(-0.936)
EARN×MARKET_VALUE	-0.314*	0.001	-0.320*	-0.007	-0.321*	-0.005	-0.321*	-0.005	-0.381**	-0.042
	(-1.903)	(0.010)	(-1.936)	(-0.057)	(-1.946)	(-0.039)	(-1.932)	(-0.039)	(-2.304)	(-0.327)
EARN×LEVERAGE	4.414***	4.013***	4.545***	4.183***	4.252***	3.868***	4.435***	4.027***	4.347***	3.979***
	(5.701)	(6.438)	(5.814)	(6.694)	(5.524)	(6.217)	(5.700)	(6.451)	(5.630)	(6.357)
EARN×MB	-0.115	-3.635***	-0.105	-3.541***	-0.269	-3.754***	-0.199	-3.684***	-0.044	-3.591***
	(-0.174)	(-6.378)	(-0.158)	(-6.220)	(-0.410)	(-6.611)	(-0.302)	(-6.461)	(-0.067)	(-6.197)
EARN×ROE	3.770***	2.876***	3.785***	2.910***	3.748***	2.876***	3.755***	2.884***	3.720***	2.841***
	(5.667)	(5.484)	(5.644)	(5.558)	(5.622)	(5.484)	(5.600)	(5.482)	(5.556)	(5.385)
Intercept	0.054	0.059	0.078	0.069	0.093	0.085*	0.081	0.085*	0.042	0.049
	(0.948)	(1.350)	(1.367)	(1.580)	(1.636)	(1.932)	(1.425)	(1.931)	(0.738)	(1.118)
Industry	Yes	yes	yes	yes	yes	Yes	yes	yes	yes	yes
R-Squared	0.020	0.037	0.015	0.037	0.021	0.038	0.015	0.034	0.027	0.043
Observations	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558	6,558

Note: All variables are as defined in the Appendix. The sample period is between 2002 and 2011. The dependent variables are the cumulative returns starting three months after the fiscal year-end *t* - 1 and ending six (three) months after the fiscal year-end *t*, where year 0 represents the year of the M&A. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 4.9 Impact of M&As on Earnings Informativeness, Controlling for Corporate Governance

Dependent variable	RETURN_15	RETURN_12	RETURN_15	RETURN_12	RETURN_15	RETURN_12	RETURN_15	RETURN_12	RETURN_15	RETURN_12
Year	-2	-2	-1	-1	0	0	1	1	2	2
MA_Dummy	0.221***	0.158***	0.031	0.099***	-0.154***	-0.096***	-0.020	-0.069**	0.335***	0.261***
	(4.881)	(4.359)	(0.870)	(3.227)	(-4.503)	(-3.140)	(-0.565)	(-2.421)	(6.714)	(6.330)
EARN	6.030	0.294	5.907	0.149	6.432*	0.681	6.128	0.412	7.462**	1.278
	(1.613)	(0.102)	(1.566)	(0.052)	(1.719)	(0.236)	(1.624)	(0.142)	(1.991)	(0.440)
EARN×MA_Dummy	-0.236	-0.106	0.727	0.836**	-0.795*	-0.949**	0.020	-0.026	0.088	-0.377
	(-0.346)	(-0.208)	(1.575)	(2.064)	(-1.768)	(-2.544)	(0.046)	(-0.075)	(0.136)	(-0.732)
EARN×TOP_1	-0.027***	-0.024***	-0.027***	-0.025***	-0.026***	-0.024***	-0.027***	-0.024***	-0.027***	-0.024***
	(-2.765)	(-3.161)	(-2.824)	(-3.268)	(-2.743)	(-3.149)	(-2.779)	(-3.144)	(-2.845)	(-3.250)
EARN×DUALITY	0.288	0.373	0.316	0.415	0.310	0.397	0.312	0.395	0.358	0.412
	(0.789)	(1.280)	(0.855)	(1.411)	(0.843)	(1.356)	(0.843)	(1.344)	(0.986)	(1.414)
EARN×STATE	0.960***	1.008***	0.993***	1.032***	0.941***	0.992***	0.987***	1.017***	1.067***	1.073***
	(3.065)	(4.030)	(3.148)	(4.114)	(2.986)	(3.953)	(3.138)	(4.052)	(3.419)	(4.294)
EARN×SUPER_NUM	0.096	-0.068	0.097	-0.065	0.100	-0.065	0.098	-0.063	0.098	-0.065
	(0.896)	(-0.802)	(0.904)	(-0.768)	(0.926)	(-0.766)	(0.907)	(-0.744)	(0.918)	(-0.767)
EARN×BOARD_NUM	-0.065	-0.091	-0.064	-0.091	-0.077	-0.100	-0.065	-0.094	-0.053	-0.086
	(-0.719)	(-1.266)	(-0.718)	(-1.274)	(-0.868)	(-1.407)	(-0.731)	(-1.328)	(-0.605)	(-1.207)
EARN×IND_NUM	0.384*	0.451**	0.392*	0.458***	0.430**	0.489***	0.394*	0.472***	0.389*	0.457***
	(1.846)	(2.570)	(1.927)	(2.676)	(2.091)	(2.817)	(1.930)	(2.735)	(1.942)	(2.688)
EARN×BOARD_MEETS	-0.033	0.009	-0.032	0.011	-0.015	0.024	-0.033	0.011	-0.027	0.014
	(-0.725)	(0.281)	(-0.717)	(0.328)	(-0.335)	(0.752)	(-0.724)	(0.329)	(-0.605)	(0.446)
EARN×MARKET_VALUE	-0.342**	-0.022	-0.350**	-0.032	-0.360**	-0.038	-0.352**	-0.033	-0.423**	-0.075
	(-2.018)	(-0.164)	(-2.063)	(-0.241)	(-2.132)	(-0.284)	(-2.064)	(-0.245)	(-2.489)	(-0.557)
EARN×LEVERAGE	4.489***	4.070***	4.623***	4.242***	4.304***	3.901***	4.507***	4.075***	4.384***	4.010***
	(5.682)	(6.392)	(5.805)	(6.657)	(5.474)	(6.142)	(5.676)	(6.393)	(5.579)	(6.287)
EARN×MB	-0.233	-3.727***	-0.234	-3.638***	-0.387	-3.847***	-0.336	-3.792***	-0.220	-3.715***
	(-0.345)	(-6.450)	(-0.345)	(-6.290)	(-0.573)	(-6.675)	(-0.496)	(-6.554)	(-0.326)	(-6.333)
EARN×ROE	4.030***	3.122***	4.056***	3.166***	4.003***	3.119***	4.019***	3.128***	3.989***	3.093***
	(5.906)	(5.804)	(5.896)	(5.897)	(5.855)	(5.804)	(5.841)	(5.799)	(5.820)	(5.731)
Intercept	0.050	0.062	0.074	0.072	0.090	0.089**	0.077	0.088**	0.037	0.051
	(0.871)	(1.409)	(1.282)	(1.633)	(1.573)	(2.009)	(1.338)	(1.980)	(0.646)	(1.164)
Industry	yes	yes	Yes	yes	yes	yes	yes	yes	yes	yes
R-Squared	0.024	0.042	0.019	0.042	0.024	0.043	0.018	0.038	0.031	0.048
Observations	6,556	6,556	6,556	6,556	6,556	6,556	6,556	6,556	6,556	6,556

Note: All variables are as defined in the Appendix. The sample period is between 2002 and 2011. The dependent variables are the cumulative returns starting three months after the fiscal year-end *t* - 1 to six (three) months after the fiscal year-end *t*, with year 0 representing the year of the M&A. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 4.10 Real Earnings Management and Stock Returns

RM_PROXY	RM_1	RM_2	RM_3	RM_1	RM_2	RM_3	RM_1	RM_2	RM_3	RM_1	RM_2	RM_3	RM_1	RM_2	RM_3
Dependent variable	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN
Year	-2	-2	-2	-1	-1	-1	0	0	0	+1	+1	+1	+2	+2	+2
MA_Dummy	0.216***	0.218***	0.216***	0.000	-0.001	0.001	-0.121***	-0.119***	-0.123***	0.081**	0.096***	0.080**	0.232***	0.247***	0.235***
	(6.245)	(6.564)	(6.244)	(0.007)	(-0.046)	(0.029)	(-3.809)	(-3.922)	(-3.845)	(2.209)	(2.702)	(2.190)	(5.594)	(5.946)	(5.652)
RM_PROXY×MA_Dummy	0.428*	0.331	0.264	0.078	-0.417	-0.122	0.210	0.586**	0.269*	-0.294	-0.460*	-0.231	-0.521**	-0.659*	-0.377**
	(1.942)	(1.092)	(1.535)	(0.384)	(-1.597)	(-0.764)	(1.147)	(2.431)	(1.900)	(-1.547)	(-1.681)	(-1.625)	(-2.460)	(-1.946)	(-2.273)
RM_PROXY	-0.532***	-0.775***	-0.411***	-0.505***	-0.681***	-0.372***	-0.522***	-0.833***	-0.427***	-0.448***	-0.675***	-0.352***	-0.430***	-0.678***	-0.343***
	(-7.287)	(-8.070)	(-7.384)	(-6.796)	(-6.880)	(-6.543)	(-6.914)	(-8.341)	(-7.383)	(-5.998)	(-6.901)	(-6.099)	(-5.865)	(-7.129)	(-6.089)
BM	1.625***	1.600***	1.618***	1.633***	1.606***	1.626***	1.632***	1.607***	1.625***	1.632***	1.606***	1.624***	1.642***	1.617***	1.635***
	(31.933)	(32.634)	(31.952)	(32.036)	(32.654)	(32.038)	(31.992)	(32.710)	(32.022)	(31.976)	(32.577)	(31.960)	(32.330)	(33.021)	(32.347)
NOA_ASSETS	-0.100***	-0.091***	-0.097***	-0.102***	-0.094***	-0.100***	-0.102***	-0.093***	-0.098***	-0.103***	-0.097***	-0.101***	-0.110***	-0.100***	-0.106***
	(-3.696)	(-3.317)	(-3.581)	(-3.754)	(-3.426)	(-3.668)	(-3.774)	(-3.378)	(-3.652)	(-3.804)	(-3.503)	(-3.722)	(-4.050)	(-3.594)	(-3.904)
LEVERAGE	0.826***	0.813***	0.831***	0.826***	0.813***	0.832***	0.826***	0.811***	0.832***	0.824***	0.811***	0.830***	0.823***	0.809***	0.830***
	(12.335)	(12.855)	(12.408)	(12.283)	(12.787)	(12.361)	(12.285)	(12.751)	(12.342)	(12.283)	(12.785)	(12.352)	(12.324)	(12.800)	(12.397)
FIRMSIZE	-0.151***	-0.152***	-0.153***	-0.152***	-0.154***	-0.154***	-0.152***	-0.154***	-0.154***	-0.153***	-0.154***	-0.155***	-0.156***	-0.158***	-0.158***
	(-12.258)	(-12.806)	(-12.405)	(-12.250)	(-12.829)	(-12.429)	(-12.236)	(-12.870)	(-12.434)	(-12.304)	(-12.886)	(-12.473)	(-12.589)	(-13.247)	(-12.777)
ROE	0.144**	0.140**	0.121*	0.141*	0.138*	0.118	0.143**	0.141**	0.119*	0.143**	0.143**	0.121*	0.144**	0.145**	0.122*
	(2.000)	(1.973)	(1.680)	(1.944)	(1.928)	(1.637)	(1.977)	(1.965)	(1.649)	(1.982)	(2.013)	(1.685)	(1.980)	(2.009)	(1.681)
BOARD_SHARE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.617)	(1.106)	(0.809)	(0.797)	(1.356)	(1.002)	(0.841)	(1.507)	(1.052)	(0.755)	(1.313)	(0.949)	(0.522)	(1.216)	(0.755)
BIND	1.242***	1.199***	1.249***	1.197***	1.161***	1.203***	1.231***	1.199***	1.239***	1.168***	1.132***	1.176***	1.133***	1.098***	1.140***
	(16.390)	(17.113)	(16.470)	(15.862)	(16.616)	(15.918)	(16.091)	(16.924)	(16.189)	(15.326)	(16.065)	(15.420)	(14.903)	(15.618)	(14.981)
DUALITY	0.002	-0.001	0.002	0.002	-0.001	0.002	0.001	0.001	0.002	0.002	0.001	0.003	0.000	0.001	0.002
	(0.074)	(-0.026)	(0.073)	(0.049)	(-0.017)	(0.051)	(0.027)	(0.024)	(0.067)	(0.047)	(0.025)	(0.084)	(0.012)	(0.037)	(0.056)
SUPER_MEETS	0.032***	0.030***	0.032***	0.032***	0.030***	0.032***	0.033***	0.031***	0.033***	0.032***	0.030***	0.032***	0.031***	0.030***	0.031***
	(4.926)	(4.913)	(4.957)	(4.876)	(4.838)	(4.903)	(5.066)	(5.081)	(5.093)	(4.886)	(4.866)	(4.905)	(4.819)	(4.858)	(4.869)
Intercept	2.055***	2.124***	2.093***	2.110***	2.186***	2.158***	2.102***	2.193***	2.155***	2.124***	2.201***	2.170***	2.193***	2.281***	2.240***
	(8.026)	(8.586)	(8.167)	(8.194)	(8.794)	(8.375)	(8.172)	(8.825)	(8.372)	(8.255)	(8.850)	(8.424)	(8.533)	(9.186)	(8.709)
Industry	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R-Squared	0.206	0.209	0.206	0.200	0.203	0.200	0.202	0.205	0.203	0.201	0.204	0.201	0.206	0.209	0.206
Observations	5,860	6,217	5,860	5,860	6,217	5,860	5,860	6,217	5,860	5,860	6,217	5,860	5,860	6,217	5,860

Note: All variables are as defined in the Appendix. The sample period is between 2002 and 2011. The dependent variables are the cumulative returns for the fiscal year *t* and year 0 represents the year of the M&A. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 4.11 Discretionary Accrual and Stock Returns

Dependent variable	RETURN	RETURN	RETURN	RETURN	RETURN
Year	-2	-1	0	1	2
MA_Dummy	0.214***	-0.011	-0.110***	0.108***	0.241***
	(6.438)	(-0.353)	(-3.585)	(3.016)	(5.825)
DA×MA_Dummy	0.160	-0.414	0.207	-0.044	0.940**
	(0.402)	(-1.159)	(0.623)	(-0.111)	(2.129)
DA	-0.070	0.010	-0.092	-0.043	-0.133
	(-0.560)	(0.076)	(-0.704)	(-0.334)	(-1.070)
BM	1.538***	1.543***	1.544***	1.542***	1.552***
	(31.923)	(31.950)	(31.966)	(31.905)	(32.294)
NOA_ASSETS	-0.096***	-0.099***	-0.099***	-0.101***	-0.104***
	(-3.462)	(-3.573)	(-3.566)	(-3.635)	(-3.824)
LEVERAGE	0.740***	0.737***	0.737***	0.735***	0.733***
	(11.944)	(11.841)	(11.854)	(11.826)	(11.838)
FIRMSIZE	-0.145***	-0.146***	-0.146***	-0.147***	-0.151***
	(-12.224)	(-12.220)	(-12.258)	(-12.332)	(-12.696)
ROE	0.202***	0.198***	0.207***	0.204***	0.202***
	(2.760)	(2.698)	(2.813)	(2.800)	(2.752)
BOARD_SHARE	0.000	0.000	0.000	0.000	0.000
	(0.850)	(1.127)	(1.169)	(1.007)	(0.849)
BIND	1.212***	1.177***	1.211***	1.142***	1.112***
	(17.636)	(17.174)	(17.419)	(16.526)	(16.113)
DUALITY	0.002	0.004	0.003	0.003	0.002
	(0.057)	(0.122)	(0.081)	(0.103)	(0.071)
SUPER_MEETS	0.029***	0.029***	0.030***	0.029***	0.028***
	(4.732)	(4.658)	(4.856)	(4.697)	(4.584)
Intercept	2.062***	2.115***	2.117***	2.141***	2.230***
	(8.323)	(8.495)	(8.512)	(8.608)	(8.980)
Industry	yes	yes	Yes	yes	yes
R-Squared	0.199	0.193	0.194	0.194	0.199
Observations	6,308	6,308	6,308	6,308	6,308

Note: All variables are as defined in the Appendix. The sample period is between 2002 and 2011. The dependent variables are the cumulative returns for the fiscal year *t*, where the year 0 represents the year of the M&A. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 4.12 Real Earnings Management and Stock Returns, Controlling for Discretionary Accruals

RM_PROXY	RM_1	RM_2	RM_3	RM_1	RM_2	RM_3	RM_1	RM_2	RM_3	RM_1	RM_2	RM_3	RM_1	RM_2	RM_3
Dependent variable	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN	RETURN
Year	-2	-2	-2	-1	-1	-1	0	0	0	1	1	1	2	2	2
MA_Dummy	0.209***	0.212***	0.208***	-0.001	-0.002	0.000	-0.117***	-0.116***	-0.118***	0.075**	0.089**	0.074**	0.231***	0.244***	0.232***
	(6.010)	(6.348)	(5.995)	(-0.020)	(-0.051)	(0.009)	(-3.654)	(-3.799)	(-3.671)	(2.044)	(2.507)	(1.999)	(5.542)	(5.950)	(5.595)
RM_PROXY×MA_Dummy	0.387*	0.335	0.244	0.105	-0.394	-0.093	0.194	0.740**	0.266*	-0.304	-0.435	-0.241*	-0.501**	-0.481	-0.322*
	(1.743)	(1.085)	(1.395)	(0.512)	(-1.494)	(-0.584)	(1.037)	(2.511)	(1.694)	(-1.583)	(-1.590)	(-1.680)	(-2.362)	(-1.423)	(-1.932)
RM_PROXY	-0.552***	-1.315***	-0.522***	-0.534***	-1.228***	-0.490***	-0.544***	-1.394***	-0.536***	-0.473***	-1.211***	-0.464***	-0.455***	-1.225***	-0.457***
	(-7.330)	(-9.987)	(-7.994)	(-6.955)	(-9.076)	(-7.342)	(-6.976)	(-9.990)	(-7.863)	(-6.178)	(-9.088)	(-6.956)	(-5.997)	(-9.133)	(-6.817)
DA×MA_Dummy	0.339	0.266	0.345	0.338	0.180	0.308	0.228	-0.320	0.018	0.300	0.187	0.277	0.314	0.207	0.293
	(0.941)	(0.792)	(0.955)	(0.940)	(0.538)	(0.856)	(0.619)	(-0.790)	(0.045)	(0.833)	(0.557)	(0.768)	(0.873)	(0.620)	(0.815)
DA	0.139	1.055***	0.520***	0.141	1.076***	0.531***	0.143	1.137***	0.554***	0.152	1.054***	0.531***	0.132	1.046***	0.506***
	(0.996)	(6.025)	(3.291)	(1.004)	(6.109)	(3.345)	(1.015)	(6.270)	(3.443)	(1.080)	(5.988)	(3.347)	(0.943)	(5.919)	(3.180)
BM	1.626***	1.631***	1.632***	1.635***	1.637***	1.639***	1.633***	1.637***	1.638***	1.633***	1.636***	1.638***	1.642***	1.647***	1.647***
	(31.863)	(33.252)	(32.110)	(31.962)	(33.259)	(32.187)	(31.913)	(33.319)	(32.164)	(31.914)	(33.202)	(32.124)	(32.252)	(33.619)	(32.476)
NOA_ASSETS	-0.105***	-0.128***	-0.113***	-0.107***	-0.131***	-0.116***	-0.107***	-0.130***	-0.114***	-0.108***	-0.133***	-0.117***	-0.115***	-0.135***	-0.120***
	(-3.825)	(-4.349)	(-4.041)	(-3.889)	(-4.470)	(-4.139)	(-3.898)	(-4.423)	(-4.122)	(-3.945)	(-4.508)	(-4.180)	(-4.171)	(-4.573)	(-4.327)
LEVERAGE	0.838***	0.911***	0.881***	0.838***	0.911***	0.882***	0.837***	0.908***	0.880***	0.837***	0.908***	0.880***	0.836***	0.906***	0.878***
	(12.312)	(13.665)	(12.667)	(12.255)	(13.594)	(12.617)	(12.253)	(13.558)	(12.599)	(12.265)	(13.583)	(12.615)	(12.305)	(13.603)	(12.640)
FIRMSIZE	-0.152***	-0.154***	-0.154***	-0.153***	-0.155***	-0.155***	-0.152***	-0.156***	-0.155***	-0.153***	-0.156***	-0.155***	-0.157***	-0.160***	-0.159***
	(-12.196)	(-12.865)	(-12.342)	(-12.183)	(-12.876)	(-12.354)	(-12.162)	(-12.903)	(-12.346)	(-12.234)	(-12.935)	(-12.398)	(-12.531)	(-13.301)	(-12.711)
ROE	0.144*	-0.002	0.058	0.141*	-0.005	0.055	0.145*	-0.003	0.058	0.142*	0.003	0.058	0.146*	0.006	0.063
	(1.939)	(-0.020)	(0.763)	(1.892)	(-0.070)	(0.723)	(1.938)	(-0.036)	(0.757)	(1.908)	(0.039)	(0.765)	(1.952)	(0.075)	(0.825)
BOARD_SHARE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.496)	(0.614)	(0.566)	(0.679)	(0.855)	(0.761)	(0.727)	(1.025)	(0.821)	(0.638)	(0.823)	(0.712)	(0.415)	(0.731)	(0.528)
BIND	1.239***	1.178***	1.238***	1.194***	1.140***	1.193***	1.227***	1.176***	1.227***	1.166***	1.113***	1.167***	1.129***	1.076***	1.129***
	(16.277)	(16.714)	(16.236)	(15.761)	(16.227)	(15.702)	(15.955)	(16.514)	(15.928)	(15.232)	(15.703)	(15.219)	(14.786)	(15.216)	(14.758)
DUALITY	0.002	-0.006	0.001	0.002	-0.005	0.001	0.002	-0.004	0.002	0.002	-0.004	0.002	0.001	-0.004	0.001
	(0.074)	(-0.191)	(0.044)	(0.068)	(-0.169)	(0.038)	(0.051)	(-0.119)	(0.059)	(0.063)	(-0.125)	(0.068)	(0.034)	(-0.120)	(0.045)
SUPER_MEETS	0.032***	0.031***	0.033***	0.032***	0.031***	0.033***	0.033***	0.033***	0.034***	0.032***	0.031***	0.033***	0.032***	0.031***	0.032***
	(4.965)	(5.163)	(5.092)	(4.923)	(5.103)	(5.049)	(5.102)	(5.369)	(5.237)	(4.935)	(5.122)	(5.050)	(4.868)	(5.118)	(5.016)
Intercept	2.075***	2.181***	2.115***	2.127***	2.239***	2.175***	2.117***	2.242***	2.168***	2.140***	2.254***	2.187***	2.212***	2.337***	2.260***
	(8.033)	(8.737)	(8.174)	(8.188)	(8.926)	(8.361)	(8.158)	(8.946)	(8.344)	(8.245)	(8.983)	(8.409)	(8.533)	(9.324)	(8.701)
Industry	yes	yes	Yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
R-Squared	0.206	0.214	0.208	0.200	0.208	0.202	0.202	0.211	0.205	0.201	0.209	0.203	0.207	0.214	0.208
Observations	5,809	6,165	5,809	5,809	6,165	5,809	5,809	6,165	5,809	5,809	6,165	5,809	5,809	6,165	5,809

Note: All variables are as defined in the Appendix. The sample period is between 2002 and 2011. The dependent variables are the cumulative returns for the fiscal year *t*, where year 0 represents the year of the M&A. This chapter uses industry dummies to control for industry effects according to CSRC industrial codes. The coefficients and *t*-statistics are computed using heteroskedasticity-consistent standard errors. *t*-Statistics are in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01.

Chapter 5

Conclusion

5.1 Summary and Conclusion

With the rapid development of the Chinese stock market over the past decade, researchers have focused on studying market mechanisms under the special control of state ownership, and their studies yield several implications for improving and formalizing investor behaviour. Following previous studies, this thesis provides the empirical results of examining minority shareholder protection in China under three conditions: the split share structure reform (SSSREF), mutual fund ownership, and M&As. In this research, earnings management and tunnelling behaviour are considered the two main aspects to be examined with regard to the effectiveness of minority shareholder protection in China.

Chapter 2 provides a dynamic process on accrual-based and real earnings management for the Chinese stock market, while previous studies have focused only on accrual-based earnings management. The evidence reveals a long-term significant positive association between accrual-based and real earnings management from 2002 to 2011, for a total of 13,840 firm–year observations. This finding suggests a relatively low degree of investor protection by regulators and policy makers in China. At the same time, the SSSREF, supported by the

China Securities Regulatory Commission (CSRC), exogenously improves incentive alignments between controlling and minority shareholders, rather than directly affecting comprehensive accounting practice regulations, such as SOX or IFRS. Therefore, a significant negative effect and a significant positive effect have been detected for accrual-based and real earnings management respectively since the SSSREF, and the relation between the two earnings strategies has changed from positive to negative. A reasonable explanation for this result is that since the SSSREF managers of Chinese listed firms have shifted their earnings strategies from accrual-based to real earnings management in order to avoid detection and strict regulatory scrutiny. Furthermore, although previous studies show that the incentive alignment effect created by the reform has improved the quality of financial information, the positive relation between accrual-based and real earnings management is still observed in the post-reform period, which implies that SSSREF may not have fundamentally improved firms' quality.

Chapter 3 questions the original corporate governance status of mutual fund investors in Chinese listed firms as determined in previous literature (Yuan et al., 2008; Firth et al., 2010), and the assertion that mutual fund managers cannot properly address the contradiction in benefits between controlling shareholders and themselves (Firth et al., 2010; Ding et al., 2013). In order to resolve the puzzling role of mutual fund ownership, Chapter 3 provides empirical results from 2002 to 2011, with 9,062 firm-year observations, and shows that there is a non-linear association between mutual fund ownership and firm performance in China. The positive association between mutual fund ownership and firm performance

indicates that mutual fund ownership is effective in improving firm performance, and the improvement is even greater for those firms in which controlling shareholders exploit tunnelling behaviour to maximize their own interests. The results indicate that compared with individual investors, mutual fund investors have more experience and expertise to monitor listed firms' performance. In addition, in the gradual reform by the Chinese government and the CSRC, more attention has been paid to the supervision of mutual fund managers regarding the protection of minority shareholders' interests.

On the other hand, the negative relation between the squared mutual fund ownership and firm performance suggests that a high level of mutual fund ownership can increase the probability that the wealth of minority shareholders will be expropriated, rather than that firm performance will be improved. The findings in Chapter 3 also confirm that mutual fund ownership can act directly as proper corporate governance to limit the probability of tunnelling behaviour by controlling shareholders.

Chapter 4 analyses the effect of Chinese domestic M&As on earnings management, to provide policy implications for improving the investor protection mechanism. Compared with previous studies, which focus solely on the influence of stock-for-stock M&As on earnings management, this chapter not only considers all payment methods, but also takes real earnings management into consideration to fully examine earnings activities around M&As. The results for this chapter reveal a significantly positive relation between accrual-based and real earnings proxies across the whole research period as well as in the year of M&A,

which indicates that acquirers in China prefer to use both earnings strategies to lower the cost of M&A deals. In addition, although we find that M&A has significant negative and positive effect on accrual-based and real earnings management respectively in the year of the M&A, the relation between these two earnings strategies is still significant positive, as in the period without M&A. The results indicate that Chinese acquirers prefer to engage in more real earnings management and less detectable accrual-based earnings management in the year of the M&A, but those firms with more accrual-based (or real-based) earnings management tend to make greater use of the other earnings management approach. The results of this chapter support the conclusions in previous literature by finding lower earnings informativeness in the year of M&A and a significant negative association between stock returns and real earnings management, but an insignificant coefficient for *DA*.

5.2 Policy Implications

This thesis has several implications for policy makers. First, this research focuses on the protection of minority shareholder interests in the China stock market, and points out that firm earnings strategies as a result of incentive alignment adjustments brought about by the SSSREF could fundamentally force managers to follow revised accounting rules, and employ less accrual-based earnings management. In addition, since the SSSREF has led to an incentive alignment that

prevents controlling shareholders from paying more attention to improving stock performance, more earnings management can be manipulated in order to meet the benchmark promised to minority shareholders to safeguard their interests. Consequently, managerial preferences in China have changed from accrual-based to real earnings management; although this is more costly, there are fewer opportunities for detection by regulators. In other words, stricter supervision cannot prevent earnings management behaviour and only encourages controlling shareholders to hide how they expropriate resources from firms. Minority shareholder benefit protection may require regulators to pay more attention to both accrual-based and real earnings management and to implement policies to curb controlling shareholder expropriation.

Second, although mutual fund ownership in China is effective in restricting controlling shareholders' tunnelling and in improving firm performance, greater direct enforcement and more transparent appointments should be imposed by government agencies. Greater direct enforcement can further push mutual fund managers with a high level of ownership to provide more constructive suggestions on firm operation and monitoring, and more protection for minority shareholders, instead of aligning with controlling shareholders' interests.

Finally, regulators and the CSRC should pay more attention to the supervision of earnings management behaviour during M&A. At least, they should formalize the publication of accounting information to limit accrual-based earnings management when acquirers can engage in both accrual-based and real earnings management to lower the cost of M&As. Furthermore, investors should be

concerned about the accounting information published by acquirers, who may exploit less detectable methods to manipulate earnings to maximize their own interest.

5.3 Limitations and Future Research

Although this thesis makes various contributions to the research on the effectiveness of minority shareholder interests in the context of the SSSREF, mutual fund ownership, and M&As, it has several limitations.

With reference to Chapter 2, the SSSREF can be divided into several progressive phases, such as the initial decision making in shareholder meetings, negotiations between tradable and non-tradable shareholders, and so on. Each step during the SSSREF may provide sufficient incentives for the original non-tradable shareholders to manipulate earnings management to maximize their profits before dilution by tradable shareholders and to try to meet or beat tradable shareholder requirements after the SSSREF. Otherwise, the original non-tradable shareholders may have to be punished according to the corresponding agreement. Therefore, expanding the research on the SSSREF into different steps would be beneficial to observe original non-tradable shareholder behaviour through earnings management as it corresponds to policies regulated by the CSRC. In addition, the results from the comparison between firms with and without non-tradable shares are puzzling, since there are 10 times as many observations in the group of firms

with non-tradable shares as in the other group. Therefore, use of the bootstrap method to keep the number of firm-years for the group with non-tradable shares the same as that for the group without non-tradable shares would provide more reliable support for the hypotheses in Chapter 2.

Firth et al. (2010) and Ding et al. (2013) both conclude that mutual fund ownership may lose its original role in supervising performance of firms owned by the state, while Chapter 3 only considers the situation of controlling shareholders when mutual fund ownership is sufficiently high. Hence, it would be interesting to examine whether coordination between mutual fund investors and controlling shareholders is important for firms controlled by the state. In addition, several other tunnelling proxies are calculated in the literature (Cheung et al., 2006; Aharony et al., 2010; Jian and Wong, 2010; Peng et al., 2011; Du et al., 2012). Hence, the selection of an additional tunnelling proxy would provide more support for the conclusions in Chapter 3.

In Chapter 4, the M&A dummy is set for the year of the M&A deal rather than for the following two or three years. The results then have apparent limitations compared with those of other studies. Consideration of the situation two years before and after M&A is important and necessary for future work.

In general, a number of areas remain to be explored, based on the current literature. Given the rapid development of China's imperfect stock market, researchers should devote more attention to testing the effectiveness of minority shareholder protection in China.

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Appendix: Variable definitions

DA	Discretionary accruals estimated by the cross-sectional Jones model.
RM_1	Aggregate real earnings management proxy 1, the sum of abnormal production costs and the additive inverse of abnormal cash flows from operations.
RM_2	Aggregate real earnings management proxy 2, the sum of the additive inverse of abnormal cash flows from operations and the additive inverse of abnormal discretionary expenses.
RM_3	Aggregate real earnings management proxy 3, the sum of *RM_2* and abnormal production costs.
ACFO	Level of abnormal cash flows from operations.
APROD	Level of abnormal production costs, where production costs equal the sum of costs of goods sold and changes in inventories.
ADISX	Level of abnormal discretionary expenses, where discretionary expenses are the sum of R&D, advertising, and sales, general, and administrative expenses.
BSC_a	Accounting flexibility calculated as net operating assets over sales in year t - 1 deflated by its corresponding industry median value.
BSC_b	Accounting flexibility calculated as net operating assets over sales in the year t - 1, minus its corresponding industry median value.
SSSREF	Dummy variable equal to 1 for the period commencing a year after a listed firm was chosen to complete the SSSREF and 0 otherwise.
TOP1	Percentage of shareholdings held by the largest shareholder.
PAY	Natural logarithm of total compensation received by the top three executives.
BIND	The ratio of independent directors on the board to the total number of directors on the board.
DUALITY	A dummy variable equal to 1 if the CEO is also the board chairperson and 0 otherwise.
BIG4	A dummy variable that is 1 if a listed firm is audited by one of the international Big 4 audit firms or their joint ventures in China and zero otherwise.
STATE	A dummy variable equal to 1 if the state shareholder is the

	largest shareholder and 0 otherwise.
TS	Natural logarithm of the total number of tradable shares.
LEVERAGE	Leverage calculated as total debt divided by total assets.
BM	Book-to-market ratio calculated as the book value of common equity over market capitalization.
FIRMSIZE	Firm size computed as the natural logarithm of total assets.
IPO_DUM	A dummy variable set to 1 for the year of the IPO and the next two years and 0 otherwise.
ST_DUM	A dummy variable equal to 1 in the year a firm has its special treatment status removed and the preceding year and 0 otherwise.
ROA	Return on assets, that is, earnings before interest and tax divided by total assets.
ROA_ADJ	Adjusted industry median ROA, which is the difference between a firm's ROA and the industry median.
ROE	Total profits divided by the book value of equity.
ROE_ADJ	Adjusted industry median ROE, which is the difference between a firm's ROE value and the industry median.
TOBIN_Q	Market value of assets over the book value of assets.
TOBIN_Q_ADJ	Adjusted industry median TOBIN_Q, which is the difference between a firm's TOBIN_Q value and the industry median .
ROS	Earnings before interest and tax divided by net sales.
ROS_ADJ	Adjusted industry median ROS, which is the difference between a firm's ROS value and the industry median.
OPINC_MV	Operating income divided by the market value of assets.
OPINC_MV_ADJ	Adjusted industry median OPINC_MV, which is the difference between a firm's OPINC_MV value and the industry median.
INS_PER	Institutional investor ownership, calculated as the ratio of the number of shares held by mutual funds to the total number of shares in the issue.
INS_MV_PER	Another measure of institutional investor ownership, calculated as the ratio of the market value of shares held by mutual funds to the firm's total market value.
TUL	Other receivables deflated by total assets.
DTUL	A dummy variable assigned to 1 if the firm's TUL value is above the current year's median value and 0 otherwise.
TUL_LAR	Other receivables obtained from the firm's controlling shareholders and its affiliates, deflated by total assets.
DTUL_LAR	A dummy variable assigned to 1 if the firm's TUL_LAR value is above the current year's median value and 0 otherwise.
HERF	Herfindahl index, which is the sum of the squared percentage of

	shares held by each of the top 10 shareholders.
DSUP_NUM	A dummy variable assigned to 1 if the number of supervisors is equal to or above the median value of the current year and 0 otherwise.
DSUP_MEET	A dummy variable assigned to 1 if the number of supervisor meetings is equal to or above the median value of the current year and 0 otherwise.
REFORM	Dummy variable equal to 1 for the period when a listed firm was chosen to complete the SSSREF and 0 otherwise.
RET_ADJ	Market-adjusted annual stock return, which is the difference between a firm's stock return and the annual market stock return.
CHANGE_SALES	The ratio of the change in sales divided by sales of the current year.
MAK	A comprehensive index measuring the development of the regional market in which the firm is registered (Fan and Wang, 2006), where higher values indicate greater regional market development.
RETURN_15	15-month cumulative raw return during the interval that begins three months following the end of fiscal year *t* - 1 and ends six months after the end of fiscal year *t*.
RETURN_12	12-month cumulative raw return during the interval that begins three months following the end of fiscal year *t* - 1 and ends three months after the end of fiscal year *t*.
MARKET_VALUE	The natural logarithm of the firm's market value.
EARN	Represents the situation of firm earnings, calculated as the operating income of the current year *t* divided by total assets for the year *t* - 1
BOARD_NUM	The number of directors on the board.
SUPER_NUM	The number of supervisors on the corresponding committee.
NOA_ASSETS	Net operating assets of year *t* divided by the total assets of year *t* - 1.
BOARD_MEETINGS	The number of meetings held by the board.
RELATIVE_SIZE	The transaction value of M&A divided by the acquirer's market value.