THE INFLUENCE OF CORPORATE GOVERNANCE IN CHINESE COMPANIES ON DISCRETIONARY ACCRUALS AND REAL EARNINGS MANAGEMENT

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ABSTRACT

This study investigates the influence of ownership structure and board characteristics on discretionary accruals and real earnings management using the data of A-shares in Chinese Shanghai and Shenzhen Stock Exchange Securities Market from 2002 to 2012. The empirical results show that institutions with high shareholding proportion or great shareholding concentration give managers incentives to manipulate discretionary accruals for short-term profitability. The more substantial insider holdings can effectively regulate managers and forbid them to manipulate real earnings and to cause the detriment of firm value. Regarding the board structure, establishing independent directors is ineffective in monitoring the earnings management behavior of the managers. With the duality of the board chairman and CEO, the company would manipulate discretionary accruals to meet its goal because of entrenchment effect. The larger the board size, the more ability for the board to monitor whether the managers conduct earnings management behavior or not.

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Keywords: Corporate governance, Discretionary accruals, Real earnings management, Ownership structure, Institutional investors, Insider holdings, Board characteristics.

JEL Classification: G34, M41.

Contribution/ Originality

This study documents that Chinese listed companies majorly held by institutions aiming at short-term trading will likely be pressured to manipulate discretionary accruals, even though

required by the China Securities Regulatory Commission to improve corporate governance by having independent directors in the board.

1. INTRODUCTION

Although accounting earnings quality is influenced by many factors, corporate governance plays a key factor that determines the accounting earnings quality. As corporate governance elements, the roles of corporate ownership and the structure of board of directors have been the subject of considerable empirical analysis. One line of research focuses on the empirical correlation between ownership structure and earnings quality. It includes studies, for instance, Fan and Wong (2002), Jung and Kwon (2002), Siregar and Utama (2008), Givoly et al. (2009) and Xu et al. (2012). Another line of research examines the relation between board characteristics and earnings equality, such as Vafeas (2000), Klein (2002), Park and Shin (2004), Osma (2008) and Dimitropoulos and Asteriou (2010). For the researches regarding to ownership structure, Tirole (2001) conducts the theoretical and empirical studies and argues that the different ownership structures may imply the different monitoring incentives. Fan and Wong (2002) analyze the relationship between ownership structure and earnings information for seven Asian economies to indicate that the levels of information asymmetry are higher if firm ownership is more concentrated, so managers are more likely to engage in earnings management. Therefore, there should be the relation between earnings quality and ownership structure. Warfield et al. (1995) show the proportion of managerial ownership can impact on corporate earnings information and determination of discretionary accruals, and find that managerial ownership associated with earnings management is negative, i.e. firms with higher managerial ownership are less likely to engage in earnings management. However, Gabrielsen et al. (2002) find the positive relationship between managerial ownership and discretionary accruals. Their finding is opposite to that of the former study.

There are studies to investigate the relation between institutional holdings and earnings quality. Chung et al. (2002) examine the association between institutional shareholdings and discretionary accruals. They demonstrate that institutional owners with high shareholdings can monitor and inhibit managers from conducting earnings management by self-interested behavior. Chen et al. (2007) and Koh (2007) also indicate that institutions with higher holdings and longer investments could gain more benefits from monitoring. Hsu and Wang (2014) explore the influence of the proportion and stability of institutional shareholdings on discretionary accruals and real earnings management, finding that institutions with high and unstable shareholdings would push managers to conduct discretionary accruals for short-term profitability. Normally, long-term institutional investors encourage the manager to focus on firm performance and prevent them from adopting the opportunistic self-serving actions. Due to the outstanding shares of China's companies accounting for less than half of the issuance of shares, investors fail to conduct monitoring effectively via market mechanism. Accordingly, this study uses listed companies in Chinese Shanghai and Shenzhen as samples to analyze the impacts of insiders and

institutional shareholdings on discretionary accruals and real earnings management.

In addition to the impact of ownership structure as discussed above on earnings management, the performance of corporate governance is determined mainly by whether the board composition and functions can effectively prevent managers conducting earnings management. Mak and Li (2001) apply the board structure, leadership structure and board size as board characteristics to figuring out the monitoring ability of the board, denoting that a board with a high proportion of independent directors and a small size has better monitoring ability. The effects of board composition on earnings management of Canadian listed companies are examined by Park and Shin (2004). They find that independent directors fail to monitor the use of discretionary accruals by corporate managers but directors appointed by financial institutions are able to inhibit them effectively. Cheng (2008) uses total and abnormal accruals as measures of earnings management to analyze the impact of board size on earnings management, finding that companies with a board of large size cannot conduct discretionary accruals. The abilities to monitor earnings management vary according to characteristics of the board composition.

In Asia, many companies controlled by a family or the government are of concentrated shareholding. The ownership structure indeed matters, particularly, in Shanghai and Shenzhen Stock Exchanges which are most important capital markets in China. During the time of initial founding of both markets, most of the listed companies transform to private companies from or invested by a state-owned one. With capital injected by state-owned companies, the shareholdings of most of these companies listed in the two stock exchanges markets are held by the government, and are of concentrated shareholding. Due to the unique ownership structure of Chinese listed companies, if market mechanism fails to monitor such companies effectively, the board of whatever structure is unable to regulate the management. Qiang (2003) points out that the reform of ownership structure for Chinese listed companies has not yet succeeded, and the way to improve corporate governance is to optimize resource allocation by only reducing state-owned shares to increase shares transaction in circulation.

Since listed companies were required by the China Securities Regulatory Commission (CSRC) to establish independent directors with at least two independent directors or one-third of seats in the board for special listed companies. Therefore, there are papers to probe initially into the impact of corporate governance on earnings management in the Chinese capital market. The effects of corporate ownership, board structure and financial accounting examined by Firth *et al.* (2007) state that ownership concentration, foreign shareholders and independent directors can affect discretionary accruals. Liu and Lu (2007) introduce a tunneling perspective to examine the relation between earnings management and corporate governance in Chinese listed companies, denoting that companies with good corporate governance have relatively lower levels of earnings management. Chen and Al-Najjar (2012) examine whether listed companies that have established independent directors required by the CSRC improve corporate governance. They argue that the board with independent directors does not run the company more efficiently. Based on such empirical results shown in the literature, this paper applies the number of independent directors,

the board size, and the duality of board chairman and CEO as variables of board structure to exploring the impact of these factors on earnings management. Since the reform and open-up of Chinese capital market, related laws and regulations have been passed and amended from time to time, which let China become the second largest economy in the world and aggregate market value of Shanghai Stock Exchange rank 7th worldwide in 2013.[1] Such a large economy entity, which is one of the top ten capital markets in the world, becomes a popular object discussed by domestic and foreign experts and investors. Additionally, due to the uniqueness of ownership structure of Chinese enterprises and the CSRC requirement to establish independent directors for enhancing corporate governance, we are attracted to use A-shares in Shanghai and Shenzhen Stock Exchanges as observations to investigate the effects of ownership structure and board characteristics on earnings management in the period of 2002 to 2012. The ownership structure is mainly divided into institutions and insiders, whose shareholding proportion and concentration impacting on various earnings management is examined, respectively. Moreover, the board size, seats of independent directors as well as the duality of board chairman and CEO are used as the board characteristics.

As empirical results shown in this paper, the greater the proportion or the more concentrated the institutional shareholding are, the more likely the corporate conducts discretionary accruals for short-term interests. Nonetheless, the higher the percentage of insider holdings is, the less likely the corporate manages earnings. Among the board characteristics variables, only the duality of board chairman and CEO has a significant and positive impact on earnings management. It implies that earnings management is used to prettify financial statements because of the effects of entrenchment by managers or because of the managerial responsibility to pursue the operation performance. In order to attract more foreign capital into the Chinese capital market, the CSRC promulgated *Administrative Measures for Reform of Spilt-share Structure* on Listed Companies. One of the most important is that it supposedly can deal with the problem of non-tradable shares, whereby the shares are permitted to trade via legal procedures. This program must take into account both trading conditions on the secondary market and the interests of the owners of tradable shares, so it has three main features as follows: (1) it attempts to be flexible rather than a one-size-fits-all solution; (2) the owners of tradable shares can make the final decision; (3) short-term market volatility can be handled. The program is carried out in three phases in 2005. Thus, we examine data covering from 2006 to 2012 as well, and find out that there is no significant difference between after and before of enforcement of the regulation.

The framework of this paper is as follows. Section 1 presents motives and objectives of the research. Section 2 deals with the research hypothesis. Section 3 specifies resources of information and data, models for the research and definition of variables are presented as well. The empirical results are depicted in Section 4. The final section gives the conclusion.

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[1] Data from Shanghai Stock Exchange website. http://www.sse.com.cn/researchpublications/special/

2. THE RESEARCH HYPOTHESIS

Corporate governance is often viewed as the agent relationships between owners and managers or between insiders and outside investors which determine corporate performance. Whether the corporate has good corporate governance or not is typically decided by two essential elements, appropriate ownership structure and board composition.

First, the company must have an appropriate ownership structure with monitoring functions. With good monitoring mechanism and a system of rewards and punishment along with interests it can decrease agency cost. Since the self-interested behavior may undermine the monitoring function, Jensen and Meckling (1976) indicate that managers with low shareholdings can sacrifice interests of shareholders to pursue their own benefits while making decisions. Therefore, many studies use a variety of different perspectives to analyze the role of monitors, who appoint institutional investors as external monitors and internal owners as internal monitors, and initially explore that these monitors belong to which features have the monitoring incentives. Bushee (1998) considers that the short-term institutional investors would encourage managers to sacrifice firm long-term interests to meet earnings targets for private interests. Greco (2012) investigates the impact of corporate governance and ownership structure on earnings management in the EU oil industry, finding that earnings management associated with lower levels of institutional ownership is positive but is negatively associated with those of higher levels. The former is called as the short-term transient view while the latter is long-term orientation view of institutions playing a monitoring role. However, Hsu and Wang (2014) indicate institutions with unstable shareholdings can force managers to manipulate earnings in order to reach their short-term profitability. Due to the characteristics of ownership concentration of listed companies in China, prior studies find that control shareholders can exploit benefits of minority shareholders in the markets because of the weakness of protective law of minority shareholders, therefore a company with more concentrated ownership is more likely to carry out earnings management. Firth *et al.* (2007) apply Chinese listed companies as samples to exploring the association between ownership and earnings quality. They depict that shareholders with highly concentrated share are positively related to earnings management, which reflects the expectation of the owners for earnings under entrenchment effects. But Long *et al.* (2011) also use listed companies in Chinese Shanghai and Shenzhen as samples to analyze the impact of ownership structure on earnings management under the executive compensation and find that ownership concentration can effectively constrain managers on earnings management due to the compensation contracts. Considering viewpoints discussed in the literature, research hypotheses are presented as follows.

H1a: Institutions with high shareholding proportion or greater concentrated holdings tend to lure managers into managing discretionary accruals for their short-term interests, rather than using real earnings management to harm the future growth of the firm value.

H1b: Insiders with the higher holdings use discretionary accruals to earn personal profits while constraining real earnings management to the detriment of firm values.

Not only should corporate governance have appropriate stock structure, the best board

structure is also essential. Since the outbreak of scandals of accounting fraud of domestic and foreign companies, worldwide national governments begin to notice the importance of corporate governance and strengthen functions and responsibilities of the board. Many experts and scholars have put huge efforts to study how to make the industry world and government institutions to improve the corporate governance. Mak and Kusnadi (2005) use the data of listed companies of Singapore and Malaysia to examine the effect of corporate governance on firm value, and find that the board size of these two countries has inverse relationship with firm value. Osma (2008) analyzes the relation between independent directors and real earnings management using the U.K public limited companies data, and demonstrates that higher percentage of independent directors can more restrain real earnings management of reducing the R & D expenditures. Nevertheless, Boone *et al.* (2007) use a panel data model to trace corporate board development through 10 years after IPO, finding that board size and independence increase along with the growth of companies, and board size can cause the increase of benefits to monitoring and reduce the cost of such monitoring. However, the board independence can reduce its effects on managers. Cheng (2008) exams empirically the influence of board size on firm performance, suggesting that larger board size is associated with less discretionary accruals. Park and Shin (2004) contribute to the research on the impacts of board composition in Canadian listed companies on earnings management, expressing that the outside directors cannot forbid manipulating discretionary accruals, and pointing out that either centralized ownership or the outside directors lacking financial expertise is one of the probable reasons.

The effects of over concentrated ownership in China's listed companies on the board composition could cause the board function being unable to do and thus corporate governance cannot be expected. Liu and Lu (2007) study the impact of corporate governance on earning management by two groups of variables, one group including variables related to ownership structure, another one related to board characteristics. However, only outside directors have significantly inhibited companies from conducting earnings management. The duality of chairman of the board and CEO does not have a significant impact on earnings management. According to the above discussion, the hypotheses are stated as follows.

H2a: More independent directors can effectively curb managers from earnings management, regardless of real earnings or discretionary accruals.

H2b: The larger board size cannot effectively monitor managers managing discretionary accruals, but can prevent managers from real earnings management to the detriment of firm value.

H2c: The duality of board chairman and CEO will engage in earnings management of accruals, but will not conduct real earnings management to damage the value of the firm.

3. RESEARCH METHODS

The data of listed companies in Shanghai and Shenzhen stock exchanges markets over the period of 2002-2012 are collected for the research. After deleting financial industries and companies with incomplete data, 1,858 listed companies are used to analyze the impact of

ownership structure and board characteristics on earnings management. The data of ownership structure and financial data are collected from the *China database of Taiwan Economic Journal* (TEJ). After eliminating 4,388 incomplete data, 11,604 samples are used in the empirical model. To examine the impact of institutions, insiders and characteristics of the board on earnings management, the panel regression model is provided as follows:

$$EM_{i,t} = \beta_0 + \beta_1 IO_{i,t}(Herfindahl_{i,t}, C3_{i,t}) + \beta_2 Insider_{i,t} + \beta_3 IDirector_{i,t} +$$

$$\beta_4 Boardsize_{i,t} + \beta_5 Chairman_{i,t} + \beta_6 Size_{i,t} + \beta_7 MB_{i,t} + \beta_8 Leverage_{i,t} + \beta_9 Loss_{i,t} + \beta_{10} ROA_{i,t}, \quad (1)$$

where $EM_{i,t}$ is earnings quality at period *t* for company *i*, measured by the modified Jones model suggested by Dechow *et al.* (1995) considering abnormal total discretionary accruals (ATDA) and abnormal discretionary current accruals (ADCA), and real earnings management model proposed by Roychowdhury (2006) involving abnormal production costs (APC), abnormal discretionary expenses (ADE). Additionally, the comprehensive indicator (CBPM) used in the paper is defined as APC minus ADE, namely, CBPM=APC-ADE. $IO_{i,t}$ presents percentage of institutional shareholding at period *t* for company *i*. $Herfindahl_{i,t}$ is Herfindahl index at period *t* for company *i*, i.e. the sum of the square of institutional shareholding percentages. $C3_{i,t}$ is levels of concentrated shareholding by the top three institutions at period *t* for company *i*, i.e. shares held by such three owners divided by total outstanding shares. $Insider_{i,t}$ is percentage of insider shareholding at period *t* for company *i*, i.e. shares held by directors, supervisors, managers and major shareholders divided by total outstanding shares. $IDirector_{i,t}$ is independent directors at period *t* for company *i*, i.e. natural logarithm of number of independent directors. $Boardsize_{i,t}$ is the board size at period *t* for company *i*, i.e. natural logarithm of number of directors. $Chairman_{i,t}$ is the duality of chairman and CEO at period *t* for company *i*, which equals 1 if the corporate is headed by a chairman and CEO, 0 otherwise. $Size_{i,t}$ is firm size at period *t* for company *i*, i.e. natural logarithm of total asset book value. $MB_{i,t}$ is growth opportunity of company *i* at period *t*, i.e. equity market value divided by equity book value. $Leverage_{i,t}$ is leverage of company *i* at period *t*, i.e. total liabilities divided by total assets. $Loss_{i,t}$ is operating profit and loss of company *i* during period *t*, i.e. the variable is 1 if current net income less than zero, 0 otherwise. $ROA_{i,t}$ is return on total assets of company *i* at the end of period *t*, i.e. net income divided by total assets.

Measures for earnings management are specified as follows. First, discretionary accruals are estimated by modified Jones model to get abnormal total discretionary accruals ($ATDA_{i,t}$) and abnormal discretionary current accruals ($ADCA_{i,t}$), with the estimation model presented below:

$$ATDA_{i,t} = \frac{TA_{i,t}}{A_{i,t-1}} - \left[\hat{\alpha}_0 + \hat{\alpha}_1 \left(\frac{1}{A_{i,t-1}} \right) + \hat{\alpha}_2 \left(\frac{\Delta SALES_{i,t} - \Delta AR_{i,t}}{A_{i,t-1}} \right) + \hat{\alpha}_3 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) \right] \quad (2)$$

where, for firm *i* in period *t*, $TA_{i,t} = NI_{i,t} - CFO_{i,t}$. $NI_{i,t}$ is net income . $CFO_{i,t}$ is cash flow from operation. $A_{i,t-1}$ is lagged value of the total asset. $\Delta SALES_{i,t}$ is the change in sales revenue. $\Delta AR_{i,t}$ is the change in net accounts receivable , and $PPE_{i,t}$ is the total fixed asset.

$$ADCA_{i,t} = \frac{\Delta CA_{i,t} - \Delta CASH_{i,t} - \Delta CL_{i,t} - \Delta STD_{i,t}}{A_{i,t-1}} - \left[\hat{\alpha}_0 + \hat{\alpha}_1 \left(\frac{1}{A_{i,t-1}} \right) + \hat{\alpha}_2 \left(\frac{\Delta SALES_{i,t} - \Delta AR_{i,t}}{A_{i,t-1}} \right) \right] \quad (3)$$

where, for firm i in period t, $\Delta CA_{i,t}$ is the change in current assets . $\Delta CASH_{i,t}$ is the change in cash. $\Delta CL_{i,t}$ is the change in current liabilities. $\Delta STD_{i,t}$ is the change in current maturities of long-term debt, and the rest variables are defined identically as in formula (2).

To measure real earnings management, cash flow from operation, production costs and discretionary expenses are taken as indicators of earnings manipulation. The method employed as presented below could examine the effect of such measures. First, excessive price discount and overproduction will cause abnormally high production costs, and then, lower cash flow from operation; second, decreased discretionary expenditures will cause extreme low discretionary expenses, but higher cash flow from operation. Therefore, given fixed sales revenue, real earnings manipulation could cause unusually low cash flow from operation and discretionary expenses while increasing abnormal production costs. Considering the mutual offset in the real earnings manipulation procedure, cash flow from operation is excluded for discussion. Then the real earnings management model is proposed as follows:

$$\frac{PCost_{i,t}}{A_{i,t-1}} = \hat{\alpha}_0 + \hat{\alpha}_1 \frac{1}{A_{i,t-1}} + \hat{\alpha}_2 \frac{SALES_{it}}{A_{i,t-1}} + \hat{\alpha}_3 \frac{\Delta SALES_{i,t}}{A_{i,t-1}} + \hat{\alpha}_4 \frac{\Delta SALES_{i,t-1}}{A_{i,t-1}}, \quad (4)$$

$$\frac{DExpense_{i,t}}{A_{i,t-1}} = \hat{\alpha}_0 + \hat{\alpha}_1 \frac{1}{A_{i,t-1}} + \hat{\alpha}_2 \frac{SALSE_{i,t-1}}{A_{i,t-1}}, \quad (5)$$

where, for firm i in period t, $PCost_{i,t}$ presents the production cost. $DExpense_{i,t}$ is the discretionary expense , including those for advertising, R&D, selling and administrative expenses. $SALES_{i,t}$ is the sale revenue. $\Delta SALES_{i,t}$ is the change in sale revenue. $SALES_{i,t-1}$ is the lagged value of the revenue , and $\Delta SALES_{i,t-1}$ is the change in lagged in sale revenue. Equations (4) and (5) are standard estimation formulas for real earnings management. In formula (4), abnormal production costs can be measured as actual production costs minus standard production costs. Abnormal discretionary expenses can be obtained by actual discretionary expenses minus standard discretionary expenses from formula (5).

4. EMPIRICAL RESULTS

4.1. Descriptive Statistics of Empirical Information

Descriptive statistics of the measuring variables are presented in Table 1. The average and median of abnormal total discretionary accruals and abnormal discretionary current accruals are positive (0.0024 and 0.0002), respectively. Averages of three variables regarding the real earnings management indicate a negative tendency of earnings management, while their medians depict a positive tendency of earnings management. The median (0.02) implies that most of the companies conduct real earnings management. Regarding the ownership structure, averages of the proportion of institutional and insider's shareholdings are 0.46 and 0.59, respectively, and medians thereof 0.50 and 0.61, respectively. As for ownership concentration, two indicators of shareholding concentration are significant, which perfectly correspond to the status quo of concentrated shareholding in Chinese listed companies. Finally, three variables concerning characteristics of the board, they are the independent director, board size, and the duality of

chairman and CEO. The former two variables are in natural logarithm form. The average and median of the duality of chairman and CEO approach closely to 1, indicating there is no significant separation of ownership and management.

4.2. Impact of Ownership Structure and Board Characteristics on Discretionary Accruals

The impacts of ownership structure and board characteristics on discretionary accruals are examined by the panel data method. The empirical results shown in Table 2 depict that the proportion of institutional shareholdings (IO) has a significant positive impact on abnormal total discretionary accruals (ATDA). Likewise, the shareholding concentration of institutions has a significant positive impact on it as well. This finding suggests that firms with higher proportion or concentration of institutional shareholding are more likely to use total discretionary accruals to conduct earnings management. Moreover, the influences of the proportion and concentration of institutional shareholding on abnormal discretionary current accruals are positive significantly at 10% level as shown in Table 3. Institutional owners' impacts on discretionary current accruals are similar to that on total accruals. The companies with higher proportion or greater concentration of institutional holdings can also carry out short-term discretionary current accruals. Therefore, this finding is partially support the hypothesis H1a, that is, institutions with higher shareholding percentage or greater shareholding concentration intend to persuade managers to manipulate accruals. From the perspective of inside owners, the results shown in Table 2 and Table 3 indicate that the proportion of insider holdings associated with discretionary accruals is negative but shows no impact at 10% significant level. This does not support hypothesis H1b in the part of discretionary accruals.

Subsequently, the results of the impact of board characteristics on discretionary accruals are examined. As shown in Table 2, the variables independent directors and board size are negatively associated with abnormal total discretionary accruals, while the duality of board chairman and CEO is positively associated with it, but all do not have significant impact. In addition, the impacts on discretionary currency accruals are shown in Table 3. The findings show that variables have the same impact on currency accruals as the prior total accruals except for the independent directors. This indicates that the larger is the board size the more power in monitoring managers and avoiding managers to manipulate discretionary accruals. Companies with the duality of chairman and CEO carry out earnings management of accruals to meet their earnings target, which is consonant with the entrenchment effect. The hypothesis H2c can be supported while H2a and H2b are not.

4.3. Impact of Ownership Structure and Board Characteristics on Real Earnings Management

The effects of ownership structure and characteristics of the board on real earnings management are examined by using panel data approach. The empirical results not shown in the text reveal that the higher proportion or the concentration of institutional shareholdings is,

managers tend to conduct upward production costs. The proportion of insider shareholding is negatively and significantly related to abnormal production costs, denoting that insiders with higher holdings are more motivated to supervise, and let managers uneasily carry out earnings management of production costs. The impacts of ownership structure on discretionary expenses indicate that the influences of the percentage and concentration of institutional shareholdings are significantly positive. If those with higher percentage or greater concentration of shareholdings can conduct monitoring, they can effectively forbid managers to reduce discretionary expenses. However, the impact of insiders on discretionary expenses presents a significant negative correlation at the 10% level. Such results are unexpected, as insiders with higher shareholding percentage somehow cause managers to carry out earnings management of reducing discretionary expenses.

There is no consistent and definite relationship between ownership structure and the two real earnings management measures employed in the paper. Therefore, a comprehensive indicator considering such two measures of real earnings is used further to explore the impact of ownership structure on it. Table 4 shows that the effects of ownership structure on real earnings management are negative, while only the shareholding percentage of insiders has a statistically significant at 1% level. It suggests that both institutional owners with high shareholding percentage or concentration, and insiders with high shareholding percentage can effectively monitor managers and prevent manipulating real earnings to the detriment of firm value. Therefore, the hypotheses H1a and H1b are tenable in this respect.

Regarding the effect of characteristics of the board on real earnings management, none of the three variables of board characteristics indicates any significant impact on abnormal production costs. The independent director and the duality of chairman and CEO are positively related to it, while the board size has a negative correlation. As for discretionary expenses, the board size has a positive influence, while other two variables have negative and significant impact. Due to the trade-off of these two indicators, the relationship between real earnings variables and characteristics of the board become very unclear, thus a comprehensive indicator of real earnings needs to be examined further. The results in Table 4 show that the impacts of independent directors and the duality of chairman and CEO on the comprehensive indicator are positive but insignificant. Nevertheless, the board size has a negative and significant impact at the 10% level. Such empirical results are similar to those of discretionary accruals, still suggesting that a larger board has more effective control over managers and prevent them from conducting real earnings management. Therefore, the hypothesis H2b is supported in this respect.

Because of a desire to attract foreign investment into Chinese capital market in 2005, China Securities Regulatory Commission promulgated *Administrative Measures for Reform of Spilt-share Structure* in Listed Companies, whereby non-tradable shares are permitted to trade through legal procedures. In order to understand whether China has witnessed certain improvements with respect to corporate governance since the implementation of the aforementioned reform measures,   we conduct the same empirical method to analyze A-shares of companies listed on

the two stock exchanges markets from 2006 through 2012. It shows that there is no significant difference between the results before and after the reform enforcement. Note that the empirical results for the year 2006-2012 are not presented in this paper but available upon request.

5. CONCLUSION

Since the reform and open-up of Chinese capital market, it has attracted attentions from worldwide on its capitalist market structure which is different from the western one. In particular, the special ownership structure of the list companies of two stock exchanges markets in China needs to be explored further. This paper focuses on the A-share of listed companies in Chinese Shanghai and Shenzhen exchange markets from 2002 to 2012 as samples, exploring the impact of these companies' ownership structure and board characteristics on earnings management.

We apply the proportion and concentration of institutional shareholdings and the percentage of insider shareholdings as variables of the stock structure, and the independent directors, the board size, the board chairman and CEO as variables of board characteristics to analyzing the possible effect on discretionary accruals and real earnings management. The empirical results indicate that the proportion and concentration of institutional shareholdings associated with total discretionary accruals, discretionary currency accruals, and discretionary expenses are significantly positive. Thus, the higher the share proportion or the share concentration held by institutions, managers are forced to conduct discretionary accruals to obtain short-term opportunistic interests. The percentage of insider shareholdings related into real earnings management is significantly negative, representing insiders with high shareholdings can effectively monitor managers conducting real earnings management. As for three variables of board characteristics, the influences of the independent directors, and the duality of chairman and CEO on earnings management are insignificantly positive, but the board size has a negative impact. It implies that larger board can effectively monitor managers who manipulate real earnings management.

The Chinese government has attempted to resolve the problem of non-tradable shares and promulgated *Administrative Measures for Reform of Spilt-share Structure*. Nevertheless, our empirical findings show that there is no significant difference before and after enforcing the reform. We argue that it is better let the Chinese companies create more business opportunities and can use the non-tradable shares more effectively. Additionally, as suggested by Inoue (2005) that it might be a better way to let foreign companies which are operating in China can sell their local subsidiaries more easier and to conduct mergers and acquisitions to expand their operations. Providing foreign institutions and companies more opportunities to involve in the reforming process of the board of directors and the independence of directors is considered a way to improve the firm operation in China.

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Empirical Tables

Table-1. Descriptive statistics for the variables in the first regression equation

Variables	Mean	Median	Maximum	Minimum	Std. Dev.
ATDA	0.0024	0.0002	18.8021	-7.5770	0.2561
ADCA	0.0056	0.0048	27.3321	-26.1986	0.4634
APC	-0.0003	0.0068	20.3877	-43.2114	0.5266
ADE	0.0013	-0.0146	8.2807	-9.9985	0.1532
CREM	-0.0017	0.0201	20.1358	-43.1548	0.5611
IO	0.4570	0.4970	1.0000	7.51E-07	0.2204
C3	0.4570	0.4970	1.0000	7.51E-07	0.2204
Herfindahl	0.2135	0.1906	0.9754	5.64E-13	0.1657
Insider	0.5927	0.6067	1.0000	0.0577	0.1565
IDirector	1.1523	1.0986	2.0794	0	0.2286
Boardsize	2.2161	2.1972	2.9444	0	0.2117
Chairman	0.8935	1.0000	1.0000	0	0.3085
Size	6.2182	6.1709	9.3362	1.7076	0.5739
MB	3.3368	2.4143	1165.73	-1388.12	25.3760
Leverage	0.6303	0.4906	876.66	0	7.3072
Loss	0.1011	0.0000	1.0000	0	0.3014
ROA	1.4229	0.0416	23571.39	-2144.71	187.2796

Note: ATDA: abnormal total discretionary accruals; ADCA: abnormal discretionary current accruals; APC: abnormal production costs; ADE: abnormal discretionary expenses; CREM: a comprehensive indicator of real earnings management; IO: percentage of institutional shareholding; C3: levels of concentrated shareholding by the top three institutions; Herfindahl: Herfindahl index; Insider: percentage of insider shareholding; IDirector: natural logarithm of numbers of independent directors; Boardsize: natural logarithm of numbers of directors; Chairman: equal to 1 if the corporate is headed by a chairman and CEO, 0 otherwise; Size: natural logarithm of total asset book value at the end; MB: equity market value divided by equity book value; Leverage: total liabilities divided by total assets; Loss: equal to 1 if current net income less than zero, 0 otherwise; ROA: net income divided by total assets.

Table-2. The impacts of ownership and board structure on abnormal total discretionary accruals

n	ATDA								
	Pooled Model			Fixed effects			Random effects		
Intercept	-0.0189	-0.0163	-0.0189	-0.2344 ***	-0.1844 ***	-0.2344 ***	-0.0196	-0.0169	-0.0196
	(0.0311)	(0.0307)	(0.0311)	(0.0583)	(0.0573)	(0.0583)	(0.0240)	(0.0241)	(0.0240)
IO	0.0148			0.0802 ***			0.0150		
	(0.0110)			(0.0140)			(0.0092)		
Herfindahl		0.0095			0.0752 ***			0.0095	
		(0.0125)			(0.0204)			(0.0128)	
C3			0.0147			0.0802 ***			0.0150
			(0.0110)			(0.0140)			(0.0092)
Insider	0.0179	0.0249 **	0.0179	-0.0143	0.0235	-0.0142	0.0180	0.0252 *	0.0181
	(0.0132)	(0.0125)	(0.0132)	(0.0263)	(0.0257)	(0.0263)	(0.0131)	(0.0132)	(0.0131)
IDirector	0.0097	0.0084	0.0097	-0.0027	-0.0051	-0.0028	0.0094	0.0081	0.0094
	(0.0119)	(0.0124)	(0.0119)	(0.0123)	(0.0123)	(0.0123)	(0.0094)	(0.0094)	(0.0094)
Boardsize	-0.0244 **	-0.0225 **	-0.0244 **	-0.0093	-0.0038	-0.0093	-0.0241 **	-0.0222 **	-0.0241 **
	(0.0112)	(0.0110)	(0.0112)	(0.0164)	(0.0163)	(0.0164)	(0.0102)	(0.0101)	(0.0102)
Chairman	0.0076	0.0077	0.0076	0.0099	0.0102	0.0099	0.0077	0.0078	0.0077
	(0.0054)	(0.0055)	(0.0054)	(0.0064)	(0.0064)	(0.0064)	(0.0048)	(0.0048)	(0.0048)
Size	0.0065	0.0057	0.0065	0.0346 ***	0.0248 ***	0.0346 ***	0.0065 **	0.0057 *	0.0065 **
	(0.0058)	(0.0055)	(0.0058)	(0.0078)	(0.0075)	(0.0078)	(0.0032)	(0.0032)	(0.0032)
MB	-3.78E-05	-3.84E-05	-3.78E-05	-3.98E-05	-4.25E-05	-3.98E-05	-3.92E-05	-3.98E-05	-3.92E-05
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)

Continue

	(0.0073)	(0.0073)	(0.0073)	(0.0024)	(0.0024)	(0.0024)	(0.0019)	(0.0019)	(0.0019)
Loss	-0.1023 ***	-0.1019 ***	-0.1023 ***	-0.0902 ***	-0.0895 ***	-0.0902 ***	-0.1022 ***	-0.1018 ***	-0.1022 ***
	(0.0068)	(0.0067)	(0.0068)	(0.0057)	(0.0057)	(0.0057)	(0.0049)	(0.0049)	(0.0049)
ROA	0.0552 **	0.0552 **	0.0552 **	0.0714 ***	0.0715 ***	0.0714 ***	0.0554 ***	0.0555 ***	0.0554 ***
	(0.0222)	(0.0222)	(0.0222)	(0.0063)	(0.0063)	(0.0063)	(0.0053)	(0.0053)	(0.0053)
Observations	11604	11604	11604	11604	11604	11604	11604	11604	11604
Adj R²	0.0575	0.0573	0.0575	0.0698	0.0679	0.0698	0.0572	0.0571	0.0572
LM test	12.10 ***	11.98 ***	12.10 ***						
P-value	(0.0070)	(0.0075)	(0.0070)						
Hausman test				101.55 ***	79.51 ***	101.54 ***			
P-value				(0.0000)	(0.0000)	(0.0000)			

Note: *ATDA*: abnormal total discretionary accruals; *IO*: percentage of institutional shareholding; *Herfindahl*: Herfindahl index defined as the sum of the square of institutional shareholding percentages; *C3*: levels of concentrated shareholding by the top three institutions; *Insider*: percentage of insider shareholding; *IDirector*: independent directors equal to natural logarithm of numbers of independent directors; *Boardsize*: board size equal to natural logarithm of numbers of directors; *Chairman*: the duality of chairman and CEO equal to 1 if the corporate is headed by a chairman and CEO, 0 otherwise; *Size*: corporate size equal to natural logarithm of total asset book value at the end; *MB*: growth opportunity equal to equity market value divided by equity book value; *Leverage*: leverage equal to total liabilities divided by total assets; *Loss*: operating profit and loss equal to 1 if current net income less than zero, 0 otherwise; *ROA*: return on total assets equal to net income divided by total assets. Standard errors are indicated in parentheses. *, **, *** denote statistical significance at the 10%, 5% and 1% levels, respectively.

Table-3. The impacts of ownership and board structure on abnormal discretionary current accruals

	ADCA								
	Pooled Model			**Fixed effects**			**Random effects**		
Intercept	0.1932 ***	0.1976 ***	0.1932 ***	0.5509 ***	0.6062 ***	0.5508 ***	0.1932 ***	0.1976 ***	0.1932 ***
	(0.0526)	(0.0518)	(0.0526)	(0.0952)	(0.0934)	(0.0952)	(0.0386)	(0.0388)	(0.0386)
IO	0.0306 *			0.0701 ***			0.0306 **		
	(0.0176)			(0.0228)			(0.0150)		
Herfindahl		0.0137			0.0429			0.0137	
		(0.0247)			(0.0333)			(0.0207)	
C3			0.0306 *			0.0701 ***			0.0306 **
			(0.0176)			(0.0228)			(0.0150)
Insider	-0.0096	0.0089	-0.0096	-0.0437	0.0070	-0.0437	-0.0096	0.0089	-0.0096
	(0.0205)	(0.0205)	(0.0205)	(0.0430)	(0.0420)	(0.0429)	(0.0211)	(0.0213)	(0.0211)
IDirector	0.0199	0.0169	0.0199	0.0219	0.0193	0.0219	0.0199	0.0169	0.0199
	(0.0167)	(0.0170)	(0.0167)	(0.0201)	(0.0201)	(0.0201)	(0.0153)	(0.0152)	(0.0153)
Boardsize	-0.0406 **	-0.0364 *	-0.0406 **	-0.0762 ***	-0.0708 ***	-0.0762 ***	-0.0406 **	-0.0364 **	-0.0406 **
	(0.0193)	(0.0191)	(0.0193)	(0.0267)	(0.0267)	(0.0267)	(0.0165)	(0.0164)	(0.0165)
Chairman	0.0039	0.0042	0.0039	0.0057	0.0063	0.0057	0.0039	0.0042	0.0039
	(0.0079)	(0.0080)	(0.0079)	(0.0104)	(0.0104)	(0.0104)	(0.0078)	(0.0078)	(0.0078)
Size	-0.0192 **	-0.0209 ***	-0.0192 **	-0.0643 ***	-0.0757 ***	-0.0643 ***	-0.0192 ***	-0.0209 ***	-0.0192 ***
	(0.0075)	(0.0072)	(0.0075)	(0.0127)	(0.0122)	(0.0127)	(0.0052)	(0.0051)	(0.0052)
MB	-0.0002	-0.0002	-0.0002	-0.0002 *	-0.0002 *	-0.0002 *	-0.0002 *	-0.0002 *	-0.0002 *
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Leverage	-0.0129	-0.0128	-0.0129	-0.0064 *	-0.0066 *	-0.0064 *	-0.0129 ***	-0.0128 ***	-0.0129 ***
	(0.0087)	(0.0087)	(0.0087)	(0.0039)	(0.0039)	(0.0039)	(0.0031)	(0.0031)	(0.0031)
Loss	-0.0819 ***	-0.0811 ***	-0.0819 ***	-0.0708 ***	-0.0704 ***	-0.0708 ***	-0.0819 ***	-0.0811 ***	-0.0819 ***
	(0.0086)	(0.0086)	(0.0086)	(0.0093)	(0.0093)	(0.0093)	(0.0080)	(0.0080)	(0.0080)
ROA	-0.0044	-0.0043	-0.0044	0.0099	0.0099	0.0099	-0.0044	-0.0043	-0.0044
	(0.0255)	(0.0255)	(0.0255)	(0.0102)	(0.0102)	(0.0102)	(0.0087)	(0.0087)	(0.0087)
Observations	11604	11604	11604	11604	11604	11604	11604	11604	11604
Adj R²	0.0151	0.0148	0.0151	0.0093	0.0085	0.0093	0.0151	0.0148	0.0151
LM test	4.56	4.55	4.56						
P-value	(0.2070)	(0.2082)	(0.2071)						
Hausman test				60.87 ***	56.01 ***	60.84 ***			
P-value				(0.0000)	(0.0000)	(0.0000)			

Note: *ADCA*: abnormal discretionary current accruals; *IO*: percentage of institutional shareholding; *Herfindahl*: Herfindahl index defined as the sum of the square of institutional shareholding percentages; *C3*: levels of concentrated shareholding by the top three institutions; *Insider*: percentage of insider shareholding; *IDirector*: independent directors equal to natural logarithm of numbers of independent directors; *Boardsize*: board size equal to natural logarithm of numbers of directors; *Chairman*: the duality of chairman and CEO equal to 1 if the corporate is headed by a chairman and CEO, 0 otherwise; *Size*: corporate size equal to natural logarithm of total asset book value at the end; *MB*: growth opportunity equal to equity market value divided by equity book value; *Leverage*: leverage equal to total liabilities divided by total assets; *Loss*: operating profit and loss equal to 1 if current net income less than zero, 0 otherwise; *ROA*: return on total assets equal to net income divided by total assets. Standard errors are indicated in parentheses. *, **, *** denote statistical significance at the 10%, 5% and 1% levels, respectively.

Table-4. The impacts of ownership and board structure on comprehensive measures of real earnings management

	CREM								
	Pooled Model			Fixed effects			Random effects		
Intercept	0.0745	0.0970 *	0.0745	0.2251 **	0.2142 **	0.2247 **	0.0907	0.1037 *	0.0907
	(0.0565)	(0.0565)	(0.0565)	(0.1101)	(0.1080)	(0.1101)	(0.0582)	(0.0582)	(0.0582)
IO	0.0620 ***			-0.0127			0.0361 *		
	(0.0182)			(0.0264)			(0.0196)		
Herfindahl		0.1061 ***			-0.0061			0.0686 **	
		(0.0276)			(0.0385)			(0.0278)	
C3			0.0619 ***			-0.0123			0.0361 *
			(0.0182)			(0.0264)			(0.0196)
Insider	-0.1745 ***	-0.1897 ***	-0.1744 ***	-0.1765 ***	-0.1869 ***	-0.1769 ***	-0.1636 ***	-0.1759 ***	-0.1637 ***
	(0.0265)	(0.0273)	(0.0265)	(0.0497)	(0.0485)	(0.0497)	(0.0302)	(0.0303)	(0.0302)
IDirector	0.0155	0.0142	0.0155	0.0364	0.0369	0.0364	0.0189	0.0185	0.0189
	(0.0172)	(0.0172)	(0.0172)	(0.0232)	(0.0232)	(0.0232)	(0.0198)	(0.0197)	(0.0198)
Boardsize	-0.0107	-0.0071	-0.0107	-0.0520 *	-0.0530 *	-0.0520 *	-0.0189	-0.0173	-0.0189
	(0.0215)	(0.0215)	(0.0215)	(0.0309)	(0.0308)	(0.0309)	(0.0224)	(0.0222)	(0.0224)
Chairman	-0.0128	-0.0135	-0.0128	0.0170	0.0169	0.0170	-0.0042	-0.0047	-0.0042
	(0.0112)	(0.0112)	(0.0112)	(0.0120)	(0.0121)	(0.0120)	(0.0102)	(0.0102)	(0.0102)
Size	0.0012	-0.0010	0.0012	-0.0099	-0.0077	-0.0098	0.0004	-0.0006	0.0004
	(0.0071)	(0.0069)	(0.0071)	(0.0146)	(0.0141)	(0.0146)	(0.0079)	(0.0077)	(0.0079)
MB	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002
	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Leverage	0.0222 ***	0.0222 ***	0.0222 ***	0.0198 ***	0.0199 ***	0.0198 ***	0.0227 ***	0.0227 ***	0.0227 ***
	(0.0056)	(0.0055)	(0.0056)	(0.0045)	(0.0045)	(0.0045)	(0.0039)	(0.0039)	(0.0039)
Loss	0.0584 ***	0.0590 ***	0.0584 ***	0.0229 **	0.0228 **	0.0229 **	0.0452 ***	0.0456 ***	0.0452 ***
	(0.0080)	(0.0080)	(0.0080)	(0.0108)	(0.0108)	(0.0108)	(0.0099)	(0.0099)	(0.0099)
ROA	0.0537 ***	0.0538 ***	0.0537 ***	0.0521 ***	0.0521 ***	0.0521 ***	0.0556 ***	0.0557 ***	0.0556 ***
	(0.0157)	(0.0156)	(0.0157)	(0.0118)	(0.0118)	(0.0118)	(0.0107)	(0.0107)	(0.0107)
Observations	11604	11604	11604	11604	11604	11604	11604	11604	11604
Adj R^2	0.0101	0.0106	0.0101	0.1614	0.1614	0.1614	0.0074	0.0076	0.0074
LM test	487.23 ***	486.24 ***	487.28 ***						
P-value	(0.0000)	(0.0000)	(0.0000)						
Hausman test				59.23 ***	58.06 ***	59.13 ***			
P-value				(0.0000)	(0.0000)	(0.0000)			

Note: *CREM*: a comprehensive indicator of real earnings management; *IO*: percentage of institutional shareholding; *Herfindahl*: Herfindahl index defined as the sum of the square of institutional shareholding percentages; *C3*: levels of concentrated shareholding by the top three institutions; *Insider*: percentage of insider shareholding; *IDirector*: independent directors equal to natural logarithm of numbers of independent directors; *Boardsize*: board size equal to natural logarithm of numbers of directors; *Chairman*: the duality of chairman and CEO equal to 1 if the corporate is headed by a chairman and CEO, 0 otherwise; *Size*: corporate size equal to natural logarithm of total asset book value at the end; *MB*: growth opportunity equal to equity market value divided by equity book value; *Leverage*: leverage equal to total liabilities divided by total assets; *Loss*: operating profit and loss equal to 1 if current net income less than zero, 0 otherwise; *ROA*: return on total assets equal to net income divided by total assets. Standard errors are indicated in parentheses. *, **, *** denote statistical significance at the 10%, 5% and 1% levels (two-tailed), respectively.