



## **The Relationship between Corporate Governance Mechanisms and Earnings Management: An Empirical Study on the Listed Firms in China**

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**Abstract:** This paper empirically explores the relationship between corporate governance mechanisms and earnings management of the listed firms in China. It is found that ownership concentration and CEO duality show a significant positive effect on earnings management, while the number of directors and the proportion of independent directors have a significant negative effect on earnings management when all listed firms are taken as a whole group. When the sample is classified into two groups of state-owned and non-state-owned, both the number of directors and the proportion of independent directors remain as significant negative factors on earnings management for the state-owned firms, but their impact become not significant for the non-state-owned firms. Furthermore, both the ownership concentration and CEO duality remain as significant positive factors affecting earnings management for the state-owned firms, but their effects become not significant for the non-state-owned group. It is also found that Tobin's Q and the debt ratio have a very significant positive effect on earnings management for all three groups of firms, while ROA plays a significant negative role on earnings management in China. The implications of our findings are also discussed.

**Keywords:** Earnings Management, Corporate Governance, Ownership Concentration, Independent Directors.

## I. Introduction

The early 2000s were the years in which a numbers of high-profile corporate financial frauds took place, including large companies such as Enron, WorldCom, Tyco, Global Crossing and others (Hwang et al., 2008; Hwang and Staley, 2005). To respond to these corporate financial frauds, the US Congress enacted the Sarbanes-Oxley (SOX) Act in 2002 and introduced a new era of corporate governance, including requirements for auditor independence, independence of a firm's audit committee, the responsibility of a firm's CEO and CFO on financial reports, and the protections on whistleblowers. Since the occurrence of financial frauds and the enactment of SOX in early 2000s, corporate governance has become a crucial mechanism for government regulations on both corporate and capital market operations.

Berle and Means (1932) believed that when cooperate shares are widely spread over to a great number of small shareholders, there is a good separation between the ownership and the power of operational management, in which the managers act as the agents for the shareholders. However, Fama (1976), and Jensen and Meckling (1976) argued that when the managers do not own a great number of shares, they may pursue personal interest at the expense of the interest of shareholders while making managerial decisions. Therefore, the business in a form of corporation exists with interest conflicts between owners and managers, which is referred as traditional agency theory or equity agency problem. Moreover, this equity agency problem would become a central agency problem, in which new conflicts arise between controlling and non-controlling shareholders when mangers also own significant amount of shares through stock options, pyramidal ownership structure, or crossing holdings (La Porta et al., 1999; Claessens et al., 2002 )

As La Porta et al. (1998) assert that the central agency problem in large corporations around the world is the expropriation of minority shareholders by controlling shareholders. Such expropriation of minority shareholders by controlling shareholders takes a variety of forms, such as excessive executive compensation, loan guarantees for selves and/or favored individuals/groups, transfer pricing between related companies, manipulations on reported earnings etc. This behavior of earnings management usually results in misleading financial statement users or financial fraud. In recent years, the financial fraud of Yin Guangxia, Sanjiu Pharmacy, Houwang Corp., and Jinan Bicycling were some typical cases involved with earnings management in China, while the debacles of Enron, WorldCom, and Global Crossing were some typical examples in America.

Watts and Zimmerman (1986) found that corporate governance attributes help investors by aligning the interests of managers with the interests of shareholders and also by enhancing the reliability of financial information and the integrity of reporting process. Garcia-Meca and Sanchez-Ballesta (2009), Cornett et al. (2009), Chang et al. (2007), among others, confirmed that the mechanism of corporate governance helps restrict managers in the behavior of earnings management.

The purpose of this paper is to explore the mechanisms of corporate governance used by listed firms in the Chinese capital market, and the effect of each mechanism on earnings management. The results of this research will help users better analyze and understand the financial statements prepared by the Chinese listed firms. In addition, our results will also help regulators and policy makers in policy making, enactment of regulations/laws and their enforcement.

In addition to this section of Introduction, the remainder of this paper is organized into four more sections. Section II presents theoretical framework and hypothesis. Section III discusses the methodology used in this research. Section IV presents the statistical results. Section V provides the discussions and implications of the research results. Finally, Section VI presents the conclusions for this paper.

## **II. Theoretical Framework and Hypothesis**

Denis and McConnell (2003) defines corporate governance as "...the set of mechanisms that maintain an appropriate balance between the rights of shareholders... and the needs of the board and management to direct and manage the corporation's affairs." According to Garcia-Meca and Sanchez-Ballesta (2009), and Denis and McConnell (2003), corporate governance mechanisms can be classified into two categories--boards of directors and ownership structure. Some particular characteristics in the dimension of boards of directors that may affect the magnitude of earnings management include board independence, board size, CEO duality, executive compensation, and audit committee independence, while it includes insider ownership, ownership concentration, and institutional ownership in the dimension of ownership structure. In this paper, we will focus to explore the effects of ownership concentration, number of board directors, proportion of independent directors, and CEO duality (hereafter referred as the primary variables of the corporate governance mechanisms in China) on the earnings management in the Chinese capital market. Therefore, in the following subsections, we will discuss the nature of each primary independent variable in the Chinese economy, and formulate the hypotheses.

## **A. Ownership Structure**

It is believed that one of the most important methods through which a firm is able to maximize its value is to construct the ownership structure of its shares. Concentrated equity ownership can be bad for the governance of the firm since it gives the largest shareholders too much discretionary powers of using firm resources in a way that serves their own interest at the expense of other shareholders. That is, too much concentrated ownership (a few largest shareholders) may accentuate the earnings management. Therefore, Hypothesis 1 is formulated as:

**H 1:** Ownership concentration has a positive impact on earnings management.

It is argued that the board of directors is the first instrument through which shareholders can exert influence on the behavior of managers in order to ensure that the company is run in their interests. It is also argued that such an influence may not be effective when the managers also become board directors and dominate the board. To investigate the influence of the board on earnings management, the studies can be designed to explore the following three relationships: 1. The relationship between the number of directors and earnings management, 2. The relationship between the proportion of independent directors and earnings management, and 3. the relationship between CEO duality (CEO is also the chairman of the board) and earnings management.

## **B. Number of Board Directors**

The board of directors in a company should play an important role of monitoring the performance of the management. Beasley(1996), Dechow(1995) found that, the more numbers of the board, the less effective supervision to the managers, and the more possible to do earnings management.

**H 2:** When the number of the board is larger, there is a lower level of earnings management.

## **C. Proportion of Independent Directors**

Proportion of independent directors reflects the level of independence of the board. Beasley (1996) found that a firm with higher proportion of independent directors would have less management fraud. Dechow(1995) and Peasnell(2005) corroborated that when there is a higher proportion of independent directors, there is lower level of earnings management. Thus, we develop hypothesis 3 as:

**H3:** When the proportion of independent directors is higher in a firm, there is a lower level of earnings management.

## **D. CEO Duality**

The CEO duality occurs when a CEO is also the chairman of the board. The duality of CEO would generally reduce the independence of the board. Fama and Jensen (1983) assert that when the CEO duality exists in a firm, the monitoring function of the board will be weaker, that would also likely lead to more earnings management. Thus, Hypothesis 4 is developed as follows:

**H 4:** The CEO duality has a positive impact on earnings management.

## **III. Methodology and Data**

### **A. Methodology**

Earnings management has been rampant in some listed firms in China in recent years. China Securities Regulatory Commission (CSRC) requires the listed companies to meet certain return on equity (ROE) criteria before they apply for approval to issue additional shares to existing shareholders, while on the other hand, the CSRC would delist a listed company if its net loss continues for three consecutive years. Whenever a contract or regulation is based on accounting numbers, managers have an incentive to manipulate those numbers to serve their own or the firm's interests.

In addition to the four primary variables of the corporate governance mechanisms as discussed above, a few other policy variables may also affect the practice of earnings management. These policy variables include return on investment (ROA), Tobin's Q, financial leverage (Leve). ROA can be regarded as a proxy index for a company's profit policy, and/or the measurement for actual operational performance. It can be also regarded as a contractual/regulatory variable if a certain level of ROA is required by contracts or regulations. Both financial leverage and absolute discretionary accruals are affected by the credit policy by the company and/or other organizations, such as creditors and government.

Tobin's Q ratio was created by Professor James Tobin and is computed by dividing the total market value of firm by total replacement cost (can be alternately replaced by total asset value). Tobin's Q reflects a company's policy on its stock price and/or investors' expectation on the company's stock price growth. It is expected there is a positive relationship between Tobin's Q and earnings management.

In order to examine the relationships of the above mentioned four primary variables of the corporate governance mechanisms and four policy variables with earnings management, we first establish the following regression equation:

$$ABDAC = \alpha + \beta_1 \text{Herf\_top10} + \beta_2 \text{Num\_d} + \beta_3 \text{Por\_d} + \beta_4 \text{CEO\_dua} + \beta_5 \text{ROA} + \beta_6 \text{TobinQ} + \beta_7 \text{Leve} + \varepsilon \text{----- (1)}$$

Where:

ABDAC = absolute\_discretionary accruals of the firm, as an indicator for earnings management;

Herf\_top10 = Herfindahl index for ownership concentration;

Num\_d = number of the directors;

Por\_d = the proportion of independent directors;

CEO\_dua = a dummy variable that equals 1 if the CEO is the chairman or a vice chairman of the board of directors and 0 otherwise;

ROA = return of assets calculated by dividing net income by the average book value of assets;

TobinQ = the value of Tobin's Q;

Leve = Debt ratio calculated by dividing liabilities by assets.

After the regression equation has been properly constructed, the next step is to find a way to measure the absolute discretionary accruals (ABDAC). Jennifer Jones(1991) suggested that earnings management can be achieved by various means such as the use of accruals, changes in accounting methods, and changes in capital structure (e.g., debt defeasance, debt-equity swaps). Krishnan (2003) used the absolute value of discretionary accruals as a proxy for accruals-based earnings management. Total accruals (TA) are the total source of earnings management which include both discretionary accruals (DA) and non-discretionary accruals (NDA). The discretionary accruals (DA) are calculated by using Teoh's (1998) two-stage regression procedure as follows:

$$TA_{it} / A_{it-1} = \alpha_1 (1/ A_{it-1}) + \alpha_2 (\Delta REV_{it} / A_{it-1}) + \alpha_3 (PPE_{it} / A_{it-1}) + \varepsilon_{it} \text{-----(2)}$$

$$NDA_{it} = (1/ A_{it-1}) + (\Delta REV_{it} / A_{it-1}) + (PPE_{it} / A_{it-1}) \text{-----(3)}$$

$$DA_{it} = TA_{it} - NDA_{it} \text{----- (4)}$$

where:

DA<sub>it</sub> = discretionary accruals in year t for firm i;

NDA<sub>it</sub> = non- discretionary accruals in year t for firm i;

TA<sub>it</sub> = total accruals in year t for firm i;

ΔREV<sub>i</sub> = revenues in year t less revenues in year 1-t for firm i;

PPE<sub>i</sub> = gross property, plant, and equipment in year t for firm i;

A<sub>it-1</sub> = total assets in year 1- t for firm i;

ε<sub>it</sub> = error term in year t for firm i.

Once the discretionary accruals (DA) have been constructed, the absolute discretionary accruals (ABDAC) are calculated as follows:

$$ABDAC_{it} = \text{----- (5)}$$

Where ABDAC = The absolute value of discretionary accruals in year t for firm i.

It is noted that Dechow et al. (1995) proposed a modified Jones Model with an aim to eliminate the conjectured tendency of the Jones model to measure the discretionary accruals with error when discretion is exercised over revenues (p. 119). Therefore, in Dechow's Modified Jones Model, the above equation (2) is replaced as:  $NDA_{it} = (1/A_{it-1}) + (\Delta REV_{it} - \Delta REC_{it}) + (PPE_{it})$  to measure the non-discretionary accruals. However, Teoh et al. (1998) believed that "Although investors can observe accruals, they can not infer perfectly what portion is discretionary, i.e., 'managed'. Given industry-related and firm-specific business conditions, some accrual adjustments are necessary." (p. 66) Thus, Teoh et al. (1998) introduced an industry cross-sectional two-stage regression model to extract those nondiscretionary accruals. In addition, McNichols (2000, P. 326) argued that credit policy can be a mechanism that managers use to accelerate revenue. However, credit policy is also a mechanism that management uses in the absence of earnings management motivations, and therefore the extent to which its effects are discretionary or nondiscretionary is not readily identifiable. Thus, this implies that the inclusion of the change of account receivables ( $\Delta REC$ ) in Dechow's Modified Jones Model is not appropriate. Furthermore, Kothari et al. (2005, P. 185) argued that unless a researcher is confident that credit sales represent accrual manipulation, the modified-Jones-model is expected to spuriously conclude earnings management, otherwise the use of the Modified Jones Model would not be appropriate. Based on the aforementioned prior studies, therefore, we apply Jones' (1991) model, but integrate it with Teoh's (1998) industry cross-sectional two-stage regression procedures in this study.

State-owned companies have been a major component in Chinese economy since the creation of the people's republic of China in 1949. In recent years, many of them have been reformed and become listed in China's security markets. In 2009, the state-owned companies as a whole made a total of RMB 22,509 billion (US\$3,215 billion equivalently) in operating revenues, and RMB 1,339 billion (US\$191) in net income, and contributed RMB 1,940 billion (US\$ 277 billion) in income tax in 2009 (Website of PRC Finance Department). Therefore, a high percentage of the state owned companies in the capital markets in China is a unique characteristics in its socialist economy under a communist political system. Therefore, in order to investigate if the state ownership would have impacts on the earnings management behavior, the data will be classified into three groups--all firms, state owned, non-state-owned and the regression equation (1) will be tested for each of the data group.

## **B. Data Sources**

We conduct this analysis with a set of companies which have been continuously listed on the Shanghai Stock Exchange (SHSE) and the Shenzhen Stock Exchange (SZSE) during our sample period of 2001-2007. A total of 1008 SHSE and SZSE listed firms are selected and their relevant information for this analysis are retrieved from both the China Stock Market and Accounting Research (CSMAR) Database and Center of China Economic Research (CCER) Database. The final samples consist of 4004 effective firm-year observations.

## **IV. Statistical Results**

### **A. Statistical Summary**

Table 1 provides a summary of the maximum value, minimum value, mean, and standard deviation for each of the above variables. As revealed, these 4004 samples have a mean for the absolute discretionary accruals (ABSDA) for 0.061. The average of the Herfindahl index for ownership concentration is 0.264 with a range from 0.004 to 30.967 and the standard deviation of 0.593, indicating the listed firms have a very wide span of their ownership concentration; some firms have very high concentration, and others have very low concentration. The mean of the dummy variable for the state-controlled companies (State\_Own\_D) is 0.809, reflecting 81% of the listed firms are owned or controlled by the state.

The range for the number of board directors (Num\_d) is 0 to 20, and the average of the number of board director is 9.683. The raw data reveal that three state-owned companies report a zero for the number of board directors. The Chinese Corporation Law requires that a public firm must formulate a board with members from 5 to 19. The mean of the number of board directors of 9.683 reflects the majority of the listed firms have met this regulatory requirement. The mean of the proportion of independent directors (Por\_d) is 32.4%, which is less than "1/3" as required by the Chinese Corporation Law. And the mean of the duality of CEO (CEO\_dua) is 0.267, which reflects that CEO is not the chairman of the board in most companies.

Finally, the mean of return on assets is 0.030 with a range of -1.498 to 0.430, and the mean of the debt ratio is 0.501 with a range of 0.025 to 9.699, and the mean of Tobin's Q is 1.156 with a range of -2.366 and 12.886. The statistics of these three variables consistently reveal that a large number of the listed firms reported heavy losses and also relied upon heavy liabilities during the research period of 2001-2007.



**Table 1: Summary of the Statistics of the Variables**

|             | min    | max    | average | sd    |
|-------------|--------|--------|---------|-------|
| ABDAC       | 0.000  | 0.878  | 0.061   | 0.068 |
| Herf_top10  | 0.004  | 30.967 | 0.264   | 0.593 |
| State_Own_D | 0.000  | 1.000  | 0.809   | 0.393 |
| Num_d       | 0.000  | 20.000 | 9.683   | 2.074 |
| Por_d       | 0.000  | 0.750  | 0.324   | 0.077 |
| CEO_dua     | 0.000  | 1.000  | 0.267   | 0.443 |
| ROA         | -1.498 | 0.430  | 0.030   | 0.080 |
| TobinQ      | -2.366 | 12.886 | 1.156   | 0.696 |
| Leve        | 0.025  | 9.699  | 0.501   | 0.236 |

Variable definition :

ABDAC = absolute discretionary accruals of the firm, as an indicator for earnings management.  
Herf\_top10 = index of Herfindahl for ownership concentration.  
Num\_d = number of the directors.  
Por\_d = the proportion of independent directors.  
CEO\_dua = a dummy variable that equals 1 if the CEO is the chairman or a vice chairman of the board of directors and 0 otherwise.  
ROA = return of assets calculated by dividing net income by the average book value of assets.  
TobinQ = the value of Tobin's Q.  
Leve = Debt ratio calculated by dividing liabilities by asset.

## B. Regression Results

Since the state-owned companies have made up the dominant component of the Chinese economy. Presumably the type of ownership would affect the manager's behavior on earnings management. Table3 presents the regression results of three data groups: all firms, non-state-owned, and state-owned.

First of all, let's explore the general results when all firms are taken as a sample group. It is found that ownership concentration (herf\_top10) and CEO duality (CEO\_dua) show a significant positive effect on earnings management, while the number of directors (Num\_d) has a significant negative effect on earnings management. However, the proportion of independent directors (Por\_d) reveals a non-significant negative factor. Thus, Hypotheses 1, 2, and 4 are confirmed, but our findings do not support Hypothesis 3. Secondly, the policy variables of Tobin's Q and debt ratio (Leve) reveal a significant positive effect on earnings management, while ROA shows a significant negative factor on earnings management.

In most recent financial miscues, such as Enron and Worldcom in the U.S. and Yin Guangxia, Sanjiu Pharmacy in China, the companies' reported income and assets were

inflated to an extent of misstatement and fraud. Smoothing income was not the major spirit of earnings management. The key purpose of corporate governance is to curb earnings management. With this as the key spirit of corporate governance and government regulation on the security markets, our findings here imply that the Chinese corporate governance and government regulation should take the measures that discourage ownership concentration and CEO duality because both ownership concentration and CEO duality motivate earnings management.

**Table 2: Regression Results on Earnings Management**

|   |                 | All       |         |          | Non_State_Own |         |          | State_Own |         |          |
|---|-----------------|-----------|---------|----------|---------------|---------|----------|-----------|---------|----------|
|   | Expected symbol | Coeff     | T-Value | Sig      | Coeff         | T-Value | Sig      | Coeff     | T-Value | Sig      |
| constant  |                 | 0.048     | 6.236   | 0.000*** | 0.052         | 2.553   | 0.011**  | 0.041     | 4.895   | 0.000*** |
| Herf_top10  | +               | 0.004     | 2.575   | 0.010**  | 0.011         | 2.782   | 0.006*** | 0.003     | 1.810   | 0.070*   |
| Num_d   | -               | -0.001    | -1.729  | 0.084*   | 0.000         | 0.030   | 0.976    | -0.001    | -1.662  | 0.097*   |
| Por_d   | -               | -0.015    | -1.138  | 0.255    | 0.010         | 0.280   | 0.780    | -0.028    | -1.953  | 0.051*   |
| CEO_dua   | +               | 0.005     | 2.355   | 0.019**  | 0.014         | 2.679   | 0.008*** | 0.003     | 1.076   | 0.282    |
| ROA   | ?               | -0.223    | -15.114 | 0.000*** | -0.308        | -11.067 | 0.000*** | -0.191    | -10.930 | 0.000*** |
| TobinQ  | +               | 0.015     | 10.207  | 0.000*** | 0.011         | 4.088   | 0.000*** | 0.017     | 8.974   | 0.000*** |
| Leve  | ?               | 0.026     | 5.145   | 0.000*** | 0.006         | 0.736   | 0.462    | 0.042     | 6.155   | 0.000*** |
| R <sup>2</sup>  |                 | 0.133     |         |          | 0.281         |         |          | 0.075     |         |          |
| ADJ R <sup>2</sup>  |                 | 0.132     |         |          | 0.275         |         |          | 0.074     |         |          |
| F-VALUE   |                 | 87.944*** |         |          | 42.243***     |         |          | 55.314*** |         |          |
| Variable definition : Please refer to Table 1.                                    |                 |           |         |          |               |         |          |           |         |          |
| Note: *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively. |                 |           |         |          |               |         |          |           |         |          |

However, the number of board members and the proportion of independent directors should be encouraged to increase because they likely to reduce earnings management.

When all firms are classified into two groups of state-owned and non-state-owned firms, a few interesting findings are discovered. First, both the number of directors and the proportion of independent directors show significant negative factors on earnings management for the state-owned firms, but their impact become not significant for the non-state-owned firms. Probably the boards of directors of the non-state-owned companies are generally more effective than those of the state-owned companies, and their functions as the board can be carried out effectively disregarding the size of the board and the proportion of independent directors for the private firms. Second, the CEO duality remains

as a significant positive factor affecting earnings management for the non-state-owned firms, but its effect becomes not significant for the state-owned group. There are very rare cases that a board chairperson is appointed as a CEO in a state-owned firm in China. As a statistical result, the CEO duality would not have a significant effect on the dependent variable as shown here. Finally, all three policy variables of Tobin's Q, ROA, and debt ratio consistently remain as significant factors for both state-owned firms and non-state-owned firms as for all firms.

## **V. Discussion and Implication**

According to Garcia and Sanchez-Ballesta (2009) and Holthausen et al.(1995), if the shareholding of some top largest shareholders is very large, earnings management would usually be inefficient for the firm as a whole because this type of ownership structure will form a high degree of congruence between their personal interest and the firm's interest, and thus, the largest shareholders may have very little incentive to engage in inefficient earnings management. Our finding about the effect of ownership on earnings management in China does not agree with that of Garcia and Sanchez-Ballesta (2009) and Holthausen et al.(1995) because our results reveal that when the ownership is more concentrated, there is a higher level of earnings management for all firms as a whole and for non-state-owned firms in China.

As indicated in the previous section, the earnings management behavior is much different between the groups of state-ownership and non-state-ownership. Both the number of directors and the proportion of independent directors are significant negative factors on earnings management for the state-owned firms, but their impacts become not significant for the non-state-owned firms. On the other hand, the CEO duality behaves as a significant positive factors affecting earnings management for the non-state-owned firms, but its effect becomes not significant for the state-owned firms. The security regulators should be aware that the same regulatory mechanisms would generate different effects and results on firms depending on the type of ownership as proven by the above findings. This information is expected to help improve the oversight efficiency by regulators. It will also help both internal and external auditors get aware where the audit risks may lie upon.

## **IV. Conclusion**

This paper empirically studies the impacts of various corporate governance mechanisms on earnings management of the listed companies in China. Presumably, if a company has implemented and practiced a higher level of corporate governance, there

would be a lower level of earnings management. In this study, four corporate governance mechanisms and three policy mechanisms have been identified and used as independent variables for testing each variable's effect on earnings management. These four corporate governance mechanisms include ownership concentration, number of directors, the proportion of independent directors, and CEO duality, while the return on assets, Tobin's Q, and debt ratio are the policy variables. It is found that ownership concentration and CEO duality show a significant positive effect on earnings management, while the number of directors has a significant negative effect on earnings management when all listed firms are taken as a whole group. When the sample is grouped into two groups of state-owned and non-state-owned, both the number of directors and the proportion of independent directors are revealed as significant negative factors on earnings management for the state-owned firms, but their impacts become not significant for the non-state-owned firms. Furthermore, the CEO duality remains as a significant positive factor affecting earnings management for the non-state-owned firms, but its effect becomes not significant for the state-owned group.

The Chinese capital market is relatively younger than those in the advanced countries. It is reasonable to expect the Chinese security market would encounter some problems, such as financial fraud, less accounting transparency, lack of fair presentation of statements, market instability, and regulatory inefficiency. Our findings have provided useful information for helping government regulators improve their oversight efficiency, and in particular, for helping the regulators design/enact more realistic corporate governance practice codes that will tailor to the Chinese institutional/cultural background and current environment capital market. In addition, our findings also provide useful guidance for firms to implement appropriate corporate governance practices with a goal to decrease earnings manipulation and to enhance the effectiveness of internal control as well.

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