Research on the Relationship between Corporate Governance and Earnings Management

Zhou Qiao
Beijing Wuzi University, Beijing, China

Abstract: With the rapid development of the securities market, the phenomenon that listed companies in China use earnings management to cheat stakeholders is more and more supervised by the securities market Earnings management is widespread both at home and abroad Therefore, how to restrain listed companies' illegal earnings management and improve accounting information has become an urgent problem to be solved This paper studies the relationship between corporate governance and earnings management from two dimensions of board management by selecting the data of A-share listed companies in China from 2007 to 2021 It is found that there is a U-shaped relationship between the size of board of directors and accrued earnings management, and there is a positive linear relationship between management shareholding ratio and accrued earnings management level.

Keywords: *Corporate Governance; The Size Of The Board Of Directors; Management Shareholding; Earnings Management*

I. INTRODUCTION

Earnings management refers to the use of structured transactions and other means by managers to change the contractual results based on financial reporting information, which affects the judgment of reporting users on the company's business activities (Healy and Wahlen, 1999) The function of corporate governance is to control the agency problem of the company and ensure that the management of the company can operate the company from the perspective of safeguarding the interests of investors to the maximum extent The function of corporate governance is mainly realized through corporate governance mechanism.

As an important manifestation of modern corporate agency problem, management earnings management is closely related to the effectiveness of corporate governance mechanism This is because an effective corporate governance mechanism usually aims at maximizing the value of the company. Managers who are bound by this governance framework know that only by truly improving the performance of the company can they maximize their own interests Therefore, a sound corporate governance mechanism can manage the motivation of earnings management; On the contrary, the ineffective corporate governance mechanism provides managers with more space and opportunities to encourage them to carry out earnings management because of the lack of hard constraints on managers' behavior.

II. THEORY AND RESEARCH HYPOTHESIS

A. Board Characteristics and Earnings Management

As one of the corporate governance, the purpose of the board of directors is to supervise the possible self-interested opportunistic behavior of the management There are many empirical studies on the advantages and disadvantages of the board size, but there is still no unified conclusion Some scholars believe that a relatively small board size is conducive to improving governance efficiency; Lu Hongru (2015), Yao Hong and Jia Wei (2018) and other scholars support the opposite view; However, a few scholars, such as Zhang Qin, Chen Lianghua (2012) and Ni Juan (2012), have found that there is not enough evidence to show that there is a significant linear relationship between the size of the board of directors and the degree of earnings management.

When the size of the board of directors is large, there may be some problems such as low communication efficiency, and the board members tend to "hitchhike" and are unwilling to take the initiative to correct the mistakes in the decision-making of the general manager, which is not conducive to supervising the earnings management behavior of the management; But the smaller board of directors has some problems, such as professional competence of directors and subjective factors in decision-making. There is no simple linear correlation between board size and earnings management With the size of the board of directors, there will be a maximum number of boards to effectively play its governance functions. However, the role of the board of directors exceeding this number will increase the control space of the company executives for earnings Therefore, the paper puts forward the following assumptions about the influence of board size on earnings management:

H1: There is a U-shaped relationship between the size of the board of directors of listed companies and accrued earnings management.

B. Management Incentive and Earnings Management

Management incentive is an aspect of corporate governance. Reasonable executive compensation incentive system can give full play to the enthusiasm of management and create wealth for the company better As another kind of incentive to alleviate agency problem, managerial shareholding can connect the interests of shareholders and management more closely than new reward incentive Existing research shows that managerial shareholding will also lead to earnings management behavior of company executives Enhanced management power in management-owned companies. Executives will use information dissimilarity to create opportunities for self-trading, and even manipulate earnings and investment decisions to gain personal benefits Chen Qianli (2008) found that the excessive shareholding ratio of management will lead to large shareholders infringing on the interests of small shareholders and invalidate the market supervision measures to restrain earnings management activities. Guan Jianqiang (2012) found that executives in companies that implement equity incentive system implement earnings management in order to pursue more interests.

In the case of management holding shares, company executives are both principals and agents At this time, the main interests of both shareholders and managers depend on the discounted value of cash flow during the future existence of the company Therefore, managerial shareholding can make up for the inherent defects of compensation incentive to a certain extent, that is, managerial shareholding can make up the risk of earnings management under compensation incentive Although management shareholding can not completely eliminate the motivation and behavior of earnings management of company executives However, managerial shareholding may change executives' preference in earnings management under compensation incentive. This is because manipulative accrued earnings management achieves the purpose of manipulating performance through the choice of accounting policies, which usually does not change the cash flow and its time distribution in the future of the company, and will not damage the company value qualitatively in the long run Therefore, the paper puts forward the following assumptions about the impact of management incentives on earnings management:

H2: There is a positive linear relationship between management shareholding ratio and accrued earnings management level

III. RESEARCH DESIGN

A. Sample selection and data source

In order to validate the hypothesis and sample, the paper selects the non-financial enterprises of Chinese A-share listed companies from 2007 to 2021 as the first screening sample, and eliminates the samples with ST or PT trading status and missing and duplicate data, and finally eliminates the final sample observation value of 37,298 The data of variables selected in this paper are all from the database of National Taian (CSMAR) In order to avoid the influence of extreme values, the paper implements a bidirectional 1% tail reduction treatment for continuous variables in order to avoid the influence of extreme values.

B. Variable selection

①Accrued earnings management

Using Dechow and Sloan (1995) for reference, the modified Jones model is used to measure the accrued earnings management of enterprises, and the specific calculation is as follows:

$$\frac{TA_t}{A_{t-1}} = \beta_1 \times \frac{1}{A_{t-1}} + \beta_2 \times \frac{\Delta REV_t - \Delta REC_t}{A_{t-1}} + \beta_3 \times \frac{PPE_t}{A_{t-1}} + \varepsilon_t \quad (1)$$

$$NDA_t = \hat{\beta}_1 \times \frac{1}{A_{t-1}} + \hat{\beta}_2 \times \frac{\Delta REV_t - \Delta REC_t}{A_{t-1}} + \hat{\beta}_3 \times \frac{PPE_t}{A_{t-1}} \quad (2)$$

$$AM_t = \left| \frac{TA_t}{A_{t-1}} - NDA_t \right| \quad (3)$$

Firstly, the model (1) is regressed by year and industry to get the estimated coefficient value, which is brought into the model (2) to get the non-manipulative accrued profit (), and then the model (3) is used to calculate the management degree of enterprise accrued earnings Where (total accrued profit) is the difference between the net profit of the current enterprise and the net cash flow from operating activities; It is the total assets of the enterprise in the previous period; It is the difference between the main business income of the enterprise in the current period and the previous period; It is the difference between the accounts receivable of the enterprise in the current period and the previous period; Net fixed assets of the enterprise at the end of the current period; Regression residuals.

②Corporate governance

Corporate governance is expressed from two dimensions: board of directors and management In terms of board characteristics, the board size is selected as the proxy variable of board effectiveness; In the aspect of management incentive, this paper chooses the management shareholding ratio to measure it to investigate the influence of management incentive on earnings management.

③Control variables

According to the research practice of existing research literature, in order to better explain the relationship between the main variables, we select asset-liability ratio (lev), independent director ratio (ind), company size (size), growth ability （growth） ,Two-job integration (dual) and cash flow (cfo) as control variables. At the same time, we introduce annual and industry dummy variables to control the influence of macroeconomic changes and industry factors on the research results.

Table 1 Variable names and definitions table

Variable type	Variable name		Variable symbol	Variable definition
Explained variable	Earnings management	Accrued earnings management	DA	The modified Jones model is used and calculated by (1), (2) and (3)
Explanatory variable	Corporate governance	Board size	board	Total number of directors
		Management shareholding ratio	ratemag	(Directors' shareholding + supervisors' shareholding + executives' shareholding)/total number of shares
Control variable	Asset-liability ratio		lev	Total liabilities/total assets
	Proportion of independent directors		rate	Total number of independent directors/board of directors
	Company size		size	ln (Total Assets of the Company at Year-end +1)
	Growth ability		growth	Growth rate of main business income
	Two-job integration		dual	If the chairman and general manager are not the same person, it will be 1. If not, it will be 0
	Cash flow		cfo	Net cash flow from operating activities of listed companies

C. Model design

Combined with the above theory, the following regression model is constructed to test, in which τ_t represents the annual fixed effect, μ_i represents the industry fixed effect, and ε is a random disturbance term.

$$DA = \alpha_0 + \alpha_1 board + \alpha_2 board^2 + \alpha_3 ratemag + \sum \alpha \times controls + \mu_i + \tau_t + \varepsilon$$

$$DA = \alpha_0 + \alpha_3 ratemag + \sum \alpha \times controls + \mu_i + \tau_t + \varepsilon$$

IV. EMPIRICAL RESULTS

A. Descriptive statistics

Table 2 is descriptive statistics for each variable The results show that firstly, the average value of accrued earnings management of listed companies is 0.0080, the value is 0.5849, and the minimum value is-0. 7957, which shows that the earnings management degree of selected listed companies is small, and there are great differences in earnings management among different listed companies; Secondly, the difference between board size and management shareholding is 2.2693 and 0.2659 respectively, which shows that there are some differences among different listed companies; Finally, for the control variables, the results show that they are all in the normal range.

Table 2: Descriptive statistics

VarName	Obs	Mean	SD	P25	Median	P75	Min	Max
DA	37298	0.008	0.159	-0.036	0.014	0.063	-0.796	0.585
board	37298	9.329	2.269	8.000	9.000	10.000	5.000	17.000
board2	37298	92.170	47.857	64.000	81.000	100.000	25.000	289.000
ratemag	37298	0.170	0.266	0.000	0.003	0.284	0.000	0.937
lev	37298	0.438	0.217	0.267	0.428	0.594	0.054	0.994
rate	37298	0.376	0.062	0.333	0.364	0.429	0.250	0.571
size	37298	22.030	1.312	21.095	21.863	22.783	19.308	26.054
growth	37298	0.068	0.243	0.000	0.000	0.061	-0.489	1.509
dual	37298	0.736	0.441	0.000	1.000	1.000	0.000	1.000
cfo	37298	5.481	17.947	0.108	1.112	3.920	-19.239	134.641

B. Correlation

Table 3 reports the correlation coefficient matrix in which Pearson correlation coefficient is at the bottom left and Spearman correlation coefficient is at the top right. It can be seen that both Pearson correlation coefficient and Spearman correlation coefficient show that there is no obvious multicollinearity between most variables. The hypothesis is also preliminarily proposed between independent variables and dependent variables Subsequent articles will further test the nonlinear relationship between board size and accrued earnings management by combining research hypotheses and empirical models In addition, the correlation of most variables except the proportion of independent directors is at a reasonable level, which shows that there is no multicollinearity between variables, which will not have a substantial impact on the regression results. It also means that the control variables selected in this paper are more appropriate.

Table 3: Correlation coefficient matrix

	DA	board	board2	ratemag	lev	rate	size	growth	dual	cfo1
DA	1	-0.014*	-0.014*	0.052*	-0.086*	-0.007	-0.038*	0.057*	-0.008	-0.393*
board	-0.008*	1	1.000*	-0.148*	0.135*	-0.311*	0.218*	0.002	0.150*	0.128*
board2	-0.011*	0.985*	1	-0.148*	0.135*	-0.311*	0.218*	0.002	0.150*	0.128*
ratemag	0.021*	-0.171*	-0.165*	1	-0.310*	0.089*	-0.204*	0.054*	-0.254*	-0.105*
lev	-0.067*	0.136*	0.134*	-0.316*	1	-0.033*	0.427*	0.005	0.130*	0.080*
rate	-0.000	-0.226*	-0.176*	0.101*	-0.030*	1	-0.026*	0.003	-0.093*	-0.021*
size	0.018*	0.233*	0.229*	-0.278*	0.396*	-0.009	1	0.074*	0.153*	0.504*
growth	0.057*	0.006	0.007	0.023*	0.017*	0.006	0.056*	1	-0.005	0.078*
dual	0.005	0.139*	0.128*	-0.289*	0.125*	-0.096*	0.144*	-0.003	1	0.088*
cfo	-0.096*	0.141*	0.145*	-0.129*	0.137*	0.011*	0.540*	0.021*	0.059*	1

C. Regression

①Board Characteristics and Earnings Management

The regression results between board size and accrued earnings management are shown in Table 6. Column 1 in Table 4 shows the linear regression relationship between board size and accrued earnings management, and board size has a significant negative inhibitory effect on accrued earnings management; The results show that the regression coefficient of board size corresponding to earnings management is significantly positive at 5% level, while the regression coefficient of board size corresponding to earnings management is significantly negative at 1% level. It shows that there is a U-shaped relationship between board size and earnings management. H1 holds.

Table 4: Board of Directors and Earnings Management

	（1） DA	（2） DA
board	-0.0007** （0.048）	0.0043** （0.047）
board2		-0.0002*** （0.018）
lev	-0.1056*** （0.000）	-0.1054*** （0.000）
rate	0.0003 （0.981）	0.0086 （0.524）
size	0.0214*** （0.000）	0.0213*** （0.000）
growth	0.0345*** （0.000）	0.0346*** （0.000）
dual	-0.0021 （0.199）	-0.0023 （0.176）
cfo	-0.0014*** （0.000）	-0.0014*** （0.000）
_cons	-0.3872*** （0.000）	-0.4131*** （0.000）
Year	Yes	Yes
Industry	Yes	Yes
N	37298	37298
adj.R-sq	0.178	0.178
F	75.0716	73.3414

Note: ***、**、* is significant at the level of 1%, 5% and 10% respectively; The value of P is in parentheses

②Management Incentive and Earnings Management

The regression results of management shareholding ratio and accrued earnings management are shown in Table 5. The results in Table 5 show that the regression coefficient of managerial shareholding ratio to earnings management is significantly positive at 1% level, which shows that the hypothesis holds.

Table 5: Management Ownership and Earnings Management

	DA
ratemag	0.0184*** （0.000）
lev	-0.1018*** （0.000）
rate	0.0009 （0.941）

size	0.0218*** （0.000）
growth	0.0339*** （0.000）
dual	-0.0002 （0.921）
cfo	-0.0014*** （0.000）
_cons	-0.4075*** （0.000）
Year	Yes
Industry	Yes
N	37298
adj.R-sq	0.179
F	75.7156
P	

Note: ***、**、* is significant at the level of 1%, 5% and 10% respectively; The value of P is in parentheses

D. Robustness test

① Consider the hysteresis effect

In order to avoid the mutual causality between earnings management and board size and management shareholding, this paper deals with the independent variables one-stage behind The regression results are as shown in Table 6. The conclusion is still valid.

Table 6: Regression results considering hysteresis effect

	（1） DA	（2） DA	（3） DA
lboard	-0.0003 （0.489）	0.0965*** （0.000）	
lboard2		-0.0267*** （0.000）	
lratemag			0.0100*** （0.002）
lev	-0.1035*** （0.000）	-0.1034*** （0.000）	-0.1016*** （0.000）
rate	0.0066 （0.625）	0.0113 （0.423）	0.0065 （0.613）
size	0.0223*** （0.000）	0.0223*** （0.000）	0.0226*** （0.000）
growth	0.0368*** （0.000）	0.0369*** （0.000）	0.0364*** （0.000）
dual	-0.0007 （0.507）	-0.0008 （0.476）	0.0003 （0.872）
cfo	-0.0014*** （0.000）	-0.0014*** （0.000）	-0.0014*** （0.000）
_cons	-0.4126*** （0.000）	-0.4289*** （0.000）	-0.4225*** （0.000）
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
N	31683	31683	31683
adj.R-sq	0.181	0.181	0.182
F	66.8471	65.3251	67.3051

Note: ***、**、* is significant at the level of 1%, 5% and 10% respectively; The value of P is in parentheses

② Change variable measurement

Choosing different measures for key variables may have an impact on the conclusion Firstly, the paper changes the size of the board of directors, eliminates independent directors and takes logarithm; Secondly, the measure of changing management shareholding records the management holding of company shares as 1 otherwise, it is 0 The regression results are shown in Table 7, which shows that although the measures are different, the conclusions are still valid.

Table 7: Measuring Regression Results by Changing Variables

	（1） DA	（2） DA	（3） DA
newboard	-0.0059 （0.156）	0.0735** （0.017）	
newboard2		-0.0208*** （0.010）	
newratemag			0.0014** （0.013）
lev	-0.1057*** （0.000）	-0.1053*** （0.000）	-0.1060*** （0.000）
rate	-0.0084 （0.602）	0.0012 （0.942）	0.0053 （0.668）
size	0.0213*** （0.000）	0.0213*** （0.000）	0.0211*** （0.000）
growth	0.0345*** （0.000）	0.0345*** （0.000）	0.0345*** （0.000）
dual	-0.0022 （0.186）	-0.0023 （0.174）	-0.0024 （0.146）
cfo	-0.0014*** （0.000）	-0.0014*** （0.000）	-0.0014*** （0.000）
_cons	-0.3781*** （0.000）	-0.4559*** （0.000）	-0.3901*** （0.000）
Year	Yes	Yes	Yes
Industry	Yes	Yes	Yes
N	37298	37298	37298
adj.R-sq	0.178	0.178	0.178
F	75.0365	73.4408	74.9193

Note: ***、**、* is significant at the level of 1%, 5% and 10% respectively; The value of P is in parentheses

CONCLUSION

This paper studies the relationship between corporate governance and earnings management from two dimensions of board management by selecting the data of A-share listed companies in China from 2007 to 2021 The research conclusions are as follows:

With the size of the board of directors, the lower the possibility of effective supervision of management is, the more likely the management is to engage in earnings management. But from another point of view, the larger board of directors can absorb more directors with rich management and financial background, which is more effective in restricting the management's earnings management behavior Therefore, with the size of the board of directors, there will be a maximum number of boards to effectively play its governance functions. However, the role of the board of directors exceeding this number will increase the control space of the company executives for earnings.

When the management does not hold shares, the management has less rights, because accrued earnings management is easier to be found, the company executives will not prefer to adopt accrued earnings management considering reputation and career prospects; When the management holds the stock, the management has more power, and the right to speak in accounting policy choice and performance determination is greater. In order to adopt accrued earnings management for personal monetary salary preference, Therefore, there is a positive linear relationship between management shareholding ratio and accrued earnings management level.

References

[1] Lu Hongru. Research on the Correlation between Board Size Earnings Management and Audit Opinions [J]. Modern Commerce and Trade Industry, 2015, 36 (20): 116-118.

[2] Yao Hong, Jia Wei, Hao Xiaoyu, Wang Lijie. Product Market Competition Board Structure Change and Earnings Management [J]. Management Review, 2018, 30 (04): 194-205.

[3] Zhang Qin, Chen Lianghua. An Empirical Study on the Relationship between Board Characteristics and Earnings Management--Based on Panel Data of Small and Medium-sized Listed Companies in China [J]. Friends of Accounting, 2012 (36): 101-106.

[4] Wang Changrui and Ni Juan. Characteristics of Board of Directors with Ownership Structure and Earnings Management [J]. Journal of Anhui University (Philosophy and Social Sciences Edition), 2012, 36 (01): 141-149.

[5] Chen Qianli. Earnings manipulation by equity incentive and reduction of state-owned shares [J]. Journal of Sun Yat-sen University (Social Science Edition), 2008 (01): 149-155 +207.

[6] Su Dongwei, Lin Dapang. Equity incentive earnings management and corporate governance [J]. Economic Research, 2010, 45 (11): 88-100.

[7] Gao Lei, Corporate Governance, Institutional Investors and Earnings Management [J]. Accounting Research, 2008 (09): 64-72 +96.

[8] Zhang Juan and Huang Zhizhong. Heterogeneity of earnings management, corporate governance and executive compensation-an empirical study based on Chinese listed companies [J]. Economic Management, 2014, 36 (09): 79-90.

[9] Healy P. Wahlen J A Review of the Earnings Management Literature and Its Implications for Standard[J].Accounting Horizon.1999,13,（4）365-383.