

The Relationship between the Board Size and Accrual Earnings Management

—Based on the Moderate Effect of Information Disclosure

Li Weijian¹, Yu Guo²

¹Australian National University

²Zhengzhou University of Aeronautics

Keywords: board size; accrual earnings management; information disclosure

Abstract: As a special field of corporate governance, earnings management has always been the focus of academic research. This paper mainly analyzes the role of board size on earnings management and the moderate effect of information disclosure quality. The research on the earnings management standardizes the managers' manipulative behaviors on companies' accrued earnings and provides information for both internal and external users.

1. Introduction

In recent years, earnings management, as an aspect of corporate governance, is the focus of heated discussion by scholars from all over the world. Earnings management was first defined by American scholars Schipper (1989, p.92)^[1], which is “a purposeful reporting process with the intent of obtaining some private gain”. Accrual earnings management mainly uses the flexibility of accounting policy choices to manipulate the earnings of enterprises. Excessive earnings management will lead to the loss of shareholders' interests. As the main management organization of corporate governance, the board of directors plays a monitoring role in the company. The focus of this paper is to see whether board size can restrain accrual earnings management. In addition, this paper also analyzes the moderate effect of information disclosure quality.

2. Related Literature and Hypotheses

2.1 The board size and accrual earnings management

Jensen and Meckling (1976)^[2] put forward the agency theory and state that the board of directors can reduce the agency cost by performing the monitoring function. One of the manifestations of high agency cost is that managers manipulate earnings for their own interests, which reduces the quality of accounting information and damages the interests of company owners. Therefore, we speculate that the board of directors with large size should be able to reduce the earnings management more effectively because they will be more experienced.

H1: There is a significant negative correlation between board size and the degree of accrual earnings management.

2.2 The monitoring role of information disclosure

According to Jo and Kim (2007)^[3], the frequency of disclosure is inversely proportional to earnings management, indicating that companies are unlikely to face financial problems if the disclosure is more comprehensive. The more information is disclosed, the less the public will doubt about the company's financial information errors. Directors perhaps pay less attention to the company which is comprehensively disclosed. Thus, the monitor role of the board on earnings management might be less effective, and even directors ignore to monitor the earnings management due to the high quality of information disclosure. On the contrary, when the quality of information disclosure is poor and the company deliberately conceals some accounting information, it is likely that there will be higher earnings management. In this way, the role of the board of directors in monitoring earnings management will be more effective. Therefore, we bring forward hypothesis 2.

H2: The high quality of information disclosure plays an inhibiting role when the directors monitor the accrual earnings management.

3. Data Sources and Sample Selection

3.1 Data sources

The samples used in this paper are A-share companies listed in Shenzhen Stock Exchange from 2011 to 2018. We delete the samples of ST companies, financial industry companies, data missing samples, and companies whose industry observation value is less than 10. Finally, we got 1,771 listed companies in 10,776 samples. The financial data of this paper mainly comes from CSMAR database, and the quality of information disclosure of listed companies comes from Accounting Information Assessment Level in Shenzhen Stock Exchange.

3.2 Definition of variables

Accrual earnings management (AEM) is calculated using the modified Jones model and we also take the absolute value of AEM (ABSAEM).

$$\frac{NDA_{i,t}}{A_{i,t-1}} = \beta_0 \left(\frac{1}{A_{i,t-1}} \right) + \beta_1 \left[\frac{(\Delta REV_{i,t} - \Delta REC_{i,t})}{A_{i,t-1}} \right] + \beta_2 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) + \varepsilon_{i,t} \quad \text{Formula (1)}$$

$$AEM_{i,t} = TA_{i,t} - NDA_{i,t} \quad \text{Formula (2)}$$

In formula (1), $NDA_{i,t}$ represents the total accrued profit of company i in year t . $A_{i,t-1}$ represents the total assets of company i in year $t-1$. $\Delta REV_{i,t}$ represents the difference between the operating income of company i in the period t and period $t-1$. $\Delta REC_{i,t}$ represents the difference between the net accounts receivable of company i in period t and period $t-1$. $PPE_{i,t}$ represents the net fixed assets of company i in year t . In formula (2), $AEM_{i,t}$ represents the accrued earnings management of company i in year t . $TA_{i,t}$ represents the total accruals of the company i in year t , which is calculated by the net profit less cash flows from operating activities. Finally, the absolute value of the index (ABSAEM) is used to represent the degree of accrual earnings management. The larger the index is, the greater the degree of accrual earnings management will be.

The size of the board of directors (BOD) is measured by the number of the board of directors in the year. The more the number of BOD is, the larger board size will be. According to the information disclosure level published by Shenzhen Stock Exchange, DIS is divided into ABCD (Grade A=3, Grade B=2, Grade C=1, Grade D=0). The higher the grade is, the higher the value will be and the better the quality of information disclosure will be. The specific measurement of other control variables is shown in Table 1.

Table 1 Definition of control variables

Control variables	Abbreviation	Operational definition
Audit quality	BIG4	Whether the accounting firm of listed company is big four (Yes=1, No=0).
Equity concentration	TOP5	The proportion of the top five shareholders
Solvency	LEV	Asset liability ratio = Total Liabilities / Total Assets
Operational capacity	AT	Total Asset Turnover = Sales Revenue / Total Assets
Operational performance	PERF	Cash Flow from Operating Activities / Total Assets
Year	YEAR	Take the current year as dummy variable
Industry	IND	Take the companies' industry as dummy variable

3.3 Model specification

In order to verify the above hypotheses, the following multiple linear regression models are established. Model 1 verifies the relationship between the size of the board of directors and accrual

earnings management, and model 2 verifies the moderate effect of information disclosure.

$$ABSAEM = \beta_0 + \beta_1 BOD + \beta_2 CONTROL + \varepsilon \quad \text{Model (1)}$$

$$ABSAEM = \beta_0 + \beta_1 BOD + \beta_2 BOD * DIS + \beta_3 CONTROL + \varepsilon \quad \text{Model (2)}$$

4. Empirical Results

4.1 Descriptive and correlation analysis

From the description and analysis of the main variables in Table 2, we can see that the average accrual earnings management is 0.068, and the standard deviation is 0.072. In the sample company, there are 18 directors at most and 0 director at least, with an average of around 8 directors. The average level of information disclosure quality is B, the standard deviation is 0.6251, and the degree of dispersion is large, which indicates that the information disclosure level varies in different companies.

Table 2 Descriptive Table

Variable	Obs	Mean	Std.Dev.	Min	Max
ABSAEM	10,776	0.068	0.072	0.002	0.34
BOD	10,776	8.449	1.648	0	18
DIS	10,776	2.044	0.625	0	3

Table 3 shows the correlation between the main variables. The accrual earnings management, the number of directors and the quality of information disclosure are significantly correlated. The variance inflation factor (VIF) is less than 2, and the correlation coefficient is less than 0.3, which indicates that there is no serious multicollinearity problem.

Table 3 Correlation Table

	ABSAEM	BOD	DIS
ABSAEM	1.000		
BOD	0.0474***	1.0000	
DIS	-0.1498***	0.0967**	1.0000

4.2 Regression results

In order to alleviate the endogeneity caused by reverse causality, this paper will lag the number of BOD. BOD1 is the lag one period and BOD 2 is the lag two periods. Table 4 shows the results of empirical analysis. It can be seen in model (1), the number of board of directors is negatively significant at the level of 1% significance, which supports hypothesis 1, indicating that the increase in the number of board size can inhibit the degree of earnings management. In model (2), the interaction terms between the board of director and information disclosure are significant, which indicates the existence of moderating effect and verifies the existence of hypothesis 2. Interaction term symbols are all negative numbers, indicating that high-quality information disclosure inhibits the monitoring of earnings management by the board of directors. In enterprises with high quality of information disclosure, the directors are likely to ignore the existence of earnings management and the monitoring role is not effective.

Table 4 Empirical Results

	Model (1)			Model (2)		
	ABSAEM					
BOD	-0.003***			0.0003		
	(0.000)			(0.001)		
BOD1		-0.002***			0.001**	
		(0.000)			(0.001)	
BOD2			-0.002***			0.001**

			(0.001)			(0.001)
BOD*DIS				-0.001***		
				(0.000)		
BOD1*DIS					-0.001***	
					(0.000)	
BOD2*DIS						-0.001***
						(0.000)
BIG4	-0.001	-0.003	-0.004	0.001	-0.000	-0.001
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
TOP5	0.014***	0.014**	0.016**	0.018***	0.018***	0.020***
	(0.005)	(0.006)	(0.007)	(0.005)	(0.006)	(0.007)
LEV	0.026***	0.032***	0.039***	0.024***	0.029***	0.035***
	(0.002)	(0.003)	(0.004)	(0.002)	(0.003)	(0.004)
AT	0.008***	0.007***	0.008***	0.008***	0.008***	0.008***
	(0.001)	(0.002)	(0.002)	(0.001)	(0.002)	(0.002)
PERF	-0.149***	-0.136***	-0.151***	-0.141***	-0.127***	-0.140***
	(0.009)	(0.010)	(0.011)	(0.009)	(0.010)	(0.011)
YEAR	Control	Control	Control	Control	Control	Control
IND	Control	Control	Control	Control	Control	Control
R-squared	0.1195	0.0939	0.0947	0.1293	0.1076	0.1093

4.3 Robustness test

To replace the measurement of accrual earnings management, the Jones model of intangible assets proposed by Lu Jianqiao (1999) ^[4] is used in this robustness test and the following formula is replaced by formula (1).

$$\frac{NDA_{i,t}}{A_{i,t-1}} = \beta_0 \left(\frac{1}{A_{i,t-1}} \right) + \beta_1 \left[\frac{(\Delta REV_{i,t} - \Delta REC_{i,t})}{A_{i,t-1}} \right] + \beta_2 \left(\frac{PPE_{i,t}}{A_{i,t-1}} \right) + \beta_3 \left(\frac{IA_{i,t}}{A_{i,t-1}} \right) + \varepsilon_{i,t},$$

where $IA_{i,t}$ represents the net value of intangible assets of company i in year t.

The empirical results remain robust under the new formula. Considering the length of the article, the empirical results are not reported any more.

5. Conclusions

This paper uses the sample of A-share companies of Shenzhen Stock Exchange from 2011 to 2018 by the OLS method to conduct multiple linear regression and analyzes the impact of board size on accrual earnings management based on the moderate effect of information disclosure quality. The empirical results show that: (1) the expansion of the board of directors has a significant negative effect on restraining accrual earnings management and plays a monitor role in companies. (2) Information disclosure has a moderate effect on board size and accrual earnings management. Specifically, when the directors are facing companies with high disclosure quality, the increase of its size will not improve the monitoring effect of earnings management. On the contrary, the lower the quality of information disclosure is, the more obvious effect of board size on earnings management will be.

References

- [1] SCHIPPER, K. (1989): 'Commentary on earnings management'. Accounting Horizons 3, pp. 91-102.
- [2] Jensen M C, Meckling W H. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure[J]. Journal of Financial Economics, 1976, 4 (3) :305-360.

[3] JO, H. & KIM, Y. 2007, "Disclosure frequency and earnings management", *Journal of Financial Economics*, vol. 84, no. 2, pp. 561-590.

[4] Lu Jianqiao. Empirical Study on earnings management of loss making listed companies in China [J]. *Accounting research*, 1999 (09): 25-35