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Research on the Relationship between Internal Control Quality and Earnings Management under the Adjustment of Ownership Structure—Empirical Analysis Based on the A-share Listed Companies in Shanghai and Shenzhen

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Abstract: The financial fraud cases exposed by domestic and foreign listed companies have exposed the fragility of the internal control system of listed companies to a certain extent. How to promote enterprises to carry out reasonable earnings management activities is particularly important. This paper takes the non-financial A-share listed companies involved in 2016-2020 as the research object to conduct a comprehensive analysis, studies the relationship between internal control quality and earnings management, and summarizes the adjustment of corporate ownership structure to the two effect. Research shows that: the quality of internal control is negatively correlated with earnings management, that is, good internal control will constrain real earnings management activities; the degree of ownership concentration and the degree of checks and balances will negatively adjust the restrictive effect of internal management on real earnings management, and the internal control An in-depth study of the relationship between earnings management is not only conducive to efficient internal control of listed companies, but also to carry out reasonable and effective earnings management activities. It is hoped that it will be helpful to the improvement of the country's social and economic level and the development of the country's comprehensive national strength.

1. Introduction

The concept of earnings management has been widely focused on by the western academic circle for a long time. Along with the prosperous development of our country, many western problems occur in China. The situation is more complicated due to the uniqueness of our domestic situation. Chinese companies face huge activities of earnings management with the trend of diversification and complexity. The study by Huang shows that adequate earnings management could better serve the sustainable operation of a company and effectively ensure the rights of shareholders and stockholders [1]. A reasonable earnings management activity would build up the corporate brand image and improve the quality of accounting information to some extent, so it is good for the achievement of the company’s business target. Qin thinks that the essence of earnings management is the job of a company to ensure its own operational effectiveness and maximal market value when applying accounting policies and adjusting the accounting budget [2]. However, many listed companies would control their earning information by adopting the activities of real earnings management to gain the maximal corporate profit, which would not only greatly weaken the quality of accounting information of listed companies, the investment confidence of investors and the sustainable and steady development of securities trading, but also infringe the interests of China as whole, small and medium-sized companies and creditors. Thus, it is so urgent how to effectively push the companies to carry out adequate earnings management activity.

In view of the correlation between corporate internal control and earnings management, there is no unified conclusion in the existing relevant research. Jeffrey et al., Chan et al, and Ashbaugh-Skaife et al. point out that a company with protruding problems of internal control would have a higher possibility to implement the work of earnings management, but the quality of earnings management is not good[3-5]. Cheng et al hold the idea that a good implementation of the internal regulatory system of the company would be a crucial role in curbing activities of its real earnings management[6]. Li and Liang draw a conclusion through practice analysis that there would be no change in earnings management during the process when the company improves the internal control quality[7]. Thus, it is very important to study the relationship between internal control quality and earnings management.

There is a distinct difference in the equity structure between the Chinese listed companies and the western ones. The state-owned shares take up the dominant position, and the setup of major shareholders would affect the implementation of internal control to some extent. The problem of whether the equity structure would affect the internal control quality and earnings management needs a profound study. This study makes the equity structure a moderating variable to have a comprehensive analysis and study on the moderating effect of equity structure on the Chinese corporate internal control and the job of earnings management, so as to keep upgrading the corporate internal control and earnings management. In addition, it points out that reasonable internal control could effectively restrict the ability of the senior executives and holding shareholders to have real earnings management, help companies improve the quality of accounting earnings and achieve the target of maximal profit. Hence, it is an active pusher for the economic development of our country and the comprehensive strength of companies[6].

2. Literature review

2.1 Study on the internal control

Scholars have study on the influencing factors of the company's internal control quality, and the results show that it is mainly decided by the own features of the company and the features of internal management. Many foreign scholars deem whether there are loopholes and problems in the internal management of a company as a measuring standard to evaluate the quality of internal management. Ashbaugh-Skaife et al analyze and compare the companies with the problems of corporate internal control and others without the problem, and they draw a conclusion that there would be some defects in the management structure if there is a problem in the corporate internal control, and there would be bigger business risk and imperfect construction of corporate internal control [8]. Rice and Weber makes the companies with problems in the internal regulatory system as samples to show that: the larger the company is with the entrustment of large law firms to audit at the same time, the higher the internal control quality of companies would be; while the companies with the problems in the finance and the reforms in the management would have worse internal control quality [9].

In addition, many researchers describe the influencing factors of the internal control quality of a company from the company size, listing time, equity structure, earnings of the company, audit committee and other aspects [10]. Krishnam treats the authority of the audit committee as a key factor to affect internal control quality [11]. Krishnam thinks that it would be better for improving the internal control quality if the audit committee is more authoritative and experts are more competent. Hoitash et al have made a relevant internal investigation and found that a higher number of committee members with stronger professional strength in the audit committee would be a greater helper for the enhancement of the internal management ability of the company [12].

After entering the 21st century, especially after the occurrence of the accidence of Guangxia (Yinchuan) and the fraud of Lantian Group, scholars conduct studies on the influencing factors of internal control efficiency. They mainly have profound study from such perspectives as the basic features management features and timeliness of information release of the company. Cai finds it through practical research that many listed companies have worse internal accounting information quality and there are also many invisible risks in the financial operation of the company, and there are omissions in the internal management system of many companies[13]. Zhang and Zheng find it through research that the internal control quality of companies in different stages is verified, and there is higher overall internal control quality after being in the maturity stage and the starting up stage[14]. After research, Li et al finds that the earlier establishment of the company would have worse internal management quality for some loopholes in the securities market supervision system or the implementation of laws was not standardized in the early period[15]. Chen et al have a comprehensive analysis of the impact of committees and boards of directors on internal quality control[16]. They clarify the important role of directors in internal control. Cheng and Wang jointly explore the impact of economic development and the integrity of executives on internal control quality[17]. All of these affect different indexes of corporate internal control so as to affect the internal management quality. Wei Fengying et al think that the guidance and supervision of audit institutions impose a significant impact on the internal control quality of a company, so mandatory disclosure is more helpful to improve the internal control quality than voluntary disclosure[18]. Li thinks that China needs to refer to the successful experience of foreign countries to improve the regulatory system of internal control so as to ensure the improvement of internal management quality[19].

2.2 Study on the on the relationship between internal control quality and real earnings management

The study shows that there is a positive correlation between internal control quality and real earnings management. According to the selection intention of the two methods for earnings management proposed by Yang and Ma, when the internal control quality is higher, the company hopes to adjust the cashflow of income and cost of the company through actual marketing activities such as marketing discounts and marketing policies[20].

Partial studies show that there is a negative correlation between the two parties. Xu et al do not only conduct a simple study of the relationship between the two parties but have a comprehensive analysis of the interaction between the internal management model of the company and the related party transactions and the impact of the two kinds of earning management work of listed companies combined with the associative transaction governance system [21]. The test result shows that the improvement of internal control quality is helpful to reduce the behavior of earnings management caused by suppliers. The study of Cheng et al shows that the ownership of the company and its size would affect the correlation between the internal management quality and earnings management of the company, and it would be protruding in the negative correlation of the two parties in the company group [22].

Some studies show that there is no significant correlation between the two parties. The study result of Fang and Jin shows that: the improvement of a company's internal management quality would reduce or change to accrued earnings management; while there are different restriction effects for the three actual earnings management methods adopted by the company[23]. Fan et al and Zhu et al also draw the same study result[24, 25]. They think that the improvement of internal management quality would affect the effectiveness of accrued earnings management to some extent, but there is no significant control effect for real earnings management.

It could be seen that the existing studies do not gain a consistent result on the relationship between internal control quality and earnings management, and there are decentralized and complicated problems. Hence, based on the sorting and conclusion of the study situation of scholars at home and abroad, this paper mainly analyzes the internal correlation between the internal control quality and earnings management of the company with the moderating variable of equity structure, so it is helpful for the company to improve the internal management efficiency and conduct the reasonable and effective activities of earnings management.

3. Theoretical analysis and research hypothesis

3.1 Conceptual definition of earnings management

Katherine defines earnings management as follows: the essence of earnings management is to intervene in the preparation of external financial reports with targeted methods in order to obtain richer economic benefits, and it does not only refer to neutralising the operating activity[26]. The study of Healy and Wahlen shows that executives should conduct earnings management according to the analysis of financial data in the statement and the implementation transaction[27]. Lu thinks that earnings management is an accounting choice implemented by the company management in accordance with accounting standards for improving the company's operational effectiveness objectives[28].

Accrued earnings management and real earnings management are the main content of earnings management. This paper puts the activity of real earnings management of a company as the study object. The study of Bruns and Merchant shows that companies are more likely to manipulate actual activities (i.e. abnormal promotion at the end of the year and provision of more generous credit policies, etc.) than to manage earnings through accrued profit[29]. During the process of business management of the company, we advocate reasonable behaviors of earnings management and avoid excessive earnings management.

3.2 Impact of internal control on the real earnings management

Firstly, formulate a reasonable internal control system to effectively alleviate the principal-agent problems, restrict the ability of executives and holding shareholders on the activities of real earnings management, improve the efficiency of internal governance of the company and restrain the company's behavior of real earnings management. Maria thinks that an efficient internal management method would form a more quality internal management information system so as to reduce the possibility to control the earnings information[30]. According to the agency theory, the ownership and management right of the listed companies is separated, so the overall profit target of shareholders and the executives is different. The target of shareholders is to make the optimal properties of the company so as to gain dividends according to the company's profits; while the overall profit target of the executives is to gain the biggest returns. When the overall profit target of the company is not the same as the expectation of shareholders, the executives may adopt excessive behavior in earnings management that is harmful to shareholders to gain maximal returns for the company. Consequently, there would be agency conflict between shareholders and the management and a conflict between the major shareholders and minor ones. To effectively restrain the agency problem, the entrusting party could design a reasonable and feasible corporate internal management mechanism to confirm the position relationship between shareholders and the executives; and a correspondent supervision mechanism could be adopted for the executives to reduce the agency problems between the shareholders and the executives and the major shareholders and the minor ones, so as to reduce the feasibility of the corporate executives to engage in the real earnings management.

Secondly, conduct reasonable and effective internal control to reduce the risk of information asymmetry among stakeholders, enhance the internal supervision efficiency of the company and reduce the possibility of the company conducting the activities of real earnings management. The study of information asymmetry theory shows that the executives are the direct operator of the business process and financial data information of the company, so they know more about the financial data information than the shareholders. Thus, the executives and the shareholders would be apt to generate information asymmetry. The executives have the basic condition to conduct real earnings management. In view of the disclosure of internal control information, the internal information of the company is not concentrated. Due to the professional level of the internal professional technicians, the internal control information acquired is not as comprehensive as what is acquired by the executives, which makes an information asymmetry. In addition, there would be differences in the effectiveness of information collection for the shareholders due to various shareholding proportions and the unequal position when they collect the internal management information of the company. Hence, a reasonable and effective internal control would force the company the release internal management information, which is good for mitigating the information asymmetry among the company's stakeholders.

According to the analysis result mentioned above, the paper proposes the following hypothesis:

Hypothesis H1: Negative correlation between internal control quality and earnings management, i.e. reasonable internal control could restrain earnings management.

3.3 Study on the moderating effect of ownership concentration on the relationship between internal control quality and earnings management

Higher ownership concentration would reduce the profit agency problems between the major shareholders and the minor ones. Enhance the restriction of internal control of the company for real earnings management so as to boost the restriction of internal control mechanism on the real earnings management. When the rights of shareholders are more concentrated and the holding shareholder becomes the actual holding person of the company, the person could decide to hire and dismiss the executives and confirm the salary reward method for the executives by convening the board of directors and general meeting of shareholders through the articles of association. Thus, the "one-shareholder dominance" would make the internal decision-making united with an effective controlling effect for the internal management, so as to reduce the occurrence of real earnings management in the company.

The internal company could overcome the imperfection in the contract with a long-term contract; in the meantime, having reasonable internal control could limit the internal workers to intentionally manipulate profits with the help of real earning management[31].

To sum up, this paper puts forward the following assumptions as follows:

Hypothesis H2a: Along with the increasing ownership concentration, the restriction of internal control on the activities of real earnings management would be enhanced.

3.4 Study on the moderating effect of equity restriction on the relationship between internal control quality and earnings management

Within the reasonable range, the corporate value would be increased along with the increase of equity restriction. The greater the equity restriction, the higher the influence of external shareholders and the lower the infringement of controlling shareholders, so it is very beneficial for improving the value of the company. However, if we could not practically upgrade the equity restriction, there would be an obvious decrease in the concentration of the equity structure, and the correlation between the corporate internal control and real earnings management would be weakened. Finally, there would be certain restrictions for the increase of corporate value. The study of Zhu and Wang shows that the equity restriction structure with “the close proportion of holding shares” could not practically improve the governance work of the listed company [32].

Within the reasonable scope, on one hand, there would be equity dispersion for the higher equity restriction, and the conflict, even power struggle, among the major shareholders would be mitigated to increase the decision efficiency, so as to push the achievement of the company’s function of internal management supervision. The restriction of internal control on real earnings management would be enhanced. On the other hand, the executives would greatly reduce their motivation to restrict the real earnings management for the higher equity restriction so as to reduce the occurrence of the real earnings management. It would be good for the operation of a good corporate governance environment and improve the internal control efficiency, so as to boost the restriction of internal control on the real earnings management.

According to the study and analysis mentioned above, the paper proposes the following hypothesis as follow:

Hypothesis H2b: Within the reasonable range, the restriction of internal control on the real earnings management would be boosted along with the increasing restriction of equity and the dispersing of equity structure.

4. Study design

4.1 Sample selection and data source

This paper used the data of the A-share listed companies in Shanghai City and Shenzhen City from 2016 to 2020. The selection of the listed company within the past five years would ensure the timeliness of data. Based on eliminating 2998 companies, there were 1801 companies as the study sample. The unqualified data were screened according to the following principles:

Firstly, complete elimination of abnormal financial data. For example, 175 ST-listed companies were eliminated.

Secondly, 134 financial companies were eliminated since the operation mode of the financial industry was different from other industries, so there was a stronger uniqueness. The data would be different from that of other industries.

Thirdly, the elimination of the companies with incomplete data, a total of 1730 companies;

Fourthly, 807 listed companies were eliminated for the discontinuous financial data in the past 5 years;

Fifthly, 152 companies were eliminated for the index of internal control of 0. The index of internal control of the companies was 0 (except for ST Company) or there must be a problem of internal management in the companies, including proactively revealing the existing serious problems in the company’s internal control evaluation report, invalid internal control evaluation report result or the situation that the accounting firm revealed the main problems in the internal control report and the internal control audit suggestions or rejection opinions.

Based on the strict screening, 1801 sample companies with a total of 9005 data were selected as the objects for the empirical study. The study data of this paper were from the China Stock Market & Accounting Research Database and DIB's index of internal control of listed companies. Based on the sorting and classification of data, there was an empirical study with the Stata17 software.

4.2 Variables measurement

4.2.1 Predicted variable

The paper made the model of Roychowdhury et al as a reference to measure the degree of real earnings management to measure the management from three dimensions, sales control, production control and cost control [33]. Among them, the specific content of the sales control was: to present relatively loose sales restrictions and credit policies and boost the preferential strength of the sales. The specific content of production control was: to effectively control the cost of the unit products on the basis of expanding the production scale. The specific content of cost control was: to reduce investment in R&D, publicity and maintenance costs. Through the three control methods mentioned above, there was a measurement of the companies' abnormal net operating cash flow, product costs and discretionary expenses, etc.

The companies' real earnings management could be estimated through the following formula:

On one hand, based on the estimation of annual and industrial regression, there was a calculation on the normal cash flow of operating activities, fees and product costs with the adoption of the following model:

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \beta_0 \frac{1}{A_{i,t-1}} + \beta_1 \frac{S_{i,t}}{A_{i,t-1}} + \beta_2 \frac{\Delta S_{i,t}}{A_{i,t-1}} + \beta_3 \frac{S_{i,t-1}}{A_{i,t-1}} + \beta_4 \frac{TC_{i,t}}{A_{i,t-1}} + \beta_5 \frac{EC_{i,t}}{A_{i,t-1}} + \beta_6 \frac{OC_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \tag{1}$$

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \beta_0 \frac{1}{A_{i,t-1}} + \beta_1 \frac{S_{i,t}}{A_{i,t-1}} + \beta_2 \frac{\Delta S_{i,t}}{A_{i,t-1}} + \beta_3 \frac{\Delta S_{i,t-1}}{A_{i,t-1}} + \varepsilon_{i,t} \tag{2}$$

$$\frac{DISX_{i,t}}{A_{i,t-1}} = \beta_0 \frac{1}{A_{i,t-1}} + \beta_1 \frac{S_{i,t}}{A_{i,t-1}} + \varepsilon_{i,t} \tag{3}$$

$\mathrm{CFO}_{\mathrm{i,t}}$ means the normal net cash flow of the period-t operating activities;

$A_{i,t-1}$ is the total assets of the year-end of the period t-1;

$S_{i,t}$ means the sales revenue in the period t;

$\Delta S_{i,t}$ means the change of sales revenue in the t period compared with that in the t-1 period;

$\Delta S_{i,t-1}$ means the change of sales revenue in the t-1 period compared with that in the t-2 period;

$TC_{i,t}$ means various tax expenses in the t period;

$EC_{i,t}$ means the cash paid to and for employees in the t period;

$OC_{i,t}$ means other cash flows related to operating activities in the t period;

$DISX_{i,t}$ means the controllability cost in the t period, the sum of the sales fee and management fee;

$PROD_{i,t}$ means the production cost of t period, the sum of current operating costs and inventory changes.

On the other hand, company outlier = actual value – expected value. There was a calculation on the abnormal cash flow, abnormal product cost and abnormal expenses in the operating activities.

Finally, it was concluded with the measurement formula of real earnings management:

$$REM2 = R\_PROD - R\_COF - R\_DISX \tag{4}$$

4.2.2 Explanatory variable

The surrogate variables of internal control. Referring to Liu to use the DIB's index, the paper adopted the internal control evaluation mode released by DIB Company and gained its natural logarithm [34].

The specific comprehensive evaluation model was as follows:

$$IC = \sum Strategy + \sum Operation + \sum Reporting + \sum Compliance + Assetsafe - Correlation \quad (5)$$

IC meant the index of internal management; Strategy was the index of strategy; Operation was the index of operation; Reporting was the index of the report; Compliance was the index of compliance; Assetsafe referred to the index of health; Correction was an index of mistake correction.

4.2.3 Control variable

There were many influencing factors for listed companies. To reduce the influence of other factors and the result errors caused by certain reasons and increase the actual coincidence rate, the control variables of this paper mainly included the return on equity (ROE), debt to asset ratio (LEV), company size (SIZE) and the two virtual variables, year (YEAR) and industry (IND). As shown in Table 1:

(1) Company SIZE. The company size refers to the number of production equipment required by the company's production and operation, the labor force required by the operation and the resulting concentration. Company size is to push the corporate resources to reach a reasonable distribution so as to urge resource sharing and save the operating cost and improve production efficiency. At the same time, it would push the company to adopt a positive competitiveness strategy in marketing sales to enhance its market competitiveness. To evaluate the size of companies, the paper took the natural logarithm of the netbook asset of companies as a measuring index.

(2) Company's debt to asset ratio (LEV). For a company, balanced liability is a double-edged sword. If the company's debt to asset ratio is around the equilibrium point with high stability, the company would show a stronger production power and profitability; when there is a large accumulation of light debt, there would be a great obstacle for the development of the company so as to weaken the profitability of the company, and there may be a risk of a shutdown in the end. Beginning from this perspective, the debt to asset ratio plays a crucial role in the profitability of the company. The paper chose the debt to asset ratio to show the total debt to asset ratio of one company.

(3) The return on equity means the maximal degree to which the company uses the capital. It is also the main index to reflect the profit of each share of the company. The higher the return on equity, the higher the return on the company's assets. Hence, the paper made the proportion between the net profit in the nth year and the average stockholders' equity of the company an important measuring standard.

(4) Year (virtual variable). In the actual development procedure, the economic growth speed of the company and the development trend would be different, so the paper chose such a virtual variable as year as a control variable.

(5) Company (virtual variable). Company evolution follows its own law, and there is a variety of corporate features. The features of all companies would affect the profitability of the industry, so the paper made such a virtual variable as a company as a control variable.

4.2.4 Moderating variable

(1) The ownership concentration (T1). The ownership concentration is normally represented in the distribution for shareholders in the aspect of amount. The paper measured the ownership concentration through the ownership percentage of the largest shareholder.

(2) The equity restriction (T2). Equity restriction would reflect the profitability of the company to some extent. From the aspect of equity structure, the degree of equity restriction is shown to be the concentration or dispersion of shares. This paper made the proportion of the sum of ownership percentage of the shareholders ranging from top two to two ten and the ownership percentage of the largest shareholder as the dominant measuring standard.

Table 1: Variable index

Name of Variable	Symbol of Variable	Measurement Method of Variable
Real earnings management	REM2	$REM2 = R\_PROD - R\_COF - DISX$
Index of internal control	IC	$IC = \sum Strategy + \sum Operation + \sum Reporting + \sum Compliance + Assetsafe - Correlation$
Ownership concentration	T1	Ownership percentage of the largest shareholder
Equity restriction	T2	Proportion of the sum of ownership percentage of the shareholders ranging from top two to two ten and the ownership percentage of the largest shareholder
Debt to asset ratio	LEV	Year-end total liability of company/ Total assets ×100%
Company size	SIZE	Natural logarithm of company's total assets
Name of Variable	Symbol of Variable	Measurement Method of Variable
Return on Equity	ROE	Return on equity in the Nth year / Average stockholders' equity ×100%

(3) Model building

As shown in Table 2. There was an analysis with the panel data model. It was adopted with the bidirectional fixed effect model to control the individual and time. Through the test result, we could find that the bidirectional fixed effect model had a better practical result than other models under the situation of 0.05.

Table 2: Result of model tests

Test Type	Statistic	P-value
F test	7.88	0.000
Hausman test	135.82	0.000

To test hypothesis 1 in the paper, on the premise of the study and analysis of a vast of relevant references and the selection of relevant variables of the paper, it was created with the model demonstrated in (3).

$$REM2_{it} = \beta_0 + \beta_1 IC_{it} + \beta_2 ROE_{it} + \beta_3 LEV_{it} + \beta_4 SIZE_{it} + \beta_5 YEAR + \beta_6 company_{it} + \varepsilon \quad (6)$$

To test hypothesis 2 in the paper, it was created with the model demonstrated in (4).

$$REM2_{it} = \beta_0 + \beta_1 IC_{it} + \beta_2 T1_{it} + \beta_2 T2_{it} + \beta_3 IC_{it} \times T1_{it} + \beta_3 IC_{it} \times T2_{it} + \beta_4 ROE_{it} + \beta_5 LEV_{it} + \beta_6 SIZE_{it} + \beta_7 YEAR + \beta_8 company_{it} + \varepsilon \quad (7)$$

5. Empirical test

5.1 Descriptive statistics

As shown in Table 3. The minimum value of the predicted variable, real earnings management (REM2) was -1.85, and the maximal value was 1.959 with an average value of -0.003 and a standard deviation of 0.178. It meant that the internal earnings management of all domestic listed companies was different. The minimum value of the explanatory variable, the internal control index (IC) was 5.315, and the maximal value was 6.847 with an average value of 6.475. It fully showed that the practice role of internal control work of all domestic listed companies was different. There was a certain omission in the system of internal control, but it needed further improvement through enhancing strength. The value of moderating variable ownership concentration (T1) ranged from 0.029 to 0.891 with an average value of 0.328 and a standard deviation of 0.145. The value of equity restriction (T2) ranged from 8.78 to 100.97 with an average value of 56.032 and a standard deviation of 14.679, which fully explained the distribution of internal equity of domestic companies. There was a distinct difference in the ownership percentage among the holding shareholders. There was a very serious problem of "one-shareholder dominance" within some companies; however, compared with the existing studies, there was a decrease in equity concentration. It meant that the equity structure would be optimized along with the ceaseless optimization of the governance mechanism of the domestic companies.

In the control variables, the maximal value of debt to asset ratio (LEV) was 0.99 and the minimum value was 0.014 with a standard deviation of 0.188 and an average value of 0.422, which meant that the debt to asset ratio was maintained to be 40%. The financial risk of the company was stricter, but it was not that obvious in the overall difference. The standard deviation of company size (SIZE) was 1.276, and the bigger standard deviation meant a very distinct difference in the size of the listed companies. The samples were all the A-share listed companies, so there was a wider gap in the size of these companies. The minimum value of return on equity (ROE) was -12.772 and the maximum value was 2.385, so there was a bigger gap between all companies in the return on equity.

Table 3: Descriptive statistical results of variables

Variable	Mean	Std.Dev.	Min	Max
REM2	-0.003	0.178	-1.85	1.959
IC	6.475	0.125	5.316	6.847
T1	0.328	0.145	0.029	0.891
T2	56.032	14.679	8.78	100.97
ROE	0.061	0.197	-12.772	2.385
LEV	0.422	0.188	0.014	0.99
SIZE	22.594	1.276	19.528	28.636

5.2 Correlation analysis

As shown in Table 4. Through the correlation analysis, the correlation coefficients among different variables were lower than 0.5, which meant that the multicollinearity between variables was not distinct.

Table 4: Results of correlation analysis

	REM2	IC	T1	T2	ROE	lev	SIZE
REM2	1						
IC	-0.062***	1					
T1	-0.042***	0.149***	1				
T2	-0.113***	0.164***	0.661***	1			
ROE	-0.164***	0.277***	0.111***	0.124***	1		
LEV	0.163***	0.013	0.079***	0.043***	-0.094***	1	
SIZE	0.019*	0.218***	0.247***	0.312***	0.106***	0.505***	1

***. at 0.01 level (single tail) with significant correlation.
**. at 0.05 level (single tail) with significant correlation.
*. at 0.1 level (single tail) with significant correlation.

5.3 Regression analysis results

As seen from model 1, the fitting coefficient R2 was 0.019, which meant that the actual data had a better fitting with the model under the significance of 0.01. There was a negative correlation between the predicated variables, real earnings management (REM2) and index of internal control (IC) in the significance of 1%, so reasonable internal control could restrict the activities of real earnings management (As shown in Table 5).

As seen from models 2 and 3, the fitting coefficients R2 were 0.030 and 0.020 respectively, which meant that the actual data had a better fitting with the model under the significance of 0.01. There was a negative correlation between the index of internal control (IC) and a predicated variable, real earnings management (REM2) in the significance of 1%, while there was a positive correlation with the ownership concentration under the significance of 1%. There was a negative correlation in the intersection of the two (IC * T1) under the significance of 10%. It meant that the higher the ownership concentration, the stronger the restriction of internal control on the activities of real earnings management.

As seen from models 4 and 5, the fitting coefficients R2 were 0.020, which meant that the actual data had a better fitting with the model under the significance of 0.01. The predicted variable, real earnings management (REM2) showed a positive correlation with the index of internal control (IC) and equity restriction (T2) under the significance of 1%. There was a negative correlation in the intersection of the two (IC * T2) under the significance of 10%. It means that the higher the equity restriction, the stronger the restriction of internal control on the activities of real earnings management.

In view of the control variable, there was a negative correlation between the return on equity (ROE) and real earnings management (REM2), which meant that there would be less possibility of real earnings management when the return on equity of listed companies was higher and the financing and appraisal pressure faced by the executives was less. The debt to asset ratio (LEV) had a positive correlation with the real earnings management (REM2), which meant that the company with a higher debt ratio would intend to adopt the real earnings management, and the executives of the company would easily tend to seek profit for themselves with financial fraud means.

Tablet 5: Regression results of the model

	H1	H2a		H2b	
	Model 1	Model 2	Model 3	Model 4	Model 5
IC	-0.055***	-0.046***	-0.058***	-0.053***	-0.056***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
ROE	-0.047***	-0.055***	-0.047***	-0.047***	-0.047***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
LEV	0.043**	0.111***	0.045**	0.037*	0.039*
	(0.021)	(0.015)	(0.021)	(0.021)	(0.021)
SIZE	0.003	-0.003	0.003	0.006	0.006
	(0.006)	(0.003)	(0.006)	(0.006)	(0.006)
T1		-0.041**	0.997*		
		(0.020)	(0.549)		
IC*T1			-0.161*		
			(0.084)		
T2				-0.001*	0.008
				(0.000)	(0.005)
IC*T2					-0.001*
					(0.001)
_cons	0.265*	0.324***	-0.047	0.214	-0.248
	(0.151)	(0.095)	(0.220)	(0.153)	(0.319)
N	9005	9005	9005	9005	9005
R^2	0.019	0.030	0.020	0.020	0.020
Company	Control	Control	Control	Control	Control
Year	Control	Control	Control	Control	Control

***. at 0.01 level (single tail) with significant correlation.
**. at 0.05 level (single tail) with significant correlation.
*. at 0.1 level (single tail) with significant correlation.

6. Result discussion and prospect

6.1 Conclusion

1) There was a negative correlation between internal control and earnings management, which meant that efficient internal control would implement certain restrictions on real earnings management.

Effective internal control could reduce the activities of real earnings management. The perfect internal regulatory system and better internal management environment in the company would effectively reduce the possibility of the executives carrying out the activities of real earnings management with their own functions. Hence, it could reduce the risk and ensure the rights of other stakeholders to ensure the reasonable running of the capital market.

2) The higher the ownership concentration, the higher the impact of internal control on real earning management.

The right concentration of shareholders would reduce the profit agency problems between the major shareholders and the minor shareholders and enhance the control effect of the company's internal control on real earnings management. Thus, the "one-shareholder dominance" would make the internal decision-making united with an effective controlling effect for the internal management so as to reduce the occurrence of real earnings management in the company.

3) Within the reasonable range, higher equity restriction means the higher dispersion of the equity structure, which would boost the restriction effect of internal control on the real earnings management.

The higher equity restriction would cause the equity dispersion, which would mitigate the conflict, even power struggle, among the major shareholders and increase the efficiency of making decisions to push the achievement of the company's function of internal management supervision. At the same time, the executives would greatly reduce their motivation to gain their own profit through real earnings management, which is good for the operation of a good corporate governance environment and improve the internal control efficiency, so as to boost the restriction of internal control on the real earnings management.

6.2 Suggestions

1) Enhance the internal supervision

Internal control is a soft control. It could effectively solve the agency problems between the executives and shareholders by adopting proper internal mechanism setting, and it could also effectively monitor the business control activities of the executives. Firstly, the company need to enhance the supervision force by setting an adequate audit system for internal control. Secondly, the internal institutional setting system should be improved. The internal audit committee in the council should be set up to implement an internal audit of the operation management, fundraising and investments of the company, so as to effectively prevent the bad effects of internal control for the lack of a supervisor and reduce the real earnings management of the company. Thirdly, the company could explore an approach for the workers to implement reasonable supervision and have rewards for the workers who expose and reports high-level fraud and other violations of the company's rights and interests, so as to make a full play of the active role of workers. Finally, the board of directors, board of supervisors and audit committee could implement supervision with the responsibilities of mutual restriction.

2) Implement the control activity

Internal control is the main part of the internal management of the company, which means that the internal company adopts the correspondent control measures according to the result of risk evaluation to reduce the business risk. The conduction of the activities of internal control of the company requires all supervising departments to cooperate with mutual supervision. During the production, the company could make specific production plans according to the market conditions reflected by the sales department and the actual sales situation of the products, to prevent large-scale overproduction and blind production increase, so as to facilitate the realization of reasonable behavior of earnings management. In product sales, the company could formulate a reasonable credit policy and regularly evaluate the sales performance of the products to prevent excessive commercial credit sales. At the same time, the managers should strictly control the price reduction activities of a company to forestall the major business risks and economic losses in future operations.

3) Improve the risk evaluation mechanism

Along with the development of economic globalization, the company would have much more internal and external risks, which needs the executives to precisely predict the business risk of the company and conduct a reasonable prediction and correct appraisal with the adoption of correspondent active measures. The internal risk evaluation system means a work arrangement of the executives to analyze and confirm the possible business risks during the process of achieving the target of the company. The company also builds up a professional risk management department to make the prior operational risk assessment, in-process operational risk measurement and post-event research for the main business activities and production projects. When the executives have the motivation of earnings management, they would resist or cautiously adopt earnings management once they could realize that these activities would seriously affect the long-term development of the enterprise and even increase the risk of the company in the long-term period although they would make a profit for the company in a short-term period.

4) Attract institutional investors

The financial institutional investors must be equipped with professional basic knowledge, sufficient capital source and wide information channels. By far, the team of institutional investors in China has a rapid development, but they have not reached the correspondent scale. Hence, to ensure good development of the institutional investors, we should need to formulate a perfect policy according to reality to assist the institutions to make investments and create a platform for the landing of the supervision effect.

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