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Equity Pledge, Property Right Character and Real Earnings Management
——Based on the Data of Textile Industry

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ABSTRACT
In recent years, with the discovery of the capital market and the improvement of related systems, more and more listed companies have pledge of equity. However, the equity pledge is a double-edged sword.This article will take the listed companies in the textile industry with equity pledge in 2013-2017 as the research object. Through empirical research, it is found that compared with real earnings management, listed companies are more inclined to adopt real earnings management after equity pledge. After the equity pledge, the degree of real earnings management of state-owned companies has not increased significantly relative to private companies.

Keywords: *Listed Company, Equity pledge, Real earnings management.*

1. INTRODUCTION

With the promulgation of the Security Law, the equity pledge system was formally established. By December 2018, the proportion of equity pledge in the A-share market was as high as 98.30%, basically reaching the point of "no shares without pledge".Equity pledge is now a common way of financing, which is inseparable from its advantages.However, equity pledge also has certain risks.If the second type of agency problem is added, major shareholders usually adopt earnings management to achieve the above purpose, preventing the stock price from falling sharply or even below the open line.[1] Accordingly, the relationship between equity pledge and earnings management has gradually attracted the attention of scholars and becomes a problem worthy of in-depth study.

This paper mainly studies the relationship between equity pledge and earnings management. Considering internal motivation and external factors, both accrued earnings management and real earnings management are included in the analysis. It shows that the higher the degree of equity balance, the weaker the positive correlation between equity pledge and real earnings management. This paper uses data and models to analyze the impact of equity pledge on earnings management between different types of corporate, in order to protect the interests of shareholders and pledgees, improve the value of corporate and the utilization of accounting information.At the same time, this paper also enriches the theoretical basis of this problem, and provides certain reference value for future research.

2. LITERATURE REVIEW

The economic benefit of choosing equity pledge can be explained from two perspectives. from the positive point of view, the shareholders pledge equity to financial institutions will solve the difficult problem of financing, and the pledgor may also act as the role of the supervisor. Fearing the risk of transferring control power, controlling shareholders will operate companies positively. Tan Yan and Wu Jing (2013) studied the role of pledge quality in the decision-making of financial institutions from the perspective of pledge quality, and found that equity pledge is conducive to the improvement of pledge quality. From the negative perspective, equity pledge will lead to conflicts of interest between major shareholders and minority shareholders as well as shareholders and creditors, resulting in agency problems. In addition, the research of Zhang Ruijun etc (2017) found that the capital invested in R&D by enterprises with equity pledge decreased, and their innovation activities also decreased. Companies' choice of earnings management methods is also influenced by a variety of factors. Yu Zhongbo

(2011) found that media, corporate investors and analysts have a restraining effect on earnings management. The empirical study of Fan Jinghua etc(2013) showed that high-quality internal control plays a positive role in restricting the level of accrued earnings management of a company, but plays a relatively small role in the behavior of real earnings management. Cohen etc (2008) studied the earnings management level of American listed companies before and after SOX Act and found that after the act being enacted, companies tend to choose real earnings management.[2]

3. HYPOTHESES AND DATA SOURCES

3.1. Hypothesis

3.1.1. Selection of Equity Pledge and Earnings Management

It can be found that the choice of accrued earnings management and real earnings management is based on comprehensive considerations. When external risks increase, such as lawsuits or external reviews, managers tend to reduce R&D spending and choose real earnings management. The implementation of Sarbanes Act contributes more and more enterprises to adopt real earnings management. On the one hand, the financing needs of major shareholders makes them collude with managers, thus reducing the supervision of management and the level of internal management, which exactly provides conditions for the real earnings management. On the other hand, as the pledgee has higher quality standards for equity pledges and stricter control, listed companies are more inclined to reduce accrued earnings management and turn to real earnings management for cost considerations. To sum up, there are certain reasons why equity pledge companies prefer to choose real earnings management. Therefore, hypothesis 1 is proposed.

H1: Under the condition that other conditions remain unchanged, the equity pledge company has a higher level of real earnings management compared with accrued earnings management.

3.1.2. Equity pledge, earnings management and property right character

At present, China is still in the period of economic transition, and the government plays an important role in the allocation of economic resources, controlling many resources needed for the development of enterprises, and enterprises have a high degree of dependence on the government.In contrast, state-owned enterprises have unique resource advantages, more accurate information and higher reputation.These can reduce the constraints of external financing and the role of accounting earnings information, providing "protective umbrella" for enterprises. In the process of lending, state-owned enterprises also enjoy lower loan standards and longer loan terms. As state-owned companies have stronger political connections than private companies, they have less incentive to maintain the quality of their pledges. Therefore, compared with private companies, state-owned companies after equity pledge have a lower level of real earnings management. Based on this, hypothesis 2 is proposed.

H2: With other conditions unchanged, compared with state-owned listed companies, the degree of real earnings management increases more obviously within private listed companies after equity pledge.

3.2. Source of Data

The data used in this paper are mainly from CSMAR, and the announcement of equity pledge of listed companies. The selected year are 2013-2017, and the industry is textile industry. During the statistical analysis, in order to ensure the availability and integrity of data, missing data were removed and 41 sample data were retained. Excel2003 and Spss25.0 statistical software were used for data processing and analysis. To exclude the influence of extreme values, each continuous variable is windorized up and down by 1% in this paper.

4. VARIABLE SELECTION AND MODEL DESIGN

4.1. Variable Selection

4.1.1. Explained Variables

Earnings management includes accrued earnings management and real earnings management. For accrued earnings management, this paper adopts Jones model modified by Dechow (1996).Firstly, the annual regression analysis of the data is carried out by using the equation (Equation 4-1). Then, the non-manipulation accrual (Equation 4-2) is obtained by calculating the coefficient estimation value. Finally, the manipulation accrual (Equation 4-3) is calculated. For real earnings management, this paper adopts Roychowdhury (2006) [3] 's model to conduct manipulation estimation on operating cash flow from sales (Equation 4-4), cost of production (Equation 4-5) and discretionary expense (Equation 4-6) respectively, and then calculates residual items of each model by industry and year, such as ACFO, ADISEXP and APROD.In order to measure the degree of real earnings management, this paper builds a comprehensive index REM (REM= APROD-ACFO-ADISEXP) by referring to the method of Li Zengfu (2011) .The above formula is as follows:

$$\frac{TA_{i,t}}{A_{i,t-1}}=\alpha_0+\alpha_1\frac{1}{A_{i,t-1}}+\alpha_2\frac{\Delta REV_{i,t}-\Delta REC_{i,t}}{A_{i,t-1}}+\alpha_3+\lambda_{i,t}$$

$$NDA_{i,t}=(\hat{\alpha}_0+\hat{\alpha}_1\frac{1}{A_{i,t-1}}+\hat{\alpha}_2\frac{\Delta REV_{i,t}-\Delta REC_{i,t}}{A_{i,t-1}}+\hat{\alpha}_3\frac{PPE_{i,t}}{A_{i,t-1}})$$

$$DA_{i,t}=\frac{TA_{i,t}}{A_{i.t-1}}-NDA_{i,t}$$

$$\frac{CFO_t}{A_{t-1}}=\alpha_0+\beta_1\frac{1}{A_{t-1}}+\beta_2\frac{SALES_t}{A_{t-1}}+\beta_3\frac{\Delta SALES_t}{A_{t-1}}+\xi_t$$

$$\frac{PROD_t}{A_{t-1}}=\alpha_0+\beta_1\frac{1}{A_{t-1}}+\beta_2\frac{SALES_t}{A_{t-1}}+\beta_3\frac{\Delta SALES_t}{A_{t-1}}+\beta_4\frac{\Delta SALES_{t-1}}{A_{t-1}}+\xi_t$$

$$\frac{DISEXP_t}{A_{t-1}}=\alpha_0+\beta_1\frac{1}{A_{t-1}}+\beta_2\frac{SALES_{t-1}}{A_{t-1}}+\xi_t$$

In the above formula, TAt is the difference between operating profit and cash flow from operating activities, representing the company's total accrued earnings in the year t;At-1 represents the total assets of the company at the end of the t year;△REVt represents the change in the company's operating income in the t year;△RECt represents the change in accounts receivable of the company in the t year;PPEt represents the original value of fixed assets of the company at the end of the t year;CFOt represents net operating cash flow in t year;DISEXPt represents the sum of selling expenses and administrative expenses in the t year, that is, discretionary expenses;PRODt represents the sum of cost of goods sold and inventory change in the t year, namely production cost;SALESt represents the company's operating income in the t year, △SALESt represents the company's operating income change in the t year.

4.1.2. Explanatory Variables

The explanatory variable of this study is the dummy variable of equity pledge of listed companies, which is expressed as Pledge by referring to the research method of Xie Deren etc (2016).Pledge=1 refers to the listed companies in the current year and the next year when equity pledge occurs, and Pledge=0 refers to the listed companies without equity pledge.

4.1.3. Moderator Variables

The moderator variables of this study are mainly the property right character, which is represented by Soe. Soe=0 indicates that the enterprise is private.

4.1.4. Controlled Variables

The controlled variables selected in this study are as follows:1) Size(the logarithm of total assets at the end of the year based on 10);2) Gro(the ratio of current year's total revenue difference to last year's total revenue); 3) Tat(the ratio of total revenue to average total assets);4) Lev(the ratio of total assets at the end of the period to total liabilities at the end of the period);5) Roa(the ratio of net profit to average total assets);6) Industry effect variable (Ind) and time effect variable (Year) were adopted to reduce the influence of macroeconomic and industrial factors.

4.2. Model Design

In order to explore the relationship between equity pledge and earnings management, this study established a linear regression model for the relationship between equity pledge, real earnings management and property right character:

$$REM(R\_PROD/R\_PRO/R\_EX)=\alpha_0+\alpha_1 Pledge+\alpha_2 Pledge\times SOE$$
$$+\alpha_3 SOE+\alpha_4 Size+\alpha_5 Lev+\alpha_6 Gro+\alpha_7 Tat+\alpha_8 Roa$$
$$+\sum\alpha_i Year+\sum\alpha_j Ind_j+\zeta$$

5. EMPIRICAL ANALYSIS

5.1. Descriptive Analysis

We conducted descriptive statistics on the data as a whole and obtained the results, as shown in Table 1.Four statistical values of sample mean, standard deviation, minimum value and maximum value are obtained respectively.

The statistical results show that the earnings management methods adopted by the textile companies included in this study are different and the degree is different as well. The mean value of real earnings management (REM) is -0.126, the standard deviation is 0.226, the minimum value is -0.865, and the maximum value is 0.394, indicating a great difference between the minimum value and the maximum value. It can be seen that the difference of earnings management level of listed companies adopting real earnings management is greater.

Table 1. Sample descriptive analysis table

Variable	The mean value	The standard deviation	The minimum value	The maximum Value
DA	0.003	0.083	-0.460	0.221
REM	-0.126	0.226	-0.865	0.394
PROD	-0.051	0.116	-0.405	0.282
CFO	0.020	0.083	-0.217	0.263
DISX	0.054	0.080	-0.177	0.304
Pledge	0.800	0.407	0	1

5.2. Multiple Linear Regression Analysis

On the basis of controlling industry and year, this section further conducted multiple linear regression analysis to explore the relationship among variables of equity pledge, real earnings management, accrued earnings management, property right character and equity balance. This section intends to explore the influence of equity balance on equity pledge and real earnings management, and introduce cross terms of PLD×SOE and PLD×Z.

Relationship between Equity pledge and real earnings management:

Table 2. Regression results table (Equity pledge and real earnings management)

Variable	Coefficient	T value	P value
PLD	0.015	26.35	0.000
SOE	0.013	15.12	0.000
SIZE	-0.339	2.47	0.010
LEV	-0.003	4.33	0.000
GRO	-0.022	-15.36	0.000
TAT	-0.012	3.01	0.003
ROA	-0.356	-6.35	0.000
YEAR	Control		
IND	Control		
Observations	41		
R-squared	0.026		

From Table 2, the results of linear regression analysis showed that the R2 value of the mathematical model was 0.026, and the P values of the models were all < 0.1, which were statistically significant. As can be seen from the data in the table, equity pledge has positive correlation with real earnings management, significantly at the level of 5%, indicating that the more equity pledge, the more likely the listed companies are inclined to choose real earnings management.

Relationship between equity pledge, real earnings management and property right character:

Table 3. Regression results table (Equity pledge, real earnings management and property right character)

Variable	Coefficient	T value	P value
PLD	0.006	13.81	0.000
PLD*SOE	0.012	11.13	0.000
SOE	0.256	6.35	0.000
SIZE	-0.002	-9.62	0.000
LEV	-0.251	-2.42	0.010
GRO	-0.011	-5.06	0.000
TAT	-0.036	-6.35	0.000
ROA	-0.015	-6.22	0.000
YEAR	Control		
IND	Control		
Observations	41		
R-squared	0.008		

From Table 3, the results of linear regression analysis showed that the R2 value of the mathematical model was 0.008, and the P values of the models were all < 0.1, which were statistically significant. In other words, equity pledge, real earnings management and property right character show a significantly positive correlation. Taking state-owned enterprises as the benchmark, it is significant at the level of 5%, indicating that compared with state-owned enterprises, the real earnings of private enterprises after equity pledge increase more obviously.

5.3. Robustness Test

Robustness test was conducted to determine the reliability of the variables included in this study and the research conclusions. The steps of robustness test are as follows: in terms of real earnings management, we refer to the practice of Cohen&Zarowin(2010) and construct the comprehensive indicators RM_a and RM_b of real earnings management to replace the comprehensive indicators (REM) mentioned above, and then incorporate them into the regression model for regression analysis. It also proves the correctness of the three hypotheses, that is, the conclusion of this paper has good robustness.

6. SUGGESTIONS

According to the research of this paper, the earnings management behavior of listed companies generally exists after the major shareholder pledge equity.The nature of listed companies, the internal and external regulatory environment and the degree of equity balance all affect their choice of earnings management. Combined with China's capital market environment, the following suggestions are put forward.

Firstly, standardizing the operation of equity pledge in market. Regulators can take control of the upper limit of equity pledge rate of listed companies to ensure the positioning of the business, and raise the threshold for pledge to cooperate with enterprise information disclosure mechanism, safeguarding the interests of investors and regulating the stock market at the same time, which can effectively avoid systemic risks when the market goes down, and better serve the economic market.

Secondly, building a more reasonable equity structure. Due to the high shareholding ratio, it is easy to lead to the opportunity behavior of major shareholders, which will bring negative influence to the company and damage the interests of the company. Therefore, it is particularly necessary to strengthen the supervision and checks and balances between shareholders, which can restrict the major shareholders and reduce the occurrence of self-interested behaviors, so as to encourage them to raise the stock price by using practical means and management methods, like improving the production structure, the performance and so on.

Thirdly, strengthening the supervision of the pledgee. As the pledgee, financial institutions such as banks and securities firms should classify and predict the pledgors and pay more attention to private enterprises according to the property right character. As their equity pledge rate is higher and their resource allocation is not as good as that of state-owned companies, the risk prevention system should be strengthened to prevent all kinds of risks that may occur in the future.

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