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Research on the Influence of Equity Pledge on Earnings Management :The Moderating Effect of Analysts' Attention

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ABSTRACT
This study uses a sample of publicly traded firms from 2018 to 2020 to investigate the effects of equity pledge behavior on accrual earnings management. The study discovered that equity pledge behavior is significantly positively correlated with the degree of accrued earnings management, and analysts' attention played a moderate role in the process of equity pledge behavior influencing the degree of earnings management, thereby weakening the two's positive impact. The findings of the study add empirical evidence to the mechanism of equity pledge on earnings management, as well as to the theoretical literature on the negative economic consequences of equity pledge.

KEYWORDS
Equity pledge; Earnings management; Earnings management

1 Introduction

Equity pledge is a common approach of short-term funding in the capital market. Compared with financing methods such as bank loans, equity pledge is favored by the market due to its convenient procedures, high lending efficiency, and flexible terms. However, controlling owners have a strong motive to manipulate earnings, conceal negative news, and publish positive news in order to avoid the removal of control rights and the detrimental effect on the company's operations. Earnings manipulation is an opportunistic behavior that uses information asymmetry to whitewash accounting information, convey untrue operating conditions, and mislead investors in their decision-making.

As a "bridge" for information transmission, securities analysts collect information related to listed companies through multiple channels, integrate and analyze them, and provide a decision-making basis for stakeholders in the form of research reports, thereby reducing the degree of information asymmetry. According to the supervision hypothesis, the attention of analysts can expose the movements of listed companies to the public, thereby monitoring and curbing opportunistic behavior.

This paper investigates the influence of equity pledge on earnings management of the listed companies in Shanghai and Shenzhen from 2018 to 2020 and introduces analyst attention as a moderating variable to test its mediating effect. In the existing literature, the research on equity pledge and earnings management mostly focuses on the influencing factors such as the nature of property rights and ownership structure, and analysts focus less on the effect between the two. For instance, Zhang et al.[1] concluded that the balance of ownership weakens the positive relationship between the pledge ratio of major shareholders and real earnings management, though taking listed companies as the research object to investigate the moderating effect of ownership structure on the relationship between the pledge of equity of major shareholders and earnings management;

Cao et al.[2] took the data of Chinese A-share listed companies from 2012 to 2016 as the research sample empirically tests the relationship between equity pledge and real earnings management and the moderating effect of equity structure on the above relationship and suggested that the nature of state-owned ownership can significantly weaken the positive relationship between the equity pledge of controlling shareholders and real earnings management. The consequences of the paper provide a reference for follow-up research.

2 Theoretical analysis and research hypotheses

2.1 Equity pledge and earnings management

Before the equity pledge occurs, to protect its own rights and interests, the financial lender evaluates the business status of the pledgor, including the real stock value, and determines the pledge qualification and pledge scale according to the evaluation results [3].

The occurrence of equity pledge will send two signals to the capital market: one is that the company is in a stage of rapid growth and requires a large amount of capital investment; the other is that the company's operating conditions are not good, cash flow is limited, and funds are in short supply. Not only will signals greatly increase the cost of financing, but it will also cause investors to be disappointed with the company's development, and ultimately the impact on the company will be reflected in the fall in the stock price. The controlling shareholder runs the risk of the loss of control right if the stock price drops below the warning line and the guarantee cannot be increased. To avoid the transfer of control rights and realize private interests, controlling shareholders rely on this information advantage to whitewash financial reports to create a good operating situation and growth ability of the company, that is, to manipulate earnings[4]. In particular, the high concentration of equity provides the controlling shareholder with absolute control, and the management is also under the control of the controlling shareholder, so the company's decision-making procedures and internal control remain formal[5], giving the controlling shareholder manipulation of earnings by shareholders provides a shortcut. Zheng et al. (2014)[6] empirically study data on listed companies in China's capitals market from 2006 to 2012 and find that when listed companies are in financial crisis, major shareholders have a strong incentive to "empty the enterprise" when they choose to pledge equity for financing. However, the pledging of shareholdings by major shareholders attracts more attention from the outside world, which in turn places certain constraints on the next steps of major shareholders.

To summarize, the controlling shareholders have strong drive and the capabilities to intervene in earnings disclosure and carry out earnings management, whether it is to maintain the company's good image and ability to achieve sustainable development prior to the pledge or to avoid risks and respond to external supervision after the pledge. This paper makes the following assumptions based on this:

H1: The controlling shareholder's equity pledge has a positive impact on the earnings management behavior of publicly traded companies.

2.2 The moderating effect of analyst attention

Lang et al.[7] believe that analysts play a supervisory role in management by collecting internal and external company information. With their professional experience, analysts collect company information through diversified channels, analyze the development and profit trends of listed companies, and issue research reports. This research report has become one of the important references for investors to make decisions.

Domestic and international academics disagree on the role of analysts' concerns for businesses. On the one hand, academics argue that analysts are more sensitive to company problems and can detect more hidden negative situations. According to Bushman[8], increased analyst attention can improve the quality of corporate disclosure while also promoting the maintenance of positive relationships among stakeholders. Yu's[[9] study proved that analyst attention to listed companies reduces the degree of corporate surplus management and increases corporate manipulation of earnings against price. Especially, when analysts have reputation and influence, the surplus management behavior of listed companies will be inhibited to a greater extent. Through a flexible method of alternative analyst tracking, Wang et al.[10] obtained a similar conclusion regarding the monitoring effect of analysts, namely that analyst attention can contribute to lowering the degree of surplus management of firms.

On the other hand, it is argued that analyst attention can make listed companies stressed. He & Tian[11] discovered that when a publicly traded company is under intense analyst scrutiny, the management concentrates more on the company's short-term performance and thereby manipulates the true surplus by cutting back on some R&D activities that are more beneficial to the company's future growth and manipulating discretionary expenses.

To sum up, analyst attention has been critical in reducing the degree of information asymmetry, making up for the information gap between controlling shareholders and investors to a certain extent. In addition, analysts focus on being able to act as external watchdogs over the opportunistic behavior of firms. Based on this, this paper proposes the following assumptions:

H2: Analysts' attention has a negative moderating effect on the impact of equity pledge on earnings management.

3 Research design

3.1 Data sources and sample screening

By researching enterprise data, this paper removes sample companies with missing data, companies with incomplete financial data, and data from the financial industry. Finally, 5, 338 observations are obtained by studying the data samples of 2,362 companies from 2018 to 2020. The above data are collected through CSMAR and organized with stata16.0.

3.2 Design of variables

3.2.1 Earnings management

This paper refers to the method of Dechow et al. [12], measures the degree of earnings management through accrual earnings management (DA), and adopts the revised Jones model.

3.2.2 Equity pledge

The equity pledge ratio, which accounts for the number of shares held by controlling shareholders and the number of shares pledged by controlling shareholders, is used in this study to measure the equity pledge, which is based on research conducted by Deren Xie et al.[13].

3.2.3 Analyst attention

This article measures the number of research reports issued by the company after being followed by analysts.

3.2.3 Control variables.

The following control variables are used in this work, which draws on prior literature research, to control the influence of other factors on earnings management: company size (size), measured by the natural logarithm of total assets at the end of the year, and net interest rate on total assets (ROA), which is the difference between net profit and total assets. The ratio of assets, growth (Growth), that is, the growth rate of operating income. In addition, Year and Industry are controlled.

3.3 Model establishment

To verify H1, this paper constructs the regression model as follows:

$$\left|DA_{it}\right| = \alpha_0 + \alpha_1 Pledge_{it} + \alpha_2 Size_{it} + \alpha_3 ROA_{it} + \alpha_4 Growth_{it} + \sum year + \sum ind + \varepsilon_{it} \quad (1)$$

This study anticipates that α_1, or the connection between the controlling shareholder's equity pledge and earnings management, will be significantly positive. Additionally, α_0 is a constant that represents the average value of the explained variable when all other values are 0, and α_1 is a coefficient term that illustrates the explanatory or controlling variable's influence on the explained variable. In order to improve the accuracy of the model results, this study limits the impact of the time and industry effects on the explained variables.

To verify whether analyst attention moderate the relationship (H2) between equity pledge and earnings management, this paper constructs the following model:

$$\left|DA_{it}\right| = \alpha_0 + \alpha_1 Pledge_{it} + \alpha_2 Analyst_{it} + \alpha_3 Pledge_{it}{*}Analyst_{it} + \alpha_4 Size_{it} + \alpha_5 ROA_{it} + \alpha_6 Growth_{it} + \sum year + \sum ind + \varepsilon_{it} \quad (2)$$

If H2 is established, the interaction term's coefficient is significantly negative, indicating the analyst's ability to reduce the positive impact of equity pledge and earnings management.

4 Empirical results and analysis

4.1 Descriptive statistics

The statistical findings for the key variables are displayed in Table 1. According to Table 1, there are a total of 5388 observations, and the median of |DA| is 0.05172 and the standard deviation is 0.05353, demonstrating that there is management behavior of the accrual project in the listed company; the minimum value is 0, the maximum value is 0.3791, the degree of volatility is large. It shows that there are great differences in the degree of earnings management among different companies. The average value of the Pledge is 0.2456, the minimum value is 0, and the maximum value is 1, indicating that there are companies without equity pledge, but this behavior is still relatively common, and even the controlling shareholder pledges all the equity. The median of analysts is 24.3414, with the minimum and maximum values being 1 and 291 respectively. This data shows that analysts give more attention to publicly traded firms, and that the quantity of reports produced by various companies varies greatly.

According to the statistical results of the control variables, the average value of Growth has a large difference between the maximum and minimum value, indicating that there are significant differences in the growth rate of operating income of listed companies. The average rate of return on the net interest rate of total assets, which measures the profitability of listed companies, is 1.17%, and the overall rate remains between -20% and 20%.

Table 1. Variable descriptive statistics table

VARIABLES	Obs	Mean	Std. Dev.	Min	Max
|DA|	5388	0.05172	0.05353	0.0000	0.3791
Pledge	5388	0.2456	0.3192	0.0000	1.0000
Analyst	5388	24.3414	32.1791	1.0000	291.0000
Size	5388	22.7178	1.3702	19.6986	28.6365
ROA	5388	0.0117	0.0153	-0.0866	0.1905
Growth	5388	0.3140	8.1012	-3.5276	422.9660

4.2 Empirical analysis

4.2.1 Equity pledge and earnings management

The results show that the R-square of the model is 0.0441, the adjusted R-square is 0.0405, the goodness of fit of the model is 4.05%, and the F-test value of the model is 12.2515, which is significant at the 1% significance level. At the 1% significance level following the significance test, the explanatory variable equity pledge's effect on earnings management is significant, and the influence coefficient is 0.0104, and the influence coefficient is 0.0104, which has a significant positive impact, indicating that equity pledge Companies with a high proportion have a greater extent of earnings management, and H1 is verified. In addition, the control variables Size and ROA have an obvious effect on |DA|, and Size has a negative impact, and ROA has a significant positive impact.

Table 2. The regression results of equity pledge and earnings management

VARIABLES	|DA|	|DA|	|DA|	|DA|
Pledge	0.0113***	0.0098***	0.0104***	0.0104***
	(5.0301)	(4.3673)	(4.6288)	(4.6327)
Size		-0.0043***	-0.0041***	-0.0041***
		(-7.4254)	(-7.0795)	(-7.0614)
ROA			0.1624***	0.1633***
			(3.1156)	(3.1218)
Growth				0.0003
				(0.2084)
Constant	0.0437***	0.1409***	0.1336***	0.1334***
	(6.0989)	(9.4521)	(8.8631)	(8.8338)
R-squared	0.0324	0.0423	0.0440	0.0441
r2_a	0.0293	0.0391	0.0406	0.0405
F	10.4700	13.0521	12.8963	12.2515

Note: When an effect is indicated with a *** or **, it is significant at the 1% or 5% significance level, respectively. Parentheses surround the t values.

4.2.2 The moderating effect of analyst attention

Model 2 is estimated as shown in the following table.

The findings indicate that, at a 1% level of significance, Model 2 passes the test. The influence coefficient of the interaction term between pledge and analysts' attention is -0.0002 and it is significant at the 5% significance level, indicating that there is a negative moderating effect that reduces the beneficial impact of equity pledge on the degree of earnings management, and H2 is confirmed. This demonstrates that the amount of earnings management at the company decreases as analyst attention increases after the controlling shareholder pledges equity. The control variables Size and ROA both significantly affect |DA| in opposite directions, with Size having a substantial negative influence and ROA having a considerable positive impact.

Table 3. Regression results of moderating effects of analyst attention

VARIABLES	|DA|	|DA|	|DA|	|DA|
Pledge	0.0096***	0.0088***	0.0092***	0.0092***
	(4.1675)	(3.8201)	(3.9960)	(3.9960)
Analysts' attention	-0.0001***	-0.0000	-0.0000	-0.0000
	(-2.9822)	(-0.5142)	(-1.6268)	(-1.6268)
Pledge*Analysts'attenion	-0.0002**	-0.0002**	-0.0002**	-0.0002**
	(-2.1162)	(-2.2481)	(-2.2886)	(-2.2886)
Size		-0.0043***	-0.0039***	-0.0039***
		(-7.0046)	(-6.0946)	(-6.0946)
ROA			0.1866***	0.1866***
			(3.3619)	(3.3619)
Growth				0.0004
				(0.2787)
Constant	0.0455***	0.1416***	0.1281***	0.1281***
	(6.3360)	(9.1525)	(8.0263)	(8.0263)
R-squared	0.0344	0.0432	0.0452	0.0452
r2_a	0.0309	0.0396	0.0415	0.0415
F	9.9659	12.0065	11.9951	11.9951

Note: When an effect is indicated with a *** or **, it is significant at the 1% or 5% significance level, respectively. Parentheses surround the t values.

5 Conclusion

The listed firms from 2018 to 2020 are used as a sample in this research to analyze the effect of equity pledge behavior on the level of earnings management. The results show a strong correlation between the percentage of equity pledged and the level of earnings management. The degree of managing earnings increases with the extent of pledge share. At the same time, the analyst's attention is introduced as a moderating variable to study its effect on the correlation between the two. The study discovered that analyst attention weakens the positive correlation between equity pledge and the degree of earnings management, which means that high analyst attention inhibits earnings management in companies with equity pledge business. However, there are still some shortcomings in this paper. In terms of the selection of the data range, two years were the special period of the epidemic, and the data had certain particularity, which affected the universality of the conclusions to some extent.

About the author

Huinan Luo is postgraduate of Guangzhou City University of Technology, majoring in accounting. Her research field is accounting/financial management.

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