

# Research on the Impact of Stock Pledge Ratio of Controlling Shareholder on Share Price in A-share Exchange Market

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## ABSTRACT

Equity pledge is a kind of pledge with the equity of the investor as the target. In recent years, equity pledge as a new financing method, has been adopted by more and more listed companies due to its advantages of convenience and efficiency. The purpose of this paper is to analyse the influence of controlling shareholder's equity pledges on a-share stock price. By choosing net income and net cash flow from operating activities as control variables and using the method of multiple regression analysis, this paper studies the influence degree of controlling shareholder's equity pledge on stock price fluctuation. After analyzing the data of some listed companies, this study finds that equity pledge ratio has a significant effect on stock price in A-share Exchange Market.

**Keywords:** equity pledge ratio, share price, A-share Exchange Market

## 1. INTRODUCTION

Equity pledge is a kind of pledge right, which is commonly used by enterprise's investor. In China, only the shares of shareholders of joint-stock companies and the shares of shareholders of limited liability companies can be pledge as equity. In recent years, more and more listed companies take equity pledge as a new financing method to compensate cash flow and improve the operating conditions of enterprises. In 2013, The Shanghai Stock Exchange issued the "Measures for Equity Pledge Repurchase Transaction, Registration and Settlement Business", which provides a theoretical basis for the practical operation of equity pledge. Since then, more and more listed enterprises have joined the ranks of equity pledges. By the end of 2017, the number of listed companies pledging equity accounted for 98% of the total number which provides a theoretical basis for the practical operation of equity pledge. Since then, more and more listed enterprises have joined the ranks of equity pledges.

On this basis, the overall goal of this work is to analyze equity pledge whether has an impact on the a-share market stock price under the condition of control

variables. In order to achieve this purpose, this paper chose net income and net cash flow from operating activities as control variables and selected the data of some listed companies as samples to establish a regression model. The innovation of this paper lies in that, based on previous papers, it adopts a new perspective to analyze the influence of controlling shareholder's equity pledges on the stock price.

Following the introduction, this paper has been divided into four parts. The first part begins with the discussion of the current impact condition of equity pledge on stock price. The second and third parts are the main parts of this study, which focused on using the data of Chinese listed companies as samples to analyze the hypothesis of this paper, through establishing the regression model to produce the result. The fourth part concludes this study with the equity pledge ratio has an impact on a-share stock price.

*H0:*

*There is no relationship between the equity pledge ratio and share price. (1)*

*H1:*

*There is a relationship between the equity pledge ratio and share price. (2)*

## 2. LITERATURE REVIEW

The stock price is relatively simple information that can reflect the company's operations and financial status, and investors will be concerned about the changes in the stock. Judging from the current research situation, the impact of equity pledges on stock prices is mainly divided into two aspects. One is positive and can stabilize the stock price; the other is negative; the stock price will fluctuate sharply and rise or fall sharply.

The positive aspects of the equity pledge are mainly reflected in the fact that shareholders can use the leverage of financial resources to increase the resources and funds that can be used. This is a method to transform economic storage into economic benefits while being able to control the company. During this period, to prevent stock price fluctuations, the company will improve its performance and conduct market value management to stabilize the stock price level [1]. In addition, when the equity pledge rate is at a high level or the stock price starts to fall, the company will adopt a more stable business model to ensure the relative stability of earnings and stock prices [2].

The negative aspects of equity pledges are mainly reflected in the fact that equity pledges will separate shareholder control and cash flow rights, and the company's leverage will increase. Then there will be an agency problem among shareholders, which will increase the operational risk of listed companies, and the stock price will change. There are some fluctuations that turn into declines [3]. After that, according to Liu and Gary [4], through a sample of shareholder pledges, it is found that pledge financing does not affect control rights. On the contrary, shareholders' power to use funds increases, so the pledgee's interests will be infringed and affected. Seriously, it will cause the company's stock price to collapse. In addition, Ai, and Wang [5] believe through research that the need for equity pledge will bring bad signals to investors. This company may be faced with funding problems, so investors may consider whether to proceed. Investment, thereby affecting the stock price.

Equity pledge will also affect the stock price to varying degrees according to different economic environments and events. Research has found that when economic crises and regulatory loopholes occur, the company's equity pledge ratio is high, which means that the company and the market have certain risks, and they are often related. Therefore, the stock price will fall sharply due to this impact [6].

In addition, Chen, and Hu [7] found through research on listed companies that when the economy is in a better state, the company's equity pledge means that there are

better investment opportunities, performance will improve, and investors will be more confident, the stock price will rise. When the economy is in a crisis, the company's equity pledge means a bad signal. The company needs to use this method to raise funds, which will affect the company-level management, and there may be a shortage of cash flow.

In summary, it is necessary to look at the impact of equity pledge on stock prices from multiple angles according to different economic environments, different events, and different pledge rates. Among them, there is also the issue of entrusted agency to consider.

## 3. DATA

The population of this research is all listed firms in A Share and the period of data is from 2010 to 2020. The population includes 33053 terms. The sample selection in this research is based on specific criteria.

(1) The firm must be listed on the A Share Exchange Market and its information can be found on the WIND database.

(2) The fiscal year is ended on December 31 each year, from 2010 to 2020.

(3) The equity pledge ratio must be between zero and one.

(4) The current ratio must be more than zero.

(5) The closing share price on December 31 each year, from 2010 to 2020, must be a positive and non-zero value

Criterion (1) was selected because the financial information of public firms can be obtained easily. Another reason is that WIND firms' financial information is easily obtained relative to firms not on the WIND database.

Criterion (2) was selected because this work needs to avoid outliers that all A-Share Firms should end their fiscal year on December 12.

The purposes of criteria (3) and (4) were similar. Without these criteria, the sample data would contain many meaningless observations.

Criterion (5) was used to avoid irregular observations because it is no sense that a share price is zero or below.

According to the criteria above, 9652 samples were selected and used.

Table 1 shows all definitions of variables in this research.

**Table 1.** Definitions of Variables

variable		Variable description
Dependent variable	Share_price	Share price at the end of every fiscal year
Independent variable	Equity_pledge_ratio	Loan principal over the market value of the stock pledge
Control variables	NI	Net income
	OCF	Net cash flow from operating activities
	ROE	Return on equity
	ROA	Return on total asset
	CA	Current ratio
	DR	Debt ratio

### **3.1. Share price**

According to Conroy and Harris [8], share price is a good indicator of measuring the performance of a company although it fluctuates up and down. Also, according to Ball and Brown [9], share price is also a good indicator to reflect the outcomes of investment decisions made by investors.

### **3.2. Net Income**

According to Ball and Brown [9], income numbers of influence investors' decision making and therefore the announcement of new income numbers would cause the change in stock price.

### **3.3. Net cash flow from operating activities**

According to Martani etc. [10], operating cash flow shows the performance of the company in terms of cash, and it has a positive and statistically significant effect on the share price.

### **3.4. Return on equity**

Return on equity measures the efficiency of a company's performance by using its owned capital. It is the ratio of net profit over average shareholder's equity. What's more, according to Rochim and Ghoniyah [11], return on equity has a significant influence on the stock price.

### **3.5. Return on total asset**

Return on total asset is used to measure how much net profit is generated per unit of assets that reflect the profitability of a firm relative to its total asset. According to Malina S. etc. [12], return on total asset has a significant effect on the stock price.

### **3.6. Current ratio**

Current ratio is the ratio of current asset over current liability. It is a measure of a company's ability to convert its current assets into cash and repay its liabilities before short-term debt matured. The higher the ratio, the stronger the liquidity ability, the stronger the short-term solvency, and vice versa. According to Rochim and Ghoniyah [11], current ratio has a significant influence on the stock price.

### **3.7. Debt ratio**

Debt ratio is a ratio of total liabilities over total asset. It measures the extent of a firm's leverage. It considered both long-term and short-term debt. According to Karma K. [13], the lower the debt ratio the higher the security level, and debt ratio has a significant influence on the share price.

## **4. METHODOLOGY AND RESEARCH DESIGN**

The method used in this research is quantitative with descriptive statistics. The sampling technique is purposive sampling. The data source in this research is a secondary data source that comes from financial reports.

**Table 2. Variable Descriptive Statistics**

variable	Obs	Mean	Std. Dev.	Min	Max
Code	9,652	244778.4	254924.2	5	688556
Pledge_ratio	9,652	.5553339	.2978115	.0012402	1
Net_income	9,652	2.25e+08	1.54e+09	-6.87e+10	4.36e+10
ROE	9,652	.0333759	.3027105	-3.18e+10	4.48898
Cash_flow	9,652	3.64e+08	1.86e+09	-1.20e+11	1.05e+11
ROA	9,652	.0214467	.158082	-9.116924	4.48898
Current_ratio	9,652	2.208229	3.522746	.0024	204.7421
Debt_ratio	9,652	.4868924	1.868806	.00708	178.3455
Price	9,685	14.60081	18.0345	.77	468.24

Table 2 illustrates that there were 9652 samples in A Share Exchange Market from 2010 to 2020 that met the criteria. The minimum share price is 0.77 yuan, and the

highest is 468.24 yuan. The minimum equity pledge ratio is 0.0012 and the maximum is 1.

**Table 3. Correlation Test**

	Pledge_ratio	NI	ROE	OCF	ROA	CA	DR
Pledge_ratio	1.0000						
NI	-0.1322	1.0000					
ROE	-0.1494	0.2685	1.0000				
OCF	-0.0607	0.3433	0.0698	1.0000			
ROA	-0.1695	0.3246	0.4148	0.0603	1.0000		
CA	-0.0227	0.0004	0.0434	-0.0453	0.0635	1.0000	
DR	0.0406	-0.0257	-0.0240	0.0038	-0.6362	-0.0554	1.0000

In order to examine, whether there is an association relationship between each variable, this work conducts a correlation test. Though we can not know the causality, which is the direction of impact from the correlation test, it is still important for us to know how they move together. For instance, we can know whether they move forward at the same time. From table 3, it is shown that the pledge ratio has a negative correlation with all other variables, which indicates an increase in pledge ratio would decrease all other variables. Furthermore, we may also know how strong the correlation is from the absolute value. The higher the absolute value is, the strong the correlation. Most correlation results are less than 0.3, so they are weak correlations between each other. Except for NI and OCF, ROE and ROA, ROA and DR, they are

moderately correlated with each other. As the result, there is no evident nonlinear relationship that can lead to the miss specification of this model.

Equation

$$Share\ price = \beta_0 + \beta_1 Pledge\_ratio + \beta_2 NI + \beta_3 OCF + \beta_4 ROE + \beta_5 ROA + \beta_6 CA + \beta_7 DR + \mu (3)$$

This multiple regression is evaluating the effect of the equity pledge ratio on the share price. Control variables are used to keep the extra variable constant throughout the experiment and exclude the extra variable from the experiment.

## 5. Empirical Result

**Table 4. ANOVA and Regression Statistics**

Source	SS	df	MS	Number of obs = 9,625 F (7,9644) = 110.80 Prob > F = 0.0000 R-squared = 0.0738 Adj R-squared = 0.0738 Root MSE = 17.357
Model Residual	233643.774	7	33377.682	
Residual	2905279.32	9,644	301.252521	
Total	3138923.09	9,651	325.2433	

**Table 5. Multiple Regression Results**

Price	Coef.	Std. Err.	t	P >  t	[95% Conf. Interval]	
Pledge ratio	-8.241538	.6068045	-13.58	0.000	-9.431002	-7.052074
Net income	5.30e-10	1.34e-10	3.96	0.000	2.67e-10	7.92e-10
ROE	3.004756	.6860106	4.38	0.000	1.660031	4.349481
Cash flow	2.50e-10	1.01e-10	2.46	0.014	5.09e-11	4.483-10
ROA	20.01952	1.799084	11.13	0.000	16.49293	23.5461
Current ratio	.3434244	.0503492	6.82	0.000	.2447294	.4421195
Debt ratio	.8747946	.1336326	6.55	0.000	.6128467	1.136743
Cons	17.25068	.4177554	41.29	0.000	16.43179	18.06956

The following conclusions are drawn from the data in Table 4 and Table 5. As the p-value for F test is less than 0.01, as it is essentially zero, we can conclude that these variables are statistically significant under all different significant levels as 0.1, 0.05, and 0.01. In other words, this shows it is more than 99.9% confidence that we can reject the null hypothesis in the two-tailed test in which the equity pledge ratio does not influence the share price. The R-squared value is 0.0744 that indicates these variables only account for 7.44% variation to the share price. Besides the variables, except the net cash flow from operating activities has a slightly higher p-value of 0.014 for its T-test, other variables all show very significant results. This proves that all other sample data deviate far enough from the null hypothesis in either direction for the two-tailed test. The higher the t-value, the more significant the variable is. The t value for equity pledge ratio and ROA is -13.58 and 11.13 respectively, which proves that they are significantly relevant to the share price. If the null hypothesis is true ( $\beta_1 = 0$ ), the chance of us getting a sample as extreme as we did ( $\beta_2 = -8.241$ ), is zero. The coefficient of the equity pledge ratio is negative 8.241 which means it is negatively correlated with the share price. For every additional unit of equity pledge ratio, the expected share prices drop by ¥8.241, holding all other variables constant. All control variables are positively correlated with the share price. The intercept of this model is 17.251 so basically when all variables are set to zero, then the predicted value on share price is 17.251.

## 6. CONCLUSION

Based on this research, we can conclude that the equity pledge ratio has a significant effect on the share price of Chinese listed firms. However, there are also some limitations in this study. First, when selecting the sample, criterion (3) limits the equity pledge ratio must between zero and one. It is possible that some firms do not pledge any equity, so on the database, the information shows zero. It is hard to distinguish whether the firm did not provide its equity pledge ratio, or it did not pledge any equity. Second, the time base is year to year, that the time

interval is very large, so the result is not precise enough.

After all, we suggest listed firms in A-Shares provide more information about their financial performance like equity pledge ratio so that investors can take a better insight into firms, and this helps investors in decision making. For further research, we suggest that it is possible to test the model's replicability which researchers could use another country's data. Researchers then can compare whether the results are consistent in different countries and the difference in the extent of the effect of equity pledge ratio to share price. In this calculation, the work directly used the share price. It's possible to draw a different conclusion by using price volatility. In addition, we studied almost all industries, but did not classify them in detail, such as processing and manufacturing, the second industry and the third industry, service industry or business, etc. Under the background of equity pledge ratio to share price of different industries may have different influence. Also, what are the factors that lead to these effects? These all need further research to explain.

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