Stake of shares, Stock liquidity and Listed company information disclosure violations

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Abstract. In recent years, due to the rapid development of China's domestic market economy, the financing method of equity pledge has played a very important position and influence among the main financing methods of listed companies due to its strong flexibility, simple transaction method and high efficiency. Based on the panel information of A-share non-financial listed companies in Shanghai and Shenzhen from 2016 to 2022, this paper studies the impact of equity pledge of controlling shareholders on corporate information disclosure violations, and explores whether equity pledge will affect corporate information disclosure violations by affecting stock liquidity. The results show that the equity pledge of the controlling shareholder will significantly improve the liquidity of stocks, thereby aggravating the company's information disclosure violations, and the stock liquidity will enhance the inducing effect of equity pledge on the company's information disclosure violations. Moreover, in non-state-owned enterprises, the impact of equity pledge of controlling shareholders on corporate information disclosure violations is more significant.

Keywords: Stake of shares, Stock liquidity, Company information disclosure violations.

1. Introduction

Equity pledge, in essence, refers to a "pledge debt financing" method in which a listed company uses shares as collateral, that is, the pledge party pledges the shares while the pledge party has provided funds. According to the statistics of Oriental Wealth Database, in 2018, the number of listed companies participating in equity pledge business in China's capital market was 3,441, and the market value of pledge accounted for 9.75% of the total market value of A-shares, which shows that equity pledge business has become one of the important ways for shareholders of listed companies to obtain financing. However, at the same time, equity pledge also raises many problems, such as market risk under stock value and moral hazard under the lack of integrity of the pledge. When pledging shares, if the stock touches the closing threshold and is sold by the pledge, there may be a risk of transfer of control of the stock[1].

Stock liquidity is an important indicator to measure the efficiency of the stock market, and whether the stock pricing is reasonable, whether the capital market resource allocation is efficient, and whether the risk management function can be played normally will all be affected by the liquidity of stocks. High-liquidity stocks have lower transaction costs, which will attract many short-term institutional investors, who pay more attention to the company's short-term earnings performance[2, 3], and management faces high downward pressure on stock prices in the short term, so that management is more likely to produce opportunistic behavior for short-term gains, damaging the value of listed companies.

In recent years, the number of violations of listed companies in China has gradually increased, and there has been a sustained high incidence trend. Based on the fact that corporate information disclosure is also an important market value management tool that affects the volatility of the company's stock price and the security of equity pledge, this article will focus on the company's information disclosure violations. Will the pledge of the controlling shareholder's equity cause the information disclosure violation of the listed company? What role does equity liquidity play in the relationship? Exploring these issues is of great practical significance for further understanding the occurrence of corporate violations.

2. Literature review

In order to avoid the risk of transfer of control of major shareholders, the company engages in earnings management[4, 5], market value management[6] and tax avoidance activities[7]. Wang Xiongyuan, Ouyang Caiyue and Shi Zhenyang believe that major shareholders may engage in tax avoidance activities to avoid the risk of transfer of control, and the possibility of a company engaging in tax avoidance will increase with the greater the risk of transfer of control. These risk-averse activities lead to a decrease in the quality and robustness of accounting information[8].

Information disclosure violations of listed companies refer to the information disclosure behavior of a listed company in violation of relevant laws and regulations, compiling and providing false information to the outside world, concealing or delaying the disclosure of important facts in the process of information disclosure. Although there are few direct research results on the relationship between equity pledge and information disclosure violations, some scholars have shown empirically that listed companies with equity pledges of controlling shareholders are more likely to adopt selective information disclosure strategies according to the nature and timing of information disclosure[9], that is, the opportunistic purpose of information disclosure management of enterprises after equity pledge will be more obvious, and strategic disclosure will lead to a decrease in the quality of accounting information disclosure of listed companies, resulting in a deepening of information asymmetry between enterprises and external parties[10], ultimately increasing the probability of information disclosure violations.

The existing literature is rich in related research on equity pledge and corporate violations, equity pledge and stock liquidity, which provides a rich research theoretical basis for this study. However, there is no relevant literature on the role of stock liquidity in the relationship between equity pledge and corporate information disclosure violations. Therefore, this study takes the A-share listed companies in Shanghai and Shenzhen from 2016 to 2022 as a research sample, analyzes the impact of the equity pledge of controlling shareholders on the company's information disclosure violations, and incorporates stock liquidity into the analysis framework to explore the role of stock liquidity in the relationship between the two. In addition, in terms of the impact of equity pledge on corporate information disclosure violations, this study analyzes the heterogeneity from the perspective of property rights.

3. Theoretical analysis and research hypotheses

3.1. The impact of equity pledge on information disclosure violations of listed companies

The equity structure of listed companies is an important part of corporate governance, and the equity of listed companies in China is highly concentrated, and state-owned shares are the largest shares, and an internal governance model dominated by major shareholders is formed, which is easy to cause infringement of the interests of small and medium-sized shareholders by major shareholders and affect the performance of the company. The existing literature shows that the information disclosure behavior of Chinese listed companies reflects the motivation of the majority shareholder, and there is an opportunistic motive in the case of the majority shareholder reducing its shareholding, the party committee meeting or the promotion of government officials[11, 12, 13].

Therefore, understanding the information disclosure behavior of Chinese listed companies should not ignore the influence of the special individual of the major shareholder. For example, in 2015, Kangmei Pharmaceutical came to the big stage of financial fraud, and the economic downturn, a single share, and a high proportion of pledges were the three main motives for Kangmei Pharmaceutical's fraud, and it was finally punished by the CSRC. During the equity pledge, the irrational fluctuation of the stock price increases the threat of transfer of control of the equity pledge, and the scarcity of control gives the major shareholder an incentive to engage in opportunistic behavior to avoid the risk of possible transfer of control. As a rational "homo economicus", the majority shareholder has the incentive to require the listed company to make false statements, omit disclosure or delay disclosure in order to avoid control risks. Therefore, major shareholders, driven by the pursuit of private returns on control, are more likely to induce information disclosure violations by listed companies.

Based on this, the hypothesis H1 is proposed: the higher the probability of information disclosure violations by equity pledging companies relative to non-equity pledging companies.

3.2. The impact of equity pledging on stock liquidity

Under the motivation of market cap management, equity liquidity is enhanced because equity pledging behavior tends to cause noise traders to increase irrational emotions[14]. Since controlling shareholders often withhold information and it is more difficult for outside investors to obtain private information, information asymmetries between traders persist. China's stock market is generally dominated by retail investors, and lacks private information and professional financial knowledge, so it is easier to mistake noise for misinformation, which has led to the increase in irrational emotions among investors. The higher the share price, the higher the sentiment of external investors[15]. This cycle between investor sentiment and stock prices has expanded the number and size of noise traders[16], and the speculative strategies of noise traders "chasing the rise and killing the fall" and "chasing the fall and killing the rise" are increasingly matched in the noise, and the liquidity level of the stock market is gradually increasing, thus forming a bubble.

Based on this, hypothesis H2 is proposed: the higher the liquidity of the shares of the equity pledge company.

3.3. Equity pledge affects the information disclosure of listed companies: the intermediary role of stock liquidity

The act of equity pledge will not only aggravate the violation of corporate information disclosure, but also indirectly trigger the violation of corporate information disclosure by increasing the liquidity of the company's stock. According to the above analysis, equity pledging behavior will induce the rise of irrational mentality of noise investors, which in turn will increase stock liquidity, and stock liquidity also has a certain impact on the company's information disclosure violations. When the liquidity of the stock is relatively high, the controlling shareholder may delist at a lower price after hollowing out the listed company, which aggravates the hollowing out behavior of the major shareholder, thereby aggravating the violation of the listed company.

Based on this, hypothesis H3 is proposed: the higher the liquidity of the shares of the equity pledge company, the higher the probability of information disclosure violations of the listed company.

4. Study design

4.1. Sample selection and data sources

This paper takes China's A-share listed companies in Shanghai and Shenzhen from 2016 to 2022 as a research sample. In this study, the sample was treated as follows: (1) companies with ST or *ST listed status were excluded; (2) Exclude financial enterprises; (3) Exclude samples with missing values in the illegal data; (4) In order to eliminate the influence of outliers, this paper performs the tail shrinkage treatment of upper and lower 1% quantiles for all continuous variables. 14,393 observations were finalized. Source: All data are sourced from the CSMAR database and processed using Excel and Stata16 software.

4.2. Variable definitions

4.2.1 Dependent variable

Violation is the dependent variable for this document. The company's violations mainly include illegal capital appropriation, illegal guarantees, insider trading, information disclosure misrepresentation, information disclosure omission, information disclosure delay, etc. This article is divided into information disclosure violations and company operation violations according to whether the violations are related to information disclosure. If the company has information disclosure violations such as fictitious profits, fictitious assets, false records (misleading statements), general accounting mishandling, delayed disclosure, material omissions and false disclosures, Violation has a value of 1, otherwise 0.

4.2.2 Independent variable

Pledge is the independent variable for this article. By referring to the method of Li Changqing[17], if the controlling shareholder of a listed company has equity pledge behavior at the end of the year, the value of the equity pledge variable Pledge is 1, otherwise it is 0. On this basis, this paper will examine the difference in the impact of equity pledge ratio in the robustness test part. First of all, according to the proportion of the number of pledges pledged by controlling shareholders at the end of the year (Pledge_Ratio1) as a proxy variable, the larger the value of the Pledge_Ratio1, the more shares held by the major shareholder are pledged, the less pledges can be replenished in the future, and the stronger its motivation to maintain the company's stock price. Secondly, according to the proportion of the number pledged by controlling shareholders to the total share capital of the company (Pledge_Ratio2) at the end of the year as a proxy variable, the greater the value of the Pledge_Ratio2, the more shares of the listed company are pledged, the greater the pressure on the stock price, and the stronger the motivation to engage in strategic information disclosure.

4.2.3 Mediation variable

This article follows the rules of Amihud (2002), we calculate the annual indicator of Amihud, which represents the ratio of stock yield to its trading volume over a certain period of time, and measures the sensitivity of stock prices to trading volume. The higher the value, the greater the fluctuation of the stock price due to the unit trading volume, the lower the liquidity of the stock; Conversely, the smaller the value, the smaller the price fluctuation caused by the unit trading volume, and the higher the liquidity of the stock. Therefore, the Amihud indicator is a measure of illiquidity, and for the sake of illustration, this article gives a negative value to Amihud[18]. The construction method is as follows:

$$Amihudi,t = -\frac{1}{D}\sum_{d-1}^{Di}\frac{|Ri,d|}{Volumei,d}$$

Where i stands for stock; t stands for year; d stands for trading day; R stands for the stock's daily rate of return; Volume represents the daily turnover. In this article, the larger the Amihud, the higher the fluidity.

4.2.4 Control variables

Drawing on the research results of Lu Rong and Chang Wei[19] and Meng Qingbin[20], this paper selects the following control variables: financial leverage (Lev), company size (Size), company profitability (ROA), industry tobinq, annual stock return (Return), Two jobs in one (Dual), nature of property (Owner), institutional investor ownership (Institution), annual (Year) and industry (Ind). The calculation methods are listed in Table 1.

Table 1. The variable definition table

The variable type	The variable name	Symbol	Variable definitions
Dependent variable	Company information disclosure violations	Violation	When a listed company is found to have an information disclosure violation in that year, the value is 1, otherwise it is 0.
Independent variable	Stake of shares	Pledge	If the shares held by the company's controlling shareholder are pledged, Pledge is valued at 1, otherwise it is 0.
Mediation variable	Stock liquidity	Amihud	Negative value of stock yield/turnover
Control variables	Financial leverage	Lev	Total liabilities/total assets
	Company size	Size	The logarithm of the total asset
	Tobinq	Tobinq	(equity market value + net debt market value) / total assets
	company profitability	ROA	Net profit/total assets
	annual stock return	Return	Annual individual stock returns
	Two jobs in one	Dual	The chairman and general manager are one person, the value is 1, otherwise it is 0.
	nature of property	SOE	The value of state-owned enterprises is 1, and the opposite value is 0.
	institutional investor ownership	Institution	The total share capital of the shares/company held by institutional investors

4.3. Model settings

4.3.1 The direct impact of equity pledge on information disclosure violations of listed companies

In order to examine the direct impact effect of equity pledge on the information disclosure violation of listed companies and test the hypothesis H1, a regression model is established (1):

$$\mathrm{Violation}_{i,t} = \beta_0 + \beta_1 \mathrm{Pledge}_{i,t} + \beta_2 \mathrm{Control}_{i,t} + \mu_i + \varphi_t + \varepsilon_{i,t} \tag{1}$$

Model (1): $\mathrm{Violation}_{i,t}$ indicates whether the enterprise i has an information disclosure violation in the t period, $\mathrm{Pledge}_{i,t}$ indicating whether the sample company has equity pledge, $\mathrm{Control}_{i,t}$ which is the control variable; In addition, μ_i and φ_t were introduced and used to control the influence of individual and year factors in the enterprise; $\varepsilon_{i,t}$ is a random perturbation term. If $\beta_1 >$ 0 and is significant, H1 is assumed to be true.

4.3.2 The indirect impact of equity pledge on information disclosure violations of listed companies

Stock liquidity can illustrate the indirect impact of equity pledge on the information disclosure violations of listed stock companies, that is, stock liquidity can play an intermediary role. In order to test the mediating effect of stock liquidity to test the hypothesis H2 and H3, this experiment formed a regression model (2) and a model (3) according to the intermediary variable test method proposed by Wen Zhonglin[21].

$$\mathrm{Amihud}_{i,t} = a_0 + a_1 \mathrm{Pledge}_{i,t} + a_2 \mathrm{Control}_{i,t} + \mu_i + \varphi_t + \varepsilon_{i,t} \tag{2}$$

$$\mathrm{Violation}_{i,t} = b_0 + b_1 \mathrm{Pledge}_{i,t} + b_2 \mathrm{Amihud}_{i,t} + b_3 \mathrm{Control}_{i,t} + \mu_i + \varphi_t + \varepsilon_{i,t} \tag{3}$$

In model (2) ~ (3): $Amihud_{i,t}$ indicates stock liquidity. If $a_1 > 0$ and is significant, H2 is assumed to be true. If b_1 is significant, it is a partial intermediary; If b_1 is not significant, it is fully intermediated. If b_2 is significant and the coefficient of b_1 is less than the coefficient of β_1 in model (1), H3 is assumed to be true.

5. Analysis of empirical results

5.1. Descriptive statistics

Table 2 shows the descriptive statistical results of the main variables in this paper. Among the sample companies, the number of samples of listed companies with interpretive variables was punished by regulators for information disclosure violations accounted for 17.5% of the total sample, mainly involving problems such as false statements of company information, omissions in information disclosure, and untimely information disclosure. About 38.8% of the controlling shareholders of listed companies have equity pledges, but the equity pledging behavior of major shareholders is quite different, and almost all of the shares of listed companies held by major shareholders of listed companies are pledged, which indicates that equity pledge is an important source of financing channels for shareholders of listed companies. Other control variables were similar to the existing literature data range and were within reasonable ranges.

Table 2. Descriptive statistics

variable	N	mean	p50	sd	min	max
Violation	14393	0.175	0	0.380	0	1
Pledge	14393	0.388	0	0.487	0	1
Amihud	14393	-0.190	-0.029	1.030	-8.719	-0.002
size	14393	22.25	22.130	1.202	19.950	25.800
ROA	14393	0.025	0.032	0.083	-0.401	0.198
dual	14393	0.320	0	0.467	0	1
institution	14393	0.398	0.403	0.237	0.003	0.888
lev	14393	0.428	0.420	0.200	0.063	0.921
tobinq	14393	2.037	1.629	1.310	0.850	8.719
return	14393	0.011	-0.062	0.426	-0.606	1.828
SOE	14393	0.261	0	0.439	0	1

5.2. Regression results and analysis

5.2.1 Violation of equity pledge and information disclosure

The direct impact of equity pledge on information disclosure violations of listed companies. In this study, model (1) was used to test the relationship between equity pledge and information disclosure violations of listed companies, and the test results are shown in Table 3. Column (1) of Table 3 shows the regression results of equity pledge on corporate information disclosure violations without adding control variables, and the results show that there is a positive correlation between equity pledge and enterprise information disclosure violations, and it is significant at the level of 1%. The regression results maintained a significant positive correlation after adding the control variables ($\beta_1 = 0.0338$, $p < 0.01$). This suggests that disclosure breaches are more likely to occur when listed companies have equity pledges, a conclusion that confirms the hypothesis H1 of this paper.

Table 3. Violation of equity pledge, stock liquidity and corporate information disclosure

Variables	(1) Violation	(2) Violation	（3） Amihud	（4） Violation
Pledge	0.0363***	0.0338***	0.2105***	0.0315***
	(0.0092)	(0.0092)	(0.0287)	(0.0093)
Amihud	—	—	—	0.0113***
				(0.0026)
Control variables	Control	Control	Control	Control
Individual effect	Control	Control	Control	Control
Year effect	Control	Control	Control	Control
N	14393	14393	14393	14393
Adj_R^2	0.0124	0.0193	0.1240	0.0203

***, **, * respectively represents significance levels of 1%, 5%, and 10%; Standard error in parentheses; Same below.

5.2.2 Function channel analysis

According to the previous assumption, the impact of equity pledge on corporate information disclosure violations will play a role through stock liquidity. In this study, we examine models (2), models (3) and models (4) to identify the mediating role of stock liquidity in the relationship between equity pledge and corporate information disclosure violations. Columns (3)~(5) of Table 3 give how equity pledging affects stock liquidity, and thus affects the regression results of corporate information disclosure violations.

The test results of model (2) can be obtained from column (3) of Table 3, and equity pledge has a significant positive correlation with stock liquidity at the level of 1% (a_1=0.2105, $p < 0.01$), and equity pledge has a significant effect on stock liquidity, which verifies that H2, that is, compared with non-equity pledge companies, companies with equity pledge have higher stock liquidity.

According to column (4) of Figure 3, the test results of model (3) can be obtained, and the regression coefficient of stock liquidity and corporate information disclosure violation is 0.0113, which is significant at the level of 1%. The regression coefficient of equity pledge and corporate information disclosure violation was 0.0315, which was significant at the level of 1%. Moreover, the coefficient b_1 of equity pledge in model (3) is less than the value of the coefficient β_1 of equity pledge in model (1) (0.0315 <0.0338), according to the conclusion of the intermediary effect test, it can be concluded that stock liquidity plays a certain mediating effect between equity pledge and corporate information disclosure violations, assuming that H3 is true. And because b_1 is significant, it is a partial mediating effect. For companies with equity pledges, the probability of corporate information disclosure violations increases through the improvement of stock liquidity.

5.3. Robustness test

In order to ensure the reliability of the conclusion, this paper conducts a robustness test by changing the metric of equity pledge variables. The above assumption regards equity pledge as homogeneity, but ignores the difference in equity pledge ratio, because the major shareholders face different control transfer risks under different equity pledge ratios, so the opportunistic motives of the major shareholders are bound to be different. The more shares held by a major shareholder are pledged, the less collateral can be replenished in the future, so the stronger the incentive to maintain the company's share price. In order to analyze the difference in the impact of equity pledge ratio on the company's information disclosure and violations, we select the ratio of the pledged shares of the controlling shareholder to the shares owned by the controlling shareholder (Pledge_Ratio1), the ratio of the pledged shares of the controlling shareholder to the total share capital of the company (Pledge_Ratio2) as the main proxy variables, the larger the value, the more the number of shares pledged by the listed company, and the greater the pressure on the stock price. The more motivated companies are to make strategic disclosures[22]. The results show that the regression coefficients of the two proxy variables Pledge_Ratio1 and Pledge_Ratio2 and Violation of corporate information disclosure violations are significantly positive at the 1% and 5% levels. It shows that the higher the equity pledge ratio of the controlling shareholder, the higher the probability of information disclosure violations of the company. The above conclusions are consistent with the previous article, which verifies the robustness of the conclusions of this study.

Table 4. Robustness test

Variables	(1) Violation	(2) Violation	(3) Violation	(4) Violation
Pledge_Ratio1	0.0361***	0.0337***	—	—
	(0.0092)	(0.0092)		
Pledge_Ratio2	—	—	0.1909**	0.1867**
			(0.0931)	(0.0933)
Control variables	Not control	Control	Not control	Control
Individual effect	Control	Control	Control	Control
Year effect	Control	Control	Control	Control
N	14393	14393	14393	14393
Adj_R^2	0.0124	0.0193	0.0114	0.0185

5.4. Analysis of heterogeneity

Heterogeneity analysis of equity pledge, ultimate property right nature and information disclosure violations. For countries with emerging market transition economies, corporate behavior rooted in China's local soil is closely related to the nature of ultimate property rights. Compared with non-state-owned enterprises, state-owned enterprises have innate advantages in terms of capital acquisition and financing convenience. At the same time, because the process of state-owned equity transfer needs to be reviewed by the government, it is subject to many constraints when it is carried out, so relatively speaking, the motivation of state-owned equity pledge enterprises to manage the market value is relatively weak. Therefore, this paper expects that compared with state-owned enterprises, non-state-owned enterprises have a higher probability of information disclosure violations at the equity pledge stage.

In this paper, the overall sample is divided into a sample of state-owned enterprises and a sample of non-state-owned enterprises to examine the impact of the nature of ultimate property rights on the relationship between equity pledge and information disclosure violations of controlling shareholders. From the columns (1)~(2) of Table 5, it can be seen that the regression coefficients of the equity pledge variable Pledge and Violation of corporate information disclosure violations were positive in both state-owned enterprise groups and non-state-owned enterprise groups, but the non-state-owned enterprise group was more significant, significantly positive at the level of 1%. Based on the above results, it can be concluded that compared with state-owned enterprises, non-state-owned enterprises have a higher probability of information disclosure violations at the equity pledge stage.

Table 5. Analysis of heterogeneity of property rights

Variables	Nature of Property	
	(1) State-owned enterprises Violation	(2) Non-state-owned enterprises Violation
Pledge	0.0487*	0.0261***
	(0.0254)	(0.0100)
Control variables	Control	Control
Individual effect	Control	Control
Year effect	Control	Control
N	3751	10642
Adj_R^2	0.0321	0.0179

6. Conclusions and recommendations

This study takes the 2016-2022 A-share listed companies in Shanghai and Shenzhen as the sample to establish panel data, empirically analyzes the relationship between equity pledge banks and information disclosure violations of sample companies, and further verifies the intermediary role of stock liquidity, and the analysis results mainly include: (1) Compared with non-equity pledge companies, equity pledge companies have a higher probability of information disclosure violations; (2) The equity pledge of the listed company will provide stock liquidity; (3) Equity pledging can increase the probability of corporate information disclosure violations by increasing stock liquidity; (4) Under different property rights properties, the degree of impact of equity pledge of controlling shareholders on information disclosure violations of listed companies is also different: compared with state-owned enterprises, non-state-owned enterprises have a higher probability of information disclosure violations at the equity pledge stage.

Based on the above conclusions, this study makes the following policy recommendations: (1) From the perspective of regulators, information disclosure guidelines on equity pledges should be formulated. The market value management needs of major shareholders in the equity pledge stage are likely to trigger their opportunistic behavior, thereby increasing the probability of corporate information disclosure violations, reducing information transparency, and finally influencing investors' decision-making. (2) From the perspective of listed companies, it is necessary to pay special attention to the indicator of stock liquidity, although stock liquidity can improve the operational efficiency of the market and reduce transaction costs, but at the same time, it is also necessary to be vigilant against the huge pressure brought by the "short-term effect" caused by liquidity to the management, so that the management has violations due to short-term performance, and needs to avoid some potential risks, such as lower transaction costs due to liquidity, so that the controlling shareholder can quickly delist after hollowing out the listed company.

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