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Analysis of the Impact of Multiple Major Shareholders on Information Transparency: Based on the Perspective of Controlling Shareholders' Equity Pledge

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Abstract: The pledge of equity causes a serious deviation between the cash flow rights and voting rights of controlling shareholders, which may lead to controlling shareholders using their controlling position to harm the interests of small and medium-sized shareholders and using information management to cover up their tunneling behavior, reducing the transparency of company information. This article uses data from A-share listed companies in Shanghai and Shenzhen from 2003 to 2019 to empirically test the impact of multiple major shareholders on company information transparency under the background of controlling shareholder equity pledge. The empirical results show that controlling shareholder equity pledge can lead to a decrease in company transparency, and this phenomenon is mainly concentrated in private listed companies; When a company has multiple major shareholders, this phenomenon still exists. The findings of this article provide new and exploitable evidence for the conspiracy theory of major shareholders in listed companies.

1. Introduction

Pledge of Stock Rights refers to a financing method in which shareholders of a company use their equity as collateral to obtain loans from financial institutions such as banks. At present, in the context of relatively concentrated equity of listed companies in China, equity pledge has become extremely common in the stock market. Equity pledge can enable major shareholders to maintain their control over the company while financing debt, converting economic stock into economic energy, and thus leveraging their financial resources [9]. However, it may also trigger a series of subsequent problems: from the perspective of controlling shareholders, major shareholders who engage in equity pledge financing will face the risk of control transfer. When the value of collateral decreases, creditors may request additional collateral or other additional insurance measures from major shareholders to avoid risks. At the same time, when a debt default occurs, creditors may forcibly dispose of the pledged equity, ultimately causing the controlling shareholder to lose its control over the listed company. Control is the power that major shareholders attach great importance to. In order to avoid the transfer of control, major shareholders are motivated to rely on their controlling position to tunneling listed companies, causing the second type of Principal–agent problem. From the perspective of external shareholders and investors, pledging equity by major shareholders may be interpreted as a difficulty in capital turnover, requiring the use of pledged equity to raise funds. By amplifying negative information through a series of media, equity pledge may be further interpreted as a problem with the cash flow of major shareholders and even listed companies, leading to extreme behaviors such as panic selling of stocks and causing the stock price of listed companies to "dive"[10].

To avoid a significant decline in stock prices, controlling shareholders may manipulate information management and upward earnings management of listed companies, deliberately hiding "bad news" that is unfavorable to the company's stock price[30].The stock price is maintained at the expense of corporate information transparency, and the decline of information transparency will lead to information asymmetry, which will lead to "Adverse selection" and reduce the efficiency of capital allocation[1][4][24][25].From the perspective of corporate governance, the obstruction and imbalance of information acquisition channels are not only one of the main causes of principal-agent conflicts, but also the decrease in information transparency will further exacerbate the immoral behavior of insiders in the company aimed at seeking personal gain[7].When hidden bad news accumulates to a certain threshold and explodes, it may also trigger a stock price crash[28][30].

In the case of a controlling shareholder in the company, the controlling shareholder holds the control of the company. Even after the equity pledge, they still control the daily management, investment transactions, information disclosure, and other corporate behaviors of the listed company[22].Previous literature has shown that controlling shareholders who pledge their equity will engage in a series of selfish behaviors, such as abusing listed company resources [8][10], manipulating accounting information[12][29], avoiding or reducing cash dividends [19], and hiding bad news[21].Due to the fact that major shareholders often have sufficient motivation and ability to care about the development of the company [37], when there are multiple major shareholders in the company, other major shareholders will play a supervisory role, suppressing the behavior of controlling shareholders hiding bad news and reducing information transparency. The existing literature shows that the supervision and checks and balances between multiple major shareholders will restrict the controlling shareholders' behavior of obtaining private benefits, thereby improving the value of the company [23], or directly inhibit the controlling shareholders' behavior of infringing the interests of small and medium-sized shareholders [32][34] through dividend policies [26], earnings information disclosure and Related party transaction [11]. However, the presence of multiple major shareholders can also lead to collusion among multiple major shareholders, eroding the interests of small and medium-sized shareholders [32][34]. Therefore, whether the presence of other major shareholders suppresses the decrease in information transparency through supervision or colludes with controlling shareholders to reduce company information transparency after equity pledge by controlling shareholders of a company with multiple major shareholders is a question worth empirical testing.

The remaining content of this article is arranged as follows: The second part is a literature review、theoretical analysis and hypothesis proposal. Based on previous literature and theoretical analysis, the hypotheses to be verified in this article are proposed; The third part is research design, including data sources and sample processing, model setting and variable description, and descriptive statistics; The fourth part is the empirical results and analysis; The fifth part is the conclusion.

2. Theoretical analysis and hypothesis formulation

Compared to selling equity, controlling shareholders pledge their equity while maintaining control over the listed company, using their equity for collateral financing to meet their funding needs. Equity pledge belongs to the individual behavior of shareholders and has no direct relationship with listed companies. The ultimate purpose of controlling shareholders' equity pledge may be various, such as becoming a means for controlling shareholders to "empty" listed companies before exiting [3], using equity pledge to recover investments in disguised form [5], increasing control leverage [8], or simply to activate assets and even alleviate their financial difficulties [10]. Previous literature has shown that equity pledge may cause negative impacts such as more capital occupation by controlling shareholders[10], increased likelihood of financial distress [33], and decreased company value [10][31]. In companies with high equity pledge rates, controlling shareholder equity pledge will inhibit enterprise innovation investment [20]. During the period of equity pledge by major shareholders, companies are more likely to disclose good news while hiding bad news [21]. Listed companies with controlling shareholders pledging their equity are more likely to avoid tax [18]. It can be seen that the equity pledge of controlling shareholders has an impact on various aspects of listed companies.

Before discussing the situation of multiple major shareholders, this article first discusses the impact of equity pledge on company information transparency. After the major shareholder (the ultimate controller of the listed company) pledged its equity, its voting rights and its corresponding cash flow rights had a serious deviation (separation of the two rights). The ultimate controller controlled a larger control right with a smaller cash flow, increasing the ultimate controller's motivation and risk of Pay-to-play to the listed company through the controlling shareholder, and thus affecting the company's value [36]. Scholars at home and abroad have basically followed the following ideas in their research on equity pledge: major shareholders (mainly directors, supervisors, etc. of companies holding large shares of the company) pledge their shares into the required capital. When the equity value falls (financial crisis or other Systemic risk, etc.), major shareholders will face the risk of banks and other financial institutions disposing of their shares or increasing the pressure of "additional" collateral. Major shareholders, in order to mitigate their own risks and pressures, use their controlling position to empty out the listed company, depriving small and medium-sized shareholders of their interests, which in turn leads to a decline in the performance or value of the listed company [9]. After pledging their equity, the controlling shareholders will face the risk of control transfer, the risk of a decline in the company's stock price, and the loss of some cash flow rights. The controlling shareholders have the motivation to rely on their controlling position to conceal unfavorable internal information within the company in order to seek personal gain. Based on the above analysis, this article proposes hypothesis 1.

Assumption 1: Compared to companies without equity pledge, the transparency of company information will decrease after controlling shareholder equity pledge.

Previous literature on equity pledge often conducted heterogeneity analysis on listed companies with different property rights [9][12][15][18]. Due to their government background, state-owned enterprises have less financing constraints compared to private enterprises, and even if the stock price of state-owned listed companies drops, approaching or touching the red line of equity pledge contracts, creditors are more likely to raise funds to repay creditors and avoid being forced to close their positions after equity pledge. The controlling shareholders of state-owned holding companies also face less risk of control transfer than private enterprises, have less motivation to hide bad news, and may have less impact on company information transparency. Based on hypothesis 1, this article proposes hypothesis 2.

Assumption 2: Compared to non-state-owned listed companies, the impact of equity pledge by controlling shareholders of state-owned listed companies on company information transparency is smaller.

In previous literature both domestically and internationally, the impact of multiple major shareholders on listed companies tends to be polarized. On the one hand, multiple major shareholders may have a positive impact on the company: when there are multiple major shareholders in the company, other major shareholders can supervise both managers and controlling shareholders, reducing their behavior of encroaching on the interests of other shareholders [35]. At the same time, other major shareholders can effectively alleviate the controlling shareholders' behavior of seizing private benefits of control through Related party transaction, capital occupation, excess dividends and other ways [2][11][34], improve corporate performance and corporate governance effect [6][22], and also reduce the company's financing costs and reduce corporate financing constraints [16][17][23]. In addition, the joint participation of multiple major shareholders in the formulation and implementation of innovation strategies can also reduce the risk of decision-making errors and improve innovation efficiency [13]. Under the ownership structure of "one shareholder dominates", controlling shareholders are likely to use their controlling position for personal gain and cover up their tunneling behavior by concealing information, thereby reducing the transparency of company information. According to the revised Company Law in 2004, shareholders who individually or collectively hold more than 10% of the company's shares have the right to request the board of directors to convene an extraordinary shareholders' meeting, or to participate in corporate governance and daily management by dispatching directors or executives. Other major shareholders can "vote with their hands" to restrain the private interests of controlling shareholders. In addition, major shareholders who hold a significant amount of internal company information can also supervise and influence the behavior of controlling shareholders through exit threats, such as "voting with their feet" [11]. When a company has multiple major shareholders, other major shareholders may, based on their own interests, supervise the controlling shareholder's selfish behavior and hidden "bad news" behavior, reducing or avoiding the adverse impact on the company caused by the decrease in company information transparency. On the other hand, multiple major shareholders may also have a negative impact on the company: controlling shareholders may share the private interests of control with other major shareholders, infringe the interests of minority shareholders, and worsen the Principal–agent problem [27][34]. Information manipulation may cause companies to face litigation risks and high litigation and penalty costs. When major shareholders conspire with each other and jointly infringe on the interests of small and medium-sized shareholders, other major shareholders of the company not only share control and private benefits with the controlling shareholders, but also share the cost of hiding bad news with the controlling shareholders, and even face potential litigation risks in the future together. Therefore, compared to a single major shareholder, when a company has multiple major shareholders who share the risk with the controlling shareholder, the controlling shareholder is more likely to conceal unfavorable information, manipulate the company's earnings information, and reduce the company's information transparency [17]. Based on the above analysis, this article proposes the following opposing assumptions:

Assumption 3a: After controlling shareholder equity pledge, compared to a single major shareholder company, the company information transparency in multiple major shareholder companies is higher.

Assumption 3b: After controlling shareholder equity pledge, compared to a single major shareholder company, the company information transparency in multiple major shareholder companies is lower.

3. Research Design

3.1. Data Source and Sample Processing

This article takes all A-share listed companies in Shanghai and Shenzhen from 2003 to 2019 as the initial research sample. Referring to the research design of Jiang Fuxiu et al. [11], this article defines major shareholders as shareholders who hold more than 10% of the company's shares. In addition, this article follows the approach of Wang Yuntong and Jiang Fuxiu [14] to process the data as follows: (1) excluding the financial industry; (2) Excluding samples subjected to special treatment

(ST); (3) Excluding samples with an asset liability ratio greater than 1; (4) Excluding samples where there are no major shareholders (the first major shareholder holds less than 10% of the shares); (5) Remove samples with missing data; (6) To avoid the impact of extreme values, we performed a bilateral 1% tail reduction on all continuous variables. The data used in the article are all from Guotai An Database.

3.2. Model Setting and Variable Description

To test the three hypotheses proposed earlier, this article constructs the following two models:

$$EA_t = \alpha + \beta Pledge_t + \theta Control_t + Year + Industry + \varepsilon_t \tag{1}$$

$$EA_t = \alpha + \beta_1 Pledge_t + \beta_2 Multi_t + \beta_3 Pledge_t \times Multi_t + \theta Control_t + Year + Industry + \varepsilon_t \tag{2}$$

Among them, the dependent variable EA is the proxy variable for corporate information transparency (Earning Degree). The larger the value of EA, the higher the degree of earnings and opacity of the company's accounting information. The explanatory variable Pledge is the equity pledge behavior of the controlling shareholder, which is represented by whether the controlling shareholder has pledged their equity at the end of the year (Pledge_dum) and the year-end controlling shareholder equity pledge ratio (Pledge_Ratio) as proxy variables. The multi in the equation (2) is a dummy variable that determines whether the company has multiple major shareholders. When the company has two or more major shareholders holding more than 10% of the shares, 1 is taken, otherwise 0 is taken. Control is the control variable, with reference to previous literature research and design. Basic variables at the company level are selected as the control variables, including company size (Size), asset liability ratio (Lev), total asset to net profit margin (ROA), independent director ratio (Indep), dual, TobinQ, property rights (SOE), company age (FirmAge), top shareholder shareholding ratio (Top1), equity balance (Balance) Whether to hire the four major accounting firms (Big4), tangible asset ratio (Tang), and price to book ratio (PBR). The equation (1) is mainly used to test hypothesis 1 and hypothesis 2. When the coefficient of Pledge is significantly positive, it indicates that controlling shareholder equity pledge significantly increases the opacity of company information. The test of hypothesis 2 excludes the control variable property rights (SOE) and performs group regression on state-owned and private enterprises. The equation (2) is mainly used to test hypothesis 3. When the coefficient of ($Pledge_t \times Multi_t$) is significantly negative, hypothesis 3a is validated. In the context of controlling shareholder equity pledge, the company information transparency of multiple major shareholders is higher. If it is significantly positive, hypothesis 3b is validated. In the context of controlling shareholder equity pledge, the company information transparency of multiple major shareholders is lower. Table 1 provides specific definitions for each variable.

Table 1: Variable Definition.

Variable	define	method of calculation
EA_t	Earning aggressiveness	(Net profit of the company in year t minus net cash flow from operating activities in year t)/Total assets of the company at the beginning of year t
$Pledge\_dum_t$	Equity pledge or not	Is there a controlling shareholder equity pledge at the end of the year t? If so, the value is 1, otherwise it is 0
$Pledge\_ratio_t$	Equity pledge ratio	Number of pledged shares by controlling shareholders at the end of t/total number of shares held by controlling shareholders
$Multi_t$	Is there multiple major shareholders	At the end of the year, including the largest shareholder, if the company has two or more major shareholders with a shareholding ratio of 10%, the value is 1; On the contrary, it is 0
$Size_t$	Company size	Natural logarithm of total assets at the end of t
Lev_t	Asset liability ratio	Total liabilities at the end of the year divided by total assets
ROA_t	Net profit margin of total assets	Return on total assets in year t
$Indep_t$	Proportion of independent directors	Ratio of independent directors to the board of directors at the end of t year
$Dual_t$	Duality	At the end of year t, if the chairman and general manager are both held by the same person, the value is 1, otherwise it is 0
$TobinQ_t$	Tobin Q value	Year t (value of circulating stock market+number of non Shares outstanding × Net assets per share+carrying amount of liabilities/total assets
SOE_t	Property nature	If the company is a state-owned enterprise at the end of year t, the value is 1, otherwise it is 0
$FirmAge_t$	Company age	ln(t-Year of establishment of the company+1)
$Top1_t$	Shareholding ratio of the largest shareholder	Shareholding ratio of the largest shareholder at the end of t year
$Balance_t$	Equity balance	The sum of the shareholding ratios of the second to fifth major shareholders at the end of the year t divided by the shareholding ratio of the first major shareholder
$Big4_t$	Whether to hire the four major accounting firms	Is it audited by four major accounting firms in year t? Audit is 1, otherwise it is 0
$Tang_t$	Proportion of tangible assets	Total tangible assets at the end of the year/total assets
PBR_t	P/B ratio	End of year stock market value/book value

3.3. Descriptive Statistics

Table 2 presents descriptive statistics of the main variables. The average value of the dependent variable EA is -0.16, the maximum value is 0.336, and the minimum value is -0.846. The average value of main explanatory variable Pledge_dum is 0.361, indicating that 36.1% of the company's controlling shareholders have equity pledges in the sample; The average of Pledge_ratio is 0.2, indicating that on average, controlling shareholders pledged 20% of their shares, which is close to recent research on equity pledge [22]; The average value of Multi is 0.405, indicating that the sample of multiple major shareholders accounts for 40.5% of the overall sample. Table 3 shows the correlation test of each control variable. The absolute value of correlation coefficient between each control variable is less than 0.7, and there is no serious Multicollinearity between control variables.

Table 2: Descriptive Statistics of Main Variables.

	num	mean	SD	min	max
EA_t	21784.000	-0.160	0.195	-0.846	0.336
$Pledge\_dum_t$	29447.000	0.361	0.480	0.000	1.000
$Pledge\_ratio_t$	29447.000	0.200	0.321	0.000	1.000
$Multi_t$	29334.000	0.405	0.491	0.000	1.000
$Size_t$	29447.000	22.009	1.274	19.789	26.037
Lev_t	29447.000	0.430	0.206	0.050	0.884
ROA_t	29447.000	0.046	0.059	-0.191	0.215
$Indep_t$	29447.000	0.371	0.052	0.300	0.571
$Dual_t$	29447.000	0.248	0.432	0.000	1.000
$TobinQ_t$	29447.000	1.932	1.147	0.889	7.580
SOE_t	29447.000	0.419	0.493	0.000	1.000
$FirmAge_t$	29447.000	2.729	0.402	1.386	3.434
$Top1_t$	29447.000	0.363	0.148	0.115	0.750
$Balance_t$	29447.000	0.667	0.570	0.020	2.553
$Big4_t$	29447.000	0.061	0.240	0.000	1.000
$Tang_t$	29447.000	0.933	0.084	0.540	1.000
PBR_t	29390.000	3.582	2.795	0.660	16.499

Table 3: Control variable correlation test.

control	Size	Lev	ROA	Indep	Dual	SOE	TobinQ	FirmAge	Top1	Balance	Big4	tang	PBR
Size	1.00												
Lev	0.41	1.00											
ROA	0.01	-0.43	1.00										
Indep	0.06	-0.03	0.01	1.00									
Dual	-0.16	-0.16	0.06	0.12	1.00								
SOE	0.29	0.29	-0.11	-0.09	-0.30	1.00							
TobinQ	-0.22	-0.11	0.04	0.04	0.05	-0.08	1.00						
FirmAge	0.22	0.11	-0.08	0.08	-0.04	0.04	0.06	1.00					
Top1	0.18	0.05	0.10	0.01	-0.05	0.24	-0.09	-0.19	1.00				
Balance	-0.11	-0.14	0.04	0.01	0.08	-0.29	0.02	0.02	-0.67	1.00			
Big4	0.35	0.08	0.04	0.03	-0.07	0.12	-0.05	0.00	0.14	-0.02	1.00		
Tang	-0.05	0.08	0.03	-0.04	-0.03	0.11	-0.03	-0.11	0.13	-0.12	-0.02	1.00	
PBR	-0.14	0.04	-0.03	0.02	0.04	-0.05	0.50	0.02	-0.04	0.02	-0.02	-0.02	1.00

4. Empirical Results and Analysis

Table 4 shows the regression results of controlling shareholders' equity pledge and corporate information transparency corresponding to equation (1). Select $Pledge\_dum_t$ as the proxy variable for controlling shareholder equity pledge in columns (1), (3) and (4), and $Pledge\_ratio_t$ as the proxy variable for controlling shareholder equity pledge in columns (2), (5), and (6). Column (1) and (2) corresponds to Hypothesis 1 proposed earlier. From the regression results in Table 4, it can be found that the two proxy variables$Pledge_dum_t$ and $Pledge\_ratio_t$ of controlling shareholder equity pledge are significantly positive at the 5% level, indicating that pledging controlling shareholder equity or increasing the pledge rate does indeed reduce company information transparency, which verifies Hypothesis 1.Columns (3) to (6) are grouped regression based on the property rights of listed companies, where "If SOE=1" represents state-owned enterprises and "If SOE=0" represents private enterprises. From the regression results in Table 4, it can be found that in the regression of state-owned enterprises, although the coefficients of the two proxy variables $Pledge\_dum_t$ and $Pledge\_ratio_t$ of controlling shareholder equity pledge are both positive, they are not significant. In the regression of private enterprises, the coefficients of the two proxy variables $Pledge\_dum_t$ and $Pledge\_ratio_t$ of controlling shareholder equity pledge are significantly positive at the 1% level, indicating that in private enterprises, controlling shareholder equity pledge will significantly reduce company information transparency, verifying hypothesis 2.

Table 4: Equity Pledge of Controlling Shareholders and Company Information Transparency.

EA_t	(1)	(2)	(3)	(4)	(5)	(6)
			If SOE=1	If SOE=0	If SOE=1	If SOE=0
$Pledge\_dum_t$	0.009** (0.004)		0.002 (0.009)	0.017*** (0.005)		
$Pledge\_ratio_t$		0.012** (0.006)			0.004 (0.017)	0.021*** (0.006)
$Size_t$	0.006** (0.002)	0.006** (0.002)	-0.005 (0.004)	0.013*** (0.003)	-0.005 (0.004)	0.013*** (0.003)
ROA_t	0.429*** (0.038)	0.431*** (0.038)	0.629*** (0.072)	0.311*** (0.042)	0.629*** (0.072)	0.315*** (0.042)
$Big4_t$	-0.044*** (0.010)	-0.044*** (0.010)	-0.036** (0.016)	-0.048*** (0.015)	-0.036** (0.016)	-0.048*** (0.015)
$Top1_t$	-0.073*** (0.021)	-0.073*** (0.021)	-0.180*** (0.037)	-0.019 (0.025)	-0.180*** (0.037)	-0.017 (0.025)
Lev_t	-0.098*** (0.015)	-0.098*** (0.015)	0.018 (0.027)	-0.231*** (0.018)	0.018 (0.027)	-0.231*** (0.018)
$Indep_t$	0.061* (0.035)	0.061* (0.035)	0.015 (0.062)	0.122*** (0.039)	0.015 (0.062)	0.122*** (0.039)
$TobinQ_t$	-0.010*** (0.003)	-0.010*** (0.003)	0.013** (0.006)	-0.020*** (0.003)	0.013** (0.006)	-0.020*** (0.003)
$Balance_t$	0.007 (0.005)	0.007 (0.005)	-0.006 (0.009)	0.012** (0.006)	-0.006 (0.009)	0.012** (0.006)
$FirmAge_t$	-0.043*** (0.006)	-0.044*** (0.006)	-0.079*** (0.013)	-0.033*** (0.007)	-0.079*** (0.013)	-0.034*** (0.007)
SOE_t	-0.039*** (0.005)	-0.039*** (0.005)				
$Dual_t$	0.010** (0.004)	0.010** (0.004)	0.005 (0.010)	0.013*** (0.004)	0.005 (0.010)	0.013*** (0.004)
$Tang_t$	0.112*** (0.023)	0.111*** (0.023)	0.005 (0.045)	0.109*** (0.026)	0.005 (0.045)	0.108*** (0.026)
PBR_t	0.001 (0.001)	0.001 (0.001)	-0.003 (0.002)	0.006*** (0.002)	-0.003 (0.002)	0.006*** (0.002)
Constant	-0.213*** (0.060)	-0.211*** (0.060)	0.143 (0.112)	-0.373*** (0.078)	0.142 (0.112)	-0.370*** (0.078)
Observations	21,731	21,731	10,599	11,133	10,599	11,133
R-squared	0.304	0.304	0.255	0.185	0.255	0.184
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Adjusted R^2	0.300	0.300	0.252	0.181	0.252	0.181

The coefficients in parentheses represent the standard error of the corresponding regression coefficients. The symbol of * means significant at 10% confidence level, The symbol of * * means significant at 5% confidence level, The symbol of * * * means significant at 1% confidence level. The standard errors in the regression were clustered at the company level. Columns (3) and (5) correspond to the regression of state-owned enterprises, while columns (4) and (6) correspond to the regression of private enterprises.

Table 5: Controlling shareholder equity pledge and company information transparency under the background of major shareholders.

EA_t/ES_t	(1)	(2)	(3)	(4)
	$EA_t(Pledge\_dum_t)$	$EA_t(Pledge\_ratio_t)$	$ES_t(Pledge\_dum_t)$	$ES_t(Pledge\_ratio_t)$
$Multi_t$	-0.009*** (0.004)	-0.009** (0.003)	-0.132 (0.145)	-0.121 (0.138)
$Pledge_t$	0.004 (0.003)	0.004 (0.003)	-0.211 (0.130)	-0.194 (0.121)
$Multi_t \times Pledge_t$	0.008* (0.005)	0.012* (0.007)	0.743*** (0.199)	1.263*** (0.271)
$Size_t$	0.0002 (0.001)	0.0002 (0.001)	-0.408*** (0.057)	-0.399*** (0.057)
ROA_t	0.317*** (0.058)	0.319*** (0.058)	6.820*** (0.945)	6.878*** (0.944)
$Big4_t$	-0.047*** (0.005)	-0.047*** (0.005)	-0.285 (0.189)	-0.278 (0.189)
$Top1_t$	-0.097*** (0.012)	-0.097*** (0.012)	-1.357*** (0.461)	-1.367*** (0.461)
Lev_t	-0.117*** (0.009)	-0.117*** (0.009)	6.522*** (0.362)	6.474*** (0.362)
$Indep_t$	0.078*** (0.022)	0.078*** (0.022)	1.638* (0.887)	1.639* (0.887)
$TobinQ_t$	-0.010*** (0.002)	-0.010*** (0.002)	0.499*** (0.086)	0.499*** (0.086)
$Balance_t$	0.010*** (0.004)	0.010*** (0.004)	-0.653*** (0.148)	-0.663*** (0.148)
$FirmAge_t$	-0.050*** (0.004)	-0.051*** (0.004)	-0.453*** (0.173)	-0.477*** (0.173)
SOE_t	0.012*** (0.003)	0.012*** (0.003)	0.505*** (0.123)	0.510*** (0.123)
$Dual_t$	0.040*** (0.015)	0.040*** (0.015)	3.734*** (0.588)	3.722*** (0.588)
$Tang_t$	0.003*** (0.001)	0.003*** (0.001)	-0.399*** (0.035)	-0.398*** (0.035)
PBR_t	-0.045*** (0.003)	-0.045*** (0.003)	0.747*** (0.115)	0.775*** (0.115)
Constant	0.007 (0.036)	0.006 (0.036)	7.755*** (1.423)	7.641*** (1.422)
Observations	21,626	21,626	17,329	17,329
R-squared	0.255	0.255	0.116	0.117
Industry FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Adjusted R^2	0.253	0.253	0.114	0.114

The coefficients in parentheses represent the standard error of the corresponding regression coefficients. The symbol of * means significant at 10% confidence level, The symbol of * * means significant at 5% confidence level, The symbol of * * * means significant at 1% confidence level. The standard errors in the regression were clustered at the company level. Among them, columns (1) and (3) represent the regression results of selecting as proxy variables for controlling shareholder equity pledge, while columns (2) and (4) represent the regression results of selecting as proxy variables for controlling shareholder equity pledge. Due to different calculation methods, ES has a smaller sample size compared to EA.

Table 5 shows the regression results of controlling shareholder equity pledge and company information transparency under the background of multiple major shareholders corresponding to equation (2). Among them, columns (1) and (2) represent the regression results of selecting

$Pledge\_dum_t$ and $Pledge\_ratio_t$ as the proxy variable for controlling shareholder equity pledge. For robustness reasons, this article added earnings smoothness[1] as a proxy variable for corporate information transparency [7], where (3) (4) The regression results of selecting $Pledge\_dum_t$ and $Pledge\_ratio_t$ as proxy variables for controlling shareholder equity pledge are presented in the columns. From the regression results in Table 5, it can be found that the coefficient of the core explanatory variable (C) that this article focuses on is significantly positive at the level of at least 10%, indicating that after controlling shareholder equity pledge, compared to a single major shareholder company, the company information transparency in multiple major shareholder companies is lower, confirming hypothesis 3b.

5. Conclusions

This article is based on data from A-share listed companies in Shanghai and Shenzhen from 2003 to 2019 to study the impact of major shareholders on company information transparency under the background of controlling shareholder equity pledge. Based on empirical analysis, this article proves that controlling shareholder equity pledge can lead to an increase in company information transparency, and this phenomenon is concentrated in private enterprises, which is not obvious in state-owned enterprises. Meanwhile, the empirical results of this article indicate that after controlling shareholder equity pledge, compared to a single major shareholder company, the company information transparency in multiple major shareholder companies is lower. This article provides new and exploitable evidence for the collusion theory of major shareholders in listed companies compared to previous domestic literature, enriching the research on major shareholders and equity pledge.

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[1] ES=standard deviation of the ratio of net cash flow from operating activities to total assets at the beginning of the year during the period (t-3, t)/standard deviation of the ratio of net profit to total assets at the beginning of the year during the period (t-3, t)

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