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A Study on the Impact of Equity Pledges by Controlling Shareholders of Listed Firms in China on Corporate Social Responsibility

by

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Abstract

Using equity pledge financing has gradually become one of the most important shareholders' low-cost alternatives to corporate bond financing. At first glance, "The better the social performance of the controlling shareholder, the higher their pledge ratio" may seem counterintuitive. Is this a general phenomenon or an isolated case? What are the reasons behind it? What are the economic consequences? This paper attempts to answer these three questions by studying the impact of controlling shareholders' equity pledges on corporate social responsibility (CSR). By empirically analyzing CSR reports of listed companies from Hexun from 2010 to 2020, the study concludes that the pledge of controlling shareholders' equity is negatively correlated with CSR performance. Mechanism analysis shows that financing constraints reduce CSR obligations, while the pledge of equity still plays a significant negative role in CSR after considering financing constraints, indicating partial mediation. It also concludes that agency costs are significantly effective in reducing CSR obligations; after considering agency costs, the pledge of equity continues to have a negative impact on CSR, indicating partial mediation.

Keywords: controlling shareholder, equity pledge, corporate social responsibility

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Introduction

Equity pledge is a debt financing method whereby shareholders use their entire equity as collateral to obtain loans from financial institutions or third parties. According to the guarantee laws of most countries, pledges can be classified based on the subject matter into chattel pledges and pledges of rights. An equity pledge is a type of rights pledge, and the law stipulates that when establishing an equity pledge, the creditor acquires the right to the pledged equity security, known as the equity pledge. As a low-cost financing method, equity pledges have been widely used in China's capital market in recent years and have become an important tool for controlling shareholders of listed companies to alleviate financial pressure. The data provided by China Securities Depository and Clearing Corporation states that as of December 2020, 65.34% of all listed companies in the A-share market had been involved in equity pledge. Of these, the equity pledge ratios of 57 companies were more than 50% of the total share capital of the company, and 319 companies had pledge ratios between 30 and 50% of the total share capital of the company. Such a phenomenon not only indicates the beneficial effect of equity commitments in reducing the financing limitations of corporations, but also points to their risks and concealed threats.

CSR, which is one of the crucial indicators to determine the capability of a company to engage in sustainable development, obligates businesses to maintain a balance between their duties to their employees, environment, communities, and stakeholders in the quest to achieve economic gains. As the Chinese economy is being transformed, and the social values are evolving, CSR has slowly turned into a moral decision, rather than an essential part of the competitiveness of a company. The shareholder interests of controlling shareholders in China and in the highly concentrated capital market are decisive in CSR investment through their behavioral interests and risk-taking.

The existing literature on the determinants of CSR is mainly concerned with the external institutional environment, including policies, regulations, and media coverage, and the internal governance system such as board organization and equity shares. Nonetheless, studies that investigate the links between the personal actions of controlling shareholders and CSR are scarce, especially in studying the systematicity of the distinct financing behavior related to the equity pledges. In the case of pledging equity by controlling shareholders, they would be at the risk of being forced to liquidate as a result of fluctuation in stock prices. As a result, decision-making can change towards a focus on short-term risks rather than long-term value maximization including CSR activities. Moreover, equity pledges may increase the agency problem between the controlling shareholders and the minority shareholders, which may lead to the misappropriation of interests and additional impediments to corporate investment in social responsibility.

In light of the above, this article analyzes the role of controlling shareholders in the equity pledges towards CSR. It attempts to answer the following questions: Does equity pledge by the controlling shareholders influence the amount of CSR performance? In what direction and to what extent does this effect take place?

The study of these questions has important theoretical and practical implications. Theoretically, this article expands upon research on the economic impact of equity pledges and other variables affecting CSR by clarifying the link between equity pledging by the controlling shareholders and CSR. This offers a new viewpoint to the non-financial decision-making process of Chinese enterprises during periods of transition. Practically, the research findings offer a policy foundation for regulatory authorities to oversee equity pledge activities; guide enterprises in fulfilling their social responsibilities; and serve as a reference for investors to assess the authenticity and sustainability of corporate social responsibility efforts. Ultimately, this contributes to the healthy development of the capital market and the enhancement of the social value system.

Literature Review

A study on the equity pledge of controlling shareholders.

An equity pledge allows corporate investors to pledge their equity. In China, the shares of shareholders of joint-stock companies and limited liability companies can serve as the subject of an equity pledge. Stocks that need to be transferred or pledged in accordance with the law require the pledgor and pledgee to enter into a written contract. Due to the random fluctuations in a company's stock price, the bank considers stock pledge loans to be a high-risk loan business. In order to ensure the healthy development of the loan business, financial institutions and pledgers will agree on early warning lines for stock pledge behavior. When the market value of pledged stocks approaches or falls below the warning line, the pledger is required to add collateral or supplement the margin to reduce the risk of repayment. Failure to fulfill additional or supplementary obligations may result in the pledger taking liquidation measures. Typically, the warning line and closing line are generally 140% to 160% and 120% to 140%.

A study on the risks of controlling shareholder equity pledges and control transfer using a sample of A-share listed companies from 2003 to 2016 found that companies with controlling shareholder equity pledges are more likely to manipulate earnings management than companies without pledges (Xie & Liao, 2018). A study of listed companies from 2013 to 2019 found that those with major shareholder equity pledges tend to have higher stock price synchrony. This effect becomes more pronounced as the proportion of pledges increases. However, the quality of information disclosure plays a significant negative role in this relationship, mitigating the impact of major shareholder equity pledges on stock price synchrony (Yue & Chen, 2021).

In companies with poor speculative opportunities, the equity pledged by controlling shareholders is significantly and negatively correlated with the company's liquidation option value (Ke & Li, 2019). There is a significant negative correlation between the pledges of controlling shareholders' equity and corporate R&D investment (Zhang et al., 2017). A study of A-share listed companies from 2009 to 2019 shows that the higher the proportion of pledged equity, the higher the corresponding audit pricing.

Equity pledging affects earnings management levels, which influences auditors' decisions. This behavior makes auditors more likely to issue non-standard audit opinions. The state-owned nature of a company has a positive moderating effect on the relationship between equity pledging and audit opinions. However, state ownership negatively moderates the relationship between equity pledging and audit pricing (Zhao & Yuan, 2020).

Controlling shareholders may manipulate corporate disclosure opportunistically to avoid or mitigate the costs of additional margin calls on pledged shares. This enhances non-diversifiable information risk and the poor performance of earnings forecasts by analysts. The quality of CSR disclosure and reporting, however, moderates this relationship. In cases where companies release CSR reports, the adverse effect of stock pledges diminishes substantially, and the accuracy of the forecasts, on average, improves more than 50%. Because the control of the equity promise of shareholders is a financing transaction, it was discovered that the disclosure of capital stakeholders in CSR reports can add the most to the accuracy of analysts in their predictions (Kent et al., 2021).

As the above literature review shows, controlling shareholders of publicly traded companies play a crucial role and wield absolute power in which they have a final say on corporate management decisions. Corporate social responsibility encompasses significant decisions concerning suppliers, customers, and employees. These decisions can be controlled by the shareholders. Nevertheless, the emphasis of existing studies has been less focused on the way individual controlling shareholders could impact the activities of corporate social responsibility.

Research related to corporate social responsibility.

The CSR concept refers to the role of companies in making profits and meeting their legal obligations to the stockholders and the workers. It also includes the duty to the consumers, society, and the environment. It requires that enterprises go beyond the traditional understanding of profit as the main goal, emphasizing the importance of people in the manufacturing process and giving back to the environment, consumers, and society. The concept of CSR originates in America. Although no single definition of CSR existed at the beginning of the 20th century, its basic components were clear. CSR is the responsibility that businesses must undertake, beyond focusing on maximizing their profits. The establishment of the global economic society made giving a country’s priority to common problems, such as social and environmental problems. In addition to the political sphere of governmental accountability, the crucial role that businesses play in social responsibility has now become the center of societal interest.

The policy and market interaction effect on corporate social responsibility.

It has been found that environmental policies, as well as market pressures, shape the formulation of corporate social responsibility. Promotion of green technological innovation can be achieved by policies that will encourage companies to fulfill their social and environmental responsibilities. It means that there is a positive correlation between CSR and innovation. The companies can invest in research and development and in the funds set aside for environmental protection, which can lead to an enhancement of the positive effect of such a relationship (Wang et al., 2021). The latter can be offered applicable, practical principles provided by the empirical research on CSR in developing countries to both local and multinational businesses (Yumei et al., 2021). Additionally, this may pressure firms to focus on corporate innovation, considering the consumer interest and market forces (Wang et al., 2019). Moreover, local economic policies, taxes, and bonds constitute an important instrument when planning corporate environmental development (Wang et al., 2023).

The issue of the mechanisms of corporate social responsibility.

Environmental, Social, and Governance (ESG) is also a new approach to CSR research that has become apparent in recent years. The green innovation ability of firms is linked to an enhancement in the performance of the firm in the ESG field. Internationally oriented executives have been in a position to influence this mechanism positively (Qiang et al., 2023). The rise and development of ESG in China happens within an economic context that is more extensive and protracted (Ji et al., 2023).

Correlation of corporate strategy and corporate social responsibility. Corporate social responsibility has been part of the business models and corporate strategies, such as green leadership, innovation, and the circular economy, which have been stated to be effective in terms of ensuring the sustainable development of enterprises (Abbate et al., 2023).

The association between innovation performance and corporate social responsibility.

The study hypothesizes that the innovation performance is positively affected by corporate environmental responsibility (CER) with positive feedback in highly polluting industries. Furthermore, the potentials of company green innovation not only play a role in maximizing the corporate benefits indirectly, but also plays a role in maximizing the environmental performance (Qammar et al., 2024). It concludes that the focus of green innovation in state-owned enterprises is facilitated by public attention. Non-state-owned enterprises, however, emphasize green innovation more, even though they have limited opportunities due to the local economic pressure (Wang et al., 2019).

Green dynamic capabilities and corporate social responsibility.

It is assumed that the introduction of sustainable reform and change in supply chains can be enabled by the innovation capabilities of corporations (Xiao et al., 2024). CER needs local customizations of its practical implementation through research on the institutional environment of the emerging markets in China, such as ownership structure and unequal regulation (Zhang et al., 2022). In addition, the CER regulation by the corporations has been shown to promote competitive advantages (Qammar et al., 2024).

The current study discusses the intersection of CSR and organizational building. Personal aspects of corporate employees are appreciated in an organization, including environmental consciousness and social ethics of employees, which indirectly encourage the organization to act in an environmentally friendly manner (Mansour et al., 2022). Moreover, the sense of responsibility towards the social environment is the result of ethical leadership and moral thinking towards CSR in businesses (Wu et al., 2021). Moreover, certain researchers have also suggested the inclusion of mental and physical health satisfaction of employees in the study of CSR, which is indicative of an increased focus on the health of the population (Macassa et al., 2021).

The existing gaps in CSR research therefore pertain to the following: first, the research on the integration of CSR within different business ecosystem models is lacking. The studies of CSR should be oriented towards medium-term and long-term studies to investigate how CSR can contribute to industrial transformation and the economic efficiency of a company for the mid to long-term. Additionally, researchers should take note of cross-national institutional, cross-cultural, and cross-social ethical research, and the differentiated studies that are comparable to digital economic reforms; this is because of data scope limitations and external policy impacts. Lastly, with CSR moving towards a multi-dimensional approach rather than the single-dimensional approach of environmental focus, the criteria used in evaluating CSR should be viewed more holistically in order to achieve better sustainable development objectives.

Research Hypothesis

Controlling shareholder equity pledge and CSR.

The meaning of organizational legitimacy is common to all. According to the organizational legitimacy theory, the higher the number of shares pledged, the higher the likelihood of the organization losing its legitimacy. This is mainly because although the equity pledge financing is less expensive than other modes of financing, it is also associated with the risk of corporate misconduct. It is insufficient to use social contracts and moral value norms. Recent rules that have been formulated by China regarding the pledging of stocks in the securities market have been subjected to stricter conditions on the use of pledged funds, concentration, and pledge ratios. This emergence highlights the need to have stringent industry policies needed to reduce uncontrollable risks. Thus, it may be concluded that a high level of stock pledge ratio is related to an increased likelihood of losing legitimacy.

Equity pledging has been a favorite technique among the controlling shareholders because it provides financing benefits but the use of pledged funds is also worth consideration. A number of researchers have found that equity commitment by controlling shareholders can have a detrimental effect on CSR (Zhang et al., 2020; Zhu, 2020). Consequently, hypothesis H1 is put forth in the current research.

H1: Supposing that other factors are kept unchanged, one can infer that the greater the percentage of pledged shares represented by the controlling shareholder, the less socially responsible the company is bound to be.

Intermediary effect of financing constraints.

The issue of financing constraints has been proven to play a major role in the operational growth of Chinese enterprises, subjecting them to extensive constraints on their ability to grow and expand. In theory, financing constraints are the difference between the cost of financing internally and externally. When dealing with poor internal funding, business ventures usually have difficulties in investing in opportunities because the costs of external funding are high. This obstacle prevents business operators from exploiting such opportunities, and in turn, prevents the achievement of the goal to maximize corporate profits. Currently, a major challenge to the growth of Chinese firms is the lack of finances. Asymmetry in information in the Chinese market creates information asymmetry between lenders and borrowers, hindering the ability of enterprises to access funds on a timely basis. This has led to the topic of how to help entrepreneurs overcome the challenge of financing; it also becomes a concern to both the entrepreneur and the research scholars in this field.

Other researchers assume that equity pledging is a measure of financing constraints that is faced by controlling shareholders. The article hypothesizes that the greater the share of equity commitments by the controlling shareholders, the greater the probability of the occurrence of financial crises, which results in more significant funding restrictions. This, in its turn, leads to the inability or reduction of availability of adjustable funds to meet corporate social responsibilities. A negative correlation is found between the equity pledges made by the non-state-owned controlling shareholders and their CSR investments. In addition, the controlling shareholders were found to make equity pledges, which can worsen the financing problems that listed companies face (Mo & Liu, 2020). This hypothesis is then proposed:

H2: When the equity pledge ratio of the controlling shareholder is high, the company is subject to greater financing constraints and therefore assumes less corporate social responsibility.

Agency costs mediate this effect. Agency theory has led to the adoption of an agency model of management by modern corporations, based on the fact that corporate team management and efficiency of operation are considered in the model. This theoretical framework assumes that the separation of corporate ownership and management is critical in the improvement of organizational efficiency. Professional managers have a responsibility in the management of the company in this model, where they perform their daily management activities. As a result, agency issues have emerged. The first type of agency problem is the one between the managers of the company and the shareholders. The next group is that of the relationship between the major shareholders and the minority shareholders.

The majority of publicly traded companies in China's nascent capitalist market emerged from the process of state-owned enterprise reforms. Despite the implementation of the 2005 equity reform, state-owned equity continues to represent a substantial proportion of state-owned companies. Given China's distinctive equity structure, the second type of agency problem—the issue between dominant controlling shareholders and minority shareholders—is especially salient. However, these shareholders do not engage in the day-to-day operations of the company and must rely upon the actions of the management team needed to generate returns.

The pledge of equity held by a controlling shareholder can have a detrimental effect on the precision of earnings forecasts. The shareholder pledge of controlling shareholder equity has been demonstrated to reduce first-type agency costs while increasing second-type agency costs. Second-type agency costs have been shown to play a partial intermediary role in the relationship between shareholder pledge and earnings forecast accuracy(Zhang & Hu, 2021). Therefore, the following hypothesis is proposed:

H3: In circumstances where a controlling shareholder has pledged a greater proportion of their equity to the company, the agency costs for the company are increased, and the company assumes a reduced level of corporate social responsibility.

Empirical research design

Sample Selection and Data Sources

Given that Hexun's social responsibility data disclosure began in 2010, this paper selected data from Chinese A-share listed companies from 2010 to 2020 as the observation sample. This is due to the fact that, at present, Bloomberg's CSR scores have been updated to 2020 (Hexun, 2025). Given the compatibility between Hexun's social responsibility scores and Bloomberg's corporate social responsibility scores with respect to the test interval, the data presented in this paper extends up to the year 2020. In accordance with the research objectives and extant studies, the present paper screens the sample according to the following criteria: financial companies are excluded due to their divergent profit structures compared to general companies; listed companies with a trading status of ST or *ST in the current year are excluded; samples with pledged shares in year that were released in the current period are excluded; and samples with missing relevant data are excluded. Subsequently, all continuous variables except for the dummy variables were Winsorized by removing the top and bottom 1% of the samples, resulting in 24,525 sample observations. The CSR data were sourced from Hexun Social Responsibility and the Bloomberg ESG Disclosure Scores. The quality data concerning internal control were derived from the Dibo Internal Control Index. The CSMAR database was also consulted for additional relevant data. The data processing and statistical analysis were conducted using Stata 15.0 software.

Variable definitions and models.

The dependent variable is corporate social responsibility (CSR). Hexun Social Responsibility Index (CSR1) and the Hexun Social Responsibility Score to measure it(Shen et al., 2021) are used in this study. Additionally, the Bloomberg ESG Disclosure Scores (CSR2) to evaluate CSR (Xu et al., 2024) is also used. The Bloomberg ESG Disclosure Scores include an ESG composite score and separate scores for environmental, social, and governance factors. These scores cover approximately 1,000 companies. Higher scores for both indices indicate a higher level of CSR. In the empirical analysis in Chapter 5, CSR1 is used for the baseline regression and CSR2 is used for the robustness tests.

Measurement of controlling shareholder equity pledges.

This study uses data from the CSMAR Guotai An database of listed companies to define the independent variable as the controlling shareholder equity pledge index (Pledge). Two measures are employed: the ratio of the controlling shareholder's pledged equity to their total equity holdings (Pledge1) and the presence or absence of any equity pledges by the controlling shareholder (Pledge2). A higher Pledge1 indicates a greater proportion of shares pledged by the controlling shareholder. Pledge2 is equal to 1 if the controlling shareholder has pledged shares and equal to 0 otherwise. In Chapter 5's empirical analysis, Pledge1 is used for the benchmark regression, and Pledge2 is used for robustness testing. Based on existing literature, the following variables are used: firm size, financial leverage, return on assets, etc. The definitions of the variables are shown in Table 3.1.

Table 3.1

Variable Definitions

VariableType	Variable Name	Variable symbol	Variable definition
Explained Variable	Corporate Social Responsibility	CSR1	Hexun CSR Disclosure Index
		CSR2	Bloomberg CSR Disclosure Index
Explanatory Variable	Equity pledge by controlling shareholders	Pledge1	The proportion of shares pledged by the controlling shareholder relative to the total number of shares held by the controlling shareholder.（Pledge1）
		Pledge2	Indicate whether the controlling shareholder has pledged its equity. If yes, enter a 1; if no, enter a 0.（Pledge2）
Control Variables	Company size:	Size	Logarithm of total assets
	Financial Leverage	Lev	Total liabilities/total assets
	Return on Total Assets	ROA	Net profit/total assets at the end of the period
	Years in business:	Age	Current year - year of establishment
	Growth Potential	Growth	(Current year's operating income - previous year's operating income)/previous year's operating income
	Board of Directors Size	Board	Natural logarithm of the number of board members
	Independent Director Ratio	Independent	Number of independent directors/number of board members
	First-largest shareholder's holding ratio	Top1	Number of shares held by the largest
	Executive compensation	Salary	Logarithm of total assets

Mechanism Variables	Financing constraints	KZ	KZ Index
	Second-type agency costs	Occupy	Other operating income/total assets

Note: Synthesized by the author

Model Design

To test H1, establish a model.

$$CSR1_{i,\ t} = \beta_0 + \beta_1 pledge1_{i,\ t} + \beta_2 Size_{i,\ t} + \beta_3\ Lev_{i,\ t} + \beta_4 Roa_{i,\ t} + \beta_5 Age_{i,\ t} + \beta_6 Growth_{i,\ t} + \beta_7 Board_{i,\ t} + \beta_8 Independent_{i,\ t} + \beta_9 Top1_{i,\ t} + \beta_{10} Salary_{i,\ t} + \sum \mathrm{Ind}_{i,\ t} + \sum \mathrm{Year}_{i,\ t} + \varepsilon_{i,\ t} \tag{3-1}$$

To test H2, establish a mode2.

$$CSR1_{it} = \alpha_0 + \alpha_1 \times Pledge_{it} + \alpha_2 \times Control_{it} + \sum \mathrm{Ind}_{i,\ t} + \sum \mathrm{Year}_{i,\ t} + \varepsilon_{it} \quad (1)$$

$$KZ_{it} = \beta_0 + \beta_1 \times Pledge_{it} + \beta_2 \times Control_{it} + \sum \mathrm{Ind}_{i,\ t} + \sum \mathrm{Year}_{i,\ t} + \varepsilon_{it} \quad (2)$$

$$CSR1_{it} = \delta_0 + \delta_1 \times Pledge_{it} + \delta_2 \times KZ_{it} + \delta_3 \times Control_{it} + \sum \mathrm{Ind}_{i,\ t} + \sum \mathrm{Year}_{i,\ t} + \varepsilon_{it} \quad (3)$$

(3-2)

To test H3, establish a model3：

$$CSR1_{it} = \alpha_0 + \alpha_1 \times Pledge_{it} + \alpha_2 \times Control_{it} + \sum \mathrm{Ind}_{i,\ t} + \sum \mathrm{Year}_{i,\ t} + \varepsilon_{it} \quad (1)$$

$$Occuppy_{it} = \beta_0 + \beta_1 \times Pledge_{it} + \beta_2 \times Control_{it} + \sum \mathrm{Ind}_{i,\ t} + \sum \mathrm{Year}_{i,\ t} + \varepsilon_{it} \quad (2)$$

$$CSR1_{it} = \delta_0 + \delta_1 \times Pledge_{it} + \delta_2 \times Occuppy_{it} + \delta_3 \times Control_{it} + \sum \mathrm{Ind}_{i,\ t} + \sum \mathrm{Year}_{i,\ t} + \varepsilon_{it} \quad (3)$$

(3-3)

Descriptive statistics

The present study employed Stata to execute the preliminary data processing necessary for the empirical analysis, thereby yielding the descriptive statistical results for the sample. Table 3.2 presents the descriptive statistical results for the key variables. The mean value of CSR1 for 24,525 samples of CSR in China is 25.46, with a standard deviation of 15.081, a minimum value of 1.03, and a maximum value of 73.74. This finding suggests the presence of substantial variations in the degree of CSR among Chinese listed companies, indicating that the level of CSR within this group is comparatively low.

The mean value of controlling shareholder equity pledge (Pledge1) is 0.208, indicating that the proportion of pledged shares exceeds 20% of the controlling shareholder's total holdings. This finding suggests that equity pledging is a pervasive practice in China's capital market. This favorable condition is conducive to our research on the impact of controlling shareholder equity pledge on corporate social responsibility.

Table 3.2

Descriptive Statistics of Variables

Variable name	Number of samples	Mean	Median	Standard deviation	Minimum value	Maximum value
CSR1	24525	25.46	22.46	15.081	1.03	73.74
Pledge1	24525	0.208	0	0.33	0	1
Size	24525	22.006	21.825	1.365	19.061	27.028
Lev	24525	0.42	0.411	0.208	0.05	1.008
ROA	24525	0.05	0.043	0.053	-0.286	0.234
Age	24525	16.425	16	5.819	3	31
Growth	24525	0.45	0.142	1.308	-0.779	10.35
Board	24525	2.25	2.303	0.176	1.792	2.773
Independent	24525	0.375	0.333	0.053	0.308	0.571
Top1	24525	0.351	0.333	0.148	0.085	0.743
Salary	24525	14.43	14.403	0.712	12.245	16.49

Note: Synthesized by the author

Benchmark regression analysis.

A regression test was made on the relationship between controlling shareholders' equity pledges and CSR as a benchmark. Table 3.3 indicates the results of this test. The industry and annual fixed effects in the first column to evaluate how the controlling shareholder equity pledges influenced the achievement of corporate social responsibility were excluded. According to the findings, the coefficient of controlling shareholder equity pledges (Pledge1) is -1.550, significant at the 1% level. This implies that the regulation of shareholder equity commitments exerts a significant influence on the social responsibility of the listed companies. In the second column, year dummy variables and industry dummy variables are considered. The results showed that the controlling shareholder equity pledge (Pledge1) was -0.700, and this was significant at 1% level. This indicates that the controlling shareholder equity commitment is significant in the decrease of CSR performance. As a result, the initial hypothesis, H1, has been proved.

Table 3.3

Regression analysis results of controlling shareholder equity pledges and CSR

	(1)	(2)
	CSR1	
Pledge1	-1.550***	-0.700***
	(-5.93)	(-2.89)
Size	2.867***	3.403***
	(29.65)	(36.37)
Lev	1.042**	-4.230***
	(2.00)	(-8.36)
ROA	96.273***	87.239***
	(49.49)	(47.12)
Age	-0.209***	0.065***
	(-14.26)	(4.25)
Growth	0.404***	0.169***
	(6.15)	(2.74)
Board	6.566***	0.846
	(9.52)	(1.34)
Independent	7.074***	3.338*
	(3.26)	(1.70)
Top1	3.731***	1.709***
	(5.89)	(2.89)
Salary	0.805***	2.537***
	(5.56)	(17.67)
Cons	-69.602***	-90.834***
	(-25.63)	(-33.82)
Ind	NO	YES
Year	NO	YES
N	24525	24525
Adj R^2	0.204	0.330

Note: Synthesized by the author ,* P<0.1,** P<0.05,*** P<0.01

A test of stability

In order to demonstrate the robustness of the conclusions of this study, the explanatory variable was replaced. The present study employed the Bloomberg Corporate Social Responsibility Index (CSR2). The results of this study are presented in Table 3.4. In the initial column, industry and year fixed effects were excluded to assess the impact of controlling shareholder equity pledges on corporate social responsibility. The findings suggest that the coefficient for controlling shareholder equity pledges (Pledge1) is -2.240 and is significant at the 1% level. This indicates that controlling shareholder equity pledges have a substantial impact on the social responsibility of listed companies. In the second column, after considering year dummy variables and industry dummy variables, the results show that the coefficient for controlling shareholder equity pledge (Pledge1) is -2.321 and significant at the 1% level, further indicating that controlling shareholder equity pledge significantly reduces the social responsibility of listed companies.

Table 3.4

Regression results with replacement of the explanatory variable

	(1)	(2)
	CSR2	
Pledge1	-2.240***	-2.321***
	(-12.35)	(-12.65)
Size	2.373***	2.085***
	(32.35)	(28.63)
Lev	-4.165***	-2.392***
	(-10.21)	(-5.63)
ROA	-4.174***	-3.097**
	(-3.29)	(-2.41)
Age	0.135***	0.078***
	(11.57)	(6.13)
Growth	-0.368***	-0.193***
	(-7.16)	(-3.84)
Board	-0.391	0.236
	(-0.96)	(0.59)
Independent	1.503	2.352*
	(1.12)	(1.81)
Top1	-0.193	-0.527
	(-0.44)	(-1.19)

Salary	0.412***	0.311***
	(3.57)	(2.62)
Cons	-39.033***	-31.125***
	(-18.70)	(-14.59)
Ind	NO	YES
Year	NO	YES
N	8752	8752
Adj R^2	0.250	0.296

Note: Synthesized by the author ,* P<0.1,** P<0.05,*** P<0.01

PSM test

Endogeneity is a key issue in this study. The primary reason for endogeneity is that whether major shareholders pledge their equity is not exogenous, but is also influenced by the company's own characteristics. Additionally, some unobservable variables not only affect equity pledging but also influence corporate social responsibility, making it difficult to explain the causal relationship in this study. To address potential endogeneity issues, Propensity Score Matching (PSM) to control for sample selection bias is employed. This study pairs each of the following variables—firm size, financial leverage, return on total assets, firm age, growth rate, board size, proportion of independent directors, largest shareholder's equity stake, and executive compensation—with the presence or absence of equity pledges.

Logistic regression with the presence or absence of equity pledges by the controlling shareholder (Pledge2) as the dependent variable and the other control variables in the model as independent variables was conducted. The Logistic regression coefficients to calculate the propensity score for each company's controlling shareholder having equity pledges is used and found one company without equity pledges with the closest propensity score to each company with equity pledges as the matched sample.

The changes in bias between the experimental group and the control group after matching are shown in Table 3.5a. The study shows that after PSM matching, the differences in the matched variables between the two groups of samples were significantly reduced.

Table 3.5a

Changes in PSM variable bias

Variable	U (before matching)	Mean		Deviation change		T-test
	M (after matching)	Pledge2 =1	Pledge2 =0	Absolute deviation	Reduction rate	Absolute value of t
Size	U	21.951	22.04	-6.7	56.3	-4.98
	M	21.951	21.912	2.9		2.07
Lev	U	0.43425	0.41062	11.4	79.5	8.67
	M	0.43425	0.42941	2.3		1.61
ROA	U	0.04609	0.05179	-10.7	94.3	-8.19
	M	0.04609	0.04641	-0.6		-0.41
Age	U	16.666	16.271	6.8	98.2	5.18
	M	16.666	16.673	-0.1		-0.09
Growth	U	0.46163	0.44235	1.5	62.6	1.13
	M	0.46163	0.46884	-0.6		-0.37
Board	U	2.2255	2.2656	-23.1	99.2	-17.58
	M	2.2255	2.2251	0.2		0.13
Independent	U	0.37715	0.37285	8	83.5	6.16
	M	0.37715	0.37644	1.3		0.91
Top1	U	0.32977	0.36486	-24.1	97	-18.17
	M	0.32977	0.3287	0.7		0.53
Salary	U	14.451	14.417	4.7	77.1	3.62
	M	14.451	14.443	1.1		0.74

Note: Synthesized by the author ,* P<0.1,** P<0.05,*** P<0.01

Subsequent to propensity score matching, the present study conducted tests using the re-obtained samples, with the results shown in Table 3.5b. The regression results indicated the absence of statistically significant differences. The findings of this study remain consistent with the results of the present paper, irrespective of the inclusion of fixed industries or years of entry. This suggests that controlling shareholder equity pledges (Pledge1) are associated with a diminished fulfillment of social responsibility by listed companies, thereby indicating a negative relationship. The central hypothesis of this study continues to hold validity.

Table 3.5b

PSM results

	(1)	(2)
	CSR1	
Pledge1	-1.293***	-0.568*
	(-3.75)	(-1.78)
Size	2.711***	3.256***
	(20.07)	(24.75)
Lev	0.741	-4.417***
	(1.04)	(-6.42)
ROA	95.814***	87.265***
	(34.83)	(33.22)
Age	-0.182***	0.063***
	(-9.28)	(3.07)
Growth	0.578***	0.293***
	(6.47)	(3.53)
Board	6.560***	1.166
	(6.74)	(1.32)
Independent	7.382**	3.351
	(2.39)	(1.21)
Top1	4.585***	2.625***
	(5.13)	(3.16)
Salary	1.001***	2.618***
	(5.04)	(13.31)
Cons	-70.017***	-90.520***
	(-18.11)	(-23.41)
Ind	NO	YES
Year	NO	YES
N	12306	12306
Adj R^2	0.199	0.327

Note: Synthesized by the author ,* P<0.1,** P<0.05,*** P<0.01

Empirical Analysis and Discussion

Mechanism analysis based on financing constraints.

Financing constraints refer to the difference in the cost of internal and external funds for a company. The maximization of shareholder value is hampered in cases when a company has investment opportunities but cannot get the necessary external funding because it has insufficient funds internally or high external financing costs. Financial constraints are a common issue faced by businesses in the modern business environment, and this necessitates the urgency to develop effective solutions to deal with the problem. This has been a major problem that has attracted the attention of business managers and academic scholars.

The KZ index is used to measure the financing constraints, where high KZ indices indicate that there are high financing constraints. As in the second column of Table 4.1, controlling shareholder equity pledges (Pledge1) influence financing constraints of a company considerably, having a coefficient of 0.202 and a significance level of 1%. The linkage between financing constraints (KZ) and corporate social responsibility (CSR1) is negative, as shown in the third column, and the correlation between the two is found to be -0.602, and it is statistically significant at 1% level. At the same time, equity pledges still have a significant impact on the social responsibility of corporations. The results of this finding indicate that there are intermediary effects. This result also supports our second hypothesis, H2, where an extensive analysis is offered in Table 4.1.

Table 4.1

Mechanism Analysis Based on Financing Constraints

	(1)	(2)	(3)
	CSR1	KZ	CSR1
Pledge1	-0.647***	0.202***	-0.525**
	(-2.62)	(7.33)	(-2.13)
KZ			-0.602***
			(-10.71)
Size	3.391***	-0.157***	3.297***
	(35.76)	(-15.14)	(34.70)
Lev	-4.005***	5.314***	-0.808
	(-7.81)	(85.35)	(-1.39)
ROA	88.405***	-13.065***	80.546***
	(47.15)	(-48.07)	(40.06)
Age	0.068***	0.005***	0.071***
	(4.40)	(2.91)	(4.62)

Growth	0.183***	0.044***	0.210***
	(2.93)	(4.94)	(3.36)
Board	0.823	-0.191***	0.708
	(1.29)	(-3.13)	(1.11)
Independent	3.137	0.332*	3.336*
	(1.58)	(1.78)	(1.69)
Top1	1.538**	-0.455***	1.265**
	(2.58)	(-7.29)	(2.12)
Salary	2.470***	-0.190***	2.355***
	(17.02)	(-11.70)	(16.24)
Cons	-89.596***	6.683***	-85.576***
	(-32.94)	(25.15)	(-31.21)
Ind	YES	YES	YES
Year	YES	YES	YES
N	23971	23971	23971
Adj R^2	0.331	0.598	0.333

Note: Synthesized by the author ,* P<0.1,** P<0.05,*** P<0.01

Mechanism analysis based on agency costs

The controlling shareholders encroach on the interests of non-controlling shareholders in most emerging capital markets; in particular, with the high equity concentration of listed companies in China, the equity pledge leads to a highly correlated second company agency problem with CSR. Current developing academic research shows that the first agency problem was proposed in countries such as the UK and the US, where equity is disproportionately allocated; the second agency problem between major and minority shareholders may be more consistent with the practical situation of listed corporations in China's CSR research.

The agency cost between the controlling shareholders and other shareholders is measured by the ratio of other receivables to the average total assets. The greater the second-type agency cost (Occupy), the more the agency problem of controlling shareholders encroaching on other shareholders manifests. It can be seen from the second column of Table 4.2 that equity pledges (Pledge1) significantly increase corporate agency costs (Occupy), with a coefficient of 0.004 and a significance level of 1%. Further, from the third column, agency cost (Occupy) significantly influences corporate social responsibility (CSR1), the coefficient for agency cost (Occupy) is measured to be -18.063 and significant at the 1% level; meanwhile, equity pledge also has a significant impact on corporate social responsibility, indicating intermediary effects.

Table 4.2

Mechanism analysis based on agency costs			
	(1)	(2)	(3)
	CSR1	Occupy	CSR1
Pledge1	-0.700^{***}	0.004^{***}	-0.625^{***}
	(-2.89)	(8.41)	(-2.58)
Occupy			-18.063^{***}
			(-4.79)
Size	3.403^{***}	-0.000^{**}	3.397^{***}
	(36.37)	(-2.02)	(36.33)
Lev	-4.230^{***}	0.020^{***}	-3.862^{***}
	(-8.36)	(18.94)	(-7.55)
ROA	87.239^{***}	-0.014^{***}	86.991^{***}
	(47.12)	(-3.80)	(47.01)
Age	0.065^{***}	0	0.065***
	(4.25)	(0.47)	(4.26)
Growth	0.169^{***}	0.001^{***}	0.184^{***}
	(2.74)	(5.11)	(2.97)
Board	0.846	-0.00100	0.833
	(1.34)	(-0.74)	(1.32)
Independent	3.338^{*}	0.008^{***}	3.480^{*}
	(1.70)	(2.60)	(1.78)
Top1	1.709^{***}	-0.009^{***}	1.560^{***}
	(2.89)	(-9.66)	(2.64)
Salary	2.537^{***}	-0.000^{*}	2.528^{***}
	(17.67)	(-1.89)	(17.59)
Cons	-90.834^{***}	0.027^{***}	-90.348^{***}
	(-33.82)	(5.59)	(-33.63)
Ind	YES	YES	YES
Year	YES	YES	YES
N	24525	24515	24515
Adj R^2	0.330	0.134	0.331

Note: Synthesized by the author ,* P<0.1,** P<0.05,*** P<0.01

Summary

The ensuing research concludes with the following research and policy implications:

The researchers found that there was a statistically significant negative relationship between equity pledges by the controlling shareholders and corporate social responsibility. This implies that the higher the equity pledge ratio, the lower the degree of fulfillment of corporate social responsibility. This association is two-fold, on the one hand, equity commitments worsen the financing of corporations, compelling firms to cut non-core spending to ease the financial burden, thus indirectly diminishing their attention to corporate social responsibility; on the other hand, equity commitments raise the agency costs, since controlling shareholders might focus more on their personal interests, given that they have an information advantage, and therefore their concern towards CSR will decrease. Further discussion shows that this influence is greater in non-state-owned businesses, since the enterprises that belong to the private sector are more affected by financing limitations and governance pressure, which heighten the adverse effects of equity commitments.

From a pragmatic standpoint, regulatory authorities ought to assess the financial implications of equity pledges. When regulating the pledge scales and the management of risks, it is necessary to focus on the problem of discrimination in financing the activities of the private enterprises. This can be done through increasing the financing channels so that they do not over-depend on equity pledges, as well as not having a chain effect where pledge risks will cause a diminution of social responsibility. For businesses, it is a must to realize the importance of social responsibility as one of the strategic priorities in the long term. Although it might have the side effect of raising costs in the short-term, an excellent performance in social responsibility can strengthen brand reputation and so-called soft power, which in turn creates the premises of sustainable development. Moreover, companies need to strengthen their internal control and governance systems; minimize agency costs through better information disclosure and control systems; and direct controlling shareholders and management to integrate social responsibility in decision-making systems, balancing between short-term interests and long-term value.

The present study is not without its limitations. Primarily, it focuses exclusively on the mediating role of financing constraints and agency costs, while disregarding other potential mechanisms, such as media oversight or the moderating effects of institutional environments. Additionally, it measures CSR at the aggregate level, without distinguishing between differences in responsibilities toward employees, the environment, communities, and other stakeholders. Future research could expand these directions to reveal more comprehensively the relationship between equity pledges and corporate social responsibility.

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