Controlling Shareholder Pledging and Firm's Default Risk — Evidence from China

Kun Wang(✉), Hailong Chen, and Jun Liu

Research Institute of China Telecom Corporation Limited, Penglaiyuan South Street, Changping District, 102209 Beijing, China
{wangk30,chenhl66,liujun6}@chinatelecom.cn

Abstract. Using a unique setting of Chinese A-share listed companies, we investigate the relationship between controlling shareholder pledging and firm's default risk. We find that both the existence of controlling shareholder pledging and the proportion of pledges in listed companies have a significant negative relationship with the default risk. This negative relationship is stronger among non-state-owned enterprises.

Keywords: controlling shareholder · equity pledge · default risk · state-owned enterprise

1 Introduction

Over the past nearly 20 years, equity pledging has become very prevalent in the Chinese A-share market. Due to its flexibility, convenience, and low cost, equity pledges are everywhere in China's listed companies. The percentage of equity pledges has also increased year by year. Equity pledges in China have been strictly regulated after the Shanghai Stock Exchange and China Securities Depository and Clearing Corporation Limited issued the "Measures for Stock Pledge Repurchase Transactions and Registration and Settlement Business (2018 Revision)" in 2018.

Previous studies about the impact of controlling shareholder pledging on firm's risk have mostly focused on stock market performance. And none of these risks are fully reflected by stock market performance. By examining the relationship between controlling shareholder pledging and firm's default risk, this paper contributes to both equity pledges and default risk. First, it provides a novel perspective on the consequences arising from controlling shareholder pledging: default risk. Existing research suggests that controlling shareholder pledging will affect stock price collapse risk [1], reduce innovative corporate investment [2], reduce cash dividends and exacerbate agent conflicts [3, 4], analyst prediction sentiment [5], et al. The study in this paper adds that controlling shareholder pledging also have an impact on firm's default risk. Second, due to the differences in corporate missions, executives' arrangements, and personal career goals of executives between state-owned enterprises (SOEs) and non-state-owned enterprises (non-SOEs), we find that the relationship between controlling shareholder pledging and firm's default risk behaves differently between enterprises with different equity nature.

J. Yen et al. (Eds.): ICBIS 2023, AHCS 14, pp. 1053–1067, 2023.
https://doi.org/10.2991/978-94-6463-198-2_109

The remainder of this paper is organized as follows. Part II is the literature review and research hypothesis. Part III is the sample and descriptive statistics. Part IV is the empirical results and analysis. Part V is the conclusion.

2 Related Literature and Hypothesis Development

2.1 Controlling Share Pledging and Default Risk

We argue that controlling shareholder pledging will reduce firms' default risk for the following three reasons. First, controlling shareholders face the risk of losing control during equity pledges. Since China has not yet fully implemented the registration system and adopted the IPO review system, which has led to time costs and rent-seeking costs for firms to go public [6], making listed firms have a certain shell value. Therefore, controlling shareholders have a strong incentive to "protect the shell" during the period of equity pledges to avoid share price volatility due to corporate defaults. Second, controlling shareholders have a strong incentive to manage market value during the period of equity pledges. Since a controlling shareholder's equity pledge will signal to outside that the controlling shareholder is facing financing difficulties [7], it may be interpreted as negative news by the market, leading to a sell-off by investors in an informationally disadvantaged position and leading to a crash. And for some information that may affect stock price volatility, controlling shareholders will be more inclined to disclose it opportunistically [8, 9], which leads to a further reduction in the information content of the stock price. Finally, since it is more difficult for firms to obtain short-term loans during the period of controlling shareholder pledging [10], they need to maintain a good performance record as well as solvency and reduce the risk of default to obtain loans. These loans can not only be used to invest in business operations but also to make additional pledges in time to avoid forced liquidation when the stock price falls below the margin call. Based on the above analysis, we propose the following hypotheses.

H1: All other things being equal, controlling shareholder pledging is negatively related to firm's default risk.

2.2 The Effect of Equity Nature in the Impact of Controlling Share Pledging on Default Risk

Compared with non-SOEs, SOEs bear less risk in the activities related to equity pledges due to their special organizational arrangements. First, SOEs are subject to stricter restrictions when pledging their equity. In addition to the need to comply with the provisions of the Company Law of the People's Republic of China, the Security Law of the People's Republic of China and laws and regulations relating to the management of state-owned equity, they are also required to comply with the Circular on Issues Relating to Pledge of State-owned Equity in Listed Companies issued by the Ministry of Finance and other regulations. Second, SOEs are exposed to lower risk of losing control. On the one hand, SOEs face stricter agreed transfer and court auction procedures in the event of equity pledge defaults, and pledgees cannot transfer state-owned shares directly, not to mention direct forced close-out. Non-SOEs, on the contrary, are not protected by the above

system and will be forced to close out their pledged shares once the share price falls below the margin call. On the other hand, SOEs have easier access to financing and loans, larger loans, lower loan costs, and longer repayment cycles [11, 12], and have more room for maneuver when the stock price falls below the margin call. Finally, since SOEs in China are currently managed by institutions such as the State-Owned Asset Supervision and Administration Commission (SASAC), which has the power to appoint executives to the management, who are executives from companies and officials from government. This leads to a tendency for executives to pursue personal self-interest such as political promotion during their tenure [13], which is contrary to the profit-seeking goal of the firm. In addition, the usually short tenure of executives in SOEs leads to a lack of motivation to make innovative investments and only follow the instructions of government agencies to focus on performance during their tenure [14]. This also allows firms to not face higher default risk when they are in a monopolistic or oligopolistic position despite their mediocre performance. Based on the above analysis, we propose the following hypothesis.

H2: Other things being equal, the negative relationship between controlling shareholder pledging and firm's default risk is weaker in SOEs compared to non-SOEs.

3 Data and Description Statistics

3.1 Sample Construction

The research sample of this paper includes listed companies in China's A-share market from 2010 to 2021. We obtain data on controlling shareholder pledging from the China Stock Market & Accounting Research (CSMAR) database, after manual collation. According to the existing literature and research needs, the initial sample is processed as follows: the financial industry sample, the sample treated by ST and PT during the observation period, and the sample with missing main variables are excluded; to avoid the effect of extreme values, we apply a bilateral 1% winsorize tail reduction on continuous variables. The final sample of this paper yields 30,034 observations (firm-year).

3.2 Controlling Share Pledging and Default Risk

Following [15] we use the KMV model to measure firm's default risk. In 1973, Scholes and Black proposed the famous option pricing theory [16]. In 1974, Merton applied option pricing to risky loans and securities valuation to measure firm's default risk [17]. KMV company designed the KMV model on Merton's assumptions. The model assumes that the firm will not default when the debt matures and the market value of the firm's assets is greater than a certain threshold value set; it will default when the market value of the firm's assets is less than the set threshold value. This threshold is also called Default Point (DP). The distance between the asset value and the default point is called the Default Distance (DD). The greater the DD, the lower the default risk of the firm. The calculation steps of the model are as follows.

Based on option pricing theory, KMV model treats the equity value of a listed company as the European call option value, the book value of the company's debt as

the strike price, and the market value of the listed company's assets as the underlying. According to the Black-Scholes option pricing model, the relationship between the asset value and the equity value of the firm at the debt maturity date is

$$\begin{cases} V_E = V_A N(d_1) - De^{-rt} N(d_2) \\ \sigma_E = \frac{V_A}{V_E} \times N(d_1)\sigma_A \end{cases} \tag{1}$$

with:

$$\begin{cases} d_1 = \frac{\ln\left(\frac{V_A}{D}\right) + \left(r + 0.5\sigma_A^2\right)t}{\sigma_A \sqrt{t}} \\ d_2 = d_1 - \sigma_A \sqrt{t} \end{cases} \tag{2}$$

where V_E is the market value of the firm's equity, and V_A is the value of the firm's assets, and σ_E is the volatility of equity value, and σ_A is the volatility of asset value, and B is the book value of the liability, and t is the maturity of the debt, which is generally set to $t = 1$ in the specific application of the model, and r is the market risk-free rate, and $N(d)$ is the standard normal cumulative probability function. From this, we can calculate the market value of the firm's assets V_A and its volatility σ_A.

By analyzing many cases of bankrupt companies and considering the actual situation of the securities market, KMV concluded the calculation of DP:

$$DP = 0.5LD + SD \tag{3}$$

where LD is long-term debt, and SD is short-term debt.

Default distance is an indicator used to measure the risk of default. The formula for the default distance can be expressed as

$$DD = \frac{E(V_A) - DP}{E(V_A)\sigma_A} \tag{4}$$

where $E(V_A)$ is the expectation of V_A.

The mapping relationship between default distance and expected default frequency has been accumulated over the years by KMV, which has built up a powerful historical credit default database and fitted the default data into a smooth curve to represent the default distance function and then derived the empirical expected default rate. KMV does not publish the default information in the database to the public, and given the immature development of China's financial market compared to that of other countries, we have calculated the theoretically expected default rate. It is usually assumed that the market value of a company's assets follows a normal distribution and the Expected Default Frequency (EDF) is expressed as

$$EDF = N(-DD) \tag{5}$$

3.3 Measuring Controlling Shareholder Pledging

Following the prior literature, we set the controlling shareholder's equity pledge as two proxy variables. One is the presence of controlling shareholder pledging at the end

of the year, which is a dummy variable, and the other is the number of controlling shareholders' pledging as a percentage of their holdings at the end of the year, which is a continuous variable [18, 19]. In the sample, the presence of controlling shareholder pledging increased from 21.85% in 2009 to 50.31% in 2017 before starting to fall back to 33.56% in 2020. It is evident that controlling shareholder pledging is very common in China.

3.4 Controlling Share Pledging and Default Risk

Following Zhou, Li et al. [1] and Huang, Luo et al. [4], we control several firm characteristics which may affect our analyses. Including firm size (Size), gearing ratio (Lev), net profit ratio of total assets (ROA), cash flow ratio (Cash), growth rate of operating income (Growth), number of directors (Board), proportion of independent directors (Indep), existence of dual positions (Dual), shareholding ratio of the largest shareholder (Top1), equity checks and balances (Balance), book-to-market ratio (BM), years of listing (Age), and nature of equity (SOE). The definitions of the variables are detailed in Table1.

4 Empirical Results

4.1 Main Results

4.1.1 Controlling Shareholder Pledging and Default Risk Third Level Heading

We use Eq.(X) to examine the relationship between controlling shareholder pledging and default risk:

$$EDF_{i,t+1} = \beta_0 + \beta_1 PLD_{DUM\,i,t} + \sum_k \beta_k Controls_{k,i,t} + \varepsilon_{i,t}(X)$$

where i indicates the enterprise, t indicates year, and $EDF_{i,t}$ represents the probability of default of the enterprise, and $PLD\_DUM_{i,t}$ represents the existence of controlling shareholder pledging in the firm, and $Controls_{k,i,t}$ is different controlled variables, including $Size_{i,t}, Lev_{i,t}, ROA_{i,t}, Lev_{i,t}, Cash_{i,t}, Growth_{i,t}\, Board_{i,t}\, Indep_{i,t}\, Dual_{i,t}\, Top1_{i,t}$ $Balance_{i,t}\, BM_{i,t}\, Age_{i,t}$ and $SOE_{i,t}$. In addition, we adopt industry- and year-fixed effects.

Table 2 reports the regression results of Eq.(X). Column (1) shows that the coefficient of $PLD\_DUM_{i,t}$ is negative and is significant at the 1% level when no control variables are included; in column (2), we add control variables and the results show that the coefficient of $PLD\_DUM_{i,t}$ is negative, and is significant at the 1% level. This indicates that the risk of default is higher for firms with controlling shareholder's equity pledge. In columns (3) and (4), we use $PLD\_RATE_{i,t}$ as a proxy variable for controlling shareholder pledging. Add the control variables or not, the coefficient of $PLD\_RATE_{i,t}$ is negative and is significant at the 1% level. In terms of economic significance, this means that for every 1% increase in the percentage of controlling shareholder's equity pledges, the default risk of the firm will increase by 2.7%. In general, due to the presence of controlling shareholders' equity pledges or higher percentage of equity pledges, controlling shareholders will be more likely to avoid long-term, high uncertainty and risky investment projects, which in turn will lead to a lower default risk of the firm in the following year, a result that supports hypothesis H1.

Table 1. Variable definitions.

Variable	Definition
Measures of Controlling shareholder pledging	
PLD_DUM	A dummy variable which equals one if the firm's controlling shareholder pledges at the end of the year, otherwise it equals to zero.
PLD_RATE	The number of controlling shareholder's pledging as a percentage of their holdings at the end of the year.
Measures of firm's default risk	
EDF	Expected default frequency. The calculation method is shown in Eq. (5).
Control variables and other variables	
SOE	A dummy variable which equals to one if the firm's equity nature is state-owned, otherwise it equals to zero.
SIZE	Natural logarithm of firm's total assets.
LEV	Total debt/Total assets.
ROA	Net income/Total assets average balance.
Cash	Net cash flow from operating activities/Total assets.
Growth	Income of the year/Income of last year-1.
Board	Natural logarithm of the board size.
Indep	Number of independent directors/Number of directors.
Dual	A dummy variable which equals to one if the Chief Executive Officer (CEO) and Chairman are same person, otherwise it equals zero.
Top1	The share ratio of the largest shareholder.
Balance	The share ratio of the second largest shareholder/The share ratio of the largest shareholder.
BM	Book value/Total market value
Age	Natural logarithm of the number of years the firm is listed

4.1.2 Controlling Shareholder Pledging and Default Risk in Different Natural Firm.

In Eq.(Y), we include an interaction term between the nature of the firm's equity and the controlling shareholder's equity pledge to investigate the role of the nature of the firm's equity plays in the impact of the controlling shareholder's equity pledge on the firm's default risk, again controlling for year and industry variables in the regression.

$$EDF_{i,t+1} = \beta_0 + \beta_1 PLD_{DUM\,i,t} + \beta_2 SOE_{i,t} + \beta_3 PLD_{DUM\,i,t} \times SOE_{i,t} + \sum_k \beta_k Controls_{k,i,t} + \varepsilon_{i,t} (Y)$$

where $SOE_{i,t}$ represents the nature of the equity of the enterprise.

Table 3 reports the regression results of Eq.(Y). Both columns (1) and (2) show that the controlling shareholder equity pledge is significantly and negatively related to firm's default risk at the 1% level, and the interaction terms of the existence of controlling

Table 2. Controlling shareholder pledging and firm's default risk.

	(1)	(2)	(3)	(4)
PLD_DUM_t	EDF_{t+1}	EDF_{t+1}	EDF_{t+1}	EDF_{t+1}
	-0.018***	-0.012***		
	(-6.329)	(-5.110)		
PLD_RATE_t			-0.032***	-0.027***
			(-8.228)	(-8.077)
$Size_t$		0.028***		0.027***
		(17.114)		(16.984)
Lev_t		0.532***		0.533***
		(70.487)		(70.757)
ROA_t		0.013		0.007
		(0.585)		(0.326)
$Cash_t$		-0.183***		-0.185***
		(-9.986)		(-10.108)
$Growth_t$		0.024***		0.024***
		(6.748)		(6.846)
$Board_t$		-0.033***		-0.033***
		(-4.301)		(-4.339)
$Indep_t$		-0.019		-0.021
		(-0.707)		(-0.776)
$Dual_t$		0.007***		0.007***
		(2.974)		(2.877)
$Top1_t$		0.043***		0.041***
		(3.562)		(3.380)
$Balance_t$		0.014***		0.013***
		(3.809)		(3.702)
BM_t		0.346***		0.347***
		(52.445)		(52.591)
Age_t		-0.033***		-0.031***
		(-19.246)		(-18.313)
SOE_t		0.021***		0.018***
		(6.510)		(5.534)
Constant	0.086***	-0.778***	0.086***	-0.771***

(*continued*)

Table 2. (*continued*)

	(1)	(2)	(3)	(4)
	(9.260)	(-21.340)	(9.341)	(-21.139)
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
N	30034	30034	30034	30034
adj. R^2	0.173	0.517	0.174	0.518
F	133.049	392.101	133.227	393.113

shareholder pledging, the proportion of controlling shareholder pledging and the nature of the firm's ownership are both significantly positive at the 1% level. These results indicate that the negative relationship between controlling shareholder equity pledge and the probability of default is weaker for state-controlled listed companies than for non-state-controlled listed companies. This result confirms hypothesis H2.

Table 3. Controlling shareholder pledging and default risk in different natural firms.

	(1)	(2)
	EDF	EDF
PLD_DUM_t	-0.007***	
	(-2.576)	
PLD_RATE_t		-0.013***
		(-2.673)
$PLD\_DUM_t \times SOE_t$	0.040***	
	(5.861)	
$PLD\_RATE_t \times SOE_t$		0.062***
		(5.081)
$Size_t$	0.028***	0.028***
	(17.379)	(17.232)
Lev_t	0.531***	0.532***
	(70.472)	(70.619)
ROA_t	0.010	0.005
	(0.464)	(0.220)
$Cash_t$	-0.184***	-0.186***
	(-10.035)	(-10.133)
$Growth_t$	0.024***	0.024***

(*continued*)

Table 3. (*continued*)

	(1)	(2)
	(6.909)	(6.939)
$Board_t$	-0.034***	-0.034***
	(-4.476)	(-4.427)
$Indep_t$	-0.022	-0.023
	(-0.806)	(-0.846)
$Dual_t$	0.007***	0.007***
	(2.979)	(2.812)
$Top1_t$	0.044***	0.042***
	(3.691)	(3.488)
$Balance_t$	0.013***	0.012***
	(3.532)	(3.514)
BM_t	0.344***	0.346***
	(52.169)	(52.474)
Age_t	-0.032***	-0.031***
	(-18.816)	(-17.941)
SOE_t	0.027***	0.025***
	(7.714)	(7.001)
Constant	-0.786***	-0.781***
	(-21.529)	(-21.376)
Industry	Yes	Yes
Year	Yes	Yes
N	30034	30034
adj. R^2	0.518	0.518
F	386.022	386.637

4.2 Robustness Checks

To ensure the robustness of the main results of this paper, we also performed the following robustness tests. (1) The Naïve model proposed by Bharath and Shumway[20] is used to estimate the firm's probability of default (EDF2) as a proxy variable for the firm's default risk, and the model (X) and model (Y) are re-tested. The results are shown in Table 4, which shows that the main conclusions of this paper still hold. (2) Referring to Huang, Luo et al.[4], the two hypotheses of this paper are re-regressed using the number of controlling shareholders' equity pledged shares as a percentage of the total shares of the company in which they are located (PLD_RATE2) as the explanatory variable at the end of year t. The main regression results of this paper remain unchanged, and the results

are shown in Table 5. (3) The model is re-estimated using firm fixed effects approach, and the conclusions are consistent with the above, and the results are shown in Table 6.

Table 4. Robustness check: replace the explained variable.

	(1)	(2)	(3)	(4)
	$EDF2_{t+1}$	$EDF2_{t+1}$	$EDF2_{t+1}$	$EDF2_{t+1}$
PLD_DUM_t	-0.011***		-0.010***	
	(-3.181)		(-3.194)	
PLD_RATE_t		-0.016***		-0.012***
		(-3.446)		(-3.601)
$PLD\_DUM_t \times SOE_t$			0.015***	
			(2.579)	
$PLD\_RATE_t \times SOE_t$				0.017**
				(2.380)
$Size_t$	0.006***	0.006***	0.006***	0.006***
	(2.682)	(2.639)	(2.708)	(2.656)
Lev_t	0.034***	0.034***	0.034***	0.034***
	(4.205)	(4.217)	(4.203)	(4.212)
ROA_t	-0.069***	-0.071***	-0.069***	-0.071***
	(-2.807)	(-2.854)	(-2.820)	(-2.868)
$Cash_t$	-0.014	-0.015	-0.015	-0.015
	(-1.293)	(-1.350)	(-1.330)	(-1.362)
$Growth_t$	-0.003*	-0.004*	-0.003*	-0.003*
	(-1.946)	(-1.959)	(-1.856)	(-1.920)
$Board_t$	-0.004	-0.004	-0.005	-0.004
	(-0.553)	(-0.548)	(-0.656)	(-0.593)
$Indep_t$	-0.014	-0.014	-0.015	-0.015
	(-0.584)	(-0.605)	(-0.638)	(-0.635)
$Dual_t$	0.003	0.002	0.003	0.002
	(0.903)	(0.842)	(0.937)	(0.837)
$Top1_t$	0.007	0.007	0.008	0.007
	(0.601)	(0.573)	(0.643)	(0.605)
$Balance_t$	-0.003	-0.003	-0.003	-0.003
	(-0.908)	(-0.839)	(-1.063)	(-0.921)
BM_t	0.006*	0.007**	0.006*	0.007**

(*continued*)

Table 4. (*continued*)

	(1)	(2)	(3)	(4)
	(1.874)	(2.017)	(1.719)	(1.961)
Age_t	0.001	0.002	0.001	0.002
	(0.508)	(0.858)	(0.532)	(0.911)
SOE_t	-0.016***	-0.016***	-0.015***	-0.015***
	(-2.720)	(-2.780)	(-2.702)	(-2.783)
Constant	-0.124***	-0.122***	-0.125***	-0.125***
	(-3.410)	(-3.380)	(-3.413)	(-3.379)
Industry	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
N	21863	21863	21863	21863
adj. R^2	0.012	0.012	0.012	0.012
F	1.793	1.815	1.756	1.780

Table 5. Robustness check: replace the explanatory variable.

	(1)	(2)
	EDF_{t+1}	EDF_{t+1}
PLD_RATE2_t	-0.057***	-0.012
	(-5.141)	(-0.790)
$PLD\_RATE2_t \times SOE_t$		0.197***
		(5.106)
$Size_t$	0.027***	0.028***
	(16.897)	(17.156)
Lev_t	0.532***	0.531***
	(70.525)	(70.327)
ROA_t	0.013	0.012
	(0.610)	(0.549)
$Cash_t$	-0.184***	-0.185***
	(-10.036)	(-10.078)
$Growth_t$	0.024***	0.024***
	(6.666)	(6.773)

(*continued*)

Table 5. (*continued*)

	(1)	(2)
$Board_t$	-0.033***	-0.033***
	(-4.266)	(-4.351)
$Indep_t$	-0.020	-0.021
	(-0.740)	(-0.781)
$Dual_t$	0.007***	0.007***
	(2.888)	(2.824)
$Top1_t$	0.051***	0.052***
	(4.225)	(4.322)
$Balance_t$	0.014***	0.013***
	(3.886)	(3.641)
BM_t	0.348***	0.346***
	(52.652)	(52.479)
Age_t	-0.032***	-0.032***
	(-18.838)	(-18.552)
SOE_t	0.021***	0.027***
	(6.403)	(7.661)
Constant	-0.776***	-0.786***
	(-21.264)	(-21.509)
Industry	Yes	Yes
Year	Yes	Yes
N	30034	30034
adj. R^2	0.517	0.518
F	392.322	386.339

Table 6. Robustness check: firm fixed effects.

	(1)	(2)	(3)	(4)
	EDF_{t+1}	EDF_{t+1}	EDF_{t+1}	EDF_{t+1}
PLD_DUM_t	-0.019***		-0.015***	
	(-4.985)		(-3.443)	
PLD_RATE_t		-0.034***		-0.022***
		(-6.306)		(-3.241)

(*continued*)

Table 6. (*continued*)

	(1)	(2)	(3)	(4)
$PLD\_DUM_t \times SOE_t$			0.028***	
			(2.858)	
$PLD\_RATE_t \times SOE_t$				0.048***
				(2.881)
$Size_t$	0.059***	0.059***	0.060***	0.059***
	(11.045)	(10.967)	(11.157)	(11.024)
Lev_t	0.350***	0.351***	0.350***	0.351***
	(21.780)	(21.820)	(21.789)	(21.821)
ROA_t	-0.084***	-0.084***	-0.083***	-0.084***
	(-3.331)	(-3.371)	(-3.325)	(-3.376)
$Cash_t$	-0.161***	-0.161***	-0.161***	-0.160***
	(-7.960)	(-7.938)	(-7.943)	(-7.903)
$Growth_t$	0.017***	0.017***	0.017***	0.017***
	(4.972)	(4.979)	(5.025)	(5.031)
$Board_t$	-0.013	-0.013	-0.013	-0.013
	(-0.818)	(-0.820)	(-0.807)	(-0.826)
$Indep_t$	0.015	0.015	0.013	0.012
	(0.316)	(0.309)	(0.282)	(0.257)
$Dual_t$	-0.001	-0.001	-0.001	-0.001
	(-0.162)	(-0.182)	(-0.179)	(-0.199)
$Top1_t$	0.155***	0.152***	0.153***	0.151***
	(4.254)	(4.165)	(4.229)	(4.145)
$Balance_t$	0.015*	0.015*	0.014*	0.014*
	(1.792)	(1.788)	(1.681)	(1.675)
BM_t	0.177***	0.179***	0.177***	0.179***
	(15.383)	(15.523)	(15.408)	(15.557)
Age_t	-0.061***	-0.060***	-0.060***	-0.060***
	(-11.020)	(-11.040)	(-10.812)	(-10.955)
SOE_t	0.017	0.015	0.018	0.016

(*continued*)

Table 6. (*continued*)

	(1)	(2)	(3)	(4)
	(1.479)	(1.265)	(1.577)	(1.358)
Constant	-1.314***	-1.305***	-1.324***	-1.310***
	(-10.785)	(-10.709)	(-10.878)	(-10.754)
Firm	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
N	30034	30034	30034	30034
adj. R^2	0.199	0.200	0.200	0.200
F	100.482	100.666	96.565	96.849

5 Conclusion

This paper examines the relationship between controlling shareholder pledging and firm's default risk using a sample of Chinese A-share listed firms. The results show that there is a significant negative relationship between the presence of controlling shareholder pledging, the proportion of controlling shareholder pledging and the default risk of firms, and this negative relationship is more significant among non-SOEs.

With the rapid development of equity pledging in the Chinese market, the equity pledging by controlling shareholders should attract the attention of government regulators, external investors, and the executives of companies. Controlling shareholders often ignore the long-term interests of the enterprise during equity pledges, which will be detrimental to firm's long-term development.

References

1. Zhou, J. T., et al. (2021). "Controlling shareholder share pledging and stock price crash risk: Evidence from China." International Review of Financial Analysis 77.
2. Li, M., et al. (2019). "Share pledges and firm value." Pacific-Basin Finance Journal 55: 192-205.
3. Xu, J. J. and H. J. Huang (2021). "Pay more or pay less? The impact of controlling shareholders' share pledging on firms' dividend payouts." Pacific-Basin Finance Journal 65.
4. Huang, W., et al. (2022). "Controlling shareholder pledging and corporate ESG behavior." Research in International Business and Finance 61.
5. Hu, J., et al. (2021). "Share pledging and optimism in analyst earnings forecasts: Evidence from China." Journal of Banking & Finance 132.
6. Yang, Z. (2013). "Do political connections add value to audit firms? Evidence from IPO audits in China." Contemporary Accounting Research 30(3): 891-921.
7. Baek, J. S., et al. (2006). "Business groups and tunneling: Evidence from private securities offerings by Korean chaebols." The Journal of Finance 61(5): 2415-2449.
8. Carter, M. E. and B. S. Soo (1999). "The relevance of Form 8-K reports." Journal of Accounting Research 37(1): 119-132.

9. Aboody, D. and R. Kasznik (2000). "CEO stock option awards and the timing of corporate voluntary disclosures." Journal of accounting and economics 29(1): 73-100.
10. Jiang, F., et al. (2021). "Does controlling shareholders' share pledging raise suppliers' eyebrows?" Pacific-Basin Finance Journal 66.
11. Brandt, L. and H. Li (2003). "Bank discrimination in transition economies: ideology, information, or incentives?" Journal of comparative economics 31(3): 387-413.
12. Su, X. and Z. Yang (2009). State control, financial constraints and firm growth: evidence from China. Proceedings of the International Conference on Corporate Finance and Governance in Emerging Markets.
13. Du, F., et al. (2018). "How adopting new performance measures affects subjective performance evaluations: Evidence from EVA adoption by Chinese state-owned enterprises." The Accounting Review 93(1): 161-185.
14. Rong, Z., et al. (2017). "The effect of institutional ownership on firm innovation: Evidence from Chinese listed firms." Research Policy 46(9): 1533-1551.
15. Zhao, W., et al. (2022). "Couple-based leadership and default risk: Evidence from China." International Review of Economics & Finance 80: 439-463.
16. Scholes, M. and F. Black (1973). "The pricing of options and corporate liabilities." Journal of political economy 81(3): 637-654.
17. Merton, R. C. (1974). "On the pricing of corporate debt: The risk structure of interest rates." The Journal of Finance 29(2): 449-470.
18. Pang, C. and Y. Wang (2020). "Stock pledge, risk of losing control and corporate innovation." Journal of Corporate Finance 60.
19. Chauhan, Y., et al. (2021). "Stock pledging and firm risk: Evidence from India." Financial Management 50(1): 261-280.
20. Bharath, S. T. and T. Shumway (2008). "Forecasting default with the Merton distance to default model." The Review of Financial Studies 21(3): 1339-1369.