

Do Political Connections Affect Stock Price Crash Risk-Based on Empirical Evidence from China's Capital Market

Keping Wu

School of Business Administration, Chaohu University, Hefei, China

Abstract:

Using data from China's capital market, the intrinsic relationship between political connections and crash risk is tested. Empirical research find that political connections and crash risk are significantly negative correlated after controlling for the influence of relevant factors; a company with higher proportion of major shareholders, and in company with lower degree of marketization, the negative correlation between political connections and crash risk is more significant; political links of non-foreign funded enterprises is more effective than political connections of foreign funded enterprises in reducing crash risk. The research results indicate that we should exert the positive influence of political connections, reduce the shareholding ratio of major shareholders, accelerate the process of marketization, strengthen corporate governance of non-foreign funded enterprise, and can reduce stock price crash risk, therefore, it will help steady operation of China's capital market.

Keywords: Political Connections, Stock Price Crash Risk, Capital Market, Mechanism, Institutional Background; Foreign-Funded Enterprises.

I. INTRODUCTION

The collapse of stock price in capital market badly damages economic interests of shareholders and causes more serious economic losses to small and medium shareholders. It will affect investors' confidence in the capital market and damage smooth operation of the capital market. Furthermore, it may trigger a financial crisis. Since china established securities market in the 1990s in the last century, it has experienced many stock price surges and plunges and investors suffered heavy losses, which virtually hindered the healthy development of financial market. Therefore, this paper analyzes its impact on crash risk from the perspective of political connections, and has certain practical significance for how to reduce crash risk, promote the smooth operation and development of financial market.

The contributions of this paper are mainly reflected in following three ways. Firstly, the extant research rarely explores the influence of political connections on crash risk from the perspective of foreign funded enterprises, which provides a new research perspective for the factors which affects crash risk. Secondly, this paper enriches the research in the field of crash risk. Finally, research conclusion has certain enlightening significance for how to reduce crash risk.

This paper is organized as follows. Section 2 reviews the related literature and develops the hypothesis. Section 3 describes the sample, variable and model are presented in section3. Section 4 reports empirical analyses and research results. Section 5 conducts robustness test. Section 6 additional tests. Finally, we draw the conclusions.

II LITERATURE REVIEW AND RESEARCH HYPOTHESES

The research on political links at home and abroad is relatively rich, and the summary is as follows:

2.1 Political Links and Accounting Earnings Quality

Prior research find political links impairs the quality of corporate accounting information. The reason is that the quality of accounting earnings is lower in companies with political connections [1]. In addition, analysts' forecast errors are higher in politically connected companies [2]. Furthermore, the probability of financial report disclosure errors of politically-linked companies is higher during financial crisis. In all, political connection of private enterprises may reduce the quality of accounting earnings [3].

2.2 Political Links and Corporate Value

The effect of political links on firm value is mainly reflected in the following three aspects, one is a positive impact, the other is a negative impact, and the third is a mixed impact.

2.2.1 Political connections increase corporate value

Research find that political links can enhance the value of enterprises to a certain extent [4-7]. In addition, if the government interferes more severely, political connections can help to enhance the value of company [8], which shows that the establishment of political connection by the company has a positive effect.

2.2.2 Political connections reduce corporate value

Existing research find that political connections reduce firm value [9-13], which indicates that political links has a negative impact on them.

2.2.3 The impact of political links on firm value is uncertain

Research find political links are established by the chairman of the board can increase corporate performance, while the political connections established by corporate managers can damage corporate performance [14]. [15] Believe that the political connections of core executives of a company can improve corporate performance to a certain extent, while the political connections established by non-core executives have a negative effect on firm performance. In addition, if independent directors establish political connections, they will have less impact on the business earnings of the firm. On the other hand, political connections of government officials will reduce corporate performance. However, if the political connections belong to the representative committee category, it will have a positive influence on firm profits [16]. Therefore, the effect of political connections on corporate value is uncertain.

2.3 Political Connection and Enterprise Resource Allocation

2.3.1 The influence of political links on investment efficiency

Research find that private enterprises can obtain government support for establishing political connections, so that they can easily enter government-regulated industry and broaden the investment channels of private enterprises [17]. In addition, political connections can help companies reduce the cost of coordination with government agencies, and therefore can improve investment efficiency [18]. However, political links of private firms may easily lead to overinvestment, which has a negative influence on investment efficiency [19]. Therefore, we can draw a conclusion that the effect of political link on investment efficiency is uncertain.

2.3.2 The influence of political links on financing costs

Extant research find the amount of bank loans will increase after companies establish political connections [20]. In addition, private enterprises are subject to relatively less financing constraints for establishing political connections, so the maturity of bank loan will be extended [21]. Furthermore, from the perspective of equity financing, political links can also help reduce

the cost of equity financing [22]. At the same time, if companies establish political connections, they can easily obtain government subsidies and tax incentives [11,23]. Therefore, political connections can facilitate corporate financing and other conveniences.

2.4 Political Links and Crash Risk

Regarding the effect of political connections on crash risk, there are mainly two views. One view is that political connections increase crash risk [24-25]; another view is that political connections reduce crash risk [26-27]. In short, the research conclusions are uncertain. In addition, the existing literature lacks a discussion of the influence of political links on crash risk from the perspective of foreign funded companies. Therefore, this paper will further explore the mechanism of political links on crash risk and explore the effect of political connections on crash risk from the perspective of foreign funded companies.

2.5 Hypothesis Development

Existing research believe that political links have the function of supporting hands [5,28,29]. When enterprises encounter difficulties, the government will provide corresponding assistance [30]. Find that corporate political donations can help improve the company's future stock returns. In addition, companies with political connections have higher stock returns [4]. This means that compared with those companies that have not established political connections, crash risk will be greatly reduced. From another perspective, firms that have established political connections usually have a good corporate image. At this time, the probability of hiding bad information will decrease in company. Based on this, this paper proposes hypothesis 1:

H1: *ceteris paribus*, political connection has a significant negative correlation with crash risk.

III. DATA, VARIABLES, AND MODELS

3.1 Sample and Data

In view of the natural universality of state-owned enterprises' political connections in China, it is of little significance to conduct the research. In addition, the availability and completeness of data are also considered. Therefore, this paper uses the data of private firms during the period 2000-2012, excluding the data of ST and PT companies, the missing data and the data of financial and insurance companies are deleted. The data in this paper comes from CSMAR's

database and manually collected data. Furthermore, the data has been winsorized at 1% and 99% levels. Finally, we obtain an effective sample size of 8163.

3.2 Variable

3.2.1 Stock price crash risk

Based on existing research [31-32], this paper uses NCSKEW and DUVOL to estimate crash risk. Details as follows:

Firstly, this paper use the weekly stock return data of the financial market to estimate model (1):

$$R_{i,t} = \alpha_i + \beta_1 R_{m,t-2} + \beta_2 R_{m,t-1} + \beta_3 R_{m,t} + \beta_4 R_{m,t+1} + \beta_5 R_{m,t+2} + \varepsilon_{i,t} \quad (1)$$

In model (1), $R_{i,t}$ represents the stock return of stock i in week t , and R_m is the weighted average market return rate in week t . The specific weekly stock return is $R_{i,t} = (1 + \varepsilon_{i,t}) R_m$, where $\varepsilon_{i,t}$ is the residual item of the regression of model (1).

Second, based on $W_{i,t}$, this paper produce two variables to calculate crash risk, details as follows:

(1) Negative coefficient of return skewness (NCSKEW)

$$NCSKEW_{i,t} = -[n(n-1)^{3/2} \sum_{i,t} W_{i,t}^3] / [(n-1)(n-2)(\sum_{i,t} W_{i,t}^2)^{3/2}] \quad (2)$$

In equation (2), n is the annual trading week of stock i in year t .

(2) Down-to-up of volatility(DUVOL)

$$DUVOL_{i,t} = \log\{[(n_u - 1) \sum_{DOWN} W_{i,t}^2] / [(n_d - 1) \sum_{UP} W_{i,t}^2]\} \quad (3)$$

In equation (3), n_u and n_d are the number of up and down weeks for stock i in year t , respectively. A higher value of NCSKEW or DUVOL represents greater crash risk.

3.2.2 Political connection

Following prior research [33], this paper defines a corporate whose chairman or general manager is a current or former government official, NPC deputies, or CPPCC member as a politically linked company. If the company has political connections, PC (political connections) is defined as 1, otherwise 0.

3.2.3 Model

To test the relationship between political links and crash risk, this paper constructs following model:

$$\text{Crash}_{i,t+1} = \alpha + \beta_1 \times \text{PC}_{i,t} + \gamma \times \text{Control}_{i,t} + \varepsilon_{i,t} \quad (4)$$

In model (4), Crash is calculated by NCSKEW and DUVOL. Refer to previous literature [31,32,34], we control Ret, Sigma, Turnover, Size, Lev, Mb, etc.

IV. ANALYSIS OF EMPIRICAL AND RESULTS

4.1 Descriptive Statistics

Table I lists descriptive statistical results of each variable. The mean of NCSKEW and DUVOL are -0.208 and -0.151, respectively, and STDs (standard deviations) are 0.881 and 0.712, respectively, which shows that there is a certain difference between two variables that calculate crash risk. The mean of PC is 0.243, indicating that enterprises have a higher proportion of establishing political connections.

4.2 Univariate Analysis

Table II lists a univariate analysis about crash risk. This paper finds that political connection corporations have a lower crash risk than that of non-political connection firms. For example, the mean of NCSKEW in political connection firms is -0.311 and less than the mean in non-political connection firms by 0.137. The difference is significant at 1% level. In addition, the mean test on DUVOL has similar results. Therefore, the crash risk of political connection

companies may be lower than that of non- political connection companies.

TABLE I. Descriptive statistics of variables

VARIABLE	MEAN	STD.DEV	MIN	P25	P50	P75	MAX
NCSKEW	-0.207	0.881	-2.905	-0.754	-0.189	0.354	2.090
DUVOL	-0.151	0.712	-2.005	-0.627	-0.149	0.327	1.674
PC	0.243	0.429	0.000	0.000	0.000	0.000	1.000
TURNOVER	-0.096	0.412	-2.293	-0.267	-0.048	0.099	1.118
RET	-0.145	0.594	-1.748	-0.492	-0.165	0.203	1.610
SIGMA	0.046	0.017	0.019	0.033	0.044	0.057	0.107
SIZE	21.739	1.216	19.664	20.874	21.547	22.379	26.190
LEV	0.484	0.189	0.074	0.345	0.494	0.625	0.914
ROA	0.035	0.057	-0.289	0.014	0.035	0.059	0.182
MB	1.694	0.903	0.893	1.148	1.385	1.875	7.184

TABLE II. Univariate analysis of crash risk

	PC=0	PC=1	DIFFERENCE	T-VALUE
NCSKEW	-0.174 (0.011)	-0.311 (0.018)	0.137*** (0.021)	6.44
DUVOL	-0.128 (0.009)	-0.225 (0.014)	0.097*** (0.017)	5.65

4.3 Correlation Analysis

TABLE III. Correlation analysis

	NCSKEW	DUVOL	PC	TURNOVER	RET	SIGMA	SIZE	LEV	ROA	MB
NCSKEW	1	0.930***	-0.063***	-0.099***	-0.577***	-0.167***	-0.057***	-0.009	-0.110***	-0.160***
DUVOL	0.917***	1	-0.059***	-0.102***	-0.673***	-0.180***	-0.056***	-0.006	-0.146***	-0.197***
PC	-0.066***	-0.058***	1	-0.165***	-0.012	0.073***	0.158***	0.013	0.088***	0.050***

TURNO VER	-0.078***	-0.085***	-0.165***	1	0.028***	0.237***	-0.004	0.089***	-0.074***	0.058***
RET	-0.547***	-0.676***	-0.003	0.041***	1	0.043***	0.011	-0.006	0.200***	0.169***
SIGMA	-0.175***	-0.190***	0.044***	0.238***	0.088***	1	-0.072***	0.105***	-0.009	0.354***
SIZE	-0.047***	-0.046***	0.171***	0.007	-0.000	-0.091***	1	0.376***	0.117***	-0.369***
LEV	-0.013	-0.008	0.014	0.127***	-0.001	0.107***	0.369***	1	-0.377***	-0.249***
ROA	-0.118***	-0.154***	0.089***	-0.078***	0.194***	-0.035***	0.144***	-0.348***	1	0.265***
MB	-0.138***	-0.179***	0.040***	0.061***	0.201***	0.328***	-0.295***	-0.218***	0.174***	1

Table III presents the correlation coefficient between NCSKEW and DUVOL is 0.916, and it is pronounced at one percent level, suggesting that two variables for measuring crash risk are consistent. PC (political connections) has a negative correlation with NCSKEW and DUVOL, which is in line with the assumption of hypothesis 1, but regression analysis and verification need to be carried out after controlling the relevant factors. Moreover, the conclusions drawn from the Spearman correlation coefficient in the upper right of table III are basically the same.

4.4 Empirical Results and Analysis

4.4.1 Political link and crash risk

Table IV presents the empirical results of model (1). As can be seen from column 1 of Table IV, using NCSKEW to measure crash risk, the regression coefficient of PC is -0.236, and T value is -6.47, which is pronounced at one percent level, compared with firms that have not established political links, the establishment of political links by firms may reduce crash risk, so it verifies the validity of hypothesis 1. Furthermore, DUVOL is used to calculate crash risk, and the conclusions are basically unchanged.

TABLE IV. The impact of political connections on stock price crash risk

VARIABLE	(1)	(2)
	NCSKEW _{t+1}	DUVOL _{t+1}
PC _t	-0.236***	-0.202***

	(-6.47)	(-6.81)
NCSKEW _t	-0.069 ^{***}	
	(-4.38)	
DUVOL _t		-0.045 ^{***}
		(-2.60)
RET _t	0.084 ^{***}	0.095 ^{***}
	(4.17)	(5.02)
SIGMA _t	-1.763 ^{**}	-1.479 ^{**}
	(-2.46)	(-2.54)
TURNOVER _t	0.116 ^{***}	0.097 ^{***}
	(4.12)	(4.32)
SIZE _t	0.122 ^{***}	0.152 ^{***}
	(4.88)	(7.58)
LEV _t	-0.554 ^{***}	-0.480 ^{***}
	(-4.06)	(-4.42)
ROA _t	0.227	0.161
	(0.70)	(0.61)
MB _t	0.146 ^{***}	0.119 ^{***}
	(9.21)	(9.42)
CONSTANT	-2.742 ^{***}	-3.329 ^{***}
	(-5.33)	(-8.03)
YEAR EFFECTS	FIXED yes	yes
FIRM EFFECTS	FIXED yes	yes
OBS	8163	8163
R ² (WITHIN)	0.044	0.048

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

4.4.2 Endogeneity

In view of the possible endogenous problems of political links, following [10], we choose the registered place of company as the instrumental variable of political connection and use the Heckman self-selection model to test. Therefore, we construct a probity model (5), and measure IMR as model (4) control variables to solve endogeneity problems.

$$PC_{i,t+1} = \alpha_0 + \alpha_1 \text{Registration}_{i,t} + \alpha_2 \text{Size}_{i,t} + \alpha_3 \text{Lev}_{i,t} + \alpha_4 \text{RoA}_{i,t} + \alpha_5 \text{Mb}_{i,t} + \text{Year} + \text{Industry} + \varepsilon \quad (5)$$

In model (5), PC indicates political connections. Registration represents the place of firm registration. The explanation of other variables is the same as model (4). Table V shows test results of endogeneity. The regression results show that the research conclusion is still valid after addressing the endogeneity issues.

TABLE V. Test of endogeneity

PANEL A FIRST STAGE OF HECKMAN MODEL		
PC	df/dx	P> z
REGISTRATION	0.039	0.000
SIZE	0.069	0.00
LEV	-0.058	0.038
ROA	0.322	0.001
MB	0.041	0.000
OBS		8163
PSEUDO-R ²		0.038
PANEL B REGRESSION RESULTS WITH HACKMAN MODEL		
	NCSKEW_{t+1}	DUVOL_{t+1}
NCSKEW _t	-0.072 ^{***}	
	(-4.51)	
DUVOL _t		-0.048 ^{***}
		(-2.74)
PC _t	-0.229 ^{***}	-0.196 ^{***}
	(-6.33)	(-6.60)
TURNOVER _t	0.117 ^{***}	0.098 ^{***}
	(4.17)	(4.37)
RET _t	0.084 ^{***}	0.095 ^{***}
	(4.15)	(4.98)
SIGMA _t	-1.836 ^{**}	-1.505 ^{**}
	(-2.56)	(-2.57)
SIZE _t	0.523 ^{***}	0.493 ^{***}
	(2.92)	(3.30)
LEV _t	-0.892 ^{***}	-0.767 ^{***}
	(-4.47)	(-4.70)

ROA _t	2.204 ^{**}	1.850 ^{**}
	(2.38)	(2.42)
MB _t	0.382 ^{***}	0.320 ^{***}
	(3.67)	(3.68)
IMR _t	3.218 ^{**}	2.941 ^{***}
	(2.50)	(2.74)
CONSTANT	-14.886 ^{***}	-13.666 ^{***}
	(-2.76)	(-3.04)
OBS	8163	8163
R ² (WITHIN)	0.045	0.050

On the other hand, we use PSM to amend sample selection bias, specifically, nearest neighbor matching (NNM), radius matching (RM) and kernel matching (KM) are used, and test results are present in Table VI. Table VI shows that the results of NNM, RM, and KM are basically the same, which further verifies the validity of hypothesis 1.

TABLE VI. The result of PSM

VARIABLE	MATCH TYPE	TREATED GROUP	CONTROL GROUP	ATT	T-VALUE
NCSKEW	Nearest Neighbor match(1:1)	-0.351	-0.274	-0.077	-2.38
DUVOL	Nearest Neighbor match(1:1)	-0.249	-0.190	-0.059	-2.30
NCSKEW	Radius match(0.01)	-0.351	-0.252	-0.099	-4.16
DUVOL	Radius match (0.01)	-0.250	-0.183	-0.067	-3.52
NCSKEW	Kernel match	-0.351	-0.248	-0.103	-4.41
DUVOL	Kernel match	-0.250	-0.181	-0.069	-3.64

4.4.3 Mechanisms

Existing research find companies that have established political connections will disclose

negative information in a timely manner, so as to obtain government subsidies [26]. Furthermore, in order to be promoted, Officials of politically connected companies need to establish a good image in the outside world, so as to avoid the negative impact of the disclosure of negative information on the promotion of officials in the future, therefore, politically connected companies will also disclose negative information as soon as possible. As a result, the firm's crash risk will further decrease.

To test above prediction, referring to prior research [35], this paper divides the sample into two groups (good news and bad news) based on the earnings per share (EPS) predicted by analysts. Table VII presents the empirical test results, which indicates the coefficients on the PC variable are negative and pronounced in the bad news group with lower EPS. The coefficients on the PC variable are not pronounced in good news group. It shows that business managers report negative information more timely facing with lower EPS, resulting in the lower stock price crash risk.

TABLE VII. Mechanism test

VARIABLE	BAD NEWS		GOOD NEWS	
	(1)	(2)	(3)	(4)
	NCSKEW _{t+1}	DUVOL _{t+1}	NCSKEW _{t+1}	DUVOL _{t+1}
PC _t	-0.426**	-0.405**	-0.100	-0.180
	(-2.40)	(-2.55)	(-0.55)	(-1.04)
NCSKEW _t	-0.116**		-0.197*	
	(-2.17)		(-1.79)	
DUVOL _t		-0.064		-0.169
		(-1.13)		(-1.59)
RET _t	0.054	0.062	0.101	0.140
	(0.75)	(0.94)	(1.11)	(1.59)
SIGMA _t	-0.950	-0.283	-3.659	-2.996
	(-0.38)	(-0.13)	(-0.76)	(-0.69)
TURNOVER _t	0.222*	0.118	0.116	0.174
	(1.95)	(1.17)	(0.70)	(1.22)
SIZE _t	0.338***	0.338***	0.220	0.271**
	(3.61)	(3.87)	(1.64)	(2.19)
LEV _t	-0.693	-0.643*	-1.023	-1.087
	(-1.64)	(-1.81)	(-1.26)	(-1.64)

ROA _t	2.032 ^{***}	1.590 ^{**}	1.204	-0.471
	(2.59)	(2.47)	(0.43)	(-0.20)
MB _t	0.251 ^{***}	0.236 ^{***}	-0.001	-0.023
	(2.74)	(3.35)	(-0.01)	(-0.35)
CONSTANT	-7.641 ^{***}	-7.600 ^{***}	-4.565	-5.506 [*]
	(-3.93)	(-4.19)	(-1.43)	(-1.88)
OBS	1157	1157	466	466
R ² (WITHIN)	0.107	0.101	0.092	0.110

V ROBUSTNESS CHECKS

This paper conducts two tests to test the robustness of research results above. In the first place, we present robustness results of adopting an alternative crash risk model. Second, the sample of the paper does not include accounting period in 2008, so as to exclude the effect of the financial crisis.

5.1 Different Measure of Crash Risk

Based on existing research [35-36], this paper recalculate W_{it} , and calculate crash risk based on model (2) and model (3).

Table VIII presents the result in column (1) and column (2). The coefficients on crash risk are pronounced and positive, which shows the test results are consistent with research findings above.

5.2 Change Sample Periods

Referring to [35], considering the effect of the 2008 financial crisis on stock market, the year sample of 2008 is excluded. Column (3) and column (4) in Table VIII presents that the coefficient on PC is pronounced, which shows that the research conclusions are robust.

TABLE VIII. Robustness checks

VARIABLE	(1)	(2)	(3)	(4)
	NCSKEW _{t+1}	DUVOL _{t+1}	NCSKEW _{t+1}	DUVOL _{t+1}
PC	-0.119 ^{***}	-0.100 ^{***}	-0.229 ^{***}	-0.201 ^{***}
	(-4.61)	(-5.16)	(-5.49)	(-6.07)

NCSKEW _t	-0.129 ^{***}		-0.075 ^{***}	
	(-9.74)		(-4.55)	
DUVOL _t		-0.140 ^{***}		-0.053 ^{***}
		(-11.53)		(-2.87)
RET _t	1.017 ^{**}	0.788 ^{**}	0.055 ^{**}	0.060 ^{***}
	(2.35)	(2.44)	(2.47)	(2.86)
SIGMA _t	1.332	0.685	0.006	-0.239
	(0.62)	(0.43)	(0.01)	(-0.34)
TURNOVER _t	0.141 ^{***}	0.110 ^{***}	0.026	0.023
	(7.41)	(7.64)	(0.75)	(0.83)
SIZE _t	-0.071 ^{***}	-0.041 ^{***}	0.106 ^{***}	0.142 ^{***}
	(-4.06)	(-3.04)	(4.04)	(6.81)
LEV _T	-0.005	0.022	-0.548 ^{***}	-0.480 ^{***}
	(-0.06)	(0.31)	(-3.83)	(-4.25)
ROA _t	0.773 ^{***}	0.545 ^{***}	-0.092	-0.144
	(3.39)	(3.08)	(-0.26)	(-0.49)
MB _t	0.076 ^{***}	0.051 ^{***}	0.114 ^{***}	0.098 ^{***}
	(6.59)	(6.22)	(5.87)	(6.43)
CONSTANT	1.231 ^{***}	0.691 ^{**}	-2.407 ^{***}	-3.116 ^{***}
	(3.44)	(2.49)	(-4.44)	(-7.21)
OBS	8163	8163	7276	7276
R ² (WITHIN)	0.049	0.051	0.028	0.031

VI ADDITIONAL TEST

6.1 The Effect of Corporate Governance

The more concentrated shareholding structure, the easier it is for big shareholders to encroach on the economic interests of small shareholders [37]. The decision-making of enterprise manager is usually guided by the interests of big shareholders and lacks consideration of the interests of small shareholders. When the company performance declines, the major shareholders may compensate the management by increasing in-service consumption, which virtually deteriorates the business prospects of the company. In addition, Tunneling by major shareholders will distort accounting income and increase the information asymmetry between company and outside world [38]. These will lead to an increase in crash risk. Therefore, this paper predicts higher shareholding ratio of major shareholders will weaken the influence of political connections on reducing crash risk.

To test the above prediction, this paper divides the sample into higher shareholding ratio of big shareholders and lower shareholding ratio of small shareholders based on shareholding ratio. Table IX presents that the higher shareholding ratio weakens the positive influence of political connections on reducing crash risk.

TABLE IX. The effect of corporate governance

VARIABLE	LOWER SHAREHOLDING RATIO		HIGHER SHAREHOLDING RATIO	
	NCSKEW _{t+1}	DUVOL _{t+1}	NCSKEW _{t+1}	DUVOL _{t+1}
PC _t	-0.419*** (-3.20)	-0.301*** (-2.62)	-0.054 (-0.46)	-0.009 (-0.08)
NCSKEW _t	-0.106** (-1.97)		-0.261*** (-4.90)	
DUVOL _t		-0.052 (-0.85)		-0.290*** (-5.26)
TURNOVER _t	0.105 (0.87)	0.088 (1.07)	0.069 (0.68)	0.108 (1.23)
RET _t	-0.080 (-0.92)	-0.015 (-0.20)	0.003 (0.04)	0.011 (0.21)
SIGMA _t	0.389 (0.12)	0.694 (0.30)	4.540 (1.51)	2.107 (0.91)
SIZE _t	-0.103 (-0.76)	-0.032 (-0.31)	0.194 (1.08)	0.205 (1.32)
LEV _t	-0.179 (-0.28)	0.082 (0.17)	0.128 (0.16)	0.022 (0.03)
ROA _t	-0.504 (-0.47)	0.129 (0.16)	1.314 (1.11)	0.960 (0.99)
MB _t	0.273*** (4.08)	0.228*** (4.33)	0.102 (1.58)	0.088* (1.85)
CONSTANT	1.522 (0.55)	0.026 (0.01)	-5.133 (-1.35)	-5.114 (-1.57)
OBS	704	704	726	726
R ² (WITHIN)	0.096	0.102	0.112	0.136

6.2 The Influence of Marketization

Prior research find that if a region has a higher degree of marketization, earnings manipulation by companies in the region will be lower [39], furthermore, the lower level of earnings management, the lower crash risk [32][40]. Conversely, if a company is located in a lower marketization, earnings management will be enhanced, and crash risk can increase. Therefore, if the degree of marketization in a region is higher, the weakening influence of political links on crash risk will be reduced.

To test the above prediction, we divide the sample into regions with a higher marketization and regions with a lower marketization based on marketization index [41]. Table X reveals that in regions where marketization degree is lower, the negative correlation between political link and crash risk is more pronounced.

TABLE X. The effect of marketization

VARIABLE	LOWER DEGREE OF MARKETIZATION		HIGHER DEGREE OF MARKETIZATION	
	NCSKEW _{t+1}	DUVOL _{t+1}	NCSKEW _{t+1}	DUVOL _{t+1}
PC _t	-0.273 ^{**}	-0.231 ^{**}	-0.482	-0.188
	(-2.48)	(-2.58)	(-0.85)	(-0.51)
NCSKEW _t	-0.055		-0.558 ^{***}	
	(-1.08)		(-3.84)	
DUVOL _t		-0.005		-0.568 ^{***}
		(-0.08)		(-3.50)
TURNOVER _t	0.121	0.117 [*]	-0.402	-0.421
	(1.49)	(1.78)	(-1.05)	(-1.49)
RET _t	0.152 ^{**}	0.171 ^{***}	-0.782 ^{***}	-0.676 ^{***}
	(2.30)	(2.68)	(-2.78)	(-3.07)
SIGMA _t	-6.375 ^{***}	-5.001 ^{***}	24.123 ^{**}	22.431 ^{***}
	(-2.98)	(-2.90)	(2.36)	(2.87)
SIZE _t	-0.019	0.016	-0.651 [*]	-0.611 ^{**}
	(-0.30)	(0.31)	(-1.71)	(-2.39)
LEV _t	-0.188	-0.110	2.779	2.359
	(-0.44)	(-0.33)	(1.54)	(1.42)
ROA _t	-2.279 ^{***}	-1.966 ^{***}	8.557 ^{***}	5.562 ^{***}
	(-3.15)	(-3.29)	(4.24)	(3.79)
MB _t	0.173 ^{***}	0.138 ^{***}	0.775	0.772 [*]

	(3.40)	(3.38)	(1.50)	(1.97)
CONSTANT	0.476	-0.289	9.849	9.569*
	(0.36)	(-0.27)	(1.18)	(1.77)
OBS	901	901	218	218
R ² (WITHIN)	0.062	0.064	0.032	0.035

6.3 The Influence of Ownership

Compared with other types of enterprises, in foreign funded enterprises, corporate governance is relatively strict, accounting information transparency is higher, and information asymmetry between the firm and the outside world is lower. Therefore, this paper predicts that in foreign funded firms, the influence of political link in reducing crash risk will be weaker.

To test the above prediction, firstly, we introduce a dummy variable. If it belongs to a foreign-funded enterprise, the dummy variable is defined as 1, otherwise 0, and we test the effect of ownership. Table XI presents that political link has a bigger effect on the crash risk in non- foreign funded firm than that of foreign funded firm.

TABLE XI. The effect of ownership

VARIABLE	FOREIGN-FUNDED ENTERPRISE		NON FOREIGN-FUNDED ENTERPRISE	
	NCSKEW _{t+1}	DUVOL _{t+1}	NCSKEW _{t+1}	DUVOL _{t+1}
PC _t	-0.047	-0.087	-0.215***	-0.194***
	(-0.18)	(-0.34)	(-5.68)	(-6.14)
NCSKEW _t	-0.193*		-0.099***	
	(-1.83)		(-5.80)	
DUVOL _t		-0.021		-0.083***
		(-0.16)		(-4.39)
TURNOVER _t	0.027	0.042	0.109***	0.084***
	(0.17)	(0.38)	(3.81)	(3.66)
RET _t	0.121	0.271**	0.053**	0.066***
	(1.01)	(2.31)	(2.54)	(3.30)
SIGMA _t	-1.388	-3.233	-0.656	-0.569
	(-0.33)	(-0.97)	(-0.83)	(-0.88)
SIZE _t	-0.110	-0.038	0.117***	0.152***
	(-0.51)	(-0.25)	(4.08)	(6.54)

LEV _t	0.454	-0.565	-0.611 ^{***}	-0.545 ^{***}
	(0.45)	(-0.72)	(-4.04)	(-4.48)
ROA _t	2.317	0.689	0.692 [*]	0.494 [*]
	(1.16)	(0.35)	(1.96)	(1.73)
MB _t	0.140 ^{**}	0.148 ^{***}	0.138 ^{***}	0.110 ^{***}
	(2.46)	(3.06)	(8.34)	(8.24)
CONSTANT	1.686	0.829	-2.706 ^{***}	-3.358 ^{***}
	(0.38)	(0.27)	(-4.57)	(-7.01)
OBS	237	237	6921	6921
R ² (WITHIN)	0.120	0.150	0.054	0.058

VII CONCLUSIONS

This paper tests the effect of political connections on the risk of stock price crash. The results of the study show that: political connections of enterprise may help reduce crash risk. In companies with lower proportion of major shareholders, lower marketization, and in non-foreign-funded enterprises, political links and crash risk are significantly negative correlation. This study tests the endogeneity of political connections by Heckman model, propensity matching score model (PSM), different methods to measure crash risk, and different sample period, the conclusions remain unchanged.

The enlightenment value of the research as follows: firstly, we should exert the positive influence of political connections, improve accounting conservatism and reduce information asymmetry; Secondly, to reduce the shareholding ratio of major shareholders, which will help reduce the probability of major shareholders deliberately hide bad news; Finally, it is necessary to accelerate the process of marketization, strengthen corporate governance of non-foreign-funded enterprise, and will reduce stock price crash risk, which will help steady operation of China's capital market. In addition, the research conclusion also has certain reference significance for other emerging market countries.

ACKNOWLEDGEMENTS

This research was supported by Top-notch Talents Project of Higher Education Institutions in Anhui Province of China (Grant No.GXFX2017104), Humanities and Social Science Research Project of Higher Education Institutions in Anhui Province of China (Grant No.SK2020A0448)

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