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THE IMPACT OF STOCK PRICE CRASH RISK ON THE COST OF CAPITAL: EMPIRICAL STUDY FROM CHINA

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ABSTRACT

This study analysed the effect of Stock Price Crash Risk (SPCR) on the cost of capital in Chinese listed firms in the Shenzhen stock exchange and the Shanghai Stock Exchange. A sample of 290 firms based on the highest value of assets of each firm was used. The cost of capital consists of two factors; the cost of equity (COE) and the cost of debt (COD). The SPCR is measured by using two statistics, one is NCSKEW means the negative coefficient of skewness of the firm-specific weekly returns and the second is DUVOL that means Down to-Up Volatility used to measure the crash likelihood weekly return of firm-specific and used the Modified PEG ratio model of Eston approach to measuring the cost of equity. We used panel data to run the regression model analyses. SPCR was found to have a significantly positive relationship with the cost of equity and cost of debt. Also, the sample was divided into the State-Owned enterprise (SOEs) and Non-State-Owned enterprises (NSOEs) for comparison. The results show that the impact of SPCR on the COE and COD is stronger in SOEs than NSOEs. The regulators need to improve and strengthen the development of laws and regulations related to company information disclosure, to reduce the cost of capital of listed companies and improve the efficiency of financing the Chinese capital market. Companies need to work together to strengthen internal controls, create a good disclosure environment, and prevent the SPCR.

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INTRODUCTION

The risk of a stock market crash measures the possibility of a listed company's stock crash, this may be due to principal issues and information asymmetry (Hutton et al., 2009; Kothari et al., 2009). It is mostly considered that for self-interest purposes like vested interest, reputation and awards management hide bad news to deviate from the company's instinct value. The investors start selling stocks and stock prices start to crash when negative information accrues and explodes by which the SPCR arises (Jin and Myers, 2006). The SPCR not only affects the capital market but also causes resource misallocation and negatively affects the real economy (Wang et al., 2015). In recent years, the singularity of China's capital market surges and falls has been ranked at the top of the world (Dai et al., 2019). Especially since

2015, the rapid upsurge and tumble of China's stock market have had a major influence on the stability of the financial market and the wealth of investors, and the risk of steel market accidents such as extreme tail-end risk is getting more attention.

In the context of agency theory, many hypothetical and experimental research has acknowledged a number of robust features that have contributed to SPCR including the blurring of financial reporting (Hutton et al. 2009; Kim and Zhang, 2014)), internal accounting strategies (Kim et al., 2011) and accounting obscurantism (Kim and Zhang, 2016), manager's exorbitant allowance and bullishness (Xu et al., 2014; Kim et al., 2016), officers and directors liability insurance (Yuan et al., 2016), CSR and trust (Kim et al., 2014, Li et al., 2017). A list of

research studies deeply examined the analysts of SPCR. A number of official governance practices have been identified that can reduce the motivation of managers to accumulate bad news (Callen and Fang, 2013; Andreou et al. 2016; Habib et al., 2018). However, in economies with weak legal and institutional environments, especially in emerging economies like China, official governance practices are not very effective.

However, there are limited studies conducted on the crash risk influence on the cost of equity (Liang and Mao, 2019; Liu and Ren, 2019) but no one finds the influence of SPCR on the cost of capital (both equity and debt) in the context of China. In developing economies such as Pakistan, India, China, and Bangladesh institutional structure is lower and greater vitality (Ingram and Silverman, 2000). In addition, China still is a developing country, standard systems of corporate governance are still under construction, and business ethics are in question (Xu et al., 2014; Du, 2015; Cao et al., 2016). In view of the weak legal environment, various unethical practices were reported in Chinese companies, such as disguising deviant news.

As the SPCR has a substantial influence on monetary growth, the SPCR decline has stretched been broiling topic research by many researchers. Current research focuses on factors that influence the risk of a stock market crash, scholars from executive gender, stock incentive policies, differences in corporate strategy, accounting conservativeness, and heterogeneity to study. Attention is paid to each aspect of how factors affect SPCR. Nevertheless, there is limited literary research on the economic impact of SPCR. Thus, the study of the impact of SPCR has theoretical and practical significance. First, as we know that is the first study to explore the influence of crash risk on the cost of capital. Second, we are presenting one of the first empirical studies on crash risk with the factors of the cost of capital from the biggest emerging economy in China by expanding the literature beyond developed economies. Third, our research enriches the study of the SPCR. As a special feature of the distribution of stock returns, the problem of stock market crash risk is gaining more and more attention from scholars and practitioners. Recent studies have shown that a variety of internal and external factors influence a company's SPCR (Habib et al., 2016). Fourth we are finding the impact of SPCR on the COC in SOEs and NSOEs in the context of China.

Stock Price Crash Risk

The most empirical research on crash risk determinants pursues the hypothetical structure of (Jin and Myers 2006), who noted that the presence of asymmetry info

among firm stakeholders can subsidize the SPCR. Information asymmetry permits the manager to hide bad news for a long period for employment protection and reduce litigation concerns (Kothari et al., 2009). The stock price continues to cause a crash when all bad news enters the market. So, Hong and Stein (2003) formulate a model that includes the investor belief heterogeneity, SPCR is one of the main drivers of this model. Some researchers point out that low transparency and opacity of information, especially due to accounting irregularities or the use of unlimited contracts, may lead to higher SPCRs (Jin and Myers 2006; Hutton et al., 2009; Callen and Fang, 2015).

Similarly, a study found that highly conditional conservatism can offset managers' tendency to postpone bad news and appreciate the identification of good news, thereby overcome crash risk (Kim and Zhang 2016). Although these studies determine direct evidence in support of the argument of bad news herding, further work has documented other evidence for several internal factors that influence crash risk through the channel of bad news hoarding. A researcher is pointed out that equity incentives will prompt managers to deliberately report news and manipulate market expectations, proving that the risk of future collapse is increased (Kim et al., 2011). Correspondingly, (Da Xu et al., 2014) businesses with additional benefits are more likely to hide bedside news and have found that this leads to a higher risk of future collapse. Lee et al. (2011) noted that the avoidance of corporate tax rises the risk of collapse as managers use tax avoidance technology to increase corporate transparency

Although Kim and Zhang (2016) argued that CEOs overconfident tend to ignore NPV and overestimation, which leads to unfavourable information and combine poor performance, which increases the SPCR. A recent study has found the multiple governance mechanisms contribute a significant role in determining the risk of a crash. Due to many control cuts, the company's additional control tends to expose less company-specific information, and so faces high SPCR. Similarly, Andreou et al. (2016) believe that the risk of collapse is negatively associated with the ownership of internal directors but positively linked to the incentive of CEO stock options.

Stock Price Crash Risk and Cost of Equity

The IRR is used to stabilize the cash flow in the market which is received in the future to determine the current market value (El Ghouli et al., 2011). This is a market rate of return provided by the market's approach to firm risk. It is the studied channel over which price risk of markets

(Butler and Joaquin, 1998), The COE shows the required rate of return on firm investment and the long-term investment decision based on the COC. The important parameter in the long-term investment of firms is the COE capital. The appearance of intuitional investors along with long-term investment prospects improve the information and monitoring quality and in reward get a decrease in agency cost and the problem of information asymmetry (Attig et al., 2013). Easley (2004) concluded that the COC reduces due to the increase in authentic information accessible to the investor.

The first step takes Botosan (1997) to directly computed the COC relay on the accounting-based equity estimation approach and present direct proof of the negative and Significant relationship between voluntary disclosure and COE level. She used 122 companies in the machine industry in 1990 to have a negative cost of capital with the disclosure score of low analyst companies, but not with the disclosure score of high analyst companies. Huang et al. (2019) investigated the impact of firm-level variation in the shareholder rights variable on the ex-ante COE estimates. Shareholder rights reflect the shareholders' ability to replace managers. Weak shareholder rights place strong limits on the shareholders' ability to replace current managers and lead to the entrenchment effect leading to higher COC. H1; the stock price crash risk has a significant positive effect on the cost of equity capital.

Stock Price Crash Risk and Cost of Debt

In many countries, group-affiliated firms are offering administrative arrangements and are being given more credit from the point of view of accounting and finance academics. According to Edmans (2011), stakeholder positioning tends to lower the cost of debt through the better motivation of employees and positive externalities of employee satisfaction on other stakeholders. Implementing constituency statutes could likely intensify the differences of interest among different stakeholders and thus would enhance the cost of debt. The effect of taking risks or co-insurance can reduce the risk of default and the cost of loan financing (Gopalan et al., 2007).

The COD is influenced by the company size, loan size, lone element, and firm characteristics (Francis et al., 2005). Consequently, the debt holder faces two types of risks. First is the inability to fulfil the vouchers' payment obligation. Second, in case of firm defaults, debt holders may only get half of their investment. Hence, The COD shows the company's estimates of defaults and losses, and investors must obtain company information to keep away from these risks. Eckel and Vermaelen (1986) also

point to the fact that government ownership can reduce the likelihood of acquisitions, reduce disciplinary actions related to monitoring the company's open market, and increase the COD.

Therefore, when greater flection in share price because of asymmetry information, an investor cannot understand the business situation at that time and it's difficult for the manager to supervise effectively, Investors face high uncertainty, therefore investors demand a high return for risk compensation. As a result, this research investigates the influence of SPCR on the COD with the given hypotheses

H2; the stock price crash has a significant positive effect on the cost of debt.

Ownership, Stock Price Crash Risk and Cost of Capital

The working model of state-owned enterprises in underdeveloped countries is different from that in developed countries. In China, it means not only government intervention, but also state-owned firm's participation in the economy (Xu et al., 2015). Governmental intervention is an imperative influential feature of China's market, and it plays an important character in distinguishing the privileges and accountabilities of SOEs from those of NSOEs. Therefore, compared with NSOEs, the CSR and COE of stat SOEs may be different (Zhang et al., 2007). Though, the discussion about which proprietorship will deliver more help in refining space and capital costs continues.

Using Chinese data Lee and Wang (2017), find that the existence of governmentally linked directors emphasizes the risk of conflict with registered SOEs by appointing native government officials as directors. Conversely, appointing the appropriate central government managers can help reduce the risk of the private sector collapse. Piotroski et al. (2015) point out that political events in China are speculated to encourage listed companies to cover up bad news. Li and Chan (2016) found that the risk of a company crash can be reduced by having a member of the Chinese Communist Party committee serve as a director. The exciting thing is that the data used for political connections and collapse risk relationships is collected from China. However, this extended the survey results to other countries with extensive political ties. A comprehensive overview of political relations will require a comparative study of accident-prone countries where politicians have less political interference in business operations than in countries affected by the business.

Some studies suggested that the COC of the NSOEs will be lower than SOEs because of more helpful strategies and less risk. Xu et al. (2015) discuss that SOEs have a lower COE than the NSOEs. State-owned enterprises usually have more approach to low-cost capital from SOEs (China's major capital source) than NSOE, as government banks often lend to state-owned enterprises for other reasoning (politics, employment, taxes) other than cost-effectiveness (Wei and Wang, 1997). On the other hand, bank's decisions for granting the loan to NSOEs are preliminary based on monetary rather than political (Chen et al., 2011). For the COE, Woolcock (1998) and Hitt et al. (2002) suggest that close relationships with governments allow SOEs to acquire more social capital and have more funding channels.

In addition, SOE is politically favored and endorsed by the government, which reduces the risk of bankruptcy. Even if the SOE is in financial trouble Wang (2006) proposed that the immediate reaction of investors is to look at the largest shareholders as the ultimate means of compensating for investment losses. In the deep exploration of state-owned enterprises, the government plays a traditional role. In divergence to SOEs, Ralston et al. (2006) note that due to no institution in NSOEs to share the risk of investing in NSOEs is higher. Investors with high investment risk injecting capital into NSOE need higher rates of return. Shailer and Wang (2015) Believe that companies controlled by the government have lower debt costs. Based on the above discussion, we believe that there is a difference between SPCR and the COE between SOEs and NSOEs. With government support, SOEs enjoy a wider range of privileges and better credit from bank loans or other debt lending methods than NSOEs. In addition, SOE has its debt lending straits, such as corporate bonds allotted only by SOE. As a result, SPCRs can have different impacts on equity value, as the importance of public equity finance ratios can depend on the type of property. If H1 and H2 can be confirmed, SPCR plays a role in increasing the COC, and the influence of SPCR will be diverse among SOEs and NSOEs. So, we suggest the mentioned below hypothesis:

H3. The positive association between SPCR and COE is prominent and significant in SOEs then NSOEs

H4. The positive association between SPCR and COD is prominent and significant in SOEs then NSOEs

METHODOLOGY

Data Sources and Sample

The data of 290 firms of the year 2010 to 2015 is used to find the impact of SPCR on COC which is collected from

the Shanghai Stock Exchange and the Shenzhen Stock Exchange. The China stock market & accounting research database (CSMAR) was used to extract data. In addition, we use SOE and NSOE as sub-samples. SOE is a company where the government is the final administrator and owns more than 50% of the voting rights and other NSOEs. To run this panel data we use STATA, SPSS. For individual moderation analysis, we use STATA, for descriptive, correlation we use SPSS.

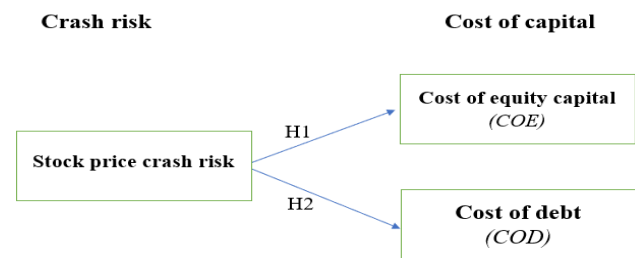


Figure 1. Theoretical Model

Empirical Model

To analyse the relation between SPCR and the COC, we used the regression model with analyses of panel data. Hypotheses 1 examines that SPCR will have a significant impact on the COE. So, the given regression model is constructed.

$$COE_{it} = \beta_0 + \beta_1 SPCR_{it} + \beta_n Controls_{it} + \varepsilon_{it} \quad (1)$$

The COE is a dependent variable and SPCR is consist of DUVOL and NCSKEW independent variable with control variables company size, Leverage ratio, Market to Book Value, Return on total assets, Tobin's Q, Tangibility, Industry and Year.

Hypotheses 2 examine that the SPCR will have a significant impact on COD capital. Hence, the following regression model is formulated.

$$COD_{it} = \beta_0 + \beta_1 SPCR_{it} + \beta_n Controls_{it} + \varepsilon_{it} \quad (2)$$

The Cost of Debt is a dependent variable and SPCR is consist of DUVOL and NCSKEW independent variable with control variables company size, Leverage ratio, Market to Book Value, Return on total assets, Tobin's Q, Tangibility, Industry and Year.

Dependent variable

Cost of Equity: The previous scientific literature has not yet reached an agreement on which model is a good measure of COE performance (Mohanram and Gode, 2013; Barbosa et al., 2015). (Hou et al., 2012) calculate the ex-ante COE, which means analyst earning forecast and stock price based on Modified PEG ratio model of (Easton, 2004) which calculate the COE capital, is displayed as an equation 3:

$$R_{MPEG} = \sqrt{\frac{EPS_{t+2} - EPS_{t+1}}{P_t}} \quad (3)$$

In this equation, R_{MPEG} demonstrates that the COE year t , EPS_{t+1} , and EPS_{t+2} respectively are the forecast EPS for 1 year and that for 2 years ahead of the year t , and P_t / P_t means the stock price of one firm's share at the end of t year.

Cost of Debt: IEAT (interest expense after-tax) express the debt interest expense multiplied with an effective interest rate. Interest expenses due to long-term and short-term debt financing because of long-term debt. The calculation of the average of long-term debt with interest-bearing debt t year and $t-1$ before year. according to (Palepu and Healy, 2013) effective interest rate is calculated with tax expenses divided by net income.

$$COD_{i,t} = \frac{\text{Interest expenses after Tax(IEAT)}}{\left(\frac{\text{Interest-bearing debt}_{i,t} + \text{Interest-bearing debt}_{i,t-1}}{2}\right)} \tag{4}$$

Independent Variable: Crash Risk

The SPCR measure (Chen et al. 2001; Hutton et al., 2009) using two statistics, one is NCSKEW means the negative coefficient of skewness of the firm-specific weekly returns and the second is DUVOL that means Down to-Up Volatility used to calculate the crash likelihood weekly return of firm-specific. We first compute the weekly return (W) of firm-specific as the natural logarithm of one plus the residual return from the

expected market model regression for every firm and year. The variable construction process is as follows.

$$R_{i,t} = \alpha_i + \beta_1 R_{m,t-2} + \beta_2 R_{m,t-1} + \beta_3 R_{m,t} + \beta_4 R_{m,t+1} + \beta_5 R_{m,t+2} + \varepsilon_{i,t} \tag{5}$$

NCSKEW i, t is the first metric calculated at the 3rd moment of company-exact weekly earnings of the i company in t year, divided with the cube of the company-specific weekly earnings standard deviation, and multiplied by a negative number.

Negative Coefficient of Skewness (NCSKEW) as shown in equation 6.

$$NCSKEW_{i,t} = - \left[\frac{n(n-1)^{3/2} \sum W_{i,t}^3}{2(\sum W_{i,t}^2)^{3/2}} \right] / \left[(n-1)(n-2) \right] \tag{6}$$

The trading was donated by n, I for firm and t for a year. Down-to-up Volatility (DUVOL);

$$DUVOL_{i,t} = \log \left\{ \frac{[(n_u - 1) \sum_{DOWN} W_{i,t}^2]}{[(n_d - 1) \sum_{UP} W_{i,t}^2]} \right\} \tag{7}$$

Where n_u (n_d) represents the number of weeks in which weekly returns of i firm are higher (lower) ten the mean of weekly return of firm-specific through a year t . The high level of DOVOL of a firm is explained as more likely to crash.

Control Variables: The control variable definitions are shown in Table 1.

Table 1. Variable Definitions.

Nature	Name	Code	Definition
Control variables	Size	Size	The log of total sales.
	Leverage ratio	LVRG	The ratio of total debt to the total asset.
	Market to Book Value	MTBV	The MTBV is market capitalization to total book value.
	Return on total assets	ROA	The ratio of earnings before tax to the total assets
	Tobin's Q	Tobin's Q	Tobin's q is calculated as a firm's market capitalization plus book value of debt, divided by book value of total assets.
	Tangibility	Tangibility	Sum of the value of inventories with fixed assets, divided by the value of the company's total assets

RESULTS AND DISCUSSION

Descriptive Analysis

The usual COE of firms under this study is 0.1742 with a standard deviation of 0.1076. Its minimum value is 0.0062 and the maximum value is 0.9213 and percentile 25 and 75 are 0.1005 and 0.2225 as shown in Table 2. Its median is 0.1492. The second variable cost of debt (COD) is an average value is 0.0013 with a standard deviation (SD) is 0.0050. The mean value of NCSKEW

and DUVOL is less than the median, by definition, these two variables move to the left.

Table 3 shows the sub-sample of SOEs and NSOEs. SOEs number of observations is 1373 with the mean value 1 with 0 standard deviations and the min. value is 1 and the maximum value is 1. NSOEs consist of total number observation is 366 with the mean value 0 with 0 standard deviations and the min. value is 0 and the maximum value is 0.

Table 2. Descriptive Statistics of the Main Variables.

Variables	MEAN	Sd	MIN	p25	MEDIAN	p75	MAX
COE	0.174218	0.107564	0.006168	0.100455	0.14916	0.222506	0.9212506
COD	0.001239	0.005014	0	0	0	0	0.0328006
DUVOL	-0.16857	0.529524	-1.12955	-0.60421	0.070046	0.186536	0.3957115
NCSKEW	-0.33712	0.841931	-1.86626	-1.05905	0.077278	0.30116	0.4468785
SOE	0.789655	0.407671	0	1	1	1	1
Size	24.62127	1.512252	23.03418	23.59016	24.12609	25.12292	30.69425
MTBV	1.141866	1.09875	-2.43304	0.392625	0.957346	1.542525	9.35792
ROA	0.030372	0.043402	-0.51803	0.008557	0.0228	0.045832	0.3808619
LVRG	0.636045	0.186409	0.054034	0.505536	0.659151	0.774215	1.416327
Tangibility	0.877317	1.031041	0	0.32986	0.590903	1.063288	14.19726
Tobin's q	0.799932	0.894217	0.045629	0.322032	0.566546	1.001599	13.41669

Table 3. Sub Sample of State-owned Enterprises and Non-state-owned Enterprises.

Sab Sample	Obs	Mean	Sd	Min	Max
SOEs	1,373	1	0	1	1
NSOEs	366	0	0	0	0

Regression Analysis

In the first panel relationship between DUVOL, NCSKEW and the first measure of the cost of capital is COE (Cost of equity). Table 4 consists of two parts. The first part consists of model 1 and model 2 in which model 1 shows the affiliation among DUVOL and COE and model 2 shows the relationship between NCSKEW and COE. In model 1, DUVOL has a substantial positive effect on COE

(0.0182, $p < 0.01$) which means that one percent change in DUVOL leads to a 0.0182 percent change in COE. In this model 2, NCSKEW has a substantial positive effect on COE (0.0118, $p < 0.01$) which means that one percent change in NCSKEW leads to a 0.0118 percent change in COE. The results of both DUVOL and NCSKEW show a significant and positive relationship and confirming our Hypothesis 1.

Table 4. Stock Price Crash Risk and Cost of Equity Capital.

Dependent variable: Cost of Equity	Model 1	Model 2
DUVOL	0.0182*** (-3.5)	
NCSKEW		0.0118*** (-3.57)
Size	-0.00938*** (-4.19)	-0.00932*** (-4.16)
MTBV	-0.00641 (-1.64)	-0.00627 (-1.60)
ROA	-0.363*** (-4.03)	-0.367*** (-4.06)
LVRG	0.0289 (-1.15)	0.0279 (-1.11)
Tangibility	-0.00715 (-0.87)	-0.00719 (-0.87)
Tobin's q	-0.00745 (-0.67)	-0.00763 (-0.68)
Constant	0.431*** (-8.24)	0.431*** (-8.24)
Ind-Dummy	Included	Included
Year Dummy	Included	Included
R-squared	0.0869	0.0873
Root MSE	0.09971	0.09969

Note: *, **, ***, significant at 10%, 5%, and 1% respectively, t statistics in parentheses.

We took a step further to test the impact of SPCR on COD. In model 1 of Table 5, we test the impact of SPCR on COD. The results show that DUVOL has a substantial positive effect on COD (0.000492, $p < 0.05$) which means that one percent change in DUVOL leads to a 0.000492 percent change in COD. Model 2, NCSKEW has a substantial positive effect on COD (0.000322, $p < 0.05$) which means

that one percent change in NCSKEW leads to a 0.000322 percent change in COD. The coefficient of determination (R^2) for model 1 is 0.4266 and for model 2 is 0.4268 which means that about 42% variation COD is caused by the concerned independent variables in models. The results of both DUVOL and NCSKEW show a significant and positive relationship and confirming our Hypothesis 2.

Table 5. Stock Price Crash Risk and Cost of Debt Capital.

Dependent variable: Cost of Debt	Model 1	Model 2
DUVOL	0.000492** (-2.67)	
NCSKEW		0.000322** (-2.76)
Size	0.00191*** (-24.95)	0.00191*** (-24.97)
MTBV	0.000197 (-1.79)	0.000196 (-1.78)
ROA	-0.000415 (-0.13)	-0.00058 (-0.18)
LVRG	0.00473*** (-5.77)	0.00472*** (-5.76)
Tangibility	0.000728* (-2.51)	0.000728* (-2.51)
Tobin's q	-0.000246 (-0.69)	-0.000242 (-0.67)
Constant	-0.0482*** (-26.56)	-0.0482*** (-26.57)
Ind-Dummy	Included	Included
Year Dummy	Included	Included
R-squared	0.4266	0.4268
Root MSE	0.00386	0.00386

Note: *, **, ***, significant at 10%, 5%, and 1% respectively, *t* statistics in parentheses.

Table 6. Stock Price Crash Risk, Cost of Equity Capital, and Ownership.

Dependent variable: Cost of Equity	SOEs		Non-SOEs	
	Model 1	Model 2	Model 3	Model 4
DUVOL	0.0211*** (-3.78)		0.000676 (-0.05)	
NCSKEW		0.0136*** (-3.84)		0.000436 (-0.05)
Size	-0.00625* (-2.44)	-0.00618* (-2.40)	-0.0227*** (-4.27)	-0.0227*** (-4.26)
MTBV	-0.000574 (-0.14)	-0.000441 (-0.11)	-0.0355** (-3.32)	-0.0355** (-3.31)
ROA	-0.455*** (-4.74)	-0.459*** (-4.78)	0.0828 (-0.34)	0.0827 (-0.34)
LVRG	0.017 (-0.61)	0.0159 (-0.58)	0.0673 (-1.1)	0.0672 (-1.1)
Tangibility	-0.00452 (-0.56)	-0.00456 (-0.56)	-0.0993 (-1.09)	-0.0994 (-1.09)
Tobin's q	-0.00973 (-0.87)	-0.00992 (-0.88)	0.0429 (-0.46)	0.0429 (-0.46)
Constant	0.343*** (-5.7)	0.343*** (-5.7)	0.785*** (-6.6)	0.785*** (-6.61)
Ind-Dummy	Included	Included	Included	Included
Year Dummy	Included	Included	Included	Included
R-squared	0.09	0.0904	0.1699	0.1699
Root MSE	0.09655	0.09653	0.10712	0.10712

Note: *, **, ***, significant at 10%, 5%, and 1% respectively, *t* statistics in parentheses.

We took a step further in analysis to test the impact of SPCR on COC on an individual basis by using SOEs and Non-SOEs as a sub-sample. In model 1 of Table 6, we test the impact of SPCR (DUVOL) on the cost of equity considering SOEs, and in model 3 consider non-SOEs. Model 2 shows the impact of SPCR (NCSKEW) on COE considering SOEs and model 4 consider non-SOEs. The results indicate that the association between SPCR and COE is prominent and positively significant

in SOEs than NSOEs which is confirming our Hypothesis 3.

In model 1 of Table 7, we test the impact of SPCR (DUVOL) on the cost of debt considering SOEs, and in model 3 consider non-SOEs. Model 2 shows the impact of SPCR (NCSKEW) on COC considering SOEs and model 4 consider non-SOEs. The results indicate that the association between SPCR and COD is prominent and positively significant in SOEs than NSOEs which is confirming our Hypothesis 4.

Table 7. Stock Price Crash Risk, Cost of Debt, Capital and Ownership.

Dependent variable: Cost of Debt	SOEs		Non-SOEs	
	Model 1	Model 2	Model 3	Model 4
DUVOL	0.000377* (-2.2)		0.000564 (-0.94)	
NCSKEW		0.000247* (-2.29)		0.000371 (-0.98)
Size	0.00148*** (-19.53)	0.00149*** (-19.54)	0.00254*** (-10.93)	0.00254*** (-10.94)
MTBV	0.000105 (-1.04)	0.000103 (-1.03)	0.000644 (-1.57)	0.000644 (-1.57)
ROA	-0.000149 (-0.05)	-0.00028 (-0.09)	-0.0000321 (-0.00)	-0.000225 (-0.02)
LVRG	0.00342*** (-4.42)	0.00341*** (-4.41)	0.00546* (-2.1)	0.00544* (-2.09)
Tangibility	0.000443 (-1.82)	0.000444 (-1.82)	0.00359 (-1.15)	0.00358 (-1.15)
Tobin's q	-0.0000313 (-0.10)	-0.0000281 (-0.09)	-0.00408 (-1.24)	-0.00407 (-1.23)
Constant	-0.0382*** (-21.23)	-0.0382*** (-21.24)	-0.0642*** (-12.18)	-0.0642*** (-12.19)
Ind-Dummy	Included	Included	Included	Included
Year Dummy	Included	Included	Included	Included
R-squared	0.3072	0.3074	0.5692	0.5694
Root MSE	0.00317	0.00317	0.00536	0.00536

Note: *, **, ***, significant at 10%, 5%, and 1% respectively, t statistics in parentheses.

CONCLUSION AND RECOMMENDATIONS

The results show that in SOEs the cost of capital increase if the SPCR increase and in non-SOEs they have no association. The results also show that the SPCR will dominate the upsurge of COD and COE. From the practical point of view of this study, the results show that an increase in SPCR leads to an increase in the COE and the COD. One of the risks facing investors is that SPCRs need to be positively correlated with the return on investment they demand.

According to existing research, the stock market crash is the consequence of the emergence of harmful data administrators. Large shareholders actively oversee management and prevent opportunistic behaviour of selective disclosure of information as the owner of the highest value to maintain profits. This helps the management to make some informed decisions that are beneficial to the investors and the experimental results support this idea. The capital market authorities should

improve and reinforce the formulation of regulations and relevant laws on corporate information disclosure in order to reduce COE and COD and the financial efficiency of listed companies. Companies need to work together to build a better information disclosure environment to strengthen internal control and prevent the SPCR.

The research contributes to the literature, but with certain limitations. This study is transforming emerging economies and focuses only on China's institutional environment, which differs in many ways from developed countries, the results somehow limit the generalizability of the results. In future research, the same hypothesis can be tested in other developing and developed countries to increase the popularity of research results. In future studies, cross-country analysis can also be conducted. We can also check the moderating and mediating role of institutional variables like family-owned firms, group affiliation, and ownership concentration, etc.

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