CEO Organizational identification and Stock Price Crash Risk: Evidence from China

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Structure

I. Abstract

II. Introduction

III. Literature review and hypothesis development

IV. Research design

V. Results

VI. Conclusion

Abstract

This study adopts ***CEO organizational identification data*** from a national internal control survey of listed companies initiated by the China Securities Regulatory Commission to explore the relationship between CEO organizational identification and stock price crash risk.

We find that ***CEO organizational identification accelerates stock price crash risk and that this relationship is more pronounced in firms with financial losses***.

The evidence shows that ***CEO organizational identification is to some extent limited by China's weaker institutional environment and that this increases the likelihood of firm-level bad news withholding***. This study provides beneficial implications for countries with weaker institutional environments by indicating that it is necessary to improve the institutional environment to strengthen CEOs' responsibility for corporate financial information disclosure.

Introduction

1. Research question

Agency Theory View

•Studies show that compensation contracts can **decrease agency costs** between CEOs and shareholders and further motivate CEOs to take actions strongly in line with firms' interests (Healy, 1985).

Conventional View Dilemma

•CEOs use **earnings manipulation** to meet corporate performance requirements of and **obtain private benefits** from compensation contracts, which are implemented based on corporate performance (Dechow and Skinner, 2000; Jensen and Murphy, 2012).

Identity Economic view

• Studies show that **managers' organizational identification can motivate them to take actions strongly with firms** (Akerlof and Kranton, 2000; 2005; 2008; 2010; Heinle et al., 2012) and **curb the agency costs** between managers and shareholders (Boivie et al., 2011; Heinle et al., 2012).

Introduction

1. Research question

It is necessary to explore the relationship between CEO organizational identification and bad news withholding.

- One view holds that CEO organizational identification can decrease the likelihood of bad news withholding(Akerlof and Kranton, 2000; 2005; 2008; 2010; Heinle et al., 2012).
- The other view holds that CEO organizational identification may increase the likelihood of bad news withholding in China which has a relatively weak institutional environment (Morck et al., 2000; Allen et al., 2005； Jiang et al., 2015; Chen et al., 2015; Chen et al., 2019).

For example, Such an institutional environment enables firms to establish stronger political connections with governments (Chen et al., 2008), impairs the efficacy of regulators for listed firms (Chen et al., 2006; Jiang et al., 2015), and weakens CEOs' responsibility because of higher organizational identification, which affects corporate financial reporting decisions.

Introduction

1. Research question

In theory, when the level of firm-level bad news withholding exceeds a certain threshold, investors recognize that such news is being withheld by CEOs (Kothari et al., 2009). Accumulated firm-level bad news negatively skews the firm's stock price and increases the stock price crash risk (Hutton et al., 2009; Kim et al., 2011a; Piotroski et al., 2015).

Thus, the above research question is ***essentially an exploration of the relationship between CEO organizational identification and stock price crash ris***k.

Introduction

2. Contribution

This study advances the empirical understanding that CEO organizational identification plays a crucial role in corporate governance by making the following contributions.

- this study **enriches behavioral explanations of corporate finance and governance** in addition to traditional economic and agency rationalizations by focusing on the crucial role of CEO psychological traits, such as CEO organizational identification, in corporate financial policies.

- this study broadens and enriches the literature on the economic consequences of managers' organizational identification.

- this study enriches the research on stock price crash risk.

Literature review and hypothesis development

Corporate financial information disclosure, a key financial decision, is an important channel through which CEOs report to investors about corporate performance and governance (Healy et al., 2001). **However,** self-serving CEOs delay or withhold firm-level bad news (Kothari et al., 2009; Xu et al., 2014).

- CEOs' career concerns prompt them to consider their private benefits, increasing their motivation to withhold bad news from shareholders (Baginski et al., 2018).

- When the level of bad news withholding exceeds a certain threshold, investors recognize that such news must have been withheld by CEOs (Kothari et al., 2009). Accumulated firm-level bad news negatively skews the firm's stock price and increases the stock price crash risk (Hutton et al., 2009; Kim et al., 2011a; Piotroski et al., 2015).

Literature review and hypothesis development

Many studies explore the determinants of stock price crash risk.

- financial reporting quality (e.g., Hutton et al., 2009; Kim and Zhang, 2014; DeFond et al., 2015; Francis et al., 2016; Chen et al., 2017),
- religion and culture (e.g., Callen and Fang, 2015; Cao et al., 2016; Li et al., 2017)
- CEO overconfidence (e.g., Kim et al., 2016a)
- corporate governance mechanisms (e.g., Kim et al., 2011a,b; Xu et al., 2014; Andreou et al., 2016; Kim et al., 2016b)

Literature review and hypothesis development

CEO organizational identification is a variant variable of managers' preference that is hard to measure with money but that has influenced corporate financial decisions (Akerlof and Kranton, 2005; 2008; 2010).

Managers' organizational identification can motivate them to take actions strongly in line with firms' interests (Akerlof and Kranton, 2000; 2005; 2008; 2010; Heinle et al., 2012).

- Boivie et al. (2011) find that CEOs with strong organizational identification demand lower cash compensation and make less personal use of corporate aircraft when their firms are not performing well financially. In brief, CEO organizational identification ties CEOs' interests to that of their firms.

- when someone criticizes a CEO's company, a CEO with higher organizational identification will feel like he is being personally criticized, and when someone praises a CEO's company, a CEO with higher organizational identification like he is being personally praised.

Literature review and hypothesis development

However, China has a weaker institutional environment than developed countries (Morck et al., 2000; Allen et al., 2005; Jiang et al., 2015; Chen et al., 2015; Chen et al., 2019). This weak environment prompts CEOs with higher organizational identification to withhold firm-level bad news.

- There is also more collusive behavior between governments and firms in China, which impairs market competition.

- selective law enforcement is pervasive in China (Chen et al., 2006), which decreases the costs and risk of listed firms' violation.

Hypothesis 1: *In China's weaker institutional environment, there is a significant positive relationship between CEO organizational identification and stock price crash risk.*

Literature review and hypothesis development

According to the stock listed regulation on the Shanghai and Shenzhen stock exchanges, if firms have experienced financial losses in the past two years, their stock name is labeled “ST” (special treatment).

If they have three consecutive years of losses, they are labeled as a delist risk with “*ST” (special treatment because of delist risk).

If such firms fail to achieve financial gains in the next year, they lose business credits resource and are limited to financing in the stock and debt market.

Hypothesis 2: *In China’s weaker institutional environment, the significant positive relationship between CEO organizational identification and stock price crash risk is more pronounced in firms with financial losses.*

Research design

1. Sample and Data

We obtain CEO organizational identification data through a national internal control survey of listed companies conducted in cooperation with the Listing Department of the CSRC at the end of 2014. We presume CEO organizational identification is invariable recently. Our initial sample consists of all Chinese A-share listed companies from 2014 to 2016.

We screen and exclude (1) firms for which the CEO completed the survey but left the position during the sample period; (2) financial firms; (3) firms with missing values for variables; (4) firms listed for less than two years because of the IPO effect; (5) firms with CEO tenure of less than two years because shorter tenure does not effectively show CEO organizational identification; and (6) firms with fewer than 26 trading weeks of stock return data in a fiscal year (Kim et al., 2011a).

Finally, we obtain 3,195 firm-year observations. To mitigate the effects of outliers, we winsorize the continuous variables at the 1% level in both tails. Our financial data are obtained from the China Stock Market and Accounting Research (CSMAR) database.

Research design

2. Variable Measure

Appendix 2: Variable definition

Variable	Definition
Stock Price Crash Risk Measurement	
$NCSKEW_{i,t+1}$	The negative skewness of firm-specific weekly returns in year t+1.
$DUVOL_{i,t+1}$	The log of the ratio of the standard deviation on the down weeks to the standard deviation on the up weeks in year t+1.
CEO Organizational identification Measurement	
$CEO\_OI_{i,t}$	CEO organizational identification (*CEO_OI*) is referring to Mael and Ashforth (1992) and from a national internal control survey of Chinese listed companies in 2014 initiated by the Listing Department of the CSRC. The value is computed by the mean of six term scores and belongs to [1, 5].
Corporate Financial Loss Measurement	
$LOSS_{i,t}$	Indicator variable which equals to 1 for negative net income and 0 otherwise.
Control Variables	
$DTURN_{i,t}$	The average monthly share turnover over the current fiscal year period minus the average monthly share turnover over the previous fiscal year period, where monthly share turnover is calculated as the monthly trading volume divided by the total number of shares outstanding during the month.
$NCSKEW_{i,t}$	The negative skewness of firm-specific weekly returns in year t.
$DUVOL_{i,t}$	The log of the ratio of the standard deviation on the down weeks to the standard deviation on the up weeks in year t.
$SIGMA_{i,t}$	The standard deviation of firm-specific weekly returns.
$RET_{i,t}$	The arithmetic average of firm-specific weekly returns.
$SIZE_{i,t}$	The log of total assets.
$BM_{i,t}$	The book value of equity divided by the market value of equity.
$LEV_{i,t}$	The total debt divided by total assets in year t.
$ROA_{i,t}$	The income before extraordinary items divided by total assets.
$ABACC_{i,t}$	The absolute value of discretionary accruals, which is estimated by the modified Jones model based on Dechow et al. (1995).
$SOE_{i,t}$	Indicator variable equals to 1 if the firm is a state-owned enterprise, and 0 if the firm is a private enterprise.
$CEO\_MALE_{i,t}$	Indicator variable equals to 1 if CEO is male, and 0 otherwise.
$CEO\_EDU_{i,t}$	Categorical variable equals to 4 if CEO has a doctorate degree, 3 if CEO has a master's degree, 2 if CEO has a bachelor's degree, 1 if CEO has an associate degree, 0 if CEO has a high school diploma or below.
$CEO\_AGE_{i,t}$	CEO's age.
$CEO\_TENURE_{i,t}$	CEO's tenure.
$DUAL_{i,t}$	Indicator variable equals to 1 if CEO is also the chairman, and 0 otherwise.
$BDSIZE_{i,t}$	The logged value of directors on the board.
$IDR_{i,t}$	The ratio of independent directors in board of directors.
$LARGESHAH_{i,t}$	The shareholding percentage of the largest shareholder.

Appendix 1: CEO organizational identification measurement

	Disagree——Agree				
	1	2	3	4	5
When someone criticizes my company, I feel like he is criticizing me.					
I wonder what others think about my company.					
I usually use "we" to describe my company rather than "they".					
I think the success of my company is also mine.					
When someone praises my company, I feel like he is praising me.					
I would feel embarrassed, if my company was criticized by media due to something.					

Note: According to the actual situation of your company and your personal, please mark "√" in the appropriate spaces.

Research design

3. Model

$$NCSKEW_{i,t+1}(DUVOL_{i,t+1})=\alpha_0+\alpha_1 CEO\_OI_{i,t}+\alpha_2 DTURN_{i,t}+\alpha_3 NCSKEW_{i,t}(DUVOL_{i,t})+\alpha_4 SIGMA_{i,t}+\alpha_5 RET_{i,t}+\alpha_6 BM_{i,t}+\alpha_7 LEV_{i,t}+\alpha_8 ROA_{i,t}+\alpha_9 ABACC_{i,t}+\alpha_{10} SOE_{i,t}+\text{INDUSTRY}+\text{YEAR}+\varepsilon \quad (4)$$

$$NCSKEW_{i,t+1}(DUVOL_{i,t+1})=\alpha_0+\alpha_1 CEO\_OI_{i,t}+\alpha_2 LOSS_{i,t}+\alpha_3 CEO\_OI_{i,t}*LOSS_{i,t}+\alpha_4 DTURN_{i,t}+\alpha_5 NCSKEW_{i,t}(DUVOL_{i,t})+\alpha_6 SIGMA_{i,t}+\alpha_7 RET_{i,t}+\alpha_8 BM_{i,t}+\alpha_9 LEV_{i,t}+\alpha_{10} ROA_{i,t}+\alpha_{11} ABACC_{i,t}+\alpha_{12} SOE_{i,t}+\text{INDUSTRY}+\text{YEAR}+\varepsilon \quad (5)$$

Results

1. Descriptive statistics and correlation analysis

Table 1: Descriptive statistics

Variable	N	Mean	Median	Std. Dev.	Min	Max
$NCSKEW_{i,t+1}$	3,195	-0.335	-0.332	0.680	-2.376	1.541
$DUVOL_{i,t+1}$	3,195	-0.232	-0.226	0.474	-1.409	1.014
$CEO\_OI_{i,t}$	3,195	4.265	4.333	0.644	1.000	5.000
$LOSS_{i,t}$	3,195	0.092	0.000	0.290	0.000	1.000

Table 2: Correlation analysis

Variable	[1]	[2]	[3]
$NCSKEW_{i,t+1}$	1		
$DUVOL_{i,t+1}$	0.818***	1	
$CEO\_OI_{i,t}$	0.056***	0.038**	1
$LOSS_{i,t}$	0.026	0.027	-0.025

Results

2. Regression Results

Table 3: The effect of CEO organizational identification on stock price crash risk (test of hypothesis 1)

	D.V. $NCSKEW_{i,t+1}$		D.V. $DUVOL_{i,t+1}$	
	[1]	[2]	[3]	[4]
$CEO\_OI_{i,t}$	0.060***	0.059***	0.028**	0.030**
	(3.22)	(3.23)	(2.14)	(2.28)
$DTURN_{i,t}$		-0.063		0.006
		(-0.95)		(0.13)
$NCSKEW_{i,t}$		0.013		
		(0.73)		
$DUVOL_{i,t}$				0.005
				(0.27)
$SIGMA_{i,t}$		-1.430*		-0.256
		(-1.91)		(-0.50)
$RET_{i,t}$		5.116***		-0.925
		(2.85)		(-0.74)
$SIZE_{i,t}$		-0.059***		-0.041***
		(-3.59)		(-3.58)
$BM_{i,t}$		-0.025		-0.000
		(-0.78)		(-0.01)
$LEV_{i,t}$		0.222***		0.127**
		(2.80)		(2.22)
$ROA_{i,t}$		-0.090		-0.115
		(-0.31)		(-0.56)
$ABACC_{i,t}$		0.037		0.021
		(1.55)		(1.26)
$SOE_{i,t}$		-0.083***		-0.042**
		(-3.03)		(-2.12)
$CONSTANT$	-0.335***	1.193***	-0.232***	0.751***
	(-27.77)	(3.37)	(-27.78)	(2.98)
Industry FE	NO	YES	NO	YES
Year FE	NO	YES	NO	YES
Adjusted-R^2	0.003	0.060	0.001	0.082
N	3,195	3,195	3,195	3,195

Note: * p< 0.1; ** p < 0.05; *** p < 0.01. t-statistics in the parentheses are adjusted for heteroscedasticity and robust standard errors are clustered by firm.

Results

2. Regression Results

Table 4: The effect of CEO organizational identification on stock price crash risk based on the perspective of firms' financial losses (test of hypothesis 2)

	D.V. $NCSKEW_{i,t+1}$	D.V. $DUVOL_{i,t+1}$
	[1]	[2]
$CEO\_OI_{i,t}$	0.047**	0.022
	(2.42)	(1.64)
$LOSS_{i,t}$	0.099**	0.081**
	(2.01)	(2.24)
$CEO\_OI_{i,t}$ *$LOSS_{i,t}$	0.112**	0.073*
	(2.03)	(1.67)
$DTURN_{i,t}$	-0.071	0.000
	(-1.06)	(0.01)
$NCSKEW_{i,t}$	0.013	
	(0.75)	
$DUVOL_{i,t}$		0.005
		(0.29)
$SIGMA_{i,t}$	-1.302*	-0.160
	(-1.73)	(-0.31)
$RET_{i,t}$	4.995***	-1.005
	(2.77)	(-0.80)
$SIZE_{i,t}$	-0.059***	-0.041***
	(-3.59)	(-3.57)
$BM_{i,t}$	-0.020	0.003
	(-0.65)	(0.15)
$LEV_{i,t}$	0.226***	0.129**
	(2.86)	(2.27)
$ROA_{i,t}$	0.287	0.196
	(0.83)	(0.82)
$ABACC_{i,t}$	0.034	0.019
	(1.42)	(1.12)
$SOE_{i,t}$	-0.084***	-0.043**
	(-3.10)	(-2.18)
$CONSTANT$	1.154***	0.718***
	(3.26)	(2.84)
Industry FE	YES	YES
Year FE	YES	YES
Adjusted-R^2	0.062	0.084
N	3,195	3,195

Note: * p< 0.1; ** p < 0.05; *** p < 0.01. t-statistics in the parentheses are adjusted for heteroscedasticity and robust standard errors

Results

3. Additional test

Table 5: The empirical results after considering the omitted effect of CEOs' demographic traits

	D.V. $NCSKEW_{i,t+1}$		D.V. $DUVOL_{i,t+1}$	
	[1]	[2]	[3]	[4]
$CEO\_OI_{i,t}$	0.059***	0.047**	0.029**	0.022
	(3.24)	(2.43)	(2.27)	(1.62)
$LOSS_{i,t}$		0.100**		0.082**
		(2.02)		(2.26)
$CEO\_OI_{i,t}$ *$LOSS_{i,t}$		0.113**		0.073*
		(2.03)		(1.68)
$CEO\_MALE_{i,t}$	0.016	0.015	-0.005	-0.005
	(0.31)	(0.31)	(-0.13)	(-0.14)
$CEO\_EDU_{i,t}$	0.007	0.007	0.002	0.002
	(0.47)	(0.45)	(0.16)	(0.15)
$CEO\_AGE_{i,t}$	0.001	0.001	0.001	0.001
	(0.48)	(0.62)	(0.51)	(0.66)
$CEO\_TENURE_{i,t}$	-0.002	-0.002	-0.001	-0.001
	(-0.48)	(-0.48)	(-0.47)	(-0.48)
CONSTANT	1.130***	1.075***	0.719***	0.675**
	(3.03)	(2.89)	(2.69)	(2.52)
Control variables	YES	YES	YES	YES
Industry FE & Year FE	YES	YES	YES	YES
Adjusted-R^2	0.059	0.061	0.081	0.083
N	3,195	3,195	3,195	3,195

Note: * p< 0.1; ** p < 0.05; *** p < 0.01. t-statistics in the parentheses are adjusted for heteroscedasticity and robust standard errors are clustered by firm.

Table 6: The empirical results after considering the omitted effect of corporate governance

	D.V. $NCSKEW_{i,t+1}$		D.V. $DUVOL_{i,t+1}$	
	[1]	[2]	[3]	[4]
$CEO\_OI_{i,t}$	0.058***	0.045**	0.029**	0.020
	(3.12)	(2.31)	(2.18)	(1.53)
$LOSS_{i,t}$		0.100**		0.080**
		(2.03)		(2.22)
$CEO\_OI_{i,t}$ *$LOSS_{i,t}$		0.115**		0.074*
		(2.06)		(1.70)
$DUAL_{i,t}$	0.045	0.048*	0.021	0.023
	(1.63)	(1.74)	(1.09)	(1.20)
$BDSIZE_{i,t}$	0.010	0.010	0.016	0.017
	(0.12)	(0.13)	(0.29)	(0.29)
$IDR_{i,t}$	0.284	0.269	0.288	0.276
	(1.07)	(1.02)	(1.57)	(1.51)
$LARGESHAH_{i,t}$	-0.043	-0.046	-0.030	-0.032
	(-0.56)	(-0.61)	(-0.56)	(-0.61)
CONSTANT	1.005**	0.966**	0.581**	0.551*
	(2.54)	(2.45)	(2.02)	(1.91)
Control variables	YES	YES	YES	YES
Industry FE & Year FE	YES	YES	YES	YES
Adjusted-R^2	0.061	0.062	0.082	0.084
N	3,195	3,195	3,195	3,195

Note: * p< 0.1; ** p < 0.05; *** p < 0.01. t-statistics in the parentheses are adjusted for heteroscedasticity and robust standard errors are clustered by firm.

Results

3. Additional test

Table 7: The empirical results after adopting the fixed effect model

	D.V. $NCSKEW_{i,t+1}$		D.V. $DUVOL_{i,t+1}$	
	[1]	[2]	[3]	[4]
$CEO\_OI_{i,t}$	0.057***	0.044**	0.029**	0.021
	(3.07)	(2.24)	(2.22)	(1.58)
$LOSS_{i,t}$		0.093*		0.080**
		(1.91)		(2.20)
$CEO\_OI_{i,t}$ *$LOSS_{i,t}$		0.119**		0.074*
		(2.16)		(1.71)
$FIXED\_NCSKEW_{i,t}$	0.081***	0.082***		
	(2.60)	(2.62)		
$FIXED\_DUVOL_{i,t}$			0.049	0.049
			(1.50)	(1.49)
$CONSTANT$	1.234***	1.197***	0.756***	0.724***
	(3.47)	(3.37)	(2.99)	(2.86)
Control variables	YES	YES	YES	YES
Industry FE & Year FE	YES	YES	YES	YES
Adjusted-R^2	0.062	0.064	0.082	0.084
N	3,195	3,195	3,195	3,195

Note: * p< 0.1; ** p < 0.05; *** p < 0.01. t-statistics in the parentheses are adjusted for heteroscedasticity and robust standard errors are clustered by firm.

Table 8: The empirical results after excluding firms with special treatments

	D.V. $NCSKEW_{i,t+1}$		D.V. $DUVOL_{i,t+1}$	
	[1]	[2]	[3]	[4]
$CEO\_OI_{i,t}$	0.058***	0.046**	0.028**	0.020
	(3.16)	(2.36)	(2.17)	(1.54)
$LOSS_{i,t}$		0.108**		0.084**
		(2.17)		(2.30)
$CEO\_OI_{i,t}$ *$LOSS_{i,t}$		0.113**		0.073*
		(2.03)		(1.66)
$CONSTANT$	1.178***	1.135***	0.697***	0.664***
	(3.28)	(3.16)	(2.75)	(2.61)
Control variables	YES	YES	YES	YES
Industry FE & Year FE	YES	YES	YES	YES
Adjusted-R^2	0.059	0.061	0.081	0.083
N	3,166	3,166	3,166	3,166

Note: * p< 0.1; ** p < 0.05; *** p < 0.01. t-statistics in the parentheses are adjusted for heteroscedasticity and robust standard errors are clustered by firm.

Conclusion

We find that ***CEO organizational identification accelerates stock price crash risk in China's weaker institutional environment*** and that ***this relationship is more pronounced in firms with serious financial distres***s. Furthermore, these findings are robust and supported when controlling endogeneity and other robustness problems.

The above evidence shows *that CEO organizational identification is to some extent limited by China's weaker institutional environment and that this increases the likelihood of firm-level bad news withholding*.

This study provides beneficial implications for countries with weaker institutional environments by showing that it is necessary to ***improve the institutional environment to strengthen CEO responsibility for corporate financial information disclosure***. Furthermore, this study shows that CEO organizational identification plays a crucial role in corporate finance and governance, and it empirically extends the research of Akerlof and Kranton (2000; 2005; 2008; 2010).

Thanks for your attention!

It is a great welcome to give us some suggestions for it!