CEO Power and Risk-taking: Based on the Different Ownership Backgrounds

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Abstract: The paper conducts some empirical studies on the relationship between CEO power and risk-taking, and makes a further check on corporate risk-taking varies with the different ownership backgrounds. The empirical results show that the more power the CEO has, the higher risk-taking the firms will face; and the effect of CEO power on corporate risk-taking in the state-owned firms than that of in the non-state owned firms. These researches provide some theoretical basis on the effective restrict of CEO power's centralization, and some reasonable controls on corporate risk-taking for the listed corporates, especially in the state-owned firms.

1. Introduction

Under the modern enterprise system of the separation of operating right and ownership, the competition for the decision-making power between the management and the board of directors has been an important issue of corporate governance. The board of directors seems to have the absolute power on the decision-making, supervision and appointment of management, but in fact the control rights and the enterprise strategic decision are owned by the management especially by the CEOs who are at the top of the organizational structure. Because of the corporate governance defects, such as the asymmetric information, free rider of the board of directors and CEO duality, which results in the transfer of corporate control rights to the CEOs naturally. The internal governance structure of the highly centralized power will affect the volatility of the corporate performance, and then affect the level of the company's risk-taking.

At present, the professional manager market of China is not perfect. Especially in the state-owned listed companies, the coexistence of "dominant share" and "owner absence" leads that CEO power often overrides the corporate governance mechanism, and the CEO's arbitrariness is serious. Therefore, it can not only enrich the existing theoretical results, but also has the important practical value on discussing the relationship between CEO power and corporate risk-taking under the background of the especial corporate governance mechanism of China.

Many scholars have had an attention to the influence of CEO power centralization on corporate governance and drawn some conclusions. Although there is some research on the relationship between CEO power and corporate risk-taking, the conclusions are not yet unified (Adams, 2005; Lewellyn and Muller, 2012; Mishra, 2011). Basing on the analysis, our will focus on the following questions: (a) What is the relationship between the excessive concentration of CEO power and the risk-taking? (b) Is there any difference in the influence of CEO power on corporate risk-taking under different ownership backgrounds?

The remainder of the paper is organized as follows: Section 2 reviews prior literatures and develops the research hypotheses. Section 3 details the sample selection process and research methodology. Section 4 presents and discusses the empirical results, and Section 5 concludes.

2. Literature Review and Hypothesis Development

In early studies, some scholars found that the company's decision-making is often the result of compromise to various opinions when the decision-making power is scattered, due to the differences in personal ability and the information asymmetry. This decision-making has the inherent

characteristic of avoiding risks, so it can strengthen the robustness of the company's operation and smooth the fluctuation of performance. However, some Chinese scholars, Quan xiaofeng and Wu shinong (2010), Yu minggui et al. (2013), Liu xing et al. (2014), Liu xin and Xue youzhi (2016) found that CEO power concentration will strengthen the CEOs' opportunism behavior, they will use the power of the decision-making and management to seek personal interests and ignore the risk of the company may face. On this perspective, the CEO power and the risk-taking of listed companies may have a positive correlation. Zhang sanbao and Zhang zhixue (2012) scored the management autonomy of Chinese enterprises by questionnaire survey, and proved that there was a positive correlation between CEO management autonomy and enterprise risk-taking. Li haixia and Wang zhenshan (2015) conducted a comparative study on the relationship between them from the perspective of "behavioral decision theory" and "agent avoidance hypothesis", and found that the empirical evidence of listed companies in China is more consistent with the behavioral decision theory, that is, the higher the degree of CEO power concentration, the higher the level of corporate risk-taking.

Further, in China most of the listed companies were restructured by state-owned enterprises. The duality of chairman and general man of many state-owned enterprises weakens the restrictions on board of directors, and the supervisory role is more formalized. Li and Tang (2010) studied the listed companies in Shanghai and Shenzhen Stock Exchanges, and found that the CEO power concentration of state-owned listed companies is higher compared with non-state-owned listed companies. Based on the analysis above, it can be inferred that compared with non-state-owned listed companies, state-controlled listed companies have more serious agency problems, and CEO's decisions will have a more significant impact on the corporate risk-taking.

Based on the analysis above, the research hypotheses are specified as follows:

H1: Under other conditions unchanged, the greater the CEO's power, the higher the risk-taking level of the company.

H2: Compared with non-state-owned listed companies, the influence of CEO power on corporate risk-taking in state-owned listed companies will be more significant.

3. Date and Methodology

3.1 Sample and Data

Our initial sample begins with A-share companies listed on Shenzhen Stock Exchange before December 31, 2011, which the sample period is during 2003-2013.We exclude the financial industry, insurance industry and the ST companies. To mitigate the undue influence of univariate outliers, we also exclude some sample observations: they conclude that the company has no CEO during the period of observation, that the company does not last three consecutive years, that the actual controller of the company has changed and that some data is missing. Our final sample consists of an unbalanced panel that comprises 1079 companies and 6106 CEO-year observations. We collect the data of CEO power from the "executive personal information" of CSMAR database. We also manually collect the information on CEO from proxy statements and some internet sources. We obtain company financial data from CSMAR, Wind database and so on.

3.2 Variable Definition

(1) CEO power

Finkelstein (1992) argues that the most important task of managers is to deal with the uncertainty. It has two sides. One is the uncertainty of the internal environment that caused by the game between the board and other executives, the other is the external uncertainty determined by the institutional environment and company's business objectives. These two kinds of uncertainties make the power naturally centralized to the management or CEO. Finkelstein (1992) not only clarified the source of CEO power, but also established a CEO power model, in which he divided CEO power into Position Power, Ownership Power, Prestige Power and Position-stability Power. This provides a model for the measurement of CEO power and has been widely used in subsequent related research. Based on

the power model and the practice of corporate governance in China, we include eight characteristics of CEOs that can determine the level of CEO power. The details can be seen in table 1.

Table.1. Dimensional Index of CEO Power

First-level indicator	Second-level indicator	Third-level indicator	Definition
CEO Power	position power	Double	When the CEO has no concurrent position, Double=0; When the CEO is also a director, Double=1; When the CEO is also the vice chairman, Double=2; When the CEO is also the chairman, Double=3
	Owner power	Droit	When the CEO owns the company's equity Droit=1, and zero otherwise
		Creator	When the CEO is the founder of the company Creator=1; and zero otherwise
	Expert power	Gradu	When the CEO has a PhD Gradu=1, and zero otherwise
		Rank	When the CEO has a senior title Rank=1, and zero otherwise
		Ptime	When the CEO works part-time in other companies Ptime=1, and zero otherwise
	Decision-making power	Ind	When the proportion of independent directors is lower than the industry mean value Ind=1, and zero otherwise
		Ins	When the Shareholding ratio of institutional investors is lower than the industry mean value Ins=1, and zero otherwise

(2) Corporate risk-taking

The "performance volatility" not only reflects the stability of the company's profitability, but also donates the level of risk faced by the company, so it has been used by many scholars to measure the risk-taking of the company (Adams et al., 2005; Quan Xiaofeng, Wu Shinong, 2010). Adams et al. (2005) pointed out that performance volatility described the degree at which corporate performance deviates from its normal value. It can be divided into "horizontal performance volatility" and "vertical performance volatility" at the dimensions. Here, the horizontal performance volatility refers to the performance deviation degree of the mean that of the comparative range, while the vertical volatility of performance describes the dispersion degree of the mean. Quan Xiaofeng and Wu Shinong (2010), Su Kun (2015) have used the financial performance indicators ROA and Tobin's Q to calculate horizontal performance volatility and vertical performance volatility. We calculate the horizontal performance volatility and vertical performance volatility only by ROA.

(a) Horizontal performance volatility——horizontal risk-taking

Firstly, we regress ROA and the variables which might affect ROA by the ordinary least squares (OLS) across the industry and year, then can obtain the residual ε. The absolute value │ε_ROA│ is just the horizontal fluctuation of company performance. The larger the │ε_ROA│ is, the higher the horizontal risk-taking level of the company will be.

(b) Vertical performance volatility——vertical risk-taking

We calculate the standard deviation of ROA of sample companies in the same industry in every rolling three years, marked as $\sigma(ROA)$. The larger $\sigma(ROA)$ is, the greater the dispersion of the ROA mean is. We adjust the ROA of sample companies in each year according to the average of the year and industry. The process of the calculation is as follows:

$$\sigma(ROA) = \sqrt{\frac{1}{N-1}\sum_{t=1}^{N}(ADJ\_ROA_{it} - \frac{1}{N}\sum_{t=1}^{N}ADJ\_ROA_{it})^2} \qquad N=3$$

$$ADJ\_ROA_{it} = \frac{NFrofit_{it}}{ASSETS_{it}} - \frac{1}{X}\sum_{k=1}^{x}\frac{NFrofit_{kt}}{ASSETS_{kt}} \qquad (1)$$

Where the subscript i denotes firm, t denotes year (values from 1 to 3), x denotes the number of firms in the same industry and k denotes the enterprise k.

(3) Control variables

We also controls the other factors that affect the risk-taking, including the company size(*Size*), asset-liability ratio(*Debt*), cash flow ratio(*CF*), fixed assets ratio(*FX*), profitability(*ROA, ROE*), ownership concentration(*Csr*), board size(*Board*), company age(*Age*) and the identity of the controller(*SOE*), *Industry* and *Year*. Due to limited space, the variable definitions can not be shown.

3.3 Model Setting

(1) Multivariate analysis between CEO power and corporate risk-taking

(a) CEO power and corporate horizontal risk-taking

$$ROA_{it} = \alpha_0 + \alpha_1 Power_{it} + \alpha_2 CF_{it} + \alpha_3 Size_{it} + \alpha_4 Debt_{it} + \alpha_5 Csr_{it}$$
$$+ \alpha_6 Age_{it} + \alpha_7 Board_{it} + \alpha_8 SOE_{it} + \varepsilon_{it} \qquad (2)$$

$$\left| \varepsilon\_ROA \right|_{it} = \beta_0 + \beta_1 Power_{it} + \beta_2 CF_{it} + \beta_3 Size_{it} + \beta_4 Debt_{it} + \beta_5 ROA_{it} + \beta_6 Csr_{it}$$
$$+ \beta_7 Age_{it} + \beta_8 Board_{it} + \sum_{m=1}^{11} \beta_{8+m} Industry + \sum_{j=1}^{10} \beta_{19+j} Year + \mu_{it} \qquad (3)$$

(b) CEO power and corporate vertical risk-taking

$$\sigma(ROA)_{it} = \gamma_0 + \gamma_1 Power_{it} + \gamma_2 CF_{it} + \gamma_3 Debt_{it} + \gamma_4 Size_{it} + \gamma_5 ROA_{it} + \gamma_6 Csr_{it} + \gamma_7 Age_{it}$$
$$+ \gamma_8 Board_{it} + \sum_{m=1}^{11} \gamma_{8+m} Industry + \sum_{j=1}^{9} \beta_{19+j} Year + \varphi_{it} \qquad (4)$$

(2) CEO power and corporate risk-taking under different ownership backgrounds

To test whether CEO power has different effects on corporate risk-taking under different controllers, the power*SOE is put into the models (3) and (4). Our model is as following model (5):

$$\left| \varepsilon\_ROA \right|_{it} or\ \sigma(ROA)_{it} = \eta_0 + \eta_1 Power_{it} + \eta_2 Power_{it} * SOE_{it} + \eta_3 CF_{it} + \eta_4 Size_{it} + \eta_5 Debt_{it}$$
$$+ \eta_6 ROA_{it} + \eta_7 Csr_{it} + \eta_8 Age_{it} + \eta_9 Board_{it} + \sum_{m=1}^{11} \eta_{9+m} Industry + \sum_{j=1}^{10} \eta_{20+j} Year + \zeta_{it} \qquad (5)$$

3.4 Descriptive Statistics

Table.2. Summary Statistics

Varialble	Mean	Min	Med	Max	SD	Num
$\left\| \varepsilon\_ROA \right\|$	0.0397	0	0.0282	0.5386	0.0409	6106
$\sigma(ROA)$	0.0210	0.0012	0.0141	0.1198	0.0213	3913
Power	4.1387	0	4	8	1.7053	6106
CF	0.0454	-0.3935	0.0455	0.4300	0.0773	6106
FX	0.2404	0	0.2095	0.9204	0.1466	6106
Size	21.5012	19.0208	21.3358	26.8954	1.0296	6106
Debt	0.3860	0.0071	0.3822	0.9444	0.2065	6106
Age	8.1959	5.9081	8.2919	9.4259	0.5274	6106
Board	8.9931	3	9	18	1.8439	6106
ROA	0.0498	-0.5069	0.0459	0.3897	0.0495	6106
ROE	0.0788	-2.3633	0.0749	0.7505	0.0942	6106
Csr	0.3639	0.0362	0.3516	0.8649	1.4819	6106
SOE	0.3736	0	0	1	0.4838	6106

In order to avoid the deviation caused by outliers on the regression results, we winsorized all continuous variables at 1 and 99 percent. Pearson test result shows that the correlation coefficients between the variables were small, and the VIF and the mean VIF were significantly less than 10.

4. Empirical analysis

4.1 Empirical Analysis of CEO Power and Corporate Risk-taking

In column (1), (2) and (3) of table 3, we run our main model using $|\varepsilon\_ROA|$ as our horizontal corporate risk-taking. In column (4), (5) and (6), $\sigma(ROA)$ is our vertical corporate risk-taking. Considering the possible endogenous problems of CEO power and corporate risk-taking, regression (2) and regression (5) were re-tested separately by using one lag value of *Power* and the mean value of each observation period as instrumental variables. At the same time, in order to prevent possible problems such as heteroscedasticity or autocorrelation, all regression results were corrected by using "robust standard error" according to company clustering.

Table.3. CEO Power and Corporate Risk-taking

	$\lvert\varepsilon\_ROA\rvert$			$\sigma(ROA)$		
	(1)	(2)	(3)	(4)	(5)	(6)
	FE	IV (FE)	FE	FE	IV (FE)	FE
C	0.0127	-0.1254***	0.0240	-0.1962**	-0.1906**	-0.2014*(-1.91)
	(0.12)	[-2.63]	(0.23)	(-1.87)	[-1.81]	
Power	0.0022**	0.0027**	0.0004	0.0030***	0.0046***	0.0044***(3.11)
	(2.08)	[2.31]	(0.33)	(2.88)	[3.00]	
Power*SOE			0.0050**			-0.0030
			(2.28)			(-1.46)
CF	0.0976***	0.1281***	0.0982***	0.0156	0.0146	0.0151(1.02)
	(5.94)	[7.44]	(5.97)	(1.05)	[0.98]	
Size	0.0014	0.0093***	0.0010	0.0096**	0.0091**	0.0098***(2.62)
	(0.37)	[4.69]	(0.26)	(2.58)	[2.44]	
Debt	0.0361**	0.0012	0.0370***	0.0109	0.0115	0.0104(0.76)
	(2.55)	[0.12]	(2.61)	(0.79)	[0.83]	
ROA	-0.5340***	-0.4494***	-0.5328***	-0.1796***	-0.1763***	-0.1798***(-6.26)
	(-17.69)	[-15.75]	(-17.65)	(-6.25)	[-6.12]	
Csr	0.0001	0.0067	0.0099	-0.0004*	-0.0004*	-0.0004*(-1.77)
	(0.48)	[0.63]	(0.46)	(-1.81)	[-1.82]	
Age	0.0037	0.0002	0.0032	0.0092	0.0089	0.0095
	(0.40)	[0.07]	(0.35)	(0.94)	[0.90]	(0.96)
Board	-0.0016	-0.0012	-0.0015	-0.0031***	-0.0032***	-0.0033***(-3.18)
	(-1.35)	[-1.43]	(-1.29)	(-3.04)	[-3.10]	
Industry/Year	-	-	-	-	-	-
N	6106	4996	6106	3913	3913	3913
Within-R^2/Adjust-R^2	0.1790	0.1889	0.1799	0.1341	0.1333	0.1348

Table 3 presents our results. In column (1) and (2), the coefficients associated with *Power* are positive and are significantly at the 5% level. And at the same time, the coefficients in column (4) and (5) are also positive and are significantly at the 1% level. These suggest that CEO power is positively related to the corporate risk-taking. More precisely, the coefficient associated with the *Power* is 0.0022(0.0027). Descriptive statistics presented in table 2 report that the standard deviation of *Power* is 1.7053. Therefore, the regression coefficient implies that risk-taking is increased by 0.37(0.46) percentage points for each standard deviation unit-increase in the CEO power. That is to say, the greater the power of the CEO has, the higher the horizontal and vertical volatility of the company's performance will be, and the higher risk-taking the company will face, which supports hypothesis 1. Furthermore, in the column (3), the coefficient of *power*SOE* is significantly positive, which means that compared with non-state-owned listed companies, the CEO power of state-owned listed companies has a more significant impact on corporate risk-taking. Hypothesis 2 is proved.

Coefficients associated with control variables are mostly in line with what we expect. The *CF* and *Debt* are positively linked to corporate risk-taking, whereas *ROA* and *Board* decrease corporate risk-taking.

4.2 Robustness Tests

In order to ensure the reliability of the conclusions, we make the following tests: (1) Re-measurement of CEO power. There may be some problems such as information duplication or different information intensity of comprehensive indicators, we only uses the variable of *double* to measure CEO power, re-examines the relationship between CEO power and corporate risk-taking. The test result confirms the positive relationship between them. That supports the hypothesis 1 again; (2) Re-measuring corporate risk-taking. We use ROE instead of ROA to recalculate the company's horizontal and vertical risk-taking, and regress the relevant models. The conclusion has not changed substantially. (3) Changing the way of choice on explanatory and control variables. For fear of the possible deviation of regression results caused by different selection methods, we choose the average values of explanatory variables and control variables in each observation period to regress the relevant models, and the research conclusions remain unchanged.

5. Conclusion

Based on the unbalanced panel data of 1079 companies listed on Shenzhen Stock Exchange before December 31, 2011, we studies the relationship and mechanism among CEO power and risk-taking. We find that the internal governance problem of CEO's highly centralized power derived from the internal and external conditions of corporate governance weakening and institutional transformation has seriously affected company's major decision-making, and put the company in a higher operational risk. Compared with non-state-owned listed companies, the positive relationship of CEO power on corporate risk-taking of state-owned listed companies is more significant.

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