

How Do Independent Directors View CEO Pay Disparity in China?

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Abstract

Given the vital role of independent directors in determination of executives' compensation, we explore how independent directors view the CEO pay disparity. Using the data of all companies listed on the Shenzhen and Shanghai stock exchanges for the period 2005 to 2015, we find that the proportion of independent directors on the board is negatively associated with the extent to which executives' pay is dispersed. This finding suggests that independent directors view the dispersion of the CEO's and other executive directors' pay from the managerial power theory perspective rather than from the tournament theory.

Keywords: CEO pay disparity, CEO tenure, China, independent directors, managerial power, and state owned firms, tournament incentives.

1. Introduction

Pay disparity among executives has gained significant attention from labor economists and management researchers because it influences organizations' and individuals' productivity. The literature holds varying views about the dispersion of executive pay. On one hand, the tournament view posits that executives are contestants who compete for promotion and rewards (Rosen, 1986) and that the resulting pay disparity between winners and the remaining contestants motivates the executives to increase their effort to win the prize. Thus, the firm may benefit from these employees collective efforts who are working harder to win the tournament prize (e.g., Carpenter and Sanders, 2002). On the

other hand, managerial power theory argues that pay disparity between the CEO and other executives is a reflection of the CEO's power over his or her pay-setting process and is a product of agency issues (Chun, 2019; Usman et al., 2018b; Bebchuk et al., 2011; Finkelstein, 1992). According to this view, the powerful CEO extracts rents from the owners by grabbing the largest slice of the executives' team's compensation (Bebchuk et al., 2011). Behavioral theorists view a larger pay disparity as a demotivating factor that is associated with counterproductive organizational outcomes like employee turnover and poor firm performance (Wade et al., 2006; Kolev et al., 2017).

In this study we investigate how independent directors view the pay disparity between the CEO and executive directors. Boards of directors design the compensation contracts of executives, and independent directors usually work more effectively in the interests of the shareholders than other directors do in designing optimal compensation contracts for the CEO and other executives. Therefore, investigating independent directors' perspective on the dispersion of executive pay will help to enlighten this inconclusive debate on the subject. We advance two competing hypotheses, each of which explain how independent directors view the pay disparity between the CEO and executive directors: the tournament view and the managerial power view. If the independent directors see pay disparity from the tournament view, then we expect a positive relationship between board independence and CEO pay disparity. Tournament theory views the dispersion of executive pay as a competition (or tournament) among the executives, which benefits the firm. However, if the independent directors view the pay disparity from the perspective of managerial power theory, then we expect a negative relationship between board independence and the dispersion of executive pay. Excessive managerial power is harmful to the company (Bebchuk et al., 2011) because, if employees perceive that a large disparity in pay is unfair or inequitable, they will lose motivation and reduce their effort (Wade et al., 2006). We expect that the direction of the association between board independence and the dispersion of executive pay reflects independent directors' view about how pay should be dispersed.

This study contributes toward the literature by first time investigating independent directors' views about the dispersion of executives' pay. Using data from a large sample of all companies listed on the Shenzhen and Shanghai stock exchanges for the period 2005 to 2015, we find reliable evidence that board independence is negatively associated with executive pay dispersion, suggesting that independent directors view the dispersion of pay among the CEO and other executives from the perspective of managerial power theory. Thus, our results contribute to the managerial power theory's proposition suggested by (Bebchuk et al., 2002). Our results also contribute to the corporate governance literature by providing empirical evidence that independent boards are effective in controlling the CEO's power over his or her pay-setting process.

2. Methodology

2.1 Sample

We obtained our data from China's Stock Market and Accounting Research (CSMAR) database for all A-share companies listed on the Shenzhen and Shanghai stock exchanges from 2005 to 2015. After deleting firm-years with missing data, our final sample consists of 15,873 firm-year observations from 2,625 unique firms (unbalanced panel data).

2.2 Measurement of Variables

Following previous studies, we measure CEO-executive pay disparity as the logarithm of total CEO compensation minus the average pay of other executive directors (e.g., He and Fang, 2016). We measure board independence (*Independent*) as the proportion of independent directors on the board. To isolate the influence of independent directors on pay disparity, we include control variables related to board structure, ownership structure, and firm economic conditions (e.g., He and Fang, 2016). We include board size (*BS*); CEO duality (*Dual*); CEO tenure (*Tenure*); state-owned enterprises (*SOE*); firm size (*FS*); financial leverage (*FL*); firm growth (*FG*); firm profit (*ROA*); and book to market ratio (*BTMR*). In addition, we also included industry and year dummies in the regression models to control the variation across industries and years. For a detailed description of variables please see Table 1.

Table 1: Measurement of Variables

Variables	Description
<i>Pay Disparity</i>	Defined as logarithm of total CEO compensation minus the average pay of other executive directors.
<i>Independent</i>	Defined as the proportion of independent directors on the board.
<i>BS</i>	Defined as the number of directors on the board.
<i>Dual</i>	Defined as dummy variable which equals 1 if the CEO is also the chairperson of the board, and 0 otherwise.
<i>Tenure</i>	Defined as the number of years the CEO worked as CEO of the company
<i>SOE</i>	Defined as dummy variable which equals 1 if the firm is owned by the state, and 0 otherwise.
<i>FS</i>	Defined as the logarithm of firms' total sales.
<i>FL</i>	Defined as the ratio of total debt to total assets.
<i>FG</i>	Defined as the change in total assets.
<i>ROA</i>	Defined as return on assets.
<i>BTMR</i>	Defined as ratio of book value of shareholders' equity to shares' market value.

2.3 Empirical Model

We first use the ordinary least square regression (*OLS*) to investigate the influence of independent directors on the disparity in executive pay. Because our data have several years' observations from each firm, the OLS assumption of independent observations may be violated, so we use OLS regression clustering standard errors by company (*Cluster-OLS*). Another key concern with our pooled cross-sectional OLS regression is omission of significant explanatory variables, which can lead to biased estimations. These unobserved variables may be correlated with the pay disparity between the executives. To resolve this issue of unobserved heterogeneity, we apply a fixed-effect panel data regression (*Fixed-effect*). To test the causal relationship between an independent board and the level of disparity in executive pay, we estimate the following equation.

$$Pay_Disparity_{it} = \beta_0 + \beta_1 Independent_{it} + \sum_{i=1}^n \beta_n Controls_{it} + \varepsilon_{it} \quad (\text{Eq. 1})$$

2.4 Endogeneity

Our OLS results may also be biased because of an endogeneity issue. To resolve the problem of endogeneity, we use two statistical models. First, we use two-stage least squares regression (2-SLS), which is a standard remedy for the endogeneity issue. The 2-SLS regression uses instrument variables that probably satisfy the exclusion restriction (i.e., correlated with the decision to have independent directors but not correlated with disparity in executive pay). Following the spirit of Usman et al. (2018a, 2018b) the instrument variables we use are a one-year lagged measure of the proportion of independent directors and the industry average of independent directors.

Second, it may be the case that a high or low disparity in executive pay is due to the firms' other characteristics rather than due to board independence. Therefore, following the spirit of previous literature on board governance (e.g., Faccio et al., 2016; Usman et al., 2018a, 2018b) we use propensity score matching method (*PSM*) to resolve this problem. Using this method, we can control for companies with low proportion of independent directors on the board that may have no observable differences in characteristics (such as board structure, ownership structure and company economic condition) from those companies with high proportion of independent directors. Therefore, firms in each pair are nearly similar to each other except for one variable (proportion of independent directors on the board). Matching is based on the probability that the firms' having a greater proportion of independent directors than the sample's median based on all control variables (board structure (*BS*, *Dual*, and *Tenure*), ownership structure (*SOE*), and firm economic condition (*FS*, *FL*, *FG*, *ROA*, *BTMR*)).

3. Results

Table 2 shows the descriptive statistics. The mean of annual CEO compensation is 534,564 RMB, while the mean of the annual average executive directors' salary is 260,306 RMB. The average proportion of independent directors' on the Chinese companies' boards is 0.37, with a standard deviation of 0.07. Table 3 represents the correlation between all the variables. The correlation coefficient between all variables do not exceed from 0.50, which indicates that there is no issue of multicollinearity.

Table 2: Descriptive Statistics

	Mean	Standard-Deviation	Minimum	Maximum
Annual CEO pay (RMB)	534564.00	630098.00	0.00	16800000.0
Annual average executive directors pay (RMB)	260306.00	301612.00	0.00	6076427.00
<i>Pay_Disparity</i>	12.08	1.15	-3.02	16.37
<i>Independent</i>	0.37	0.07	0.00	0.80
<i>BS</i>	10.01	2.51	4.00	26.00
<i>Dual</i>	0.24	0.43	0.00	1.00
<i>Tenure</i>	2.71	2.61	0.00	19.00
<i>SOE</i>	0.48	0.50	0.00	1.00
<i>FS</i>	21.04	1.59	7.12	28.69
<i>FL</i>	0.54	2.00	0.01	96.96
<i>FG</i>	0.69	2.00	-45.72	64.70
<i>ROA</i>	0.12	1.63	-48.32	22.01
<i>BTMR</i>	0.53	0.26	0.00	1.99

For a detailed description of variables see Table 1.

Table 4 reports the results of the regressions on the causal relationship between board independence and executive pay disparity using five statistical methodologies: OLS, Cluster-OLS, Fixed-Effect, 2-SLS, and PSM. The coefficient of *Independent* remains negative and highly significant at $p < 0.01$, indicating that a high proportion of independent directors is negatively associated with disparity between the CEO's pay and that of executive directors. The results from the base model show that a one unit increase in board independence would result in 76.26 percent^[1] reduction in executives pay disparity. This finding suggests that independent directors view the dispersion of executive pay from the perspective of managerial power theory, rather than the tournament view. Among the board structure controls, the coefficients of *BS*, *Dual*, and *Tenure* remain positive and highly significant at $p < 0.01$ in all models. This result supports the managerial power theory that CEO power (as reflected by a large, ineffective board, the CEO's dual role, and the CEO's tenure) widens the gap between the CEO's pay and that of other executives. This finding supports the managerial power theory propositions suggested by Bebchuk et al. (2002).

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Table 3: Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11
<i>1-Pay_Disparity</i>	1										
<i>2-Independent</i>	-.031**	1									
<i>3-BS</i>	.192**	-.085**	1								
<i>4-Dual</i>	.035**	.085**	-.095**	1							
<i>5-Tenure</i>	.140**	.130**	.011	.108**	1						
<i>6-SOE</i>	.113**	-.120**	.197**	-.279**	-.117**	1					
<i>7-FS</i>	.322**	.026**	.227**	-.135**	.086**	.308**	1				
<i>8-FL</i>	-.033**	.001	-.012	-.010	-.028**	.006	-.092**	1			
<i>9-FG</i>	.054**	.004	.045**	.022**	-.028**	-.052**	.103**	-.105**	1		
<i>10-ROA</i>	.009	.003	-.014*	-.004	-.005	-.006	-.051**	.493**	-.172**	1	
<i>11-BTMR</i>	.045**	-.032**	.109**	-.124**	-.030**	.254**	.381**	.043**	-.021**	-.014*	1

*, ** Correlation is significant at 5% and 1% respectively. For a detailed description of variables see Table 1.

Table 4: Regression Results on the Relationship between Board Independence and CEO Pay Disparity

Panel A: Regression results on the relationship between board independence and CEO pay disparity for full sample.					
	OLS	Cluster-OLS	Fixed-Effect	2-SLS	PSM
<i>Independent</i>	-1.438*** (-11.32)	-1.438*** (-7.09)	-0.526*** (-4.64)	-2.601*** (-9.17)	-1.450*** (-10.26)
<i>BS</i>	0.044*** (12.58)	0.044*** (7.97)	0.024*** (7.07)	0.045*** (12.51)	0.044*** (11.7)
<i>Dual</i>	0.224*** (10.79)	0.224*** (6.04)	0.193*** (8.42)	0.220*** (10.26)	0.198*** (8.47)
<i>Tenure</i>	0.024*** (6.62)	0.024*** (4.52)	0.019*** (6.37)	0.026*** (6.79)	0.023*** (5.75)
<i>SOE</i>	0.149*** (7.85)	0.149*** (3.79)	-0.011 (-0.28)	0.187*** (9.70)	0.175*** (7.97)
<i>FS</i>	0.231*** (35.97)	0.231*** (16.23)	0.135*** (12.33)	0.209*** (32.38)	0.233*** (31.15)
<i>FL</i>	0.012 (1.58)	0.012 (1.51)	-0.014** (-2.06)	0.013* (1.78)	0.015* (1.91)
<i>FG</i>	0.005 (1.07)	0.005 (0.92)	0.006* (1.69)	0.010** (2.06)	0.000 (0.16)
<i>ROA</i>	0.059*** (3.20)	0.059** (1.97)	-0.017 (-1.25)	0.061*** (3.23)	0.052*** (2.74)
<i>BTMR</i>	-0.101*** (-11.52)	-0.101*** (-4.34)	-0.059*** (-6.32)	-0.070*** (-7.87)	-0.119*** (-10.82)
<i>Year & Industry dummies</i>	Included	Included	Included	Included	Included
<i>Adj-R²</i>	19.07%	19.25%	19.04%	15.81%	18.81%

*, **,*** coefficient is significant at 10%, 5% and 1% respectively; T-statistics are reported in parentheses. For a detailed description of variables please see Table 1.

As an additional test, we also investigate the same relationship for SOEs and non-SOEs subsamples and the results are reported in panel A and B of table 5 respectively. Again we find reliable evidence that independent directors hold the same view about the pay disparity in both SOEs and non-SOEs. To further ensure the robustness of our results, we also use alternative measure of executives' pay disparity. Following the spirit of Kato and Long (2011), we use log of the ratio of CEO pay to the average for other executives directors pay as measure of executives' pay disparity. The results for this new measure are reported in panel C of table 5 and again our results remain same.

Table 5: Additional Test

Panel A: Regression results on the relationship between board independence and CEO pay disparity for SOEs sub-sample.					
	OLS	Cluster-OLS	Fixed-Effect	2-SLS	PSM
<i>Independent</i>	-1.106*** (-6.33)	-1.106*** (-3.52)	-0.225*** (-1.96)	-2.050*** (-5.48)	-1.312*** (-6.72)
<i>Controls</i>	Included	Included	Included	Included	Included
<i>Adj-R²</i>	21.30%	21.63%	19.06%	21.21%	20.70%
Panel B: Regression results on the relationship between board independence and CEO pay disparity for non SOEs sub-sample.					
	OLS	Cluster-OLS	Fixed-Effect	2-SLS	PSM
<i>Independent</i>	-1.650*** (-8.98)	-1.650*** (-6.48)	-0.896*** (-5.37)	-2.916*** (-6.80)	-1.494*** (-7.37)
<i>Controls</i>	Included	Included	Included	Included	Included
<i>Adj-R²</i>	16.90%	17.26%	17.64%	16.47%	16.22%
Panel C: Regression results on the relationship between board independence and CEO pay disparity using alternative measure of executives pay disparity (log of the ratio of CEO pay to the average for other executives directors pay).					
	OLS	Cluster-OLS	Fixed-Effect	2-SLS	PSM
<i>Independent</i>	-1.127*** (-15.82)	-1.127*** (-11.55)	-0.613*** (-8.49)	-1.954*** (-12.66)	-1.099*** (-14.97)
<i>Controls</i>	Included	Included	Included	Included	Included
<i>Adj-R²</i>	12.06%	12.24%	10.04%	11.75%	12.13%

*, **, *** coefficient is significant at 10%, 5% and 1% respectively; T-statistics are reported in parentheses.

The regression results reported in panel A, B and C includes all control variables (including *BS*, *Dual*, *Tenure*, *SOE*, *FS*, *FL*, *FG*, *ROA*, *BTMR*, year dummies, and industry dummies). For a detailed description of variables please see Table

4. Conclusion

CEO compensation or executive pay disparity has been the topic of ongoing debate in labor and financial economics. The literature contains competing views about the dispersion of executives' pay. The disparity in pay among executives can be explained from tournament theory, which contends that a disparity between the CEO's pay and that

of other executives can increase the executive team's motivation and productivity. However, recent stratospheric increases in the gap between the CEO's pay and that of other executives has brought scholarly attention to the managerial power theory, and the number of studies that investigate whether pay disparity reflects tournament incentives or managerial power are increasing (e.g., Canil, 2019; Bugeja et al., 2017). The present study extends this line of research because, despite the role of independent directors in setting executives' compensation, the question concerning how independent directors view the dispersion of executives' pay has been overlooked. Our finding that independent directors view the disparity between the CEO's pay and that of other executives from the perspective of managerial power theory view, rather than tournament theory, helps to fill this gap. We also contribute to the literature on the role of board structure by showing that executives' compensation contracts depend on the board's composition.

Despite the fact we explore the largely overlooked question, our findings have certain limitations. Therefore, our findings should be interpreted carefully. In alignment, with codes of best corporate governance (around the world) our main assumption is that the independent directors work effectively in the interests of the shareholders in designing optimal compensation contracts for the CEO and other executives. However, there are studies which have shown that this is not always the case (for a summary of the literature please see Lai, 2014). For example, the independent director may have social ties with the CEO, and then decisions may not be made in accordance with shareholders. Therefore, this hampers the generalizability of our findings.

Notes:

1. As the dependent variables is log transformed variables (log of CEO and executives' pay disparity), we should interpret the coefficients using $e^{\beta} - 1$ formula to obtain the ratio of change in executives pay dispersion. For example in model 1(Panel A of Table 2) the coefficient of board independence is -1.438, indicating that a one unit increase in board independence would result in 76.26 percent ($100*(e^{-1.438} - 1)$) reduction in executives pay disparity.

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