

THE INTERPLAY BETWEEN DIRECTOR COMPENSATION AND CEO COMPENSATION

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ABSTRACT

This paper empirically examines the determinants of director compensation and CEO compensation and investigates whether director compensation has an effect on CEO compensation. Based on 713 firms (or 2,852 firm-years) between 2007 and 2010, we find that CEO tenure is related to the ability of the CEO in influencing the board's pay determination process. However, sitting on the board does not strengthen the CEO's power over the board during the pay negotiation process. More importantly, we find evidence of a "mutual back scratching" relationship between CEO and the board of directors. Excess director compensation and CEO compensation are positively related. The results thus support Jensen's (1993) argument that as the CEO is involved in the selection of directors, the monitoring role of the board of directors becomes less effective.

JEL: J33, M52

KEYWORDS: Director Compensation, CEO Compensation, Board of Directors

INTRODUCTION

Due to the conflicts of interests between outside shareholders and managers in the modern corporate structure, the board of directors has the fundamental role of monitoring managers to ensure that managers act in the interest of shareholders. However, as the CEO is often involved in the selection of directors, Jensen (1993) argues that the board directors may not be an effective monitor. The board of directors may become more aligned with the CEO, thereby compromising the independence of the board. Brick et al. (2006) further suggest that when the board of directors is highly compensated, they are less likely to conduct critical monitoring of the CEO, referred to as "mutual back scratching". According to Hermalin and Weisbach (1998), the CEO may also use barriers to monitoring, including large boards, inside directors, CEO duality, CEO tenure, and CEO membership in nominating committee, in an attempt to maximize his compensation. Therefore, one objective of this study is to examine whether director compensation has an effect on CEO compensation by utilizing the *excess director compensation* variable, which is the residual from the director compensation model.

After the financial crisis of 2008, the "fat cat problem" highlighted the executive compensation issue. Recently there have been increasing concerns about the escalation in executive compensation (Dong and Ozkan, 2008). In particular, the substantial rises in executive pay have far exceeded the increases in underlying firm performance (Gregg et al., 2005). The review of CEO compensation by Frydman and Jenter (2010) shows that there was a dramatic increase in compensation levels from the mid-1970s to the early 2000s in the US. Especially in the 1990s, the annual growth rates were more than 10% by the end of the decade. The increase in executive compensation is also evident in firms of all sizes while larger firms have experienced greater growth. The high level of CEO pay in the U.S. has therefore brought about considerable debate and a lot of attention from academia and policy makers regarding executive compensation, in particular, the pay-setting process and the effectiveness of the compensation contracts.

The compensation packages of the top executives are set by the board of directors. After the financial crisis, the boards of collapsed firms are asked to hold full responsibility because they have not conducted

appropriate supervision over top executives. In this regard, this study incorporates the characteristics of the board of directors and the effect of director compensation, in addition to CEO characteristics, when examining the determinants of CEO compensation.

In short summary, the objective of this study is twofold. First, we analyze the determinants of director compensation. Based on the director compensation model, we derive the residuals (i.e., “excess director compensation”). Secondly, we examine whether excess director compensation and a set of CEO and director characteristics (such as CEO tenure, CEO shareholdings and board size) are related to CEO compensation.

While the determinants of CEO compensation and the pay-for-performance relationship (Jensen and Murphy, 1990; Main et al., 1996; Brick et al., 2006; Ozkan, 2007) have been extensively researched, the compensation structure of the board of directors as a governance mechanism has received less attention (Cordeiro et al., 2000; Gregg et al., 2005), in particular, the interplay between director compensation and CEO compensation (Brick et al., 2006). Accordingly, this study makes an important contribution by linking director compensation with CEO compensation and examines whether there is a “mutual back scratching” relationship between CEO and the board of directors. That is, whether the CEO receives higher compensation when the directors are paid more. Specifically, we include an “excess director compensation” variable in the CEO compensation model. If there is a positive relationship between excess director compensation and CEO compensation, then a “mutual back scratching” relationship between the board of directors and the CEO exists. If a negative relationship is observed, it means that the directors are effective monitors of the top management.

In addition, this study contributes to the literature by adopting multiple measures when analyzing director compensation. This allows us to examine the director compensation from different perspectives. Unlike CEO compensation, as there is more than one person sitting on the board of directors, the board of director compensation may be measured by the total director compensation for the entire board, the average director compensation, and the compensation of the highest paid director. Most of previous studies rely on one single measure (for example, Becher et al., 2005; Fernandes, 2008) or differentiate compensation by cash and stock compensation only (for example, Cordeiro et al., 2000; Brick et al., 2006). These studies may suffer from the weaknesses inherent in a particular measure. For example, total director compensation for the entire board may be influenced by the size of the board. The average director compensation ignores the dispersion within each firm and may be distorted by extreme values. Using the compensation of the highest paid director may sometimes be measuring the compensation of the CEO. Therefore, it is important to consider different measures.

Based on 713 firms (or 2,852 firm-years) between 2007 and 2010, we find support for the “mutual back scratching” relationship between the CEO and the directors. Specifically, excess director compensation and CEO compensation are positively related. The evidence thus suggests that the directors are not good monitors of the CEO. The results also support Jensen’s argument. As directors are selected by the CEO, the effectiveness of directors’ monitoring of the top management is weakened.

The remainder of this paper is organized into five sections. In Section 2, we review the prior empirical literature on director and CEO compensation and develop the hypotheses tested in this study. In Section 3, we describe the data, methodology and sample characteristics. In Section 4, we present the results on director compensation and CEO compensation. A conclusion is provided in Section 5.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

In modern economies, most companies are characterized by the separation of ownership and control where the ownership is held by diverse shareholders and the control is in the hands of top executives. As a

result, shareholders are not able to monitor managers' actions directly. According to the agency theory, these companies are likely to suffer from agency problems. That is, managers as the agents may not always act in the interest of shareholders (i.e., the principals), thereby giving rise to the conflicts of interests.

The governance structure of the firms, as argued by the agency theorists, can mitigate the potential agency problem between managers and shareholders arising from the separation of ownership and control, and therefore, influence the way firms set executive compensation packages (Murphy, 2009). In fact, the board of directors who is responsible for providing advice to the management and assisting with strategy development plays a key governance role in monitoring top management (Fama and Jensen, 1983). The board of directors also has an essential role in setting CEO compensation (Finkelstein and Hambrick, 1988; Boyd, 1994; Barkema and Gomez-Mejia, 1998; Carpenter and Sanders, 2002; Chhaochharia and Grinstein, 2009). Therefore, one objective of this study is to examine whether the board of directors has influences over CEO compensation.

An early paper by Finkelstein and Hambrick (1988) provides a synthesis on CEO compensation and suggests that there are two main set of factors that affect CEO compensation: first, the *market factors*, including managerial labor market, marginal products of CEOs, CEO discretion, firm size, firm performance, and human capital; secondly, the *power and preferences of the board and CEO*. Consistent with this view, Ozkan (2007) finds that corporate governance mechanisms have a significant effect on the level of CEO compensation. Specifically, measures of board and ownership structures explain a significant amount of cross-sectional variation in CEO total compensation.

Barkema and Gomez-Mejia (1998) propose a general research framework on the relationship between pay and performance. They argue that criteria, such as the market, peer compensation, individual characteristics, a firm's governance structure (including ownership structure, board of directors, remuneration committee, and market for corporate control), and contingencies (such as a firm's strategy, R&D level, market growth, industry concentration and regulation, and national culture), can enhance our understanding of the determinants of executive pay. Moreover, the managerial power theory argues that excessive CEO pay is due to the greater power of executives over directors that allows the former to set their own pay and extract rents (Bebchuk et al, 2002; Bebchuk and Fried, 2004). An implication of the theory is that enhancing the independence of the board can improve corporate governance and prevent managers from extracting rents in the form of higher pay (Guthrie et al., 2012).

Therefore, the first objective of this study is to examine the determinants of director compensation. Then, we investigate if CEO characteristics and director characteristics, including excess director compensation, have influences over CEO compensation. Specifically, this study adds to the literature on executive compensation by investigating the effect of director compensation on CEO compensation and testing if there is a "mutual back scratching" relationship between the CEO and the board of directors. The hypotheses of this study are developed below.

Director Compensation

Following Hill and Phan (1991), this study uses CEO tenure to proxy for CEO's ability to exercise influence over the board of directors. Previous studies (Hermalin and Weisbach, 1991; Shivdasani and Yermack, 1999) have suggested that CEOs can exert influence over the director selection process. Ryan and Wiggins (2001) argue that the level of CEO entrenchment and CEO power over the board of directors increase with CEO tenure. Specifically, they find that firms with long-tenured CEOs (i.e., more entrenched managers) discourage board scrutiny of management and provide weaker incentives to directors to monitor management. Therefore, CEO tenure is expected to be *negatively* associated with director compensation. That is, the following hypothesis is proposed.

H1a: CEO tenure will be negatively related to director compensation.

CEO director is an important corporate governance variable that accounts for the CEO influence over the board. Previous studies (Boyd, 1995; Daily and Schwenk, 1996; Conyon and Peck, 1998; Cordeiro and Veliyath, 2003) have mostly used CEO chairman as the proxy; that is, whether the CEO is also the chairman of the board of directors. However, this study argues that even in the case where the CEO is not the chairman and is simply a board of director, he still has the ability to exert influence on the board. Hence, this study argues that using a broader definition, CEO director, is a better proxy. To test for the influence of CEO over the board of directors, we include a dummy variable, if the CEO also holds a board seat. When a CEO is also a board of director, the board is likely to be entrenched. Brick et al. (2006) find that directors of firms with a unitary leadership structure (that is, the CEO and the Chairman are the same person) receive higher total compensation than directors of firms with a dual leadership structure where the roles of CEO and the chairman are performed by different persons. They argue that this is because the unitary leadership structure reflects weak governance. Accordingly, we offer the following hypothesis.

H1b: CEO director will be positively related to director compensation.

Firms with larger boards are expected to be associated with higher director compensation for two reasons. Firstly, as the number of directors increases, the total board compensation will increase. Secondly, firms with larger boards are typically more complex firms and therefore should give higher pay to their directors. Therefore, a *positive* relationship between board size and director compensation is proposed.

H1c: Board size will be positively related to director compensation.

CEO Compensation

As CEOs build a power base and gain voting control over time, they may exert greater influence over board composition. Consequently, CEOs may be able to demand compensation packages that serve their own interests rather than the shareholders' (Hill and Phan, 1991; Cordeiro and Veliyath, 2003; Ozkan, 2011). Moreover, Finkelstein and Hambrick (1996) suggest that the tenure of an executive can affect and proxy for his attitudes towards risk. This is because long-tenured executives have established high firm-specific human capital and become less mobile (Hill and Phan, 1991). They will be unwilling to take on any unnecessary risks that are likely to bring more harms than benefits. Hill and Phan (1991) further argue that the positive relationship between pay and firm risk will be stronger the longer the tenure of the CEO. Hence, CEO tenure is expected to be *positively* associated with CEO compensation.

H2a: CEO tenure will be positively related to CEO compensation.

A CEO who is also a board of director is likely to obtain higher pay since he can not only participate in but also exert influence over the board's pay determination process. Therefore, a *positive* relationship is expected between CEO compensation and CEO director.

H2b: CEO director will be positively related to CEO compensation.

The level of CEO shareholdings shows the extent to which the wealth of the CEO is linked with firm value and is related to the extent of agency problems faced by companies (Dong and Ozkan, 2008). CEOs with greater shareholdings in the firm will have stronger incentives to boost the firm's stock value. Therefore, less incentive compensation is needed for aligning the interests of CEO and shareholders. Accordingly, CEO shareholdings can act as a substitute for CEO compensation (Cordeiro and Veliyath, 2003) and a *negative* relationship is expected between CEO compensation and CEO shareholdings.

H2c: CEO shareholdings will be negatively related to CEO compensation.

Male CEOs are expected to receive higher compensation than female CEOs given that the CEO market is predominated by males. Therefore, we offer the following hypothesis.

H2d: Male CEO will be associated with higher CEO compensation.

The size of the board affects the effectiveness of the board in monitoring management. For example, when the board size grows large, more resource networks and professional views can be brought to board. However, these advantages may be overwhelmed by the efficiency losses in communication, decision-making and coordination between board members as the number of board members increases. In other words, a large board may in effect reduce the effectiveness of board monitoring and therefore be associated with higher CEO compensation. Consistent with the latter view, Core et al. (1999) report that larger boards pay more to their CEOs in terms of both cash compensation and total compensation. Based on a sample of 414 UK companies between 2003 and 2004, Ozkan (2007) also reports that firms with larger board size are associated with higher CEO compensation, measured by total compensation and cash compensation. Moreover, Guest (2010) examines a comprehensive and long period dataset of 1,880 UK firms over the period 1983-2002 and reports a positive relationship between board size and the rate of increase in executive compensation, providing support for the argument that large boards suffer from the problems of less efficient decision-making and poor communication. Therefore, this study expects a *positive* relationship between board size and CEO compensation.

H2e: Board size will be positively related to CEO compensation.

To examine the impact of director compensation on CEO compensation, we include the residuals from the director compensation model in the CEO compensation model, i.e., the excess director compensation. While the pay of the CEO is determined by the board of directors, the CEO is involved in the selection of the board of directors. Therefore, this study expects a “mutual back scratching” relationship between the CEO and the board of directors; that is, a positive relationship between excess director compensation and CEO compensation. Specifically, this study tests if CEOs receive a higher pay when directors are being paid higher.

H2f: Excess director compensation will be positively related to CEO compensation.

Control Variables

To control for other variables documented in previous literature as important in determining compensation levels, the following variables are also included in the models. Firm size controls for the fact that larger firms which are typically more complex will require directors to spend more time and put more effort in monitoring managers. In other words, larger firms are associated with greater complexity and information processing demands and therefore, directors of larger firms are expected to receive higher compensation. Hence, a *positive* relationship is expected between director compensation and firm size. Similarly, CEOs of larger firms have greater responsibility, require more effort, and therefore are expected to be more highly compensated (Smith and Watts, 1992; Core et al. 2003). The study by Conyon (1997) has reported a significantly positive relationship between firm size and CEO compensation levels. Accordingly, a *positive* relationship is also expected between CEO compensation and firm size.

Agency theory suggests that one way to align the interests of managers with that of shareholders is to tie the compensation contracts to firm performance (Firth et al., 2006; Chhaochharia and Grinstein, 2009); that is, to create a pay-for-performance linkage. In other words, to motivate directors to actively monitor managers on behalf of shareholders, directors should be rewarded when firm performance is high.

Therefore, we expect a *positive* relationship between director compensation levels and firm performance. Similarly, making the CEOs hold accountable for firm performance is essential for motivating the CEOs to initiate strategies that boost firm value. Hence, a *positive* relationship between CEO compensation and firm performance is also expected.

The pay of directors and CEOs is likely to be set with reference to the pay of other directors and CEOs in the same industry. Hilburn (2010) reports that directors of technology companies have higher pay than their counterparts at general industry companies. Therefore, the differences in industry structures, complexity and industry customs are likely to affect the level of compensation (Hempel and Fay, 1994). Hence, this study includes a dummy variable for industry sectors to control for inter-industry differences in compensation levels. Year dummies are also included in our models to control for unobserved differences between years. The inclusion of these dummies can capture common factors that are driven by industry- and economy-wide effects.

DATA AND METHODOLOGY

The data used in this study are obtained from the Standard and Poor's ExecuComp database. To be included in the sample, the sample firms must have all the required financial information, such as total assets, sales, ROA and ROE, CEO compensation, and director compensation data. As the information on director compensation in ExecuComp database is more complete from the year 2006 and onwards, the sample period for this study is set between 2007 and 2010. Previous literature has suggested that banks are likely to face greater potential conflicts of interests than industrial firms due to its distinct characteristics such as the existence of deposit insurance, high debt-to-equity ratios and asset-liability issues (Becher et al., 2005). Since the nature of financial services industry is different from that of industrial firms, firms belonging to the financial services industry are excluded from the sample. Therefore, our sample begins with a total of 940 firms (or 3760 firm-years). After eliminating 28 firms with missing data and 199 firms in the finance, insurance and real estate industries (that is, Division H of the SIC division structure), the final sample consists of 713 firms (or 2,852 firm-years).

The hypotheses are tested using pooled time-series cross-sectional regression analysis. The two models tested in this study are outlined below. Model 1 is on director compensation and Model 2 is on CEO compensation.

$$\ln(DIRCOMP_{i,t}) = \alpha_{i,t} + \beta_1 CEOTENURE_{i,t} + \beta_2 CEODIR_{i,t} + \beta_3 \ln(BSIZE_{i,t}) + \beta_4 \ln(FSIZE_{i,t}) + \beta_5 PERFORMANCE_{i,t-1} + INDUSDUM_t + YEARDUM_t \quad (1)$$

The dependent variable (*DIRCOMP*) of Model 1 is measured in three ways, the total director compensation, the average compensation of directors, and the compensation of the highest paid director. Firstly, the *total director compensation* is the directors' total compensation *for the entire board*, including cash fees, stock awards, option awards, non-equity incentive plan compensation, change in pension value and non-qualified deferred compensation earnings, and other compensation provided by ExecuComp database. The reason for measuring director compensation for the entire board is that it is the board collectively that monitors for and acts on behalf of the shareholders.

Secondly, the *average director compensation* is the *per capita compensation of directors* (Fernandes, 2008), where the compensation is measured in total and includes cash fees, stock awards, option awards, non-equity incentive plan compensation, change in pension value and non-qualified deferred compensation earnings, and other compensation provided by ExecuComp database. One weakness with this measure is that measuring director compensation as an average ignores the dispersion within each firm.

As most studies focus on the CEO who holds the top paying job, this study also analyzes the highest paid person on the board; i.e., the third measure of director compensation in this study. Gregg et al. (1993) who examine the relationship between directors' pay and corporate performance also adopt this measure. Formally, the *compensation of the highest paid director* is the total compensation of the *highest paid director*, where total compensation includes cash fees, stock awards, option awards, non-equity incentive plan compensation, change in pension value and non-qualified deferred compensation earnings, and other compensation provided by ExecuComp database.

The definitions of independent and control variables are as follows. *CEO tenure (CEOTENURE)* is measured by the number of years the CEO had held the position in a given company. An alternative measure for CEO tenure is the age of the CEO (*CEOAGE*), which is expected to have strong positive correlation with CEO tenure and also proxies for CEO experience. *CEO director (CEODIR)* is a dummy variable that equals one if the CEO is also a board of director. *Board size (BSIZE)* is measured by the number of directors on the board.

Firm size (FSIZE) is measured by total assets and sales. *Firm performance (PERFORMANCE)* is measured by the return on assets (ROA) and return on average equity (ROE), which are lagged one year in order to avoid measuring the effect of compensation on performance. The lagged performance measure can also account for the fact that director compensation paid in one year is usually determined by the firm performance in the previous year. ROA has been widely used in previous studies on executive compensation and corporate governance as a proxy for firm performance. ROA shows how efficient the firm is in utilizing its assets (Finkelstein and Hambrick, 1996; Finkelstein and Boyd, 1998; Carpenter and Sanders, 2002). On the other hand, ROE can better reflect firm performance from the shareholders' point of view. Therefore, in this study, models are estimated separately using both measures. *Industry (INDUSDUM)* is determined by SIC division structure, ranging from Division A to J (Descriptions for the SIC division structure are outlined below. Division A: agriculture, forestry, and fishing; Division B: mining; Division C: construction; Division D: manufacturing; Division E: transportation, communications, electric, gas, and sanitary services; Division F: wholesale trade; Division G: retail trade; Division I: services; Division J: public administration.) Note that Division H, the finance, insurance, and real estate industries, is excluded from the sample. In this study we also include *year dummies (YEARDUM)*.

Based on Model 1, we derive the *excess director compensation (EXDIRCOMP)*, which is the residual from the director compensation model when total director compensation is used as the dependent variable. The excess director compensation measures the extent of director under- or overpayment. This variable is then included in the second model on CEO compensation, as outlined below, to test the impact of director compensation on CEO compensation.

$$\begin{aligned} \ln(\text{CEOCOMP}_{i,t}) = & \alpha_{i,t} + \beta_1 \text{CEOTENURE}_{i,t} + \beta_2 \text{CEODIR}_{i,t} + \beta_3 \text{CEOHOLDING}_{i,t} \\ & + \beta_4 \text{CEOGENDER}_{i,t} + \beta_5 \ln(\text{BSIZE}_{i,t}) + \beta_6 \text{EXDIRCOMP}_{i,t} + \beta_7 \ln(\text{FSIZE}_{i,t}) \\ & + \beta_8 \text{PERFORMANCE}_{i,t-1} + \text{INDUSDUM}_t + \text{YEARDUM}_t \end{aligned} \quad (2)$$

The dependent variable (*CEOCOMP*) of Model 2 is measured in two ways, CEO total compensation and CEO cash compensation. Ozkan (2011) suggests that firm performance may affect cash and equity-based components of compensation differently. It is important to incorporate multiple measures for compensation. In this study, the *CEO total compensation* comprises salary, bonus, other annual payment, restricted stock grants, long-term incentive payouts, value of options granted and all other payments provided by ExecuComp database. The second measure, *CEO cash compensation*, consists of salary and bonus.

The additional variables introduced in the second model are defined as follows. *CEO shareholdings* (*CEOHOLDING*) is calculated as the shares owned by the CEO, excluding options that are exercisable or will become exercisable within 60 days, divided by the number of common shares outstanding. *CEO gender* (*CEOGENDER*) is a dummy variable that equals one if the CEO is male. *Excess director compensation* (*EXDIRCOMP*) is the residual from the director compensation model where the dependent variable is the total director compensation.

Table 1 presents the descriptive statistics of CEO characteristics and CEO compensation for 713 sample firms. The average and median age of CEOs is both 55, ranging from 34 to 80. The mean CEO ownership is 1.53% and ranges from 0 to 75.8% of outstanding shares. CEO tenure, which measures the number of years the CEO had held the position in a given company, has an average of 7.2 years and ranges from 0 to 47 years. The mean (or median) value of cash compensation, which consists of salary and bonus, received by the CEOs of our sample firms is \$1,116,474 (or \$875,158). The total compensation has an average of \$5,838,773 and ranges from \$30,002 to \$128,706,100. In our sample, about 96.6% of CEOs are male and 96.8% of CEOs also hold a board seat.

Table 1: Descriptive Statistics of CEO Characteristics and CEO Compensation

		Mean	Median	Max	Min	SD
CEO characteristics						
CEO age		55	55	80	34	6.67
CEO shareholdings	(%)	1.53	0.29	75.80	0.00	4.91
CEO tenure	(years)	7.22	5.00	47.00	0.00	6.68
CEO cash compensation	(\$'000)	1,116.5	875.2	77,926	7.1	2,466.3
CEO total compensation	(\$'000)	5,838.8	4,076.8	128,706	30.0	6,722.0
CEO gender						
Male	2754	96.56%				
Female	98	3.44%				
Total	2852	100.00%				
CEO is also a board of director						
Yes	2760	96.77%				
No	92	3.23%				
Total	2852	100.00%				

This table reports the descriptive statistics of CEO characteristics and CEO compensation for 713 firms (or 2,852 firm-years) between 2007 and 2010. CEO shareholdings is calculated as shares owned by the CEO, excluding options that are exercisable or will become exercisable within 60 days, divided by the total number of common shares outstanding. CEO cash compensation includes salary and bonus. CEO total compensation includes salary, bonus, other annual, total value of restricted stock granted, total value of stock options granted (using Black-Scholes), long-term incentive payouts, and all other compensation.

The descriptive statistics for firm characteristics and director compensation are shown in Table 2. The average board size is 9 and ranges from 3 to 26 directors. The average firm size, measured by total assets, is \$9,898 million and \$7,849 million if measured by sales. Firm performance is measured by ROA and ROE. The average ROA and ROE are 3.99% and 9.99%, respectively. The mean and median “average director compensation per board” is \$181,794 and \$166,643, respectively. The mean “total director compensation per board” is \$1,597,003 and ranges from \$33,374 to \$14,685,740.

Table 2: Descriptive Statistics of Firm Characteristics and Director Compensation

		Mean	Median	Max	Min	SD
Firm characteristics						
Board size		9	8	26	3	2.46
Total assets	(\$m)	9,898.2	2,345.1	797,769	10.0	36,640
Sales	(\$m)	7,849.1	2,034.8	425,071	0.1	25,797
ROA	(%)	3.99	5.17	52.85	-163.38	11.77
ROE	(%)	9.99	12.24	524.38	-906.03	36.19
Director compensation per board						
DIRCOMP_Average	(\$'000)	181.8	166.6	1,796	3.6	114.6
DIRCOMP_Maximum	(\$'000)	305.6	221.4	7,779	13.6	430.3
DIRCOMP_Total	(\$'000)	1,597.0	1,402.6	14,686	33.4	1,081.1

This table reports the descriptive statistics of firm characteristics and director compensation for 713 firms (2,852 firm-years) between 2007 and 2010. DIRCOMP_Average is the average director compensation for each firm (or each board), that is, the per capita compensation of directors. DIRCOMP_Maximum is the compensation of the highest paid director in each firm. DIRCOMP_Total is the total director compensation for the entire board. Director compensation is defined to include cash fees, stock awards, option awards, non-equity incentive plan compensation, change in pension value and non-qualified deferred compensation earnings, and other compensation

Table 3 reports the descriptive statistics for the components of director compensation. Between 2007 and 2010, there is a total of 24,604 director-years. The average cash fees paid to directors is \$71,708,000. The directors in our sample receive an average of \$73,103,000 in stock awards, \$28,111,000 in option awards, and \$515,000 in non-equity incentive plan. The total director compensation has an average of \$185,118,000 and ranges from -\$1,299,073,000 to \$7,778,702. The negative total compensation can be attributed to the negative amounts in stock and option awards and the negative change in pension value and non-qualified deferred compensation earnings.

Table 3: Descriptive Statistics of Director Compensation

		Mean	Median	Max	Min	SD
Components of director compensation						
Cash fees	(\$'000)	71.71	68.39	777.2	0.0	44.35
Stock awards	(\$'000)	73.10	60.69	7,612.0	-362.1	94.70
Option awards	(\$'000)	28.11	0.00	4,939.6	-1,886.1	95.45
Non-equity incentive	(\$'000)	0.52	0.00	2,619.0	0.0	29.02
Pension change	(\$'000)	0.96	0.00	406.0	-805.3	12.23
Other compensation	(\$'000)	10.68	0.00	6,004.4	0.0	94.02
Total compensation	(\$'000)	185.12	165.50	7,778.7	-1,299.1	182.22

This table reports the descriptive statistics of director compensation for 24,604 director-years between 2007 and 2010. Director compensation is classified as cash fees, stock awards, option awards, non-equity incentive plan, change in pension value and non-qualified deferred compensation earnings, and all other compensation. Cash fees are director fees that are earned or paid in cash. Stock awards are measured by the value of stock-related awards (e.g. restricted stock, restricted stock units, phantom stock, phantom stock units, common stock equivalent units etc.) that do not have option-like features. Option awards are measured by the value of option-related awards (e.g. options, stock appreciation rights, and other instruments with option-like features). Non-equity incentive is measured by the value of amounts earned during the year pursuant to non-equity incentive plans. Pension change is composed of above-market or preferential earnings from deferred compensation plans and aggregate increase in actual value of defined benefit and actual pension plans during the year. Other compensation includes perquisites and other personal benefits, contributions to defined contribution plans, life insurance premiums, gross-ups and other tax reimbursements, discounted share purchases, consulting fees, awards under charitable award programs etc.

Table 4 reports the correlations between variables. Overall, the CEO and director compensation are positively related to board size, firm performance, measured by ROA and ROE, and firm size, measured by total assets and sales. The CEO shareholdings are negatively associated with CEO compensation, suggesting a substitution effect between CEO shareholdings and CEO compensation (Cordeiro and Veliyath, 2003). Consistent with the expectation, the CEO tenure, a proxy for CEO power, is positively related to CEO compensation and negatively related to director compensation.

Table 4: Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.CEO age	1												
2.CEO shareholdings	0.11 ***	1											
3.CEO tenure	0.42 ***	0.38 ***	1										
4.Board size	0.07 ***	-0.24 ***	-0.22 ***	1									
5.Assets	0.03	-0.06 ***	-0.05 **	0.32 ***	1								
6.Sales	0.05 ***	-0.07 ***	-0.07 ***	0.29 ***	0.67 ***	1							
7.ROE _{t-1}	0.00	-0.01	0.01	0.07 ***	0.05 ***	0.08 ***	1						
8.ROA _{t-1}	0.00	0.02	0.02	0.04 **	0.03 *	0.07 ***	0.67 ***	1					
9.CEOCOMP_CASH	0.10 ***	-0.02	0.06 ***	0.10 ***	0.14 ***	0.11 ***	0.02	0.01	1				
10.CEOCOMP_TOT	0.12 ***	-0.12 ***	0.00	0.34 ***	0.28 ***	0.32 ***	0.11 ***	0.09 ***	0.65 ***	1			
11.DIRCOMP_AVE	0.01	-0.15 ***	-0.03 *	0.10 ***	0.16 ***	0.15 ***	0.09 ***	0.07 ***	0.15 ***	0.37 ***	1		
12.DIRCOMP_MAX	-0.03 *	-0.07 ***	-0.07 ***	0.10 ***	0.06 ***	0.06 ***	0.02	0.02	0.05 ***	0.16 ***	0.73 ***	1	
13.DIRCOMP_TOT	0.05 ***	-0.19 ***	-0.10 ***	0.51 ***	0.33 ***	0.30 ***	0.11 ***	0.08 ***	0.18 ***	0.51 ***	0.85 ***	0.66 ***	1

This table reports the correlations of variables used in the regression analysis for a sample of 713 firms during the period 2007-2010. CEOCOMP_CASH denotes CEO cash compensation. CEOCOMP_TOT denotes CEO total compensation. DIRCOMP_AVE denotes the average director compensation. DIRCOMP_MAX denotes the compensation of the highest paid director. DIRCOMP_TOT denotes the total director compensation.

RESULTS

Table 5 reports OLS estimation results for director compensation. In Panel A, the dependent variable is total director compensation, measured by the directors' total compensation for the entire board. In Panel B, the dependent variable is the average compensation of directors, which is measured as the per capita compensation of directors, where the compensation is measured in total. In Panel C, the dependent variable is the total compensation of the highest paid director. For each measure of director compensation (i.e., in each panel), Model 1 is estimated four times as we have adopted alternative measures for CEO tenure (i.e., CEO tenure and CEO age), firm size (i.e., total assets and sales), and firm performance (i.e., ROE and ROA).

The regression estimates in Table 5 show that CEOs with shorter tenure or younger age are significantly associated with higher director compensation at the 1% level. This finding is consistent with our prediction that short-tenured CEOs have less ability to exercise influence over the board of directors. The result is consistent across three measures of director compensation. Inconsistent with our expectation, CEO director dummy variable is negatively associated with the director compensation, significant at the 1% level. In other words, the director compensation is higher when the CEO is not a member of the board. The result suggests that without the influence of CEO over the board, directors are able to set higher compensation to favor themselves.

Board size is significantly positively related to total director compensation and the compensation of the highest paid director at the 1% level. However, it is significantly negatively related to the average compensation of directors. This is because as the number of board members increases, the total director compensation per board evens out, leading to a negative relationship. Firm size, measured by total assets and sales, are also significantly positively related to director compensation. Interestingly, the study by Song and Xu (2007) based on a sample of Chinese listed companies finds that the total compensation received by board of directors is negatively associated with board size, CEO tenure and the proportion of inside directors. They suggest that when the board lacks independence, the executives will dominate over directors, resulting in less compensation to directors. Consistent with Song and Xu (2007), this study finds that directors of larger firms receive more compensation.

Table 5: Analysis of Director Compensation

	Panel A: Dependent variable: $\ln(DIRCOMP_total)$				Panel B: Dependent variable: $\ln(DIRCOMP_average)$			
	1	2	3	4	1	2	3	4
Intercept	3.877 *** (55.437)	5.074 *** (21.725)	4.003 *** (53.237)	3.864 *** (51.494)	3.877 *** (55.437)	5.074 *** (21.725)	4.003 *** (53.237)	3.864 *** (51.494)
CEOTENURE	-0.008 *** (-10.478)		-0.008 *** (-10.750)	-0.008 *** (-10.497)	-0.008 *** (-10.478)		-0.008 *** (-10.750)	-0.008 *** (-10.497)
$\ln(CEOAGE)$		-0.339 *** (-7.337)				-0.339 *** (-7.337)		
CEODIR	-0.101 *** (-5.935)	-0.108 *** (-6.132)	-0.098 *** (-5.891)	-0.101 *** (-6.275)	-0.101 *** (-5.935)	-0.108 *** (-6.132)	-0.098 *** (-5.891)	-0.101 *** (-6.275)
$\ln(BSIZE)$	0.843 *** (34.922)	0.889 *** (37.732)	0.941 *** (33.208)	0.843 *** (31.848)	-0.157 *** (-6.497)	-0.111 *** (-4.709)	-0.059 ** (-2.067)	-0.157 *** (-5.940)
$\ln(ASSETS)$	0.196 *** (44.784)	0.198 *** (44.852)		0.198 *** (40.955)	0.196 *** (44.784)	0.198 *** (44.852)		0.198 *** (40.955)
$\ln(SALES)$			0.172 *** (36.447)				0.172 *** (36.447)	
ROE_{t-1}	0.001 *** (4.032)	0.001 *** (3.813)	0.001 *** (2.609)		0.001 *** (4.032)	0.001 *** (3.813)	0.001 *** (2.609)	
ROA_{t-1}				0.001 * (1.754)				0.001 * (1.754)
Industry and year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.546	0.544	0.521	0.545	0.303	0.299	0.264	0.301
Panel C: Dependent variable: $\ln(DIRCOMP_max)$								
	1	2	3	4				
Intercept	4.208 *** (24.094)	6.150 *** (14.841)	4.297 *** (24.679)	4.202 *** (23.425)				
CEOTENURE	-0.015 *** (-8.503)		-0.015 *** (-8.603)	-0.015 *** (-8.465)				
$\ln(CEOAGE)$		-0.555 *** (-6.132)						
CEODIR	-0.114 *** (-3.472)	-0.126 *** (-3.854)	-0.112 *** (-3.364)	-0.115 *** (-3.481)				
$\ln(BSIZE)$	0.178 *** (10.925)	0.258 *** (12.204)	0.245 *** (11.519)	0.177 *** (10.251)				
$\ln(ASSETS)$	0.152 *** (68.617)	0.155 *** (84.134)		0.153 *** (59.841)				
$\ln(SALES)$			0.136 *** (71.922)					
ROE_{t-1}	0.000 (1.369)	0.000 (0.904)	0.000 (0.674)					
ROA_{t-1}				0.000 (0.116)				
Industry and year dummies	Yes	Yes	Yes	Yes				
Adjusted R ²	0.208	0.198	0.195	0.207				

This table presents the regression analysis of director compensation for 713 firms between 2007 and 2010, where the director compensation includes cash fees, stock awards, option awards, non-equity incentive plan, change in pension value and non-qualified deferred compensation earnings, and all other compensation. In Panel A, B and C, the dependent variables are total director compensation, average director compensation and the compensation of the highest paid director; respectively. CEOTENURE is measured by the number of years the CEO had held the position in a given company. CEOAGE is the age of the CEO. CEODIR is a dummy variable that equals one if the CEO is also a board of director. BSIZE is measured by the number of directors on the board. ASSETS and SALES are measures for firm size. ROE and ROA measure firm performance and are lagged one year. t-statistics (in parentheses) are calculated using White's (1980) heteroskedasticity-consistent standard errors. ***, ** and * indicate coefficient is significant at the 1, 5 and 10% level, respectively.

The results show that director compensation, measured by total director compensation and average compensation of director, is higher when firms have better past performance, supporting the argument that compensation contracts should be linked to firm performance. However, when the director compensation is measured by the compensation of the highest paid director, the significant relationship with past firm performance disappears. In other words, highly paid directors are often not paid based on their performance. This finding supports the recent call for reviewing the compensation packages of “fat cat” directors (Dong and Ozkan, 2008). The evidence also suggests that for highly paid directors, the pay-for-performance linkage often does not exist. In particular, Gregg et al. (2005) argue that the substantial rises in executive pay have far exceeded the increases in underlying firm performance. Moreover, in terms of the firm performance measures, we find that ROE is a better predictor of director compensation than ROA. This can be explained by the fact that ROE can better reflect how well a firm performs from the shareholders’ point of view.

The OLS estimation results for CEO compensation by incorporating the effect of director compensation are presented in Table 6. The dependent variable is CEO total compensation for Panel A and CEO cash compensation for Panel B. The former measure comprises the CEO’s salary, bonus, other annual payment, restricted stock grants, long-term incentive payouts, value of options granted and all other payments. The latter measure consists of salary and bonus only. For each measure of CEO compensation (i.e., in each panel), Model 2 is estimated four times as we have adopted alternative measures for CEO tenure (i.e., CEO tenure and CEO age), firm size (i.e., total assets and sales), and firm performance (i.e., ROE and ROA). The results show that excess director compensation is significantly positively related to CEO compensation at the 1% level. This finding supports our hypothesis that CEOs receive higher pay when the directors are paid higher. Accordingly, the evidence is consistent with the argument of a “mutual back scratching” relationship between the CEO and the board of directors (Brick et al., 2006). The results also suggest that directors are not good monitors of the top management and support Jensen’s (1993) argument that the effectiveness of directors’ monitoring role can be weakened by the fact that directors are selected by the CEO.

Consistent with the expectation, CEO tenure and CEO age are positively related to CEO compensation. Although the level of significance is weaker when the CEO compensation is measured by CEO total compensation, CEO tenure and CEO age are significantly related to CEO cash compensation at the 1% level. Inconsistent with our expectation, CEO director dummy variable is negatively related to CEO compensation at the 5% significance level. That is, CEO compensation is higher when the CEO does not hold the board seat. Therefore, the observed high compensation received by CEOs that we observe today cannot be explained by their presence on the board of directors. Moreover, the result does not support the argument that dual leadership where the roles of CEO and the chairman are performed by different people is associated with better governance and therefore lower CEO compensation.

Additionally, the results demonstrate that CEO shareholdings are significantly negatively associated with CEO total compensation at the 1% level, providing support for the hypothesis that CEO shareholdings and CEO compensation contracts are substitute mechanisms for aligning the interests of CEO and shareholders (Cordeiro and Veliyath, 2003). However, CEO shareholdings are insignificantly associated with CEO cash compensation. This is because the cash component of CEO compensation contracts does not link CEO wealth with firm value, and therefore, does not have the substitution effect like CEO total compensation. Interestingly, we find that the gender of CEOs is significantly related to CEO cash compensation but not CEO total compensation. Specifically, the results show that male CEOs receive higher cash compensation. Board size and firm size are significantly positively related to CEO compensation at the 1% level, consistent with the hypothesis. Since larger firms are typically more complex and have larger boards, CEOs of larger firms are therefore more highly compensated. Interestingly, we find that both measures of firm performance, ROE and ROA, cannot explain CEO total compensation, therefore, providing evidence against the pay-for-performance linkage that have been

raised by the popular press. Consistent with the finding of this study, Ozkan (2007) does not find a significant relationship between CEO compensation and firm performance based a sample of large UK companies for the fiscal year 2003/2004.

Table 6: Analysis of CEO Compensation

	Panel A: Dependent variable: $\ln(CEOCOMP_total)$				Panel B: Dependent variable: $\ln(CEOCOMP_cash)$			
	1	2	3	4	1	2	3	4
Intercept	4.087 *** (23.987)	3.095 *** (12.027)	4.352 *** (24.535)	4.088 *** (24.673)	5.155 *** (29.570)	2.946 *** (15.665)	5.280 *** (29.230)	5.146 *** (28.565)
CEOTENURE	0.002 (1.636)		0.003 * (1.917)	0.002 (1.635)	0.007 *** (13.410)		0.007 *** (14.502)	0.007 *** (15.361)
$\ln(CEOAGE)$		0.261 *** (4.819)				0.587 *** (43.189)		
CEODIR	-0.131 ** (-2.172)	-0.125 ** (-2.084)	-0.124 ** (-2.094)	-0.130 ** (-2.142)	-0.047 ** (-2.286)	-0.033 (-1.641)	-0.043 ** (-2.241)	-0.049 ** (-2.575)
CEOHOLDING	-0.009 *** (-6.668)	-0.009 *** (-5.787)	-0.011 *** (-7.335)	-0.009 *** (-6.661)	-0.002 (-1.269)	-0.001 (-0.405)	-0.003 (-1.471)	-0.002 (-1.228)
CEOGENDER	0.050 (1.449)	0.041 (1.145)	0.038 * (1.908)	0.047 (1.304)	0.028 *** (2.816)	0.009 (0.854)	0.019 ** (2.520)	0.034 *** (3.410)
$\ln(BSIZE)$	0.143 *** (3.671)	0.131 *** (3.021)	0.310 *** (7.351)	0.145 *** (3.551)	0.120 *** (17.770)	0.087 *** (17.702)	0.191 *** (15.542)	0.115 *** (20.068)
EXDIRCOMP	0.404 *** (13.220)	0.407 *** (12.899)	0.412 *** (13.181)	0.405 *** (13.130)	0.084 *** (6.692)	0.092 *** (8.069)	0.088 *** (7.032)	0.083 *** (6.865)
$\ln(ASSETS)$	0.433 *** (109.245)	0.431 *** (113.227)		0.433 *** (118.890)	0.223 *** (45.888)	0.219 *** (46.982)		0.225 *** (56.629)
$\ln(SALES)$			0.395 *** (53.933)				0.208 *** (37.799)	
ROE_{t-1}	0.000 (0.885)	0.000 (0.944)	0.000 (0.147)		0.000 ** (-2.332)	0.000 ** (-2.327)	-0.001 ** (-2.383)	
ROA_{t-1}				0.001 (1.594)				-0.002 *** (-10.616)
Industry and year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.615	0.616	0.565	0.615	0.412	0.422	0.386	0.414

This table presents the regression analysis of CEO compensation for 713 firms between 2007 and 2010. In Panel A and B, the dependent variables are CEO total compensation and CEO cash compensation, respectively. CEOTENURE is measured by the number of years the CEO had held the position in a given company. CEOAGE is the age of the CEO. CEODIR is a dummy variable that equals one if the CEO is also a board of director. CEOHOLDING is calculated as shares owned by the CEO divided by the number of common shares outstanding. CEOGENDER is a dummy variable that equals one if the CEO is male. BSIZE is measured by the number of directors on the board. EXDIRCOMP is the residual from the total board compensation model where the dependent variable is the total board compensation. ASSETS and SALES are measures for firm size. ROE and ROA measure firm performance and are lagged one year. t-statistics (in parentheses) are calculated using White's (1980) heteroskedasticity-consistent standard errors. ***, ** and * indicate coefficient is significant at the 1, 5 and 10% level, respectively.

CONCLUDING COMMENTS

The global financial crisis in 2008 sheds light on the significance of reviewing the compensation packages of top executives. Based on a sample of 713 US firms between 2007 and 2010, this study examines the determinants of director and CEO compensation based on a number of board of director and CEO characteristics. We also investigates whether there is a “mutual back scratching” relationship between the CEO and the board of directors by analyzing the relationship between director compensation and CEO compensation. Specifically, this study proposes two empirical models. The first is on director compensation and the second is on CEO compensation.

The results show that CEOs with shorter tenure or younger age are associated with higher director compensation but lower CEO compensation. This finding provides support for the argument that CEO tenure or CEO age is related to CEO's ability to influence the board's pay determination process. Interestingly, we find that CEO who also holds a board seat is not associated with higher CEO compensation. The result thus indicates that sitting on the board of directors does not strengthen the CEO's power over the board during the pay negotiation process. More importantly, the results suggest that CEOs receive higher pay when the director compensation is higher, supporting the "mutual back scratching" relationship between the CEO and the board of directors. There is also a substitution effect between CEO total compensation and the level of CEO ownership. Finally, firms with larger board size and firm size give higher pay to their directors and CEOs. One limitation of this study is that due to the constraint on the availability of board of directors' data, the sample period of this study is limited to four years only. Future research could extend the sample period by dropping the board size variable to see if similar results can be reached.

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