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## **EXECUTIVE COMPENSATION, FIRM PERFORMANCE AND CORPORATE GOVERNANCE IN AN EMERGING ECONOMY**

### **Abstract:**

This study examines how compensation of chief executive officer (CEO) is influenced by firm performance and corporate governance in an emerging market, Pakistan. Using various panel regression models, including a dynamic panel model for a sample of non-financial firms listed at Karachi Stock Exchange (KSE) for period 2005 to 2012, we find that current and previous year accounting performance has positive influence on CEO compensation. However, stock market performance does not appear to have a positive influence on CEO compensation. We further find that firm size is an important factor contributing towards CEO compensation. Ownership concentration is positively correlated with CEO compensation, indicating some kind of collusion between management and largest shareholder to get personal benefits. CEO duality appears to have a negative relationship with CEO compensation. Board size and board independence have no convincing relationship with CEO compensation, indicating board ineffectiveness in reducing CEO entrenchment. The results of dynamic panel model suggest that CEO pay is highly persistent and takes time to adjust to long-run equilibrium. Our study has implications not only for managers but also for regulators and other stakeholders.

### **Keywords:**

Corporate Governance, Dynamic Panel, Emerging Markets, Executive Compensation, Firm Performance, Fixed Effects

## Introduction

There has been an enormous growth in research on executive compensation over the last two decades with primary focus on compensation of chief executive officer (CEO). Much of this research focuses on the question whether executive compensation contracts can be justified in terms of their contribution to the firm financial performance (Devers et al., 2007; van Essen et al., 2012a). According to agency theory (Jensen & Meckling, 1976), executives are self-interested and may behave opportunistically at the expense of shareholders' interests. Therefore, corporate boards are supposed to confine executive opportunism and align the executives' interests with that of shareholders by better monitoring through effective corporate governance mechanisms, and designing efficient pay contracts that typically link executive compensation with firm performance.

The objective of this study is to examine how CEO compensation is influenced by firm performance and corporate governance practices in an emerging market, Pakistan, where CEOs are presumed to be more powerful than the boards of directors. Specifically, this study examines the role of firm performance, board structure and concentrated/family ownership in designing CEO compensation contracts.

Corporate governance environment in Pakistan is tempting. Unlike US, family and concentrated ownerships are common in Pakistani firms (Kamran & Shah, 2014; World Bank, 2005). Family owned firms are typically managed by owners themselves, presumably to avoid agency problems such as misappropriation or power abuse which may arise if executives are hired from outside family. Corporate boards are dominated by executive and non-executive members from controlling family or by proxy directors employed to act on behalf of the family. Majority control is often maintained through interlocking directorship, complex pyramid structures and cross shareholdings. As a result, the ultimate owners keep (voting) control while having a smaller fraction of ownership (cash flow rights) (Javid & Iqbal, 2008; Kamran & Shah, 2014). Consequently, the dominant shareholders make the decisions without bearing the full cost. In instances where firms are multinational or state owned, typically, there is a direct relationship between management and state/foreign owner, bypassing boards in making important corporate decisions. Overall, in such a corporate governance system<sup>1</sup>, CEOs tend to be become more powerful than the boards, deriving power either from direct relationship with controlling shareholders or being one of the members of controlling family. This makes the boards more likely rubber stamps used to just approve the decisions made somewhere else.

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<sup>1</sup> For detail discussion on corporate governance in Pakistan see , Cheema et al. (2003), Ibrahim (2006) and Burki (2012)

Nevertheless, in order to improve the governance practices in Pakistan, Securities and Exchange Commission of Pakistan (SECP) issues corporate governance Code in March 2002<sup>2</sup>. But, implementation of this Code in its true spirit has been in question (Ameer, 2013). Thus, overall, effectiveness of the Code is still to be achieved.

Given the context of ownership concentration and potentially powerful CEOs coupled up with weak implementation of the Code of corporate governance, this study tries to investigate whether CEOs are paid against firm financial performance? Whether board structure contributes towards the CEO compensation decisions? Whether concentrated/family ownership influences CEO compensation? These questions are particularly interesting in countries like Pakistan as two seminal studies (Durnev & Kim, 2005; Klapper & Love, 2003) show that firm-level corporate governance practices matter more in countries with weaker legal systems and investor protection.

Our study contributes to the extant literature in a number of ways. First, our study can be considered as a response to calls for more research on understanding how managers of emerging market firms are compensated and factors that influence these decisions (see, Fan et al., 2011; Sun et al., 2010; van Essen, et al., 2012a). Fan, et al. (2011), for instance, note that *'Until now, we still do not know much about how managers of emerging market firms are paid and promoted and factors that influence these decisions'* (p. 211). Therefore, by analyzing CEO compensation in an emerging market of Pakistan, we provide important contribution to international literature on executive compensation.

Second, we find evidence that despite boards tend to be weaker as compared to the management in Pakistan, CEO compensation is positively associated with firm accounting performance. This is first hand evidence in Pakistan<sup>3</sup>. Further, we find that board size and presence of non-executive directors does not contribute towards CEO compensation in any direction. This reflects the contextual settings of Pakistan where non-executive directors are hired from within the family or they are proxies of controlling shareholders, making board structure irrelevant. Contrary to agency theory arguments, we find that ownership concentration is associated with higher CEO compensation, indicating some sort of misappropriation of minority shareholders' interests. Similarly, separating the position of CEO and chairman board of directors leads to higher CEO compensation. This particularly has important implication as separation of these positions has become mandatory requirement in the revised Code of corporate governance in Pakistan. Overall, we highlight that corporate governance variables do not seem to influence CEO compensation in the expected directions as suggested by agency theory.

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<sup>2</sup> The Code has been revised in March 2012 with effect from year 2013.

<sup>3</sup> Our findings challenge the results of two existing studies (Kashif & Mustafa, 2012; Shah et al., 2009) on CEO compensation in Pakistan. Further, these existing studies are limited in scope and do not provide rigorous analysis.

Third, our study is amongst very few international studies that investigate dynamic nature of CEO pay. Bulk of the existing studies typically uses panel data estimation using fixed or random effects models. These models, however, do not control for potential endogeneity problems. Results based on these panel data models are prone to estimation problems. As a consequence, we also employ more robust methodological procedure such as Generalized Method of Moments (GMM) that simultaneously accounts for unobserved heterogeneity, serial correlation, and endogeneity problems.

Rest of the paper is organized as follows. Section two reviews the relevant literature. Section three demonstrates data and methodological procedures. Section four provides empirical results while conclusions are presented in section five.

## **Literature Review and Hypotheses**

### **CEO Compensation and Firm Performance**

In agency theory, the corporate boards, assuming the power to look after the firm, involve in arm's length transaction with CEO and design such compensation plans which provide CEO with efficient incentives to maximize the shareholder value, and hence reduce moral hazard problem arising from separation of ownership from control (Bebchuk & Fried, 2003). This predicts a positive link between CEO compensation and firm performance. A number of studies (e.g., Buck et al., 2008; Conyon & He, 2011; Conyon & He, 2012; Kato et al., 2007; Murphy, 1999; Ozkan, 2011) find evidence consistent with agency theory. However, there are other competing theories that emerge in response to the finding that pay-performance relationship is modest (see, Tosi et al., 2000; van Essen, et al., 2012a). The most prominent one is managerial power theory (Bebchuk & Fried, 2003).

According to managerial power theory (MPT), if the balance of power shifts towards CEOs and they behave opportunistically then there is likelihood that CEOs would involve in rent extraction through setting their compensation high that is not in the interests of shareholders (Bebchuk & Fried, 2003). With increased power of CEO, the board of directors and compensation committee, under the influence of CEO, compromise their fiduciary duties and settle upon excessive CEO compensation possibly not linked to firm performance (Bebchuk & Fried, 2003).

In Pakistani context, as discussed earlier, CEOs tend to be more powerful than the boards. In addition, formal institutions such as legal system and investor protection are weak. Therefore, CEOs are more prone to behave opportunistically. Given such context, we expect that CEOs are more influential than the boards and set their own pay which is

less likely to correlate with firm performance. However, consistent with agency theory, we state the standard hypothesis that:

*H1: CEO compensation is positively associated with firm performance in Pakistan.*

## **CEO Compensation and Corporate Governance**

Corporate governance assumes the role of monitoring and curbing managerial opportunism so that shareholder's interests are protected (Fama & Jensen, 1983). As an efficient corporate governance structure provides close monitoring and oversight of management, therefore in the presence of strong corporate governance, the executive compensation would be low.

A number of corporate governance variables have been reported to influence the CEO compensation, however, their influence seems to be conditioned to the context under examination. (see, e.g., Core et al., 1999; Devers, et al., 2007; Sun, et al., 2010; van Essen et al., 2012b). Since concentrated and family ownership is an important feature of corporate governance environment in Pakistan and board composition has been one of the major focuses in the Code of corporate governance to mitigate the agency conflicts (see, SECP, 2002, 2012), therefore we focus on concentrated/family ownership and board structure (Board size, Board Independence and CEO duality) in this study. The following lines provide hypotheses related to these variables.

### **Ownership Concentration, Family Ownership and CEO compensation**

Concentrated and family ownership can affect CEO compensation contract in two competing ways, 1) interest alignment effect and 2) entrenchment effect. According to interest alignment effect, which relates to agency theory, large or family shareholders have strong incentives to oversee agents' activities because of being insiders, strong commitment and better firm specific knowledge (Bertrand & Schoar, 2006; Harris & Raviv, 2008; Jensen & Warner, 1988; Su et al., 2010). Therefore, concentrated and family ownership generally suggests that shareholders are better able to protect their interests in their companies, leading to reduced managerial opportunism, higher interest alignment and lower CEO compensation.

However, entrenchment effect suggests that family or controlling shareholders can expropriate minority shareholders' interests through many ways including excessive compensation packages (see, Croci et al., 2012; Su, et al., 2010; Wang & Xiao, 2011). CEOs in close relation with controlling shareholders/family may set their own pay opportunistically high, thereby expropriating the minority shareholders' wealth. Such expropriation is very likely in emerging markets where formal institutions are weak to

support mutually beneficial impersonal exchange between economic players (Young et al., 2008). Since Pakistan is an emerging market with weak legal systems, therefore we hypothesize that:

*H2a: CEO compensation is positively associated with concentrated ownership.*

*H2b: CEO compensation is higher in family firms.*

### **Board Size and CEO Compensation**

Board size is considered as an important determinant of board effectiveness. It has significant contribution towards quality of governance (Jensen, 1993; Lipton & Lorsch, 1992). Larger boards are likely to correlate with greater level of expertise and firm's ability to extract critical resources (Dalton et al., 1999; Provan, 1980). However, they may become so heavy, leading to ineffective executive monitoring (Jensen, 1993). Larger boards are less likely to function effectively and are easier to be controlled by executives (Jensen, 1993; Lipton & Lorsch, 1992). In addition, they are likely to be plagued with communication and coordination problem (Ozkan, 2007). Thus, larger boards are assumed to compromise their monitoring role and hence weaken the internal governance structure. Consequently, executives gain more power over the internal control mechanisms, leading to more influence on their own pay, resulting in higher executive compensation. Many studies find that larger boards are related to higher executive compensation (e.g., Core, et al., 1999; Croci, et al., 2012; Fahlenbrach, 2009; Ozkan, 2011; Shah, et al., 2009; van Essen, et al., 2012b).

In Pakistan, board size generally tends to be driven by directors appointed from the controlling families or by proxy directors working on behalf of controlling shareholders. Consequently, it is less likely that board size has any effective role in reducing agency conflicts. In that case, board size should not be negatively correlated with CEO compensation. However, consistent with the argument that board size increase quality of governance, we state our hypothesis as:

*H3: Larger board size has negative relationship with CEO compensation.*

### **Board Independence and CEO Compensation**

Agency theory suggests that independent directors are likely to play important role in aligning shareholder-manager interests by providing adequate monitoring. Independent outside directors are less subject to collude with management and have reputation to protect shareholders in the labor market (Core, et al., 1999; Fama & Jensen, 1983). On the other hand, inside directors are more obligated to CEO and can be under greater

CEO influence, leading to compromised CEO monitoring to get personal benefits from CEO such as career opportunities (see, Bebchuk & Fried, 2003; Weisbach, 2007). Nevertheless, external directors are also prone to have negative impact on internal governance if they have some secret relationship with management (Core, et al., 1999). Overall, board independence is expected to be related to less managerial opportunism, leading to lower executive compensation.

Empirically, available evidence is mixed over the relationship between board independence and executive compensation. For example, Boyd (1994) and Core, et al. (1999) find positive association, while others (e.g., Byrd & Cooperman, 2010; Conyon & He, 2011; Conyon & He, 2012) find no or negative relationship between number of independent directors in board and executive compensation. Given the Pakistani context where non-executive directors are generally hired from within the family or obligated to work on behalf of controlling shareholders (Javid & Iqbal, 2008; World Bank, 2005), we may expect so-called board independence to become irrelevant in corporate decision making, leading to non-negative relation between CEO pay and board independence. However, going with agency theory, we hypothesize that:

*H4: CEO compensation is negatively associated with board independence.*

### **CEO Duality and CEO Compensation**

CEO duality (CEO as chairman board of directors at the same time) provides opportunities to “self-interested” CEOs to influence major decisions in order to maximize their own utilities instead of maximizing shareholders’ wealth (Core, et al., 1999; Jensen, 1993). CEO duality reduces the board independence and increases the executive powers over control decisions including designing executive compensation contracts, leading to higher executive compensation. Thus, CEO duality is considered to be a sign of inefficient corporate governance in both agency theory and managerial power theory.

Empirically, most of the studies (e.g., Boyd, 1994; Brick et al., 2006; Conyon & He, 2012; Core, et al., 1999; Fahlenbrach, 2009; van Essen, et al., 2012b) find positive association between CEO duality and executive compensation, indicating likelihood of CEO entrenchment and excessive payment to CEO when he/she is also a chairman board of directors. In Pakistan, Code of corporate governance encourages companies to separate CEO position from chairman board of directors.<sup>4</sup> Thus, CEO duality is considered to be a potential cause of managerial entrenchment in Pakistan. Accordingly, we expect that CEO compensation is higher when CEO also holds the position of chairman board of directors. We formally hypothesize that:

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<sup>4</sup> In the revised version of the Code of corporate governance issued in March 2012, separation of position of chairman from CEO is mandatory with effect from year 2013.

*H5: CEO Compensation is positively related to CEO duality.*

## Research Strategy

### Data

We focus on all the non-financial firms listed at Karachi Stock Exchange (KSE), Pakistan for the period 2005 to 2012. Out of 399 non-financial listed companies classified in 12 industrial groups by State Bank of Pakistan (SBP), 139 companies are dropped because either they are declared as defaulted by KSE, newly listed or merged/demerged (86 companies), or their data on corporate governance and compensation is not available (53 companies). All the data is extracted from companies' annual reports collected by hand from different sources including SBP, KSE and companies' websites. As we go farther from 2012, the availability of annual reports decreases therefore sample period is restricted to start from 2005.

For the remaining 260 companies, we managed to collect data for at least three consecutive years, making an unbalanced panel data containing 1836 firm-year observations. However, out of 1836 firm-year observations 328 observations are dropped because in those observations, CEOs are not paid any compensation. Final sample contains 1508 firm-year observations from 225 firms for the period 2005 to 2012.

Table 1 reports the observations by pay components. Out of 1508 observations, only 374 (24.80%) observations have bonus payments, suggesting that smaller number of firms pay bonuses to CEOs. 657 (43.57%) observations have retirement benefits while 1399 (92.77%) observations have perks. This suggests that CEOs in Pakistan are drawing maximum pay in the form of basic pay and perks.

**Table 1**  
**Observations by Pay Components**

Basic Pay	Bonus	Perks	Retirement Benefits	Total Observations
1508	374	1399	657	1508
100%	24.80%	92.77%	43.57%	100%



## Methodology

### Static CEO Pay Model

Following existing literature, the following linear model is estimated to test the association of CEO compensation with firm performance and corporate governance in a static pay process:

$$\begin{aligned}
 LNCOMP_{it} = & \beta_1 ROA_{it} + \beta_2 TRET_{it} + \beta_3 BDSIZE_{it} + \beta_4 B\_IND_{it} + \beta_5 FAMOWN_{it} \\
 & + \beta_6 OWNCONS_{it} + \beta_7 DUALCEO_{it} + \beta_8 FIRMSIZE_{it} + \beta_9 FIRMRSK_{it} \\
 & + \beta_{10} MTB_{it} + \beta_{11} FMAGE_{it} + \beta_{12} CEOCHNG_{it} + \alpha_i + \omega_t \\
 & + \varepsilon_{it}
 \end{aligned} \tag{1}$$

Where  $LNCOMP_{it}$  is log of compensation. In Pakistan, long term incentive plans, stock options and restricted stocks are virtually non-existent. CEOs are paid in the form of base salary, cash bonuses, perks and benefits and post-employment benefits. Consistent with existing literature, we use two measures of CEO compensation i.e., cash compensation and total compensation. Cash compensation includes managerial remuneration and bonuses while total compensation is the sum of all the components.  $ROA_{it}$ , return on assets, represents accounting performance and it is measured as ratio of income before interest and taxes (EBIT) to total assets.  $TRET_{it}$ , total return to shareholder, represents market performance and it is measured as current market price of shares plus dividend for the current year divided by previous year market price. In Pakistan, it takes about 4 months until annual reports are published and distributed. Therefore, to avoid any inconsistencies, market price per share is taken on the date that is 4 months after the closing date.  $BDSIZE$ , board size, is measured as number of sitting directors on the board as mentioned in the annual reports. Although Code of corporate governance in Pakistan encourages the representation of independent director on the board however, this has not been a mandatory requirement until year 2013. Further, disclosure regarding independent director is very much inconsistent across the companies. Therefore, we use ratio of non-executive directors to board size as a measure of board independence ( $B\_IND$ ).  $DUALCEO$  is CEO-duality and it is incorporated as a dummy variable taking the value of one if CEO is also the chairman of board of directors and zero otherwise.

$FAMOWN$  is a dummy variable taking value 1 for family firms and zero otherwise. Following Anderson and Reeb (2003), Achleitner et al. (2014) and others, we define a family firm that fulfills one of the two conditions, 1) a person or family group hold at least 25% of voting right as measured by the percentage of shares owned directly or indirectly, 2) two or more family members sit on the board of directors.  $OWNCONS$  represents ownership concentration. Consistent with existing literature on ownership concentration

(see, Holderness, 2014; La Porta et al., 1999), we use ownership of largest shareholder as a proxy.

Firm specific control variables include firm size (FIRMSIZE) which is measured as log of total assets, firm risk (FIRMRSK), which is measured as standard deviation of monthly stock returns for the fiscal year, growth opportunities (MTB) proxied by market to book ratio as measured by market value per share divided by book value per share, firm age (FMAGE) as mentioned in the annual reports.

Firm size is perhaps one of the most cited determinants of CEO compensation across the world. Countless studies report that firm size is positively related to executive compensation (e.g., Devers, et al., 2007; Frydman & Jenter, 2010). Managing a risky company needs better managerial skills, leading to higher compensations (Brick, et al., 2006; Conyon & He, 2011; Core, et al., 1999). Firms with greater growth opportunities are expected to hire the executives with better skills who can exploit the available growth opportunities to maximize the shareholder value. This leads to a positive link between growth opportunity and CEO compensation (e.g., Brick, et al., 2006; Conyon & He, 2012; Ho et al., 2004). Similarly, aged firms are more likely to devise more efficient compensation contracts (see, e.g., Conyon & He, 2012; Ho, et al., 2004). Finally, if CEO is replaced in a firm, the new contract is unlikely to be the same as the previous one. Further, if CEO is replaced in the middle of a year, there would be 2 persons drawing the compensation in a year. Therefore, to account for such instances, we include CEOCHNG – a dummy variable taking the value 1 for new CEO and another variable indicating number of CEOs drawing compensation in a year.

In order to account for unobserved heterogeneity, we estimate fixed effect model after performing Hausman (1978) test. In addition, Both Breusch-Pagan /Cook-Weisberg heteroskedasticity test and White heteroskedasticity test indicate the presence of heteroskedasticity. Similarly, Wooldridge (2002) test for serial correlation in panel data suggests the presence of serial correlation in error terms. Therefore, we use Huber-White robust standard errors clustered at firm level. This adjustment of standard errors accounts for both heteroskedasticity and serial correlation (Greene, 2011).

### **Dynamic CEO Pay Model - Dynamic Panel Model Estimation**

The boards of directors have incomplete information about CEOs' capabilities and this information has to be updated over time (Conyon and He (2012)). Thus, boards of directors adjust CEO compensation to the target levels as they learn more about CEO capabilities over time. However, the boards cannot adjust CEO pay quickly to the target levels rather they try to smooth the adjustments process, leading to serial correlation in

CEO compensation. This makes CEO compensation a dynamic process. Therefore, we also estimate dynamic panel model in addition to static panel model.

The estimated model is as follows:

$$\begin{aligned}
 LNCOMP_{it} = & \alpha + \gamma LNCOMP_{it-1} + \beta_1 ROA_{it} + \beta_2 TRET_{it} + \beta_3 BDSIZE_{it} + \beta_4 B\_IND_{it} \\
 & + \beta_5 FAMOWN_{it} + \beta_6 OWNCONS_{it} + \beta_7 DUALCEO_{it} + \beta_8 FIRMSIZE_{it} \\
 & + \beta_9 FIRMRSK_{it} + \beta_{10} MTB_{it} + \beta_{11} FMAGE_{it} + \beta_{12} CEOCHNG_{it} + \omega_t \\
 & + \varepsilon_{it}
 \end{aligned}
 \tag{2}$$

The definitions of the variables are same as in model (1).

We estimate model (2) using instrumental variable (IV) approach and generalized method of moment (GMM) estimator. This strategy control for potential endogeneity problem in addition to unobserved heterogeneity. Before proceeding, we first test the endogeneity of the regressors using Durbin-Wu-Hausman (DWH) test for endogeneity of all the regressors (Chi-sq (11) = 38.47; p=0.0001) following Schultz et al. (2010) and Nguyen et al. (2015).

We use system-GMM approach because it is more efficient (Blundell & Bond, 1998; Roodman, 2009). System-GMM reduces the effect of high persistence of corporate governance variables thereby improving the power of estimations (Blundell & Bond, 1998; Nguyen, et al., 2015). In addition, system-GMM appears to be the best-performing estimator for the data which is characterized by moderate length of time, low within firm variations in corporate governance variables, possibility of fixed effects driven dependent variable, some variables are endogenous and a dynamic relationship exists between variables (Filatotchev et al., 2013; Nguyen, et al., 2015; Zhou et al., 2014). Our data reasonably possesses similar properties.

The choice of instrumental variables is crucial in GMM estimation techniques. We use Sargan (1958)/ Hansen (1982) over-identification tests and Arellano and Bond (1991) autocorrelation test for validity and suitability of the instrumental variables<sup>5</sup>.

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<sup>5</sup> See Roodman (2009) for details

## Empirical Results

### Descriptive Statistics

Table 2 presents the descriptive statistics. Both average total and cash compensation have gradually increased and nearly tripled over the sample period. Cash compensation has increased from Rs3.353 million in 2005 to Rs9.378 in 2012 while total compensation has increased from Rs4.817 million in 2005 from Rs.13.060 million in 2012. Consistently lower median value than mean value indicates that the distribution of compensation is positively skewed indicating that greater number of CEOs is receiving pay that is less than overall average pays.

Mean ROA of pooled sample is 10.99 percent with standard deviation of 13.39 percent while median is 9.51%. Average ROA does not seem to vary abnormally across the years. ROA decreases from 12.52% in year 2006 to 10.17% in year 2007 followed by 9.78% in year 2008 and 9.26% in year 2009. This is possibly because of three reasons: 1) unrest due to political issues and general elections, 2) start of energy crisis in Pakistan or 3) effects of financial crisis.

Total shareholder return, TRET, appears to be more fluctuating than ROA. In year 2005 average TRET is 27.70% which dramatically decrease to 3.49% in year 2006 followed by an increase to 24.87% in year 2007. Negative TRETs in year 2008 and 2009 seem to be indicating political unrest, energy crisis and financial crisis. Recovery seems to start after that with positive TRETs.

Average board size of pooled sample appears to be slightly above 8 with standard deviation of 1.57. Recently, Jameson et al. (2014) report similar average board size of 8 for Indian firms. This is possibly due to resemblance in institutional setting of concentrated and family ownership structure in India and Pakistan. The average board size in Pakistan is lower than the board size recently reported for China (mean 9.372 and median 9) and US (mean 9.54 and median 9) where state has the major stake in the firms or ownership is widely held (see, Conyon, 2014; Huang & Wang, 2015).

Boards are comprised of 63% non-executive directors on average. However, percentage of non-executive directors (B\_IND) has slightly downward trend till 2011, seemingly because of decrease in board size over time. The non-executive directors are more likely to be an easy target when board size needs to be reduced.

About 75% observations in our sample are from family firms and, quite expectedly, this ratio is almost stable over the sample period. The largest shareholder appears to be holding more than 30% average voting shares, indicating a highly concentrated

ownership environment. Interestingly, OWNCONS has slightly increasing trend over time which could have implications for CEO compensation contracts.

On average about 34% CEOs appear to be holding the position of chairman board of directors also. Interestingly, DUALCEO shows maximum value i.e. 36% in 2008, 2009 and 2010, the time characterized by political unrest, energy crisis and financial crisis. However, recent downward trend in 2011 and 2012 seems to be consistent with greater emphasis on separating the position of chairman and CEO in Pakistan. This recent trend is similar to the UK and China where emphasis is on separating the post of CEO from the chairman, and unlike the US where it is usual to combine these two positions (Conyon & He, 2012).

**Table 2**  
**Descriptive Statistics**

Variables	Statistic	2005	2006	2007	2008	2009	2010	2011	2012	Pooled
Cash Pay Rs. in '000	Mean	3353	3918	4751	5529	6004	6577	7523	9378	6042
	Median	2000	2303	2715	2836	3435	3450	4001	5186	3174
	S.D	4626	5840	7786	9268	8867	9690	10460	14766	9733
Total Pay Rs. in '000	Mean	4817	5530	6512	7562	8396	9449	10628	13060	8475
	Median	3156	3384	4153	4553	4999	5459	6060	7519	4800
	S.D	5854	7030	9094	11028	11278	12519	13493	19935	12538
ROA %age	Mean	11.93	12.52	10.17	9.78	9.26	12.28	11.74	10.54	10.99
	Median	9.14	9.58	7.86	7.96	9.53	11.20	10.84	10.32	9.51
	S.D	11.07	10.67	11.23	11.52	19.31	11.73	12.96	14.80	13.39
TRET %age	Mean	27.70	3.49	24.87	-14.35	-1.73	8.37	-0.47	86.46	16.74
	Median	18.97	-1.01	7.38	-27.20	-18.04	-6.14	-9.99	47.84	-0.84
	S.D	52.18	39.08	71.94	80.74	67.19	62.89	72.12	114.89	80.04
BDSIZE	Mean	8.13	8.15	8.08	8.04	8.01	8.00	8.01	8.00	8.05
	Median	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
	S.D	1.68	1.68	1.62	1.57	1.53	1.51	1.51	1.51	1.57
B_IND %age	Mean	64.32	64.31	63.90	63.65	62.85	63.23	62.58	63.91	63.54
	Median	70.00	70.71	70.00	66.67	66.67	66.67	62.50	66.67	66.67
	S.D	20.37	20.72	20.71	20.59	20.94	20.64	20.31	19.96	20.49
FAMOWN	Mean	0.75	0.75	0.76	0.75	0.74	0.75	0.75	0.74	0.75
	Median	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	S.D	0.44	0.43	0.43	0.43	0.44	0.43	0.43	0.44	0.43
OWNCONS %age	Mean	32.72	33.01	33.07	33.23	33.36	33.61	34.39	35.51	33.67
	Median	26.46	26.61	26.71	26.25	26.13	26.13	27.45	29.40	26.66
	S.D	21.01	21.22	20.78	20.48	20.44	20.30	20.74	21.32	20.74
DUALCEO	Mean	0.30	0.33	0.33	0.36	0.36	0.36	0.35	0.33	0.34
	Median	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	S.D	0.46	0.47	0.47	0.48	0.48	0.48	0.48	0.47	0.47
TASSETS Rs in Millions	Mean	7173	8607	9827	10898	11636	12675	14490	17215	11833
	Median	2385	2603	2970	3042	3034	3068	3544	3831	3061
	S.D	14281	16821	18677	22158	26033	31098	35893	45860	29092
FIRMRSK %age	Mean	15.03	12.15	12.70	13.24	24.29	17.88	14.07	15.97	15.88
	Median	13.54	11.20	12.13	11.66	19.32	13.18	11.15	13.29	13.01

	S.D	8.00	8.51	6.63	7.74	23.59	15.63	11.00	11.37	13.59
MTB Times	Mean	1.79	2.35	2.17	1.74	1.56	1.31	1.30	1.84	1.73
	Median	1.19	0.99	1.13	0.86	0.62	0.52	0.43	0.65	0.75
	S.D	2.37	8.17	4.76	4.77	4.81	6.03	4.58	5.62	5.35
FMAGE Years	Mean	31.03	31.84	32.56	32.87	34.01	35.06	36.14	37.50	34.06
	Median	27.00	28.00	29.00	29.00	30.00	31.00	32.00	33.00	30.00
	S.D	16.65	16.75	16.48	16.43	16.61	16.56	16.46	16.59	16.65

**Table 3**  
**Correlation Matrix**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	
LNTCOMP	(1)	1.0000													
LNCASHCOM P	(2)	0.9722*	1.0000												
ROA	(3)	0.3088*	0.3098*	1.0000											
TRET	(4)	0.0148	0.0225	0.1734*	1.0000										
BDSIZE	(5)	0.3215*	0.3138*	0.1333*	-0.0038	1.0000									
B_IND	(6)	0.1872*	0.1438*	0.0326	-0.0242	0.3538*	1.0000								
FAMOWN	(7)	0.3775*	0.3760*	0.2202*	0.0188	0.4532*	0.2273*	1.0000							
OWNCONS	(8)	0.3555*	0.3651*	0.2218*	0.0497	0.1007*	0.0638*	0.5435*	1.0000						
DUALCEO	(9)	0.2944*	0.2777*	0.1671*	0.0108	0.2605*	0.1863*	0.1730*	0.0841*	1.0000					
LNTASSETS	(10)	0.5781*	0.5614*	0.1706*	-0.0443	0.3795*	0.1320*	0.2750*	0.2495*	0.2164*	1.0000				
FIRMRSK	(11)	0.2040*	0.2060*	0.1895*	0.1968*	0.1272*	0.0891*	0.1155*	-0.0418	0.1978*	0.2403*	1.0000			
MTB	(12)	0.0932*	0.1197*	0.1750*	0.0691*	0.0803*	0.1189*	0.1730*	0.2793*	0.0949*	0.0802*	0.0913*	1.0000		
FMAGE	(13)	0.2469*	0.2380*	0.0670*	0.0354	0.1897*	0.0538*	0.2164*	0.2026*	-0.0167	0.1158*	-0.0334	0.0389	1.0000	
CEOCHNG	(14)	0.1359*	0.1178*	0.0290	-0.0013	0.2176*	0.1406*	0.2644*	0.1834*	0.1039*	0.2192*	-0.0224	0.0222	0.0621*	1.0000

(\*) p-value < 0.05

**Table 4**  
**CEO Compensation and Firm Performance**

VARIABLES	Log of Total Compensation			Log of Cash Compensation		
	(1) Pooled	(2) Fixed Effects	(3) Dynamic Panel (GMM)	(4) Pooled	(5) Fixed Effects	(6) Dynamic Panel (GMM)
LNTCOMP <sub>t-1</sub>	----	----	0.8037*** (0.0577)	----	----	0.8995*** (0.0413)
ROA	1.3484*** (0.3927)	1.3156*** (0.3429)	0.5282*** (0.1567)	1.3644*** (0.4029)	1.3315*** (0.3611)	0.4194*** (0.1404)
TRET	0.0132 (0.0262)	-0.0406 (0.0246)	-0.0447 (0.0615)	0.0244 (0.0267)	-0.0304 (0.0258)	-0.0275 (0.0465)

OWNCONS	0.7634** (0.3298)	0.5726* (0.2937)	0.1486* (0.0831)	0.8819*** (0.3363)	0.7061** (0.3114)	0.1173 (0.0910)
FAMOWN	-0.2767* (0.1486)	0.0137 (0.1465)	-0.0339 (0.0380)	-0.2915* (0.1657)	-0.0421 (0.1649)	-0.0163 (0.0432)
BDSIZE	0.0016 (0.0425)	0.0029 (0.0382)	0.0087 (0.0093)	0.0160 (0.0485)	0.0253 (0.0437)	0.0069 (0.0114)
B_IND	0.3561 (0.2844)	0.2463 (0.2536)	0.0300 (0.0707)	0.1132 (0.2965)	0.0292 (0.2725)	0.0160 (0.0612)
DUALCEO	-0.3416*** (0.1217)	-0.2217** (0.1095)	-0.0750* (0.0386)	-0.3210** (0.1269)	-0.2191* (0.1150)	-0.0651* (0.0353)
FIRMSIZE	0.3546*** (0.0353)	0.3503*** (0.0363)	0.0664*** (0.0204)	0.3530*** (0.0368)	0.3532*** (0.0385)	0.0365** (0.0146)
FIRMRSK	-0.1918 (0.2106)	-0.0783 (0.2110)	-0.0763 (0.1580)	-0.2886 (0.2126)	-0.1914 (0.2044)	0.0493 (0.1222)
MTB	-0.0080 (0.0086)	-0.0075 (0.0092)	0.0010 (0.0032)	-0.0040 (0.0081)	-0.0052 (0.0088)	-0.0004 (0.0035)
FMAGE	0.0097** (0.0037)	0.0072** (0.0032)	0.0008 (0.0008)	0.0092** (0.0040)	0.0062* (0.0034)	-0.0004 (0.0008)
CEOCHNG	-0.1296 (0.0805)	-0.1196* (0.0711)	0.0292 (0.0382)	-0.1733** (0.0858)	-0.1583** (0.0767)	0.0186 (0.0419)
Observations	1,508	1,508	1277	1,508	1,508	1,277
R-squared	0.4686	0.6060	----	0.4474	0.5707	----
Arellano-Bond						
AR(1) in Diff. (m1) p-value	----	----	0.000	----	----	0.000
AR(2) in Diff. (m2) p-value	----	----	0.739	----	----	0.324
Over identification test						
Sargan test p-value	----	----	0.133	----	----	0.120
Hansen J statistic p-values	----	----	0.827	----	----	0.266

Dependent variables are log of compensation, ROA = return on assets measured by earnings before interest and taxes divided by total assets, TRET = total return to shareholders as measured by current market price plus dividend divided by previous year market price minus one, OWNCONS = concentrated ownership as measured by voting shares held by the largest shareholder, FAMOWN = a dummy variable taking value one for family firms and zero otherwise, BDSIZE = board size as measured by number of sitting directors on board, B\_IND = board independence as measured by ratio of non-executive directors to board size, DUALCEO = CEO duality a dummy variable taking value one if CEO is also chairman board of directors, FIRMSIZE = firm size as measured by log of total assets, FIRMRSK = firm risk as measured by standard deviation of monthly stock returns over the fiscal year, MTB = market to book ratio as measured by market value divided by book value per share, FMAGE = firm age as mentioned in annual reports, CEOCHNG = Interaction term of dummy variable taking value 1 if CEO is replaced during the year and number of CEOs drawing remuneration during the year.

Robust standard errors in parentheses for pooled and fixed effect models

Windmeijer-corrected Standard errors in parentheses for dynamic panel model

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Correlation Analysis

Table 3 presents the correlation matrix. Log transformation is performed for compensation variables and firm size proxy i.e. total assets. Multicollinearity does not seem to be a problem in the data as none of the absolute values of correlation coefficients between explanatory variables is greater than 0.70. This is further confirmed by variance inflation factor (unreported).

Both cash and total compensation have positive correlation with accounting performance (ROA) but correlation with market performance (TRET) is not significant although sign is positive. Board structure variables BDSIZE and B\_IND are also positively correlated with compensation, indicating the potential ineffectiveness of boards in monitoring and reducing CEO entrenchment and hence CEO compensation. Family firms seem to pay lower compensation to CEO as depicted by negative correlation between FAMOWN and both measures of CEO compensation.

Inconsistent with agency theory, ownership concentration is positively correlated with compensation. Surprisingly, CEO duality is negatively correlated with CEO compensation which inconsistent with both agency theory and managerial power theory. LNASSETS, LNSALES, MTB and FIRMAGE appear to have positive correlation with compensation. However, CEO compensation reduces as firm risk increases which is inconsistent with the argument that risky firms need to pay higher compensation to their CEOs.

## Estimation Results

Table 4 presents the estimation results for total compensation and cash compensation as dependent variables. Robust standard errors are reported for pooled and fixed effect models while Windmeijer-corrected standard errors are reported for dynamic panel models. Arellano-Bond serial correlation tests m1 & m2 and instrument over-identification tests are also reported at the bottom of the table. Arellano-Bond test for second order (m2) validates the use of second and earlier lags of dependent variables as instruments. None of the values of m2 rejects the hypothesis of no second order correlation in error terms. Similarly, p-values of over-identification tests, Sargan test and Hansen J test, does not lead to rejecting the hypothesis of joint validity of the instruments used.

Consistent with the agency theory, both measures of CEO compensation are positively related to current firm accounting performance as measured by ROA. The results are consistent qualitatively over different model specifications. Thus, confirms that despite CEOs are seemingly more powerful than the boards, their compensation is still linked to firms' accounting performance. This finding seems to be inconsistent with managerial power.

Total returns to shareholder do not significantly contribute to pay setting process as coefficient of TRET is not significantly different from zero in all models. Since CEO compensation in Pakistan rarely includes any restricted stocks, stock options and other stock based bonuses, therefore weak link between CEO compensation and market performance is expected. Another possible reason for an insignificant relationship between CEO compensation and market performance could be that Pakistani bourses



are considered to be highly volatile (Sheikh & Riaz, 2012), therefore using market performance as benchmark for setting CEO compensation may not be a good choice.

We find similar positive pay-performance link for past accounting performance when we replace current firm performance variables with their lagged values in the models (unreported). However, surprisingly, lagged TRET (market performance) appears to have negative association with both measures of CEO compensation. This negative association may be interpreted as sign of cronyism which predict negative association between excessive pay and firm performance (Brick, et al., 2006). However, we believe that this negative association is more probably due to highly volatile bourses in Pakistan. During the periods of bad market performance, especially from 2008 to 2011, the compensation may have increased due to positive accounting performance, leading to negative relationship between current compensation and previous year market performance.

Consistent with pay adjustment hypothesis (Canyon & He, 2012), the coefficients of lagged CEO pay in dynamic panel models are positive and significant, indicating that CEO pay is highly persistent and takes time to adjust to its long-term equilibrium level. This is an important finding of this study as most of the literature on CEO compensation ignores the dynamic nature of CEO compensation and estimate static pay models considering that pay is in equilibrium, thus, ignoring the CEO pay-adjustment to long run equilibrium.

Ownership concentration appears to have positive impact on both measures of CEO compensation which is inconsistent with agency theory argument that concentrated ownership has better incentives to monitor and curb managerial opportunism, leading to lower CEO compensation. The coefficients of OWNCONS are significantly positive. This might be an indication of expropriation of minority interests by controlling shareholders. Controlling shareholders might be engaged in colluding with management to get personal benefits at the expense of minority shareholders thus overlooking CEO compensation.

In pooled regression, CEOs seem to receive lower compensation in family firms. However, in fixed effect and dynamic panel model, the coefficients of FAMOWN do not appear to be significant. Thus, we find weak evidence that family ownership significantly influence the CEO pay setting process. The inconsistencies in results across different models need to be explored further using more variables on family characteristics as discussed by Bertrand and Schoar (2006).

Inconsistent with many studies (e.g., Core, et al., 1999; Croci, et al., 2012; Fahlenbrach, 2009; Ozkan, 2011; Shah, et al., 2009; van Essen, et al., 2012b), the coefficient of board size is consistently insignificant in all models. These results suggest that board size does

not influence CEO compensation in either side positive or negative. This indicates the ineffectiveness of boards and seems consistent with corporate governance environment in Pakistan where boards are more likely to be bypassed in important corporate decisions.

Similarly, the coefficients of B\_IND are insignificant in all models, indicating no influence of board independence on CEO pay process. This is inconsistent with agency theory. Nevertheless, insignificant coefficient of B\_IND is consistent with our expectations in Pakistani context that non-executive directors are usually hired from controlling families or they are proxy directors to act on behalf of controlling shareholders/families (Javid & Iqbal, 2008), leading to no significant effect on corporate decision making.

Surprisingly, in contrast to many existing studies (e.g., Boyd, 1994; Brick, et al., 2006; Conyon & He, 2012; Core, et al., 1999; Fahlenbrach, 2009; van Essen, et al., 2012b), CEO duality appears to be significantly negatively related to both measures of CEO compensation. The coefficients of DUALCEO are consistently negative in all model specifications. Thus, the argument that more concentrated power in one person by combining the position of CEO and chairman board of directors leads to expropriation resulting in higher CEO compensation is not supported in Pakistan.

Firm size (FIRMSIZE) as measured by log of total assets appears to be significantly positively related to both measures of CEO compensation in all models. This supports the argument that larger firms are complex and difficult to run and hence require quality CEOs with higher compensations. As expected firm age is positively associated with CEO compensation, while newly appointed CEO are more likely to start with lower compensation than the leaving CEO as suggested by some significant negative coefficients of CEOCHNG. Other control variables, FIRMRSK and MTB, do not appear to influence CEO compensation decisions.

### **Robustness Checks**

Although results presented are robust across different model specifications however, to further reconfirm, certain robustness checks are conducted. First, all the continuous variables are winsorized using 1% level at both tails to eliminate potential outliers and all models are re-estimated. But, the results do not change qualitatively therefore it is decided to report the original data results. Second, alternative measures of firm accounting performance, firm size and ownership concentration as log of net sales, EPS and voting shares held by three largest shareholders respectively, are incorporated. Again, the results remain qualitatively similar to as reported above. Third, to control for endogeneity problem, following a number of studies (e.g., Croci, et al., 2012; Ozkan, 2011) current values of all independent variables except FIRMAGE and CEOCHNG in

Model (1) are replaced with their lagged values treating them as potential cause of endogeneity. However, again, results do not change qualitatively. Thus, findings of this study are robust.

## Conclusions

In Pakistan, legal systems and investor protection are weak. Therefore, firms' ownership is concentrated in few individuals or families, leading to more agency problems between controlling and minority shareholders. Further, Code of corporate governance issued to improve corporate governance practices in Pakistan has much emphasis on the board structure. Given the Pakistani context, we study how firm performance, concentrated/family ownership and board structure contribute towards CEO pay setting process.

Using different model specifications including a dynamic panel model that also control for endogeneity problem, we find that current and previous year firm accounting performance has significant positive influence on CEO compensation. However, firm current market performance does not have any influence on CEO compensation but surprisingly previous year market performance seems to be negatively influencing the CEO compensation. We believe that this negative association is mainly driven by highly volatile markets in Pakistan which are preventing boards to base CEO compensation on market performance.

An important finding of this study is that CEO pay is highly persistent and takes time to adjust to long-run equilibrium, indicating that boards of directors in Pakistan adjust CEO compensation to target levels as they learn more about CEO capabilities over time. Thus, CEOs' compensation also depends upon their innate time-invariant capabilities which are not fully observable initially but gradually in subsequent periods through CEOs' real outputs.

Inconsistent with agency theory, we find that ownership concentration has positive impact on CEO compensation. This finding supports the rent extraction view. There may be some sort of collusions between management and largest shareholder for rent extraction. In addition, we find weak evidence that CEOs in family firms receive lower compensation than their counterparts. Thus, overall, ownership structure does not affect CEO compensation as suggested by agency theory.

Board structure variables, board size and board independence, have no convincing influence on CEO compensation in any direction, indicating board ineffectiveness in

reducing CEO entrenchment. This seems to be consistent with corporate governance environment in Pakistan in that boards are often bypassed in important corporate decisions and non-executive directors often work only in the interests of the largest shareholders.

Although agency theory suggest that CEO duality leads to higher CEO compensation, however we find that CEO duality actually leads to lower CEO compensation in Pakistan.

Overall, our findings suggest that firm accounting performance is an important determinant of CEO compensation. However, ownership concentration and board structure variables are not affecting CEO compensation in the way suggested by agency theory. These findings have important implications for policy makers and stakeholders as Code of corporate governance in Pakistan is typically justified using agency theory view point.

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