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# Executive remuneration, corporate governance and corporate performance: Evidence from China

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## ABSTRACT

This study investigates the impact of corporate performance and corporate governance on executive remuneration in a Chinese market setting. Using Generalized Method of Moments (GMM) estimation approach for a sample of 860 non-financial firms listed on Chinese Stock Exchanges over the 15 years period of 2004–2018, the study found a positive and significant association between corporate profitability and executive pay. The study further reports that ownership concentration is positively related to executive pay revealing an entrenchment effect i.e., collusion between large shareholders and top management. Consistent with managerial power and agency theory CEO duality exhibits a positive relationship with executive remuneration, while board size and board independence also reveal a positive association with executive pay, indicating board ineffectiveness in reducing managerial entrenchment. Interestingly, non-state-owned enterprises report a negative relationship of board size with executive remuneration which means non-state-owned enterprises with larger board size tend to reduce executive pay because they may have better control and monitoring. Following the managerial power propositions, CEO duality weakens the performance sensitivity of executive pay, but contrary to agency theory the impact of board independence on this sensitivity is in contrast and weakens the relationship of managerial pay and performance, making the independent director's role ambiguous.

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## 1. Introduction

For the last two decades executive remuneration and corporate performance have been debatable topics. Extensive strands of research highlight the prime question whether executive remuneration can be justifiable from the lens of top management contributions to corporate financial profitability (Firth et al., 2006; Harvey et al., 2020; Jensen & Murphy, 1990; Kato & Long, 2006). Significant research studies have contributed to the literature regarding executive remuneration (Ataay, 2018;

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Harymawan et al., 2020). Broadly there are two competing executive pay models, which are based on managerial power theory and agency theory. Managerial power theory (Bebchuk & Fried, 2004) asserts that high command of power exercised by top management over their boards may lead to executive pay which is not in the best interest for stockholders. The alternative, Agency theory (Jensen & Meckling, 1976) suggests that executives at the expense of stockholders behave opportunistically and a concept is supported that executive pay is instrumental in solving agency problems by restraining executives' remuneration in line with stockholders' interests. Therefore, better corporate governance mechanisms lead to efficient monitoring power by the board, thus linking the executive remuneration contracts with corporate performance. Past studies on pay-performance have indicated significant but weak relationship between pay and performance (Firth et al., 2006; Jensen & Murphy, 1990; Kato & Long, 2006). Apart from pay linkage to performance, researchers assert that different elements of corporate governance have significant impact on remuneration of executives (Ataay, 2018; Ryan & Wiggins, 2004). Researchers have studied various aspects of indispensable mechanisms of corporate governance such as board meetings, board size, board education, board independence, CEO duality, female board members, and these studies indicate a significant relationship between firm financial performance and executive remuneration (Kato & Long, 2006; Ryan & Wiggins, 2004; Vafeas, 1999).

Even though, after a recovery from the financial crisis of 2008, executives were awarded with bonuses by number of firms in the UK and US in the same year, for which such bonuses were named as 'shameful' by Barack Obama, the then US President (Brady & Randall, 2009). This situation annoyed the general stakeholders such as taxpayers and investors (Corkery & Medarevic, 2013). Since the 2008 crisis, the intensity and frequency of shareholders' objections have increased regarding executive remuneration processes (Faulkender et al., 2010). Especially, the shareholders demanded more transparency about processes and criteria for rewarding executives against performance and objected to the size of executives' incentives development. (Del Guercio et al., 2008). Researchers also argue that such engagements have been effective in recent changing patterns of compensation policies (Ferri & Maber, 2013; Hooghiemstra et al., 2017). These situations have motivated both the shareholders activism and researchers to investigate the link between performance, corporate governance and executive remuneration (Wade et al., 2006).

This study contributes to the body of knowledge in several ways; first, it will respond to the call for more research on understanding executive remuneration in relation to corporate governance. Fan et al. (2011, p. 211) assert 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". This study contributes to the body of knowledge in the area of executive remuneration in the context of emerging markets.

Secondly, this study addresses the persistence and adjustment of executive remuneration levels by including the lagged remuneration effect, and methodological robustness by using the generalized method of moments which caters the simultaneous bias caused by reverse causality of executive pay and firm's performance and accounts for serial-correlation, unobserved-heterogeneity and endogeneity problems.

Thirdly, apart from empirical ground, our study provides extensive theoretical contribution from insights of managerial power and agency theories. Past researches endorse these theories as competitors of each other, so other research studies investigated and incorporated each theory in isolation from the other. Therefore, these studies were unsuccessful in identifying and understanding their inter-relevance and inter-connectedness. The results of our study present that the remuneration packages are the outcome of performance, but also governance functions can involve salaries contracts in terms of performance.

Findings of this study reveal that there is a positive and significant association between corporate profitability and executive pay. We found that ownership concentration is positively associated with executive remuneration, which is in contrast to the agency view. Interestingly, board size and board independence are negatively associated with executive remuneration in N-SOEs but have positive impact on executive pay in SOEs, which gives some explanation for the managerial power hypothesis. Directors have more reputational concerns in N-SOEs, whereas directors in SOEs follow a bureaucratic management style and independent directors in SOEs may act as proxies for the controlling agents. CEO duality shows a positive impact on executive compensation. Particularly with respect to CEO duality, the separation of this dual role needs to be mandatory in any revised corporate governance framework and it poses important implications both for practitioners and policy makers. Moreover, ownership concentration and board size positively moderates the pay-performance relation, whereas board independence and CEO duality negatively moderate and decouple the link.

The remainder of this study is structured as follows: section 2 provides an extensive review of literature with emphasis on the institutional context of the study setting and hypotheses. Section 3 explains methodological procedures with data and baseline models. Section 4 provides empirical results and discussion and finally in section 5 the researchers conclude the study.

## **2. Literature review and hypotheses development**

### **2.1. China as study setting**

Historically in China, executives received only salaries, stipends and bonuses in cash form as remuneration. Stock options in the form of equity pay, was rare and equity as pay became permissible since 2006. Few executives hold equity stock as part of their pay. Conyon and He (2011) documented that nearly 50% of CEOs of listed Chinese firms hold shares as their ownership. In China, pay disclosure is considerably rarer than that of Western economies. But this is not the same over time as market reforms have improved the situation. Post regulation of CSRC from 2001, it has become obligatory to report the aggregated sum of the top three executives' remuneration (of public firms) in their annual reports.

Chinese firms' ownership pattern is highly distinctive in numerous ways. There are two central elements in this ownership pattern. First, this ownership is highly concentrated and secondly in the majority of firms there is considerable state ownership. Conyon and He (2011) reported 43%, and 9% shareholding for the largest and second

largest shareholder for Chinese firms. On average the top five shareholders' accumulated holding is 52% as reported by Liang and Useem (2009). However, at the end of 2012, institutional investors increased dramatically in Chinese firms, and almost 75% of shares reflect institutional ownership (Jiang & Kim, 2015).

Corporate governance in Chinese firms is practised using two-tier boards: supervisory board and board of directors. Previously, the appointment procedure of both board's members was heavily influenced by the controlling parties. Later in August, 2001, CSRC introduced "Guide to the Establishment of Independent Director's System", with a mandate to set one-third of independence on the board. Later in 2002, "State Economic and Trade Commission" (SETC) and CSRC jointly promulgated "Code of Corporate Governance for Listed Companies in China". SETC and CSRC, during the same era also promulgated "the Management Standard of Listed Companies", to enhance transparency. Overall the implementations of such regulations ensured the accountability of top executives. However, contemporary research studies indicate that the concerns of individual shareholders are dominated by controlling shareholders, and accountability of top executives remains a question mark (Hu et al., 2010).

A supervisory board supervises the board of directors, but in practice there exists no hierarchical difference between both boards (Haider & Fang, 2016). The directors on both boards are appointed by shareholders and both of the boards report to shareholders. So board structure becomes more likely a one-tier board (Haider & Fang, 2016). CEO duality within the period of 2008-12 led to an average rate of nine percent for SOEs and 27% for non-SOEs. (Jiang & Kim, 2015).

## **2.2. Corporate performance and executives remuneration**

Researchers usually document remuneration as reward for a firm's past performances and regard the past performance as ex-ante inducement in the remuneration of successful executives. and those researchers hypothesize the firm's outcomes as impact of compensation (Gupta & Wowak, 2016). Inspired by agency theory, executives having arm's length transaction, directors design such benefits in term of incentives to allocate considerable power to diminish the problem arising from separation of control and ownership and to deal with moral hazard issues through effective remuneration (Bebchuk & Fried, 2003). These studies advocate about the positive linkage between remuneration and corporate performance. There is an extensive strand of literature about the relationship between corporate performance and executive remuneration which is based on agency theory (Bayless, 2009; Conyon & He, 2011; 2012; Ozkan, 2011). Agency conflicts can be solved between agent (managers) and owner (principals) by compensation schemes which link the performance of firm with compensation (Chizema, 2010; Hüttenbrink et al., 2014; ). Such compensation structure can also motivate executives to limit risk which in turn increases a firm's value (Mehran, 1995). This alliance has been known as "pay-performance-sensitivity". As the sensitivity increases the alignment gets stronger between shareholder and managerial interests, which include both operational and financial performance (Jensen & Murphy, 1990; Murphy, 2013). Many studies in this regard were conducted in developed

economies (Colpan & Yoshikawa, 2012; Conyon, 2014) and the emerging countries (Ataay, 2018; Conyon & He, 2011; Firth et al., 2006; Hearn et al., 2017; Kato & Long, 2006; Zhou et al., 2017) (also see [Appendix](#)). Based on these arguments the study proposes the following hypothesis.

*H1: Corporate performance has a significant positive impact on executive remuneration.*

### **2.3. Corporate governance and executives remuneration**

#### **2.3.1. Ownership concentration**

From the perspectives of entrenchment effect, in concentrated ownership the controlling or ruling shareholders may confiscate and exploit the interest of minority shareholders by taking unnecessary advantages in many ways, i.e., excessive remunerations of executives and also having higher power command which supports the managerial power theory (Crocì et al., 2012; Su et al., 2010). By considering the executives in relation with controlling shareholders they may set their own remunerations higher and so expropriate the wealth of minority shareholders. In emerging markets such aspect of expropriation is likely to occur as the impersonal exchange shifts to personal exchange in respect of mutual benefits between ‘both sides’ (Jameson et al., 2014).

Managerial power theory and agency theory both assert that managerial power mechanism plays a vital role in perspective of ownership concentration for shareholders’ interest which is dependent essentially on the large shareholding (Morck et al., 2005). In firms with concentrated stockholders, directors are having managerial stakes and having roles as representatives (Baixauli-Soler et al., 2016). In developed countries corporate performance is tightly linked with executive remuneration in firms which have more concentrated structure of ownership and so the entrenchment effect seems to be eliminated as per remuneration aspect of violation (Core et al., 1999; Hoskisson et al., 2009; Hüttenbrink et al., 2014). More interestingly the same finding is evidenced in some emerging economies (Claessens et al., 2000; Conyon & He, 2011; Firth et al., 2006; Kato & Long, 2006). In line with these arguments the study formulated the following hypothesis.

*Hypothesis 2: Ownership concentration has a significant positive impact on executives’ remunerations and significant positive moderating impact on pay-performance sensitivity.*

#### **2.3.2. Board size**

Board size has greater abilities in terms of critical resources extraction and with higher level of board expertise board size induces better financial and operational efficiency (Achim et al., 2015). Jensen (1993) argues that large boards also lead to ineffective monitoring for executives as they become so overweight making them highly averse to follow-up. So executives of firms with higher level of control under large boards make them less effective across different functions (Jensen, 1993; Ongsakul et al., 2020). Large boards may be compromising on their controlling and monitoring functions, which weakens the internal governance and shift of power curve turns towards the executives, reflecting the managerial power and executives leading their

own influence on their remunerations, which results in higher salaries. Many studies reported that larger boards lead to higher remuneration (Crocì et al., 2012; Fahlenbrach, 2009; Ozkan, 2011; Van Essen et al., 2012).

Although effectiveness of the board highly depends on the personal abilities of board members with regard to strategic and management skills, a number of board members sharing different skills will result in better interest alignment of executives with a corporate goal of better financial performance. As the size of the board increases, the group abilities increase to handle the resource allocation and higher supervision, which results in better performance (Lo & Wu, 2016; O'Reilly & Main, 2010). In the context of China having a two tier board mechanism (BoD and Supervisory Board), the board size may impact executive remuneration positively; however, the sensitivity of remuneration with respect to performance will be high with respect to large boards. We formulate the following hypothesis.

*H3: Board Size has a significant positive impact on executives' remunerations and also significant positive moderating impact on pay-performance sensitivity.*

### **2.3.3 Board independence**

Managerial power is influenced by boards, composition level with respect to its independence and dependence (Ozkan, 2011). According to agency theory, independent directors play a vital role of aligning the interests of both parties (shareholders and managers). Inside directors are under greater influence of the CEO, which leads to compromised duties and may have personal or informal benefits from the CEO such as career opportunities, whereas the CEO also enjoys extra benefits (Bebchuk & Fried, 2003; Weisbach, 2007; ). There may also be a negative effect of independent directors on internal governance in firms where the external directors have secret or hidden relationships with the firm's management or executives. Such relationships usually tend to be found in developing markets where firms have high stakes of institutional ownership or family ownership. Empirical findings are mixed on the relationship between executives' remuneration and the independence level of the board. Some studies reported a positive relationship while some found an insignificant association (Byrd et al., 2010; Conyon & He, 2011; 2012). As China moves from SOEs toward a more modern independent firm style. still independent directors are influenced by political parties and state appointed directors and considering the higher institutional holdings whereby the independent directors may be used as proxies and their independence level becomes irrelevant.

Research studies report that board independence increases the scrutiny regarding executives' tendencies towards pay-performance-sensitivity (Conyon & He, 2011; Zhou et al., 2017). There is also some contradictory research evidence which shows that even a decrease in independent directors has no effect on the executives' pay performance relationship (Capezio et al., 2011; Conyon, 2014). In case of Chinese firms this study expects that members may be heavily influenced by State Ownership, majority shareholders, and thus the effectiveness of board independence in pay performance sensitivity remains ambiguous.



*H4: Board Independence has a significant positive impact on Executive's Remunerations and significant negative moderating impact on pay-performance sensitivity.*

**2.3.4. CEO duality.** CEO duality may pose a role of self-interest and has the ability to influence the authorities because of provided power into such positions (Jensen, 1993). Managerial power theory argues that power concentration in one individual for decision-making leads to the authorization of the individual with more power that results in practical implications for decision making of the board (Finkelstein & D'Aveni, 1994). First, as a dual leader, the CEO arranges board meetings and agenda settings of such meetings and thus the CEO is able to have a control over information flowing to members of the board (Pearce & Zahra, 1992; Bebchuk & Fried, 2004). Secondly, as the CEO rank is the highest in corporate hierarchy, this gives more power and results in less cross-checking from subordinates. Thirdly, nomination of new directors comes under the influence of the dualities of the position (Westphal & Zajac, 1995).

Research studies indicate a positive relationship between CEO duality and executives' remuneration (Fahlenbrach, 2009; Van Essen et al., 2012; Conyon & He, 2012;). However, it is also evidenced that CEO duality in firms tends to increase the levels of executives' compensations, and researchers also assert that impact of duality decouples the performance linkages with compensation (Boyd et al., 2011;). These arguments suggest that the leadership duality tends to have a positive impact on the remuneration of executives and pay-performance sensitivity tends to be weaker in the presence of CEO Duality (Van Essen et al., 2012; Ataay, 2018) (Figure 1).

*H5: CEO Duality has a significant positive impact on Executives' Remunerations and significant negative moderating impact on pay-performance sensitivity.*

### 3. Methodology

#### 3.1. Sample description and data sources

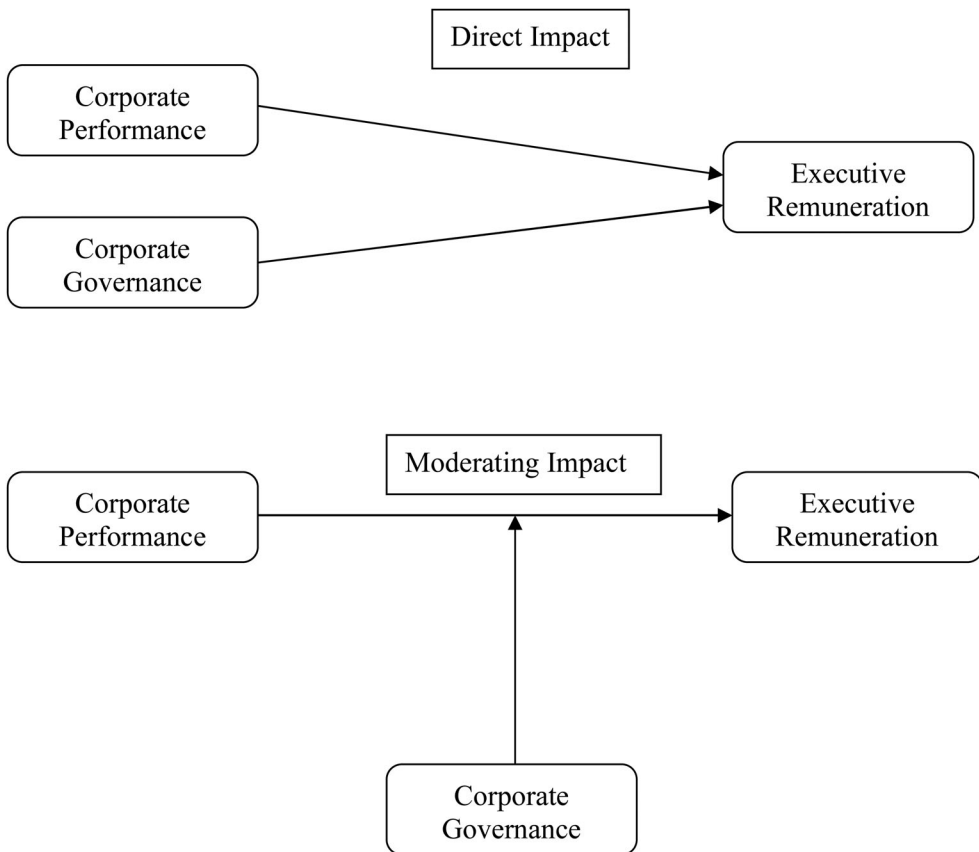
This study employs a data set of 860 non-financial A-listed firms listed on the Chinese stock exchanges over a period of 2004-2018. Annual Data is collected from CSMAR "China Stock Market and Accounting Research" (480 firms from Shanghai Stock Exchange and 380 firms from Shenzhen Stock Exchange) representing an unbalanced panel data containing 12,659 firm year observations. Firms with at least three years data are selected to have enough observations for regression analysis. Data is winsorized at 99<sup>th</sup> percentile to cope with the issue of outliers.

#### 3.2. Variable's measures and model

##### 3.2.1. Baseline model for static executive remuneration

The following linear model has been formulated to test the static compensation process through the estimated relationship of executives' remuneration with selected corporate governance elements and firm performance following existing literature (Gallego & Larrain, 2012; Sheikh et al., 2018; Sun et al., 2013).





**Figure 1.** Schematic Representation of Proposed Relationships.  
Source: Author's analysis.

$$\begin{aligned}
 ExRem_{it} = & \beta_1 ROE_{it} + \beta_2 OwnCon_{it} + \beta_3 SOE_{it} + \beta_4 BdSiz_{it} \\
 & + \beta_5 BdInd_{it} + \beta_6 DuCEO_{it} + \beta_7 FrmSiz_{it} + \\
 & \beta_8 FrmRsk_{it} + \beta_9 GwtOpp_{it} + \beta_{10} FrmLev_{it} + \beta_{11} IntOwn_{it} + \mu_{it}
 \end{aligned} \quad (1)$$

Where, “*i*” denotes selected companies and *t* denotes time and  $\mu_{it}$  represents the error term.

Executive remuneration is a dependent variable (*ExRem*) measured as sum of total compensation received by the top three management executives; however, this includes cash pay and other related incentives which are reported in annual reports of listed firms. This study has used the log values of total aggregated remuneration excluding stock options as proxy for executive remuneration. Transformation of variables by log is also proposed to correct the non-normality in data set (Baltagi, 2008) (Table 1).

To operationalize for corporate performance, this study has selected accounting measurement proxy as Return on Equity (*ROE*) which is the ratio of net earnings to net equity (Capezio et al., 2011; Gomez-Mejia et al., 2003; Jensen & Murphy, 1990). Ownership Concentration (*OwnCon*) variable is measured as ownership held by top

**Table 1.** Description of Variables.

Variables	Description
Executive Pay ( <i>ExRem</i> )	Log (sum of top 3 highest paid executives)
<b>Firm performance:</b>	
Return of equity ( <i>ROE</i> )	The ratio of net profit to net equity
<b>Corporate Governance:</b>	
Board size ( <i>BdSiz</i> )	Number of members on both boards
Board independence ( <i>BdInd</i> )	Number of independent members
CEO duality ( <i>DuCEO</i> )	Dummy variable and takes value 1 if single person holds dual position and Zero otherwise
Ownership concentration ( <i>OwnCon</i> )	The percentage of shares owned by top five shareholders
<b>Control variables:</b>	
Firm size ( <i>FrmSiz</i> )	Log (total assets)
Growth opportunities ( <i>GwtOpp</i> )	Tobin's Q
Firm risk ( <i>FrmRsk</i> )	Standard deviation of daily stock returns
Firm leverage ( <i>FrmLev</i> )	Ratio of net debt to net assets
Institutional Ownership ( <i>IntOwn</i> )	The percentage of shares held by institutions

Source: Author's analysis.

five largest stockholders, which is consistent with the existing research literature (Holderness, 2017). State-owned entities (SOE) is a dummy variable which incorporates two values i.e., 0, if the selected firm does not fall in state enterprise category and 1, if the firm is a state-own enterprise. In past literature, the researchers consider the firm to be state owned if it fulfills any of two given conditions. First, the state owns directly or indirectly 25-30% of shares or the state represents two or more officials on director boards (Anderson & Reeb, 2003; Achleitner et al., 2014). This study employs the former proxy. In board structure the study incorporated three variables. Board Size (*BdSiz*) is measured as number of members present on boards. Board Independence (*BdInd*) is measured by number of independent board's members. CEO Duality (*DuCEO*) is a dummy variable which drives value of 1, if both the positions (CEO and chairperson) is held by a single person and otherwise takes a value of 0.

### 3.3. Control variables

This study incorporated several control variables in proposed equation: Siegel and Choudhury (2012) assert controlling for the Firm Size (*FrmSiz*) is important as bigger firms have higher remuneration (Conyon, 2014; Ghosh, 2006; Hartzell & Starks, 2003). Firm size is measured by taking the natural log of total assets. Firm Risk (*FrmRsk*) is the standard deviation of daily stock returns for a given trading year, as past studies suggest that riskier firms are likely to include higher numbers of talented executives who demand higher remuneration in return (Core et al., 1999; Conyon & He, 2011; ). Growth Opportunity (*GwtOpp*) is measured by Tobin's Q and firms having greater future opportunities are likely to offer higher remuneration (Conyon & He, 2012). Firm Leverage (*FrmLev*) is measured by ratio of total liabilities and total assets, as highly leveraged firms tend to have more experienced executives and contribute more in remuneration (Conyon & He, 2012;). Institutional Ownership (*IntOwn*) is measured as percentage of shares held by institutional investors which reflect their part of ownerships in firms. In the context of agency theory, financial institutions play a monitoring role with respect to executives' remunerations (Hartzell & Starks, 2003).

### 3.2.2. Executive remuneration dynamic panel

Agency theory proposes the static relation of pay-for-performance because of the contracts already signed between firms and executives at the time of joining by the executives; and the executives' pay follows an equilibrium level within a specific period. However, Conyon and He (2012) argue that learning is a very important determinant of remuneration and at the time of joining, the abilities and knowledge of employees are partially observable and there is a possibility that equilibrium level of pays are disturbed during a specific period and salaries no longer follow an equilibrium level. Therefore an initial pay rate is decided based on the expected performance of the executives. With time, employers' belief accumulates about the employees' performance and hence they become serially correlated with pay for performance (Conyon & He, 2012). There are other important factors which have an impact on the dynamics of executive remuneration such as learning. Past experiences and educational levels also contribute to employee with many other initial abilities. This information is still not complete and is expected at certain predicted level. So, at the beginning, a remuneration level is set on the basis of particular perspectives of expected performance of an employee. Later, the employer learns from subsequent behaviour of employees', performance and gradually understand the capabilities by a closer and better view of real outcomes (Conyon & He, 2012).

This correlational context takes the form of adjacent year correlation in executive compensation and is based on anchoring –adjustment heuristics (Bender, 2003; Tversky & Kahneman, 1974). Tversky and Kahneman (1974) suggested that people often make their estimates based on an initial value (anchor) and their initial estimates are adjusted from time to time based on availability of new information. These adjustments are insufficient and also not immediate, so there is a possibility that there are several starting points of different estimates which are biased towards the initial estimate (Bender, 2003; Raithatha & Komera, 2016). Boards of directors often have a starting point to set the executives' remuneration and that starting point influences the coming years pay levels (Bender, 2003; Raithatha & Komera, 2016).

From the above arguments it can be inferred that previous year compensation may be a function of current year compensation coupled with partial information about executives' ability at the time of appointment and the readjustment of pay levels as new information emerges about the executives' real performance. Thus we employ dynamic panel estimation for our baseline static model in order to account for executives' pay persistence and the dynamic adjustment in the pay levels of executives. The estimated model is as follows

$$\begin{aligned} \text{ExRem}_{it} = & \lambda \text{ExRem}_{it-1} + \beta_1 \text{ROE}_{it} + \beta_2 \text{OwnCon}_{it} \\ & + \beta_3 \text{SOE}_{it} + \beta_4 \text{BdSiz}_{it} + \beta_5 \text{BdInd}_{it} + \beta_6 \text{DuCEO}_{it} + \\ & \beta_7 \text{FrmSiz}_{it} + \beta_8 \text{FrmRsk}_{it} + \beta_9 \text{GwtOpp}_{it} + \beta_{10} \text{FrmLev}_{it} + \beta_{11} \text{IntOwn}_{it+\mu_{it}} \end{aligned} \quad (2)$$

The variables in the equation 2 are the same as variables reported in model (1) except that the previous year (lagged) executive remuneration ( $\lambda \text{ExRem}_{it-1}$ ) is included in the model estimation.

**Table 2.** Descriptive statistics.

Variables	Mean	Maximum	Minimum	SD	Lower Q	Median	Upper Q	N
Executive Remuneration(ExRem)	13.493	17.576	8.006	1.039	12.815	13.555	14.22	12659
Return on Equity(RO)	0.056	0.812	-1.34	0.226	0.023	0.07	0.127	13229
Ownership Concentration(OwnCon)	52.132	96.412	0	16.242	40.37	52.56	63.77	13275
Board Size(BdSiz)	9.461	19	0	2.05	9	9	11	13180
Board Independence(BdInd)	3.163	8	0	0.994	3	3	4	13181
CEO-Duality(DuCOEO)	0.132	1	0	0.339	0	0	0	10561
Firm Size(FrmSz)	21.985	28.036	14.077	1.354	21.059	21.854	22.764	13229
Firm Risk(FrmRsk)	0.031	0.051	0.018	0.009	0.023	0.029	0.036	12980
Growth Opportunities(GwtOpp)	1.715	192.9	0.006	3.263	0.68	1.168	2.008	12972
Firm Leverage(FrmLev)	0.536	1.391	0.107	0.21	0.394	0.534	0.666	13229
Institutional Ownership(IntOwn)	4.022	33.416	0.02	4.433	0.75	2.305	5.94	6487

In Table 2 SD is the standard deviation, Lower Q is lower quartile, Upper Q is the upper quartile and N is the number of observation.

Source: Author's analysis.

### 3.2.3. Moderating effect corporate governance model

Further, we estimate the following model to check the moderating effects of corporate governance on the pay for performance model.

$$\begin{aligned}
 \text{ExRem}_{it} = & \beta_1 \text{ROE}_{it} + \beta_2 \text{OwnCon}_{it} + \beta_3 \text{SOE}_{it} \\
 & + \beta_4 \text{BdSiz}_{it} + \beta_5 \text{BdInd}_{it} + \beta_6 \text{DuCEO}_{it} + \\
 & \beta_7 (\text{ROE}_X \text{OwnCon})_{it} + \beta_8 (\text{ROE}_X \text{BdSiz})_{it} + \beta_9 (\text{ROE}_X \text{BdInd})_{it} \\
 & + \beta_{10} (\text{ROE}_X \text{DuCEO})_{it} + \beta_{11} \text{FrmSiz}_{it} + \\
 & \beta_{12} \text{FrmRsk}_{it} + \beta_{13} \text{GwtOpp}_{it} + \beta_{14} \text{FrmLev}_{it} + \beta_{15} \text{IntOwn}_{it} + \mu
 \end{aligned}$$

The study estimates the baseline model using Ordinary-least-square (OLS) and fixed effect panel and the dynamic panel by difference or linear (Arrelano-Bond) and system (Blundell- Bond) generalized method-of-moments (GMM). GMM approach is more efficient (Blundell & Bond, 1998; Roodman, 2009) in reducing the effect of persistence of corporate governance variables by improving the estimation power (Blundell & Bond, 1998; Nguyen et al., 2015). Moreover, the given approach is also effective because of the simultaneity bias between executive pay and firm performance which can pose a problem of reverse causality. The study employs Sargan (1958) for under/over-identification and Arellano and Bond (1991) test to check the presence of second order correlation.

## 4. Results

### 4.1. Descriptive statistics

Table 2 represents the descriptive statistics for all study variables. The median value (13.55) for executive remuneration (ExRem) is higher than the mean value (13.4993). This infers fewer executives are receiving compensation that is lower than overall average pay. ROE represents the mean values of 5.6%. Ownership concentration (OwnCon) with given value shows that top five per cent of shareholders hold about 52% ownership on average in Chinese firms. Board size (BdSize) indicating an average number of directors which is nine and board independence report that one-third of board size is composed of independent directors with respect to mean and median

**Table 3.** Correlation matrix.

Variables	VIF	ExRem	ROE	OwnCon	BdSiz	BdInd	DuCEO	FrmSiz	FrmRsk	GwtOpp	FrmLev	IntOwn
ExRem		1										
ROE	3.12	0.167*	1									
OwnCon	1.14	-0.107*	0.087*	1								
BdSiz	1.05	0.061*	0.018*	0.111*	1							
BdInd	1.11	0.291*	0.030*	-0.025*	0.526*	1						
DuCEO	1.01	0.048*	-0.007	-0.082*	-0.090*	-0.065*	1					
FrmSiz	1.79	0.486*	0.107*	0.190*	0.185*	0.314*	-0.081*	1				
FrmRsk	1.02	0.022*	-0.002	0.035*	0.003	0.016	-0.005	-0.002	1			
GwtOpp	1.36	-0.047*	0.058*	-0.057*	-0.073*	-0.075*	0.063*	-0.284*	0.001	1		
FrmLev	1.33	-0.006	-0.122*	-0.074*	0.018*	0.106*	0.001	0.150*	-0.018*	-0.116*	1	
IntOwn	1.1	0.083*	0.231*	-0.093*	-0.02	-0.025*	0.019	-0.148*	-0.002	0.137*	-0.034*	1

In Table 3 "\*" corresponds to significance level at 5.

Source: Author's analysis.

values. Similar statistics for board size were reported by Conyon (2014) and Rehman and Wang (2015). On average 13% of CEOs of different firms hold position of chairman and CEO of board.

Table 3 corresponds to correlation matrix, whereby multicollinearity seems to be non-existent because correlation coefficients and variance inflation (VIF) values between explanatory variables are well within acceptable ranges.

#### 4.2. Regression results

Table 4 represents the regression results for static and dynamic model for overall firms and Table 5 includes separate analysis for state owned enterprises (SOEs) and non-state-owned enterprises (NSOEs). Table 6 represents the moderation results. The study has used OLS, fixed effect, linear (Arrellano & Bond) and system (Blundell & Bond) GMM estimation respectively.

For hypothesis 1, for overall firms (Table 4), executive remuneration shows a positive and statistically significant coefficient with corporate accounting performance (ROE) for all the estimation techniques (OLS, Fixed effects, and GMM) and similar positive significant relationship holds for non-SOEs and SOEs (Table 5). This relationship is consistent across all the estimations. However, this relationship is stronger for SOEs than NSOEs (see Table 5). We found similar results (not reported) when ROE is replaced with ROA.

For hypothesis 2, the relationship of concentrated ownership and executive remuneration as shown in Table 4 is mixed in different econometric estimations, where fixed-effect and liner-GMM estimators have shown insignificant results, and OLS and system-GMM estimators have shown significant results for ownership concentration and executive remuneration.

Executive remuneration is positively linked with ownership concentration. NSOEs report higher association between concentrated ownership and executive pay than SOEs (see Table 5). However, concentrated ownership plays positive moderating role in term of pay-performance-sensitivity (see Table 6).

For hypothesis 3, board size contributes toward executive remuneration. Table 4 shows positive coefficient value for overall firms. Interestingly, NSOEs reveal a negative relationship of board size (see Table 5) with executive remuneration (system-

**Table 4.** Baseline static and dynamic pay-performance model.

Variables	Model 1 OLS	Overall Firms FEM	Model 2 L-GMM	S-GMM
ExRem-1			0.343*** (0.006)	0.441*** (0.007)
ROE	1.085*** (0.182)	0.472*** (0.112)	0.455*** (0.024)	0.648*** (0.023)
OwnCon	0.005** (0.002)	0.001 (0.004)	0.001 (0.001)	0.007*** (0.001)
BdSiz	0.036*** (0.011)	-0.007 (0.018)	0.010*** (0.003)	0.029*** (0.002)
BdInd	0.047 (0.048)	-0.016 (0.063)	0.042*** (0.014)	0.088*** (0.017)
DuCEO	0.202** (0.096)	0.136 (0.093)	0.218*** (0.011)	0.207*** (0.011)
FrmSiz	0.316*** (0.032)	0.651*** (0.053)	0.532*** (0.014)	0.309*** (0.012)
FrmRsk	1.516 (3.563)	0.346 (2.409)	-1.343*** (0.204)	-2.147*** (0.309)
GwtOpp	-0.002 (0.012)	0.002 (0.012)	-0.011** (0.001)	0.002 (0.001)
FrmLev	0.576*** (0.188)	-0.197 (0.24)	0.226*** (0.076)	0.134** (0.068)
IntOwn	-0.009 (0.007)	-0.001 (0.006)	-0.003*** (0.001)	-0.009*** (0.001)
Constant	6.897*** (0.0689)	-0.555 (1.23)	-3.169*** (0.273)	-0.024 (0.24)
R-2	0.283	0.208		
Adj R-2	0.27			
Sargan p-value			0.55	0.35
Arellano-Bond p-value			0.68	0.91

In Table 4 “\*\*\*”, “\*\*” and “\*” corresponds to significance level of 99%,95% and 90% respectively. Values in parentheses correspond to standard errors.

Source: Author's analysis.

GMM estimator) and SOEs presented positive association (OLS & GMM estimators). The results from Table 6 reveal that board size in Chinese context positively moderates the relation of pay-performance-sensitivity.

For hypothesis 4, independence of board is associated with pay practices. Regression results with respect to board independence show different results in terms of estimation techniques used in this study (see Table 4). OLS, fixed effect indicated insignificant results while linear GMM and system-GMM endorsed significant positive relationship for board independence and executive remuneration for overall firms (Table 4). Table 5 reports different results across state-owned and non-state-owned firms. There is negative significant relationship of independent directors in terms of managerial pay in NSOEs and this relation is positive in SEOs (see Table 5). As anticipated, independence level of board members negatively moderates the relation of pay-performance (Table 6).

For hypothesis 5, CEO duality reports significant association with managerial pay compared to other governance variables as shown in Table 4. This study confirms that CEO duality has positive association with executive remuneration in the Chinese market. The results (Table 5) show that in NSOEs there is weak or no association as the coefficient is insignificant across all three estimators, but system-GMM reports a weak but significant positive association. These findings indicate that, in NSOEs the CEO duality has low or no relation with executive remuneration. However, SOEs

**Table 5.** Static and dynamic pay model for SOEs and NSOEs.

Variables	NSOEs				SOEs			
	Model 1		Model 2		Model 1		Model 2	
	OLS	FEM	L-GMM	S-GMM	OLS	FEM	L-GMM	S-GMM
ExRem-1			0.379*** (0.034)	0.455*** (0.016)			0.355*** (0.001)	0.414*** (0.001)
ROE	0.583 (0.062)	0.945** (0.075)	0.219 (0.116)	-0.309** (0.13)	1.008*** (0.21)	0.285 (0.183)	0.501*** (0.013)	0.620*** (0.009)
OwnCon	0.011*** (0.003)	0.001 (0.005)	0.008*** (0.002)	0.008*** (0.001)	0.006** (0.002)	0.002 (0.005)	0.001 (0.001)	0.004*** (0.001)
BdSiz	-0.028 (0.0185)	0.001 (0.031)	0.004 (0.007)	-0.037*** (0.011)	0.057*** (0.014)	-0.012 (0.021)	0.019*** (0.001)	0.038*** (0.001)
BdInd	-0.157** (0.08)	0.004 (0.099)	0.009 (0.035)	-0.043* (0.026)	0.02 (0.059)	-0.043 (0.079)	0.023*** (0.008)	-0.007 (0.007)
DuCEO	0.076 (0.113)	0.034 (0.122)	0.072 (0.075)	0.087*** (0.024)	0.195 (0.139)	0.246* (0.132)	0.201*** (0.01)	0.375*** (0.007)
FrmSiz	0.551*** (0.061)	0.543*** (0.071)	0.436*** (0.056)	0.389*** (0.046)	0.288*** (0.039)	0.657*** (0.075)	0.460*** (0.007)	0.310*** (0.006)
FrmRsk	-0.663 (5.499)	-1.546 (3.907)	1.14 (1.829)	-0.417 (1.004)	1.699 (4.283)	-0.092 (3.037)	-1.516*** (2.53)	-3.072*** (0.272)
GwtOpp	-3.720 (0.013)	-0.001 (0.014)	-0.008* (0.004)	0.006 (0.004)	0.041 (0.024)	0.027 (0.029)	-0.020** (0.003)	-0.024** (0.002)
FrmLev	-1.037*** (0.25)	0.004 (0.406)	0.131 (0.281)	-0.102 (0.172)	-0.229 (0.253)	-0.448 (0.301)	0.227*** (0.019)	0.384*** (0.027)
IntOwn	-0.028** (0.011)	-0.044*** (0.01)	-0.011** (0.005)	-0.007** (0.003)	0.001 (0.009)	0.016** (0.008)	0.013*** (0.001)	0.007*** (0.001)
Constant	2.923** (1.318)	2.228 (1.625)	-1.359 (1.052)	-0.663 (0.902)	7.079*** (0.852)	-0.553 (1.754)	-1.822*** (0.158)	0.472*** (0.112)
R-2	0.55	0.442			0.263	0.172		
Adj R-2	0.52				0.245			

In Table 5 "\*\*\*\*", "\*\*\*" and "\*\*" corresponds to significance level of 99%, 95% and 90% respectively. Values in parentheses correspond to standard errors.

Source: Author's analysis.

results have shown higher level of significance and positive association with respect to CEO duality and executive pay. CEO duality negatively moderates the relationship of pay and performance (see Table 6). The relationship between remuneration and organizational performance is moderated by leadership duality in such a way that this relationship tends to be weak when there is a dual leadership role (see Table 6).

Coefficient of the lagged executive remuneration in both dynamic panel models, i.e., difference and system GMM estimators, is significant and positive (see Table 4 and 5), revealing that executive remuneration is not persistent and follows an equilibrium level. However, SOEs are more active and report a slightly higher adjustment speed of 0.65 (calculated as 1-ExRem-L1) than NSOEs which report an adjustment speed of 0.32 (see Table 5). This infers that in both SOEs and NSOEs executive pay adjusts towards a target value as new information is revealed regarding performance and thus their remuneration is adjusted accordingly; however this adjustment of remuneration to an equilibrium level is speedily achieved by state owned enterprises compared to non-state-owned enterprises.

## 5. Discussion

In the Chinese market we found that executive remuneration is set subject to performance (see Table 4), provided positive association is consistent with agency theory.



**Table 6.** Moderating effect of corporate governance between pay-performance relationship.

Variables	Overall Firms Model 3			
	OLS	FEM	L-GMM	S-GMM
ExRem-1			0.332*** (0.006)	0.431*** (0.006)
ROE	0.024 (0.237)	-0.181 (0.215)	-0.021 (0.049)	0.115*** (0.034)
OwnCon	0.009** (0.002)	-0.001 (0.004)	-0.001 (0.001)	0.004*** (0.001)
BdSiz	0.036*** (0.011)	-0.011 (0.017)	0.007** (0.003)	0.027*** (0.003)
BdInd	0.026 (0.049)	-0.005 (0.067)	0.067*** (0.014)	0.063*** (0.01)
DuCEO	0.224* (0.129)	0.117 (0.11)	0.252*** (0.022)	0.257*** (0.02)
ROA <sub>x</sub> OwnCon	0.042 (0.037)	0.009 (0.037)	0.01 (0.008)	0.033*** (0.007)
ROA <sub>x</sub> BdSiz	0.443 (0.399)	1.081** (0.462)	0.0508*** (0.074)	0.143 (0.097)
ROA <sub>x</sub> BdInd	-0.108 (0.0040)	-2.092* (0.31)	-0.680*** (0.151)	0.074 (0.032)
ROA <sub>x</sub> DuCEO	-1.531 (2.165)	-0.324 (1.745)	-1.361*** (0.371)	-2.118*** (0.362)
FrmSiz	0.322*** (0.031)	0.647*** (0.053)	0.518*** (0.016)	0.328*** (0.011)
FrmRsk	2.103 (0.455)	0.362 (0.0372)	-1.568*** (0.346)	-1.959*** (0.334)
GwtOpp	0.002 (0.012)	-0.004 (0.013)	0.013*** (0.003)	0.007*** (0.00034)
FrmLev	-0.265 (0.19)	-0.251 (0.037)	0.257*** (0.073)	0.043 (0.012)
IntOwn	-0.018** (0.007)	-0.001 (0.006)	0.001 (0.005)	-0.011*** (0.001)
Constant	6.723*** (0.672)	-0.432 (0.22)	-2.754*** (0.056)	-0.128 (0.072)
R-2	0.337	0.238		
Adj R-2	0.321			

In Table 6 "\*\*\*", "\*\*" and "\*" corresponds to significance level of 99%,95% and 90% respectively. Values in parentheses correspond to standard errors.

Source: Author's analysis.

Results are consistent with past research studies (Firth et al., 2007; Kato & Long, 2006; Mengistae & Colin Xu, 2004). These findings are inconsistent with a managerial power hypothesis which is based on an expropriation view of executive remuneration. These results also confirm that despite the fact that executives are holding more power internally than directors, their remuneration is still linked to corporate accounting performance. SOEs appoint executives in a more bureaucratic way, so their behaviour is expected to reflect features of market power theory (Kato & Long, 2006; Firth et al., 2007) however; the strong association of executive remuneration with ROE and ROA in SOEs (see Table 5) infers that executives despite holding greater power are still influenced by firm performance. The firms under state ownership strongly link their executive remuneration with accounting performance. NSOEs may link their executive remuneration with market based measures (Firth et al., 2006, 2007). NSOEs have features of dispersed ownership so executives of such firms seemed to be vigilant towards corporate performance for which the directors may

link their firm performance with different market based measures such as firms' stock price for many reasons such as their own market reputation. The reason to not account for market returns in this study is that executives rarely hold stock options and even their financial reports are highly volatile in such matters, so this study does not employ a stock returns' based proxy to measure corporate performance.

Ownership concentration results in executive pay increase which supports the view of rent extraction and represents collusions among largest shareholders with management and endorses second-tier (large vs. small shareholders) agency conflict. Dual leadership is a prominent cause for managerial entrenchment in Chinese firms, where one person is holding excess power thus reducing the effectiveness of governance and this evidence is consistent with agency theory and managerial-power theory. More interestingly, NSOEs behave differently from SOEs with respect to board functions (board independence and size) in defining executive pay. Since pay becomes lower in NSOEs with board functions, it infers that a number of directors are important in resource protection and independent directors have better reputations to safeguard the shareholder's interest. However, the same board functions enhance executive pay in SOEs, which indicates managerial power assumption where large boards are ineffective so power shifts towards management.

NSOEs having concentrated ownership are in the state of managerial opportunism by setting executive pay higher in their favour with certain benefits which seem to be less in SOEs. Predominantly, direct impact of concentrated ownership on executive remuneration (see Table 4) seems to be consistent with the view of managerial expropriation and leads to support for the managerial power theory. Controlling owners might be colluding and setting pay levels with executives for own benefits at minority shareholders' expense, thus overlooking executive pay (Crocì et al., 2012; Su et al., 2010). This is also in line with the argument of entrenchment effect that the concentrated ownership may exploit the minority shareholders by unnecessary advantages of higher compensation because being controlling owners lead to personal exchange for mutual benefit (Jameson et al., 2014). However, this study reveals that ownership concentration moderates the relationship between corporate performance and executive remuneration in a way that this relation tends to be stronger when there is high ownership concentration. Remuneration gets higher in the presence of concentrated ownership but subject to higher performance. This supports the view that owners in Chinese firms use compensation and perform monitoring roles as substitute mechanisms for the achievement of optimal governance goals (Conyon & He, 2011). It is also consistent with agency theory and supports the view of the interest alignment effect, which shows owners have better insider view and influence over executives to protect their own interest and so decreases the managerial opportunism and leads to higher executive pay with performance in the presence of concentrated ownership (Harris & Raviv, 2008; Su et al., 2010). Evidence is mixed in different research studies as Ataay (2018) found negative moderating impact and argued that concentrated ownership weakens the link of pay performance sensitivity.

Consistent with other studies, executive remuneration increases when the number of directors increases (Core et al., 1999; Crocì et al., 2012; Fahlenbrach, 2009; Van Essen et al., 2012). However, literature is mixed on board size, as many studies

argued that board size contributes in the sense that more directors are said to have greater resource extraction and higher expertise. But large board size has certain problems like communication, coordination and delayed meetings (Ozkan, 2007). So larger boards tend to be inefficient for performing the role of monitoring, thus internal governance gets weaker and command of power shifts towards executives, and they have stronger influence on pay settings. This direct relationship is found to be consistent in state-owned firms and aligns with managerial power theory (see Table 5). Interestingly, NSOEs with larger board size tend to reduce executive pay because they may have better control and monitoring thus not letting the executives hold more power to influence their own remuneration. This view is consistent with the resources dependency view of larger boards having higher expertise and skills to look after their goals. The moderating role of board size in pay performance sensitivity is positive which indicates that relationship between corporate performance and managerial compensation is moderated by board size in a way that this relation is strong when board size is high (see Table 5). Ntim et al. (2019) reported negative moderation of board size in a South African context.

Independent directorship is questionable in a Chinese context. Managerial pay is enhanced in the presence of independent directors. In SOEs non-executive members tend to be like proxies and do not perform their own real task which is to protect shareholders' interest and they are under the influence of executive directors by political and internal hidden own interest. But NSOEs behave differently with respect to board independence. Function of board independence in NSOEs is consistent with agency theory, where independent directors perform a better role in aligning the interest with shareholders and protecting their interests because of their independent reputation and less interaction with management which can lead to lower executive remuneration. An optimal contracting view suggests an executive remuneration in line with reducing managerial aspects of agency costs and intensifying the shareholder's value (Core et al., 2003). There are concerns, as independent directors are not yet contributing in the sense of their role in tightening the managerial salaries with organizational accounting performance. The pay-performance relationship turns negative in the presence of independent authorized members. Some previous studies in a Chinese context have reported no association between board independence and managerial salaries (Byrd et al., 2010; Conyon & He, 2011; 2012). However, such studies are limited and we have investigated the direct relationship in a broader context (SOEs and NSOEs) and also highlighted the moderating impact.

Results of direct association of CEO duality and pay practices are similar with existing studies (Conyon & He, 2012; Core et al., 1999; Fahlenbrach, 2009; Van Essen et al., 2012). CEO duality increases the command of power at one person's hand and all other executives may be linked with personal benefits and internal governance performs poorly (Bebchuk & Fried, 2004). In a Chinese context the position of leadership duality with respect to SOEs is more prominent in enhancing managerial pay (see Table 5), whereas CEO duality in non-state-owned enterprises has no significant association with executive remuneration (see Table 5). Consistent with the managerial power assumption, in SOEs the presence of leadership duality increases the remuneration effectively and executives hold relation other than arm length transactions

which are not in the interests of shareholders (Conyon & He, 2011). In the context of managerial power hypothesis, while designing remuneration contracts, two agency issues emerge simultaneously: first, the power of executives over board results in skimming off excessive rent to facilitate own salaries and secondly, conflict between board members to facilitate own benefits and that of executives to the cost of minority shareholders. This endorses mutual understanding and favour culture. The first agency issue has been investigated deeply (Bebchuk & Fried, 2003). However, the second agency issue is rarely investigated with respect to pay-performance sensitivity. This study has investigated this second issue and it has become very much more important to ensure fair pay practices, when self-serving and command of power may adversely affect pay and performance sensitivity. A dual position that can enable own benefits and monitoring functions, such as transparency of board independence, may become a concern in developing markets. There is chance that independent directors get under the influence of executive management like a CEO for their informal advantages, so more command of power shifts towards executives due to which independent directors lose their monitoring power and influence. Thus, managerial entrenchment assumption coupled with ineffective performance of independent directors leads powerful executives towards high rent extraction behaviour. As projected, the study found that, as Chinese organizations' leadership duality increases, the pay-performance association's decreases. Such findings are consistent with previous studies (Bebchuk & Fried, 2004; Atay, 2018). Leader duality enhances control and managerial influence which links such activities where pay is not relevant with performance but with personal benefits.

Consistent with past studies (Conyon, 2014; Ghosh, 2006; Siegel & Choudhury, 2012) the firm size has significant association with managerial remuneration and size of organization increases influences executive pay (see Tables 4 and 5). Large entities recruit highly qualified and experienced employees to deal with complicated and complex tasks with higher salaries. Firm risk is negatively linked with executives' pay in SOEs (see Table 5), which means that the higher the risk of the organization the lower will be the executive compensation. However, growth opportunities have a weak link with managerial pay. Firm leverage increases the executive compensation but high debt position in NSOEs (see Tables 4 and 5) lowers the managerial compensation. An institutional holding for NSOEs has a significant negative association (see Tables 4 and 5) with executive compensation and indicates that executives have lower influence over their pay in the presence of institutional shareholding. In SOEs institutional holding increases managerial salaries.

## 5. Conclusion

Executive remuneration has long been debated by both practitioners and scholars. This study investigates crucial justification questions of executive incentives (remuneration) in relation to corporate outcome (performance) and direct governance function (board structure and ownership style). We have examined direct impact of corporate performance and its elements on pay practices but also investigated the joint impact of monitoring elements of corporate governance and corporate

performance in the Chinese market with sample data of 860 non-financial listed firms over the period of 2004–2018. The study coincides with reforms in Chinese governance standards which are under revision by Chinese authorities (CG under review from 2016) and our research formulates presumption under upcoming reforms that pay practices must be closely tied with monitoring concerns and performance. Further, this study incorporates state-owned (SOEs) and non-state-owned (NSOEs) firms to investigate the underlying factors affecting executive remuneration.

Past researches investigating direct association between remuneration and performance have normally endorsed a positive, but real pay and performance relationship (Gupta & Wowak, 2016; Hearn et al., 2017; Kato & Long, 2006; Zhou et al., 2017). This apparently endorses the assumption of managerial power, the view of excessive rent extraction by powerful top management and suboptimal governance functions. Besides suboptimal governance practices, pay is such an instrument which is considered to perform the function of interest alignment (between shareholders and management). It is to be noted that better governance can enhance pay and performance sensitivity. Previous studies have rarely investigated the combined impact of governance practices and performance on remuneration alignment in developing economies (Ataay, 2018; Ntim et al., 2019). In contrast, our study distinctively investigated how corporate performance, board structure and ownership style directly and jointly contribute towards executive pay settings. The study found that executive remuneration is positively tied with corporate performance and empirical evidence from this study supports that executive pay is more influenced in SOEs with respect to accounting profitability as predicted by agency relationship. Executives in SOEs and their hierarchical position act in a more bureaucratic manner but still their compensation is affected by organizational performance. Findings of this study support that executive pay in the Chinese market is persistent and takes less time in adjusting to long-run-equilibrium.

With respect to broader societal implications, especially for authorities and corporations in developing economies which are currently pursuing reforms in executive remuneration and contemplating the monitoring functions of governance particularly in China, this study endorses various implications. A key implication from our findings is to formulate joint policy reforms to align governance structure and remuneration practices for effective and efficient functioning of the corporations and to safeguard the shareholders' interest. For instance, stock-options (equity based remuneration) are recommended and a substantial part of net remuneration must be constituted by stock options to ensure the alignment of interests (shareholders and executive) which must be accompanied with equivalent governance reforms such as: (1) independence of board should be transparent and should have a strengthened role with respect to remuneration and nomination committees; (2) block stockholdings should be discouraged by motivating activism of small shareholders; (3) ownership by directors and executives should be mandated and encouraged while designing the remuneration policies. Broadly policy makers and regulators should incorporate improvement in general governance functions and particularly in the context of pay-performance relation by discouraging power concentration (e.g., reducing entrenchment) and encouraging executive ownership (financial interest).

Apart from the reliability and relevance of our study we acknowledge some limitations. First, our study is based on limited governance features (ownership and board); future studies should also consider external features of governance to assess the pay-performance sensitivity. Moreover, we have considered only an accounting measure of performance based on financial statement; the future research should extend onto market based measures of performance. Methodologically, our results imply that upcoming studies will need to endorse more dynamic and complex modelling instead of a traditional approach towards pay-performance that is consecutive, and joint inspection of governance structure and performance on salaries contracts to ensure robustness in their evidence. The generalization of provided evidence is limited because we have single contextual arguments which rely on the Chinese economy and thus future studies should consider cross country context with our framework to facilitate broader relevance of study.

### Disclosure statement

No potential conflict of interest was reported by the authors.

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## Appendix

**Table A1.** Notable prior studies from Chinese context on Executive Remuneration.

Authors	Period & Sample	Economic determinants	Ownership style	Board structure
(Groves et al., 1995)	1980s; 769 SOEs	CEO compensation gets higher with accounting profit and with corporate size.		
(Bai & Xu, 2005)	1980s; 300 SOEs	CEO pay-performance sensitivity gets lower at accounting profit variance and gets higher at investment intensity.		
(Mengistae & Colin Xu, 2004)	1980s; 400 SOEs	CEO compensation sensitivity gets higher at marginal productivity level of CEO but gets lower at accounting variance (profitability) performance.		
(Firth et al., 2006)	1998-2002; 549 listed organizations	Bigger organizations are intended to have bigger remuneration.	Compensation likely to be associated with accounting profit under SOEs dominant organizations and more linked with shareholder wealth under private or foreign controlled organizations.	
(Kato & Long, 2006)	1998-2002; 937 listed organizations	Compensation relates positive with respect to corporate size and	Firms listed as SOEs have weaker relations in respect	Lack of leadership duality and independence of

(continued)

**Table A1.** Continued.

Authors	Period & Sample	Economic determinants	Ownership style	Board structure
		changes with change in stockholder value, but not in respect of ROA.	of pay-performance than those of listed as private firms.	directorship found not be to strengthening the linkage of pay-performance.
(Li et al., 2007)	2000-01; 206 listed companies	Remuneration stands positive in respect to (ROA) accounting performance and size of firms.	Foreign shareholdings hold positive influence.	Positive impact with CEO ownership and outside directors but not influenced by other variables of governance.
(Firth et al., 2007)	1997-2000; 549 listed companies	Positive linked with ROA and corporate size, but not linked with stock return and negative with debt ratio.	SOEs have association lower than the foreign holding companies regarding compensation to their concerned executives. The link so as pay-performance regarding incentives with accounting is higher in foreign ownership.	Board size linked as negative. Incentives in pay-performance with accounting hold higher in higher outside directorship organizations but lower regarding duality aspect and stock returns do not hold same association.
(Buck, Liu, & Skovoroda, 2008)	2000-03; 601 listed firms	Positive sites with profit, stockholder value, ROA, firm size and shareholder return.		No impact at all from board size and supervisory board.
(Firth et al., 2010).	2000-05; Firm years: 4233	Pay holds positive concentration to size of organization, stock returns and ROA accounting performance but such induction not hold at prerequisites to executives.	No evidence asserts private own companies have higher PPS. Ownership of foreign and private concentrated companies hold for high aspect regard paying their managers. Relation at pay-performance is much stronger in developed regions.	
(Ding et al., 2010).	2005, listed firms: 1345 For 2006, firms: 1410	Bigger the organizations, bigger the remuneration.	Foreign concentrated stake ownership companies associated with greater sensitivity (measured through ROE) to pay-performance.	Size of (supervisory) board positively related with pay of executives and also positive link found with the frequency of meetings to (ROE) pay-performance sensitivity.
(Chen et al., 2010)	2001-06; Each year listed firms picked: 502	Positive influence on pay from growth opportunities, ROE and firm size.	Executive remuneration level increases by foreign investment's presence.	Leveling up the executive pay, contributed by CEO ownership, presence of remuneration committee and leadership duality.

*(continued)*

**Table A1.** Continued.

Authors	Period & Sample	Economic determinants	Ownership style	Board structure
(Canyon & He, 2011)	2001-05; (listed) firm years: 5825	Positive association of executive pay to ROA, (firm) size, growth opportunities and association for CEO (equity) incentives to growth opportunities, corporate performance (as positive). Negative relation of CEO incentive to firm risk, size and for executive pay to firm risk (as negative).	Ownership concentration (firms) and SOEs results as lower (executive) compensation and stockholding.	Higher the (executive) pay as larger the number of (independent) directors, (board) size, remuneration committee and presence of (CEO) duality. High pay-performance related with high independent directorship.
(Adithipyangkul et al., 2011)	1999-2004; Firm years: 3706	Positive link of executive (cash) pay and perk (consumption) to growth opportunity, ROA, (firm) size and negative to leverage ratio.	Lower level of remuneration of executives in state run firms.	
(Wang & Xiao, 2011)	1999-2005; Firm years: 6670	Executive remuneration links positive with the (firm) growth chances, size and (accounting performance) ROA, whereas, not with stock returns.	Higher sensitivity (accounting) under pay performance for state-run organizations and lower to those organizations which are engaged in tunneling (activities).	
(Chen et al., 2011)	1999-2009; Firm years observations: 7518	Top paid management (pay) linked as positive to (corporate) size, EPS (earning-per-share) and ROA (accounting-measure), whereas, the pay gap not associated with Tobin's Q or ROA but related as positive with EPS.	Executive compensation associated as positive with respect to (ownership) foreign stake organization and negative with respect to state (ownership) stake companies.	Positive relation of (executive) pay with (board) size, (leadership) duality and independent director's percentage.

Source: Author's analysis.