DETERMINANTS OF EXCESSIVE EXECUTIVE COMPENSATION

Ling Mei Cong*, Qinggang Wang**, John Evans***

Abstract

This study examines determinants of excessive executive compensation in PRC firms using 8,100 firm-year observations from 2003-2009. Employing an industry benchmarked excessive pay proxy, this study finds that CEO duality and ownership dispersion have significant positive associations with the probability of overpaying the executives. The presence of a large outside shareholder is negatively associated with the likelihood of excessive executive compensation. Results from this study have important implications for various stakeholders. For example, the PRC authorities need to further strengthen the corporate governance and constrain the power of management over the pay-setting process. More institutional investors could be encouraged to enter the PRC market to play a bigger role in monitoring managers. This paper makes an original contribution to the PRC executive compensation literature by providing unique insights into drivers of excessive executive compensation.

Keywords: Determinants, Excessive Executive Compensation, PRC

**Corresponding author, School of Accounting, Curtin Business School, Curtin University, GPO Box U1987, Perth, WA, Australia, 6845*
Tel.: 61 8 9266 4841
Fax: 61 8 9266 7196
E-mail: l.cong@curtin.edu.au
*** Zhongnan University of Economics and Law*
**** Curtin University*

1 Introduction

The level of executive compensation is a topic of significant interest and debate. The recent global financial crisis has drawn considerable public attention on the nature of excessive executive compensation. In addition there have been a number of recent cases very critical of senior executives receiving generous pay despite investors' dramatic losses (Bebchuk et al., 2010; Mintzburg, 2009). The debate surrounding executives' overpay evolves around the world and the People's Republic of China (hereafter PRC) is not an exception. During the past decade, the compensation for the executives in the PRC has been rising. In recent years there have been widespread concerns that some senior executives are overly paid and their compensation bears little connection with the firms' performance. For example, a recent report[7] released by the China Ministry of Finance shows that in 2008, of 1,597 non-financing firms listed in the PRC, the net income dropped by 31.48% compared with 2007, whilst the average executive compensation increased by 23.95%. A study on the excessive executive compensation in PRC firms is, therefore, both timely and imperative.

Since the market-oriented reform implementation in the late 1970s, the executive pay-setting in PRC firms has experienced a transformation from a fixed salary system to a more flexible performance-oriented model (Firth et al., 2007). With better recognition of management's contribution to a firm' performance, more compensation incentive (mostly short term cash-based) plans are starting to be introduced in the PRC firms. However, recent studies (e.g. Kato and Long, 2006) find that pay-performance sensitivity in PRC firms is generally low and the link between executive compensation and

[7]The report is entitled 'An Analysis Report on Implementation of China Accounting Standards for Business Enterprises by Listed Firms in 2008'. Accessed on 22 May, 2012 from http://kjs.mof.gov.cn/zhengwuxinxi/diaochayanjiu/200908/t20090803_189997.html.

business performance needs to be enhanced. During the market-oriented reform, more autonomy and discretionary power was granted to the senior executives of PRC State Owned Enterprises (hereafter SOEs). The development of regulatory oversight and corporate governance, however, did not keep up with the pace of the reform. This lack of monitoring causes serious insider control, managerial corruption and rent-seeking problems (Chen et al., 2010).

Early executive compensation theory views the compensation as one means to relieve the principal-agency conflict by designing an optimal contracting by the board (Jensen and Murphy, 1990). The emerging literature posits that pay-setting process is actually influenced by managerial power (Bebchuk et al., 2002). Prior studies (Bebchuk et al., 2002; Conyon and He, 2004; Core et al., 1999) indicate that weak corporate governance could result in the abuse of managerial power and thus lead to excessive executive compensation. Weak corporate governance could give CEOs and other executives considerable discretion over the pay-setting process which could allow executives to skew the contract in their favour and extract greater pay. Corporate governance in the PRC is characterised by insider control, inadequate transparency and disclosure (Chen et al., 2006; Lin, 2001; Liu and Lu, 2007). In comparison to western economies, PRC firms only recently began to establish remuneration committees. This lack of oversight gives the senior executives the opportunity to manipulate their power and seek excessive pay.

The main research question of this study is to investigate determinants of excessive executive compensation in the PRC firms. Using managerial power theory, this study posits that firms with weak corporate governance (measured via board features and ownership structure) will be more likely to pay executives excessive compensation. By examining 8,100 observations of PRC firms from 2003 - 2009, results suggest that firms with CEO duality, smaller outside shareholders and higher ownership dispersion have higher probability of overpaying executives. This study contributes to the literature in several important ways. Firstly, although there have been studies (e.g. Chen et al., 2010; Firth et al., 2007; Kato and Long, 2006) on executive compensation in PRC firms, little attention has been paid to drivers of excessive executive compensation. This research bridges the gap in the literature. Secondly, the issue of increasing income gap between the executives and employees in the PRC is becoming a major social concern (Xinhua News, 2011). Given PRC is still a socialist country and collectivism is claimed the key cultural value, examining which firms are overpaying the executives and determinants of the excessive executive compensation is pivotal and interesting. Thirdly, results from this study have important implications for policy makers and PRC authorities. For example, PRC stock exchanges could consider regulations that single out those firms overpaying the executives.

The remainder of this paper is organized as follows. Section 2 provides a literature review of executive compensation theories and develops the hypotheses. The research design for the study is outlined in Section 3 and is followed by the reporting of results in Section 4. Concluding remarks are detailed in Section 5.

2 Literature Review and Hypothesis Development

2.1 Theoretical framework

Two leading theories explain the arrangement of executive compensation. One theory is optimal contracting and the other theory is managerial power. Optimal contracting theory historically was the prevalent theory in the executive compensation area. With the theories genesis in agency theory, optimal contracting theory conjectures a board of directors can use the executive compensation as a mechanism to align the managers' interest with shareholders' interest (Jensen and Murphy, 1990). It posits that to partially mitigate the agency problems, board seeks to design optional compensation contract to provide managers with efficient incentives and maximise shareholders' wealth (Core et al., 2003; Bebchuk and Fried, 2003, 2006). The essence of the optimal contracting theory is that proper executive pay arrangement can be used as a tool to reduce the agency cost.

However, optimal contracting theory is subject to several limitations. Firstly, it assumes an "arm's length bargaining" between the board and executives whilst in reality it may not necessarily be true (Bebchuk et al., 2004, p.10). Factors such as "management control over director appointment, board social dynamics, directors' insufficient and distorted economic incentives, and informational barriers" (Bebchuk et al., 2002, p.11) can prohibit the board from engaging in an arm's length bargaining. Secondly, constraints imposed by market forces and social forces may be weak and allow substantial deviations from arm's-

length outcomes. Thirdly, due to the limitations of shareholders' voting mechanisms, shareholders rarely disapprove the option plans or constrain managerial power over executive compensation (Bebchuk et al., 2004).

In light of the limitations of optimal contracting theory, managerial power theory argues that executives pursue self-interest in the pay arrangement process (Finkelstein, 1992; Core et al., 1999; Bebchuk and Fried, 2003). Bebchuk and Fried (2003, p.5) define the managerial power as "the influence that mangers can exert over the compensation contract setting". In contrast to the optimal contracting theory, managerial power theory views the pay-setting process as part of the agency problem rather than a remedy to the agency problem. The board may not necessarily be able to represent the shareholders interest in negotiating the executives' pay and may fail to sign an arm's length contract. As executives are rational individuals, they may use their power to seek higher pay, which causes the "rent extraction" problem (Bebchuk et al., 2002, p.5). In addition, managers exert power over the board of directors and outsider consultants through the selection of the board of directors which may result in excessive pay. For example, Core et al. (1999) state that managers of firms with weak corporate governance could abuse the managerial power and compensate themselves excessively despite their managerial performance. In addition, Bebchuk and Fried (2003) point out managers tend to have higher power when: (a) the board is relatively weak or ineffectual; (b) there is no large outside shareholder; (c) there are fewer institutional shareholders; or (d) the managers are protected by antitakeover arrangements.

A number of studies have documented evidence in line with this managerial power theory. Lambert et al. (1993) note that CEOs who appoint a higher proportion of the board members are higher paid. Core et al. (1999) find that firms with a non-CEO internal board member holding at least 5% of shares tend to pay lower CEO compensation. More recently, Chen et al. (2011) reveal that structural power (executive share ownership) and prestige power (executive education) have significant positive associations with executive remuneration in PRC firms. Overall, studies generally conclude features of compensation schemes tend to reflect managerial rent-seeking rather than incentives that maximize shareholders' value (Bertrand and Mullainathan, 2001; Bebchuk et al., 2002).

2.2 Executive compensation in the PRC

The arrangement for executive compensation in the PRC firms went through a reform accompanying the privatisation process of the PRC SOEs. Under the centrally planned economy, all PRC firms were owned by the State (Firth et al., 2007). The executives of the PRC SOEs were paid a flat salary with no connection to a firms' performance. As the SOEs must remit all retained profits to the government, there was no performance based pay or incentive schemes for the management (Kato and Long, 2006). Since 1978, the PRC government started to separate the State from enterprises and the establishment of the Shanghai and Shenzhen Stock Exchanges accelerated the privatisation of SOEs. With the issuance of more shares to the public, the State's ownership in the SOEs was gradually reduced. More performance based incentive schemes started to be introduced into the enterprises though share option plans were only adopted by a few firms.

The PRC privatisation was only a partial privatisation which leaves the ownership structure of PRC listed firm with unique characteristics. For most PRC firms, the State still owns around 40% of the firm's shares and is the single dominant shareholder (Xu, 2004; Firth et al., 2007; Conyon and He, 2011). The other shareholders generally hold a very small percentage of shares. Compared to western economies, there are few institutional investors in the PRC market and the shareholding of the institutional investors is limited (Firth et al., 2007). Whilst the State still appoints political officials to be CEOs of SOEs, the close relationship between the government and senior executives leads to little monitoring of managerial power.

During the market-oriented reform, the managerial power of PRC executives of partially privatised enterprises has dramatically increased (Chen et al., 2006). The executives are now responsible for operations, investment, personnel, employee welfare and other major decisions. However, the development of corporate governance and regulatory mechanisms has lagged behind the managerial power release process (Chen et al., 2006; Lin, 2001; Liu and Lu, 2007). Studies (e.g. Chen et al., 2010; Liu and Lu, 2007) examining managerial insider control of Chinese executives point out there is significant rent-seeking activities in PRC firms.

The most important corporate governance rules in the PRC are the national Company Law (1994) and the Code of Corporate Governance (2002). Although the corporate governance requirements are mainly in line with those of western economies, the real effectiveness differs (Firth et al., 2007; Clarke, 2006). For example, Company Law (1994) requires a quasi two-tier model of corporate governance anamelt, a board of directors and a supervisory board. It has been observed that the blending of the Anglo-Saxon model and the German model actually dilutes the authority of both boards and creates redundancy and confusion in the governance structure (Cheung et al., 2008). Meanwhile, the true independence of directors is questionable. The appointment of independent directors of the SOEs is heavily influenced by the State, whilst the government appointed bureaucrats have long been criticized for failure in monitoring management (Lin and Lu, 2009; Chen et al., 2010). In the newly listed family firms, the CEOs often chair the board, giving them authority over all main board decisions. In addition, PRC firms only established remuneration committee in 2002. The independence of the remuneration committee members is also frequently questioned (Conyon and He, 2011).

There is lack of transparent disclosure of the executive compensation in PRC firms. According to the requirements of China Securities Regulation Commission (CSRC), PRC firms are required to disclose executive compensation since 2001. Before 2001 very few firms disclosed management pay information. Even after 2001 most companies only disclosed the sum of total compensation for the three highest paid executives and three highest paid board members (Chen et al., 2010). The individual level payment is not detailed.

In general, the lack of regulatory enforcement, little use of long-term incentive plans, lack of institutional investor influence, poor board oversight, and insufficient information disclosure on executive compensation renders PRC market vulnerable to managerial pay abuse.

2.3 Determinants of excessive executive compensation

Based on the review of executive compensation theories and the background to PRC executive pay-setting, this paper asserts that managerial power theory is more applicable to PRC firms than the optimal contracting theory. Due to the prevalence of managerial influence over director appointment, poor regulatory environment and weak shareholder rights, it is unlikely there will be arm's length bargaining between the board of directors and executives. On the contrary, powerful executives in PRC firms have both the incentive and ability to engage in private rent seeking over the compensation setting process. Consistent with Bebchuk and Fried (2003), this study views that an effective board and proper ownership structure[8] can be the structural mechanism to constrain the executive power, leading to lower possibility of excessive executive pay.

CEO duality is a frequently examined board feature that may influence the board pay-setting process. Where the CEO and board chairman are the same person it is easier for the CEO to control information available to other board members and to hinder effective monitoring (Otten and Heugens, 2007). In addition, CEO duality concentrates power in the CEO's position, which gives more discretion to management. Thus, the presence of CEO duality reduces the possibility of lower levels of remuneration offered to CEOs (Petra and Dorata, 2008). There is considerable literature (e.g. Core et al., 1999; Kumar and Sivaramakrishnan, 2008; Lee et al., 2008) on the impact of the composition of the board of directors, specifically, the number of inside and independent directors and the impact that has on executive compensation. Boards with more independent directors are in a better position to monitor managers and to reduce excessive executive pay (Boyd, 1994; Lambert, 1993). High board independence can lead to more effective corporate governance and strengthen the positive association between firm performance and pay (Lee et al., 2008).

Core et al. (1999) and Wright et al. (2002) argue that CEOs are able to be censorious when external monitoring is poor and board size is large. Cornett et al. (2008) also conclude that small boards have more effective monitoring than large boards. In line with these studies, Petra and Dorata (2008) note that CEOs are more likely to receive lower levels of performance-based incentives when the size of the board is less than or equal to nine members. The establishment of a working remuneration committee will help the design of a more effective executive remuneration package (Conyon and Peck, 1998; Conyon and He, 2004; Newman and Mozes, 1999). When a remuneration committee is formed it enhances the bargaining

[8]As the anti-take arrangements are very rare in the PRC, this aspect is not tested in this paper.

power of executives and individual directors. Jensen et al. (2004) show that the remuneration committee plays a positive role in the pay-setting process. More importantly, independent members on the executive committee can greatly reduce the likelihood of executive's rent-seeking behaviour (Conyon and Peck, 1998; Conyon and He, 2004).

In a jurisdiction with weak corporate governance such as the PRC, executives will have more chances to exploit the managerial power and influence the pay-setting process to gain rents. Adopting the managerial power theory, this study asserts that managerial influence over the board can enable executives to seek rents through excessive executive compensation. Firms with a strong board could constrain managerial power and hence there is less chance of overpaying the executives. Based on the literature (e.g. Conyon and He, 2011; Lee et al., 2008; Newman and Mozes, 1999), the board strength is captured through four aspects: CEO duality, board independence, board size, and existence of a remuneration committee. Thus, the following hypotheses are developed.

H1a: There is a positive association between CEO duality and the probability of excessive executive compensation.

H1b: There is a negative association between board independence and the probability of excessive executive compensation.

H1c: There is a positive association between size of board of directors and the probability of excessive executive compensation.

H1d: There is a negative association between the existence of a remuneration committee and the probability of excessive executive compensation.

Ownership structure has important influences on the pattern of executive compensation (Core et al., 1999). Given the high costs in monitoring management, only large investors can afford to actively execute scrutiny over the executives (Shleifer and Vishny, 1986; Khan et al., 2005). Shivadasani (1993) and Core et al. (1999), for example, hypothesize that outside directors with large shareholdings may potentially reduce entrenchment of a chief executive and have a negative influence on a CEO's remuneration. In addition, the nature of the ownership also affects the pay-setting process. Firth et al. (2007) find that state ownership acts to reduce compensation levels in PRC firms. Furthermore, dispersed ownership will likely cause the free-rider problem and weaken the supervision of management. Bebchuk et al. (2002) suggest that managerial power tends to be higher in firms with a more diversified ownership structure. Conyon and He (2011) conclude that executive compensation and CEO incentives are lower in PRC SOEs and firms with concentrated ownership.

Consistent with the prior literature, this study posits that firms with a large outside shareholder, is controlled by the State and has lower ownership dispersion will have lower managerial power and hence lower likelihood of overpaying. The following hypotheses are, therefore, advanced.

H2a: There is a negative association between the shareholding of the largest shareholder and the probability of excessive executive compensation.

H2b: There is a negative association between state owned enterprises status and the probability of excessive executive compensation.

H2c: There is a positive association between ownership dispersion and the probability of excessive executive compensation.

3 Research Design

3.1 Sample selection

The sample for this study comprises all PRC firms listed on the SHSE and SZSE from 2003-2009. Consistent with prior studies (Conyon and He, 2011; Firth et al., 2007; Lin et al. 2009), the following

firms are excluded from the sample[9]: (a) financing firms, (b) firms that made losses in any of the years during 2003-2009, (c) firms with no ultimate controller designated, and (d) firms with data missing. The final seven-year unbalanced panel dataset consists of 1,642 unique firms with 8,100 firm-year observations[10].

The executive compensation and financial data in this paper is collected from the CSMAR and Genius Finance database. The board characteristics data are manually collected from firms' annual reports.

3.2 Variable description and proxies

Executive compensation can comprise cash compensation and equity-based incentive scheme. Prior studies (e.g. Chen et al., 2010; Conyon and He, 2011) note that PRC firms mainly use cash compensation scheme whilst stock options are rarely adopted. In addition it is difficult to value the stock options in the PRC market (Chen et al., 2010; Kato and Long, 2006). Consistent with previous research (Chen et al., 2010; Conyon and He, 2011; Firth et al., 2006, 2007; Lin and Lu, 2009; Kato and Long, 2006), this study measures the executive compensation as the average cash compensation[11] of the top three highest paid executives.

There is no general consensus on how to measure whether the executives are excessively paid. Prior studies (e.g. Nichols and Subramaniam 2001; Wade et al. 2006) calculate the excess pay as a residual from a regression model. However, this model is criticised for not being able to distinguish excessive pay from other regression errors. Moreover, the academic models are seldom adopted by financial analysts or stock exchanges (Lin et al., 2009). Practitioners and stock exchanges tend to use industry peers to benchmark a firm's executive compensation[12] (Gong et al. 2011). Of various Asian stock exchanges, the Taiwan Stock Exchange specifically prescribes the industry-based criteria for identifying excessive executive compensation. The criteria are as follows: (a) for a profit-making firm, if the ratio of average compensation for directors and supervisors to net income is higher than the industry average whilst the net income is lower than the industry average; (b) for a loss-making firm, if the average compensation for directors and supervisors is higher than one million New Taiwan dollar; (c) for a firm reporting a loss in the consolidated financial statement, if the average compensation for directors and supervisors is higher than two million New Taiwan dollar; and (d) for a firm with two consecutive years' loss, if the average compensation for directors and supervisors increased between the two years. Firms that fall into any of the four criteria are labelled paying excessive executive compensation, which will be reported to the public by the Taiwan Stock Exchange.

Lin et al. (2009) examine the excessive executive compensation in firms listed on the Taiwan Stock Exchange using the above criteria. They find that very few (less than five) loss-making firms fell into the Criteria (b), (c) and (d). Lin et al. (2009) also adapted Criterion (a) and construct four measures[13] for the profit-making firms. Based on the empirical results, they note that the original criterion (a) is subject to a firm size bias. Specifically, only small firms will be identified as overpaying when based on Criterion (a). By comparing the four measures they constructed, Lin et al. (2009) confer that the most robust measure is

[9]Financing firms are excluded because of the different reporting requirements to other firms. Consistent with Lin et al. (2009) these firms are excluded from the sample due to the difficulty in calculating an industry average when including the loss-making firms and only a very small number of loss-making firms fall into the excessive compensation criteria. Finally, due to the difficulty in identifying an ultimate controller, firms that are controlled by universities are also excluded from the sample.

[10]The balance of the panel is as follows. There are 130 firms with 1 year of data, 122 firms with 2 years of data (244 firm- year observations), 191 firms with 3 years of data (573 firm-year observations), 175 firms with 4 years of data (700 firm-year observations), 187 firms with 5 years of data (935 firm-year observations), 341 firms with 6 years of data (2046 firm-year observations), 496 firms with 7 years of data (3472 firm-year observations).

[11]The cash compensation is a sum of salary, bonus, stipends and other benefits.

[12]However, there are mounting controversies about which peers should be selected (Bizjak et al. 2011).

[13]The four measures are (i) if the ratio of average compensation for directors and supervisors to net income is higher than the industry average whilst the net income is lower than the industry average; (ii) if the average compensation for directors and supervisors is higher than industry average whilst the net income is lower than the industry average; (iii) if the ratio of average compensation for directors and supervisors to net income is higher than the industry average whilst the ROE is lower than the industry average; (iv) if the average compensation for directors and supervisors is higher than industry average whilst the ROE is lower than the industry average.

their third criterion, which defines executive compensation as excessive when the ratio of average compensation for directors and supervisors to net income is higher than the industry average whilst the ROE is lower than the industry average.

In line with Lin et al. (2009), this paper measures excessive executive compensation (denoted Excess) using industry based benchmark. The dummy variable Excess is scored one [1] if the ratio of total cash compensation for the top three highest paid executives to net income of a firm is higher than industry average whilst a firm's ROE[14] is lower than industry average in time period t; otherwise it is scored zero [0].

Based on the hypotheses, the determinants tested focus on two aspects; namely board features and ownership structure. Board features are captured by four measures, namely, CEO duality, board independence, board size and existence of a remuneration committee. For CEO duality (denoted Dual), a firm is scored one when the chairman and the CEO are different people; otherwise, it is scored zero [0]. Board independence (denoted IndDir) is measured as the proportion of independent directors on the Board of Directors. Board size (denoted BoardSize) is the total number of directors sitting on the board of firm at the end of time period t. A dummy variable is constructed to capture the existence of a remuneration committee (denoted RemCommm), where a firm with a remuneration committee is scored one [1]; otherwise it is scored zero [0].

With regards to the ownership structure variables, top shareholding (denoted TopShare) is measured as the percentage of shareholding of the top one shareholder. An indicator variable SOE is constructed to capture the nature of the firm's ultimate controller. SOE is scored one [1] if in time period t a firm is a State Owned Enterprise; otherwise scored zero [0]. OwnD is the proxy for ownership dispersion, where the sum of the shareholding of second to tenth shareholder in time period t is larger than the shareholding of the top one shareholder, it is scored one [1] ; otherwise scored zero [0].

To control for a potential size effect, firm size (denoted FSize) is measured as the natural logarithm of the total assets as of the end of time period t. The leverage level (denoted Lev) is captured as the ratio of total liabilities to total assets as of the end of time period t. Lagged return on assets (denoted ROA) is used to proxy past financial performance. It is measured as the ratio of net profit after income tax and interest of firmi in time period t-1 to total assets as of the end of time period t-1. StcCom is constructed to indicate whether a firm has a stock compensation plan for the managers. To consider the cross-sectional influence of industry, economic region and time, 6 year, 2 economic region and 11 industry[15] dummy variables are included in the regression model. Table 1 provides a summary of all variable descriptions.

[14]ROE is measured as the ratio of net profit after income tax and interest of $firm_i$ in time period t to total assets as of the end of time period t.

[15]Six year dummies are constructed to indicate whether a firm is from any of 2003 - 2009. Two reginal dummies are constructed to indicate whether a firm is from Central, Western or other parts of China. 11 industry dummies are constructed to indicate whether a firm is from any of the 12 industries: agriculture, communication, construction, IT, manufacturing, mining, real estate, services, ttranportation, utilities, wholesale and retail and others.

Table 1. Variable description

Variable Title	Variable Description
ExCom	The average cash compensation of top 3 highest paid executives of $firm_i$ in time period *t*.
PayNI	The ratio of total cash compensation of top 3 highest paid executives of $firm_i$ in time period *t* to net income for time period *t.*
Excess	Indicator variable where $firm_i$is scored one [1] if the ratio of total cash compensation of top 3 highest paid executives of $firm_i$ to net income is higher than industry average whilst firm's ROE is lower than industry average in time period *t*;otherwise scored zero [0].
Dual	Indicator variable where the chairman and the CEO of $firm_i$ in time period *t* are different people, $firm_i$ is scored one [1]; otherwise scored zero [0].
IndDir	The proportion of independent directors on the Board of Directors of $firm_i$in time period *t.*
BoardSize	Total number of members on the board of directors of $firm_i$at the end of time period *t*.
RemComm	Indicator variable where $firm_i$is scored one [1]; otherwise scored zero [0] if in time period *t* it has a remuneration committee;otherwise scored zero [0].
TopShare	The percentage of shareholding of the top one shareholder of $firm_i$as of the end of time period *t.*
SOE	Indicator variable where $firm_i$ is scored one [1] if in time period *t* it is a State Owned Enterprise; otherwise scored zero [0].
OwnDisp	Indicator variable where the shareholding of the sum of the shareholding of second to tenth shareholderof $firm_i$ in time period*t* is larger than the top one shareholder,$firm_i$ is scored one [1]; otherwise scored zero [0].
TAsset	Total assets of $firm_i$as of the end of time period *t.*
FSize	Natural logarithm of the total assets of $firm_i$as of the end of time period *t.*
Lev	The ratio of total liabilities of $firm_i$to total assets as of the end of time period *t.*
ROA	The ratio of net profit after income tax and interest of $firm_i$ in time period *t-1* to total assets as of the end of time period *t-1*.
StcCom	Indicator variable where $firm_i$ is scored one [1] if it has a stock compensation plan in time period *t*; otherwise scored zero [0].
Ind	Indicator variable where $firm_i$ is scored one [1] if it is from an industry *j* in time period *t*; otherwise scored zero [0].
Reg	Indicator variable where $firm_i$ is scored one [1] if it is from an economic region *j* in time period *t*; otherwise scored zero [0].
Year	Indicator variable where $firm_i$ is scored one [1] if data is collected from time period *t*; otherwise scored zero [0].

The following model is thus defined to test the hypotheses:

$$\begin{aligned} PRO\ (Excessi,t) = \emptyset\ (&\alpha 0 + \beta 1\ Duali,t + \beta 2\ IndDiri,t + \beta 3\ BoardSizei,t + \beta 4\ RemCommmi,t + \\ &\beta 5 TopSharei,t + \beta 6\ SOEi,t + \beta 7\ OwnDisp,t + \gamma 1\ FSizei,t + \gamma 2\ Levi,t + \gamma 3\ ROAi,t + \gamma 4\ StcComi,t \\ &+ \sum \delta 1\ Year + \sum \delta 2\ Reg + \sum \delta 3\ Ind) + \varepsilon j \end{aligned} \quad (1)$$

4 Results

4.1 Descriptive statistics

Table 2 provides descriptive statistics for executive compensation partitioned by year (Panel A) and industry (Panel B). As indicated in Table 2 Panel A, the average executive compensation has consistently risen from 2003 to 2009. Specifically, the average executive pay in 2009 (RMB 415,947) is more than doubled that of 2003 (RMB 175,107). The increasing standard deviation shows executive pay gap across firms is also widening. Compared with developed countries, the average Chinese executive pay low. For example, Conyon and He (2011) show that the average U.S. compensation from 2001-2005 is US $837, 496. This is much higher (more than 10 times) than the average PRC executive compensation in 2009 (about US$ 61,216). However, it is noteworthy that although the PRC executive compensation seems low

when benchmarked against developed countries, it is significantly higher than PRC employee average pay[16](executive and employee gap is about 12 times in 2009).

Table 2. Descriptive statistics: executive compensation (*ExCom*, in RMB)

Panel A: By year						
Year	N	Mean	Median	Std	Min	Max
2003	968	175,107	129,500	159,485	5,000	1,706,667
2004	1,078	207,892	156,666	204,258	10,267	3,210,000
2005	1,014	221,919	172,533	199,948	17,000	2,726,667
2006	1,142	251,484	199,616	218,143	10,400	3,016,200
2007	1,277	330,276	240,000	343,938	16,667	4,706,667
2008	1,230	386,339	285,067	386,476	30,890	5,053,333
2009	1,391	415,947	290,667	487,274	10,533	8,593,333
Full sample	8,100	293,996	213,333	331,633	5000	8,593,333
Panel B: By industry						
Industry	N	Mean	Median	Std	Min	Max
Agriculture	188	176,114	128,783	138,403	31,233	836,867
Communication	57	340,324	282,800	475,161	39,333	3,551,333
Construction	187	326,483	254,433	306,913	15,505	3,002,767
IT	517	328,627	250,000	294,507	17,000	2,186,667
Manufacturing	4,610	270,197	193,325	299,995	5,000	5,053,333
Mining	198	384,677	252,983	470,304	10,259	3,673,867
Others	385	289,536	230,419	247,345	16,667	2,466,667
Real estate	453	380,698	262,333	573,784	15,200	8,593,333
Services	247	347,806	265,967	342,838	34,733	2,191,922
Transportation	366	366,522	252,450	476,210	10,267	5,134,900
Utilities	382	283,868	231,400	236,983	11,424	2,373,333
Wholesale & Retail	510	321,019	250,033	259,269	13,667	1,961,200
Full sample	8,100	293,996	213,333	331,633	5000	8,593,333

With reference to different industry sectors, Table 2 Panel B shows that executives from the mining industry received the highest compensation while senior management in the agricultural industry is the lowest paid. The average executive pay in the real estate industry is the second highest and the best paid executives are also from the real estate sector. This might due to the property boom in the PRC in recent years. The majority of the PRC firms are within the manufacturing industry and the average payment to the senior manufacturing managers is slightly lower than (RMB 270,197) the entire sample average (RMB 293,996).

Table 3 reports descriptive statistics for independent variables and control variables by year. For board features, the percentage of firms with a combined position of chairman and CEO was relative stable from 2003 to 2006. However, it went slightly upward in 2007 and then remained steady until 2009 . Descriptive statistics show that firms with excessive compensation tend to have a higher duality arrangement. The proportion of independent directors improved steadily over the sample period (from around 33% to around 36%). The board size has reduced from around ten members in 2003 to nine members in 2009, while firms with excessive executive compensation seem to have smaller boards.

[16]Based on the China Statistics Yearbook 2010, the average annual employee pay in the PRC is only RMB 32,244 in 2009. The indicative exchange rate for RMB/ USD is 6.8.

Table 3. Descriptive statistics (mean for continuous variables and percentage for dichotomous variables)

		N	*PayNI*	*Dual*	*IndDir*	*BoardSize*	*RemComm*	*TopShare*	*SOE*	*OwnDisp*	*FSize*	*Lev*	*ROA*	*StcCom*
Full Sample		8,100	0.032	0.141	0.352	9.460	0.792	0.391	0.654	0.263	21.446	0.479	0.043	0.653
2003	Excess=0	878	0.012	0.099	0.331	9.900	0.931	0.438	0.772	0.236	21.276	0.456	0.042	0.672
	Excess=1	90	0.382	0.200	0.314	9.770	0.872	0.380	0.680	0.371	20.489	0.500	0.008	0.733
2004	Excess=0	892	0.010	0.110	0.344	9.790	0.931	0.439	0.711	0.230	21.359	0.466	0.041	0.639
	Excess=1	186	0.133	0.161	0.343	9.480	0.910	0.371	0.682	0.415	20.681	0.502	0.007	0.683
2005	Excess=0	790	0.010	0.100	0.346	9.690	0.630	0.428	0.704	0.243	21.504	0.481	0.047	0.654
	Excess=1	224	0.090	0.170	0.351	9.360	0.673	0.357	0.715	0.402	20.727	0.500	0.011	0.680
2006	Excess=0	910	0.010	0.121	0.351	9.570	0.655	0.377	0.680	0.271	21.552	0.494	0.046	0.664
	Excess=1	232	0.102	0.150	0.352	9.040	0.714	0.319	0.611	0.413	20.759	0.499	0.110	0.643
2007	Excess=0	1,016	0.008	0.151	0.358	9.410	0.741	0.379	0.632	0.261	21.693	0.484	0.051	0.655
	Excess=1	261	0.074	0.170	0.362	9.120	0.790	0.318	0.601	0.312	20.865	0.515	0.012	0.621
2008	Excess=0	1,018	0.012	0.162	0.361	9.270	0.810	0.386	0.600	0.243	21.744	0.471	0.069	0.663
	Excess=1	212	0.163	0.166	0.366	8.870	0.870	0.328	0.580	0.255	20.893	0.490	0.017	0.646
2009	Excess=0	1152	0.011	0.185	0.365	9.180	0.820	0.384	0.581	0.256	21.873	0.468	0.060	0.665
	Excess=1	239	0.133	0.203	0.364	9.030	0.900	0.314	0.540	0.264	20.852	0.487	0.010	0.624

Surprisingly, the percentage of firms with a remuneration committee decreased slightly from 2003 to 2009. This might be due to the fact that some recent listed firms have not established a remuneration committee. In terms of ownership structure, the shareholding percentage of the largest shareholders is gradually falling, while the proportion of SOE firms has decreased moderately from 2003 to 2009. About 26.3% of firms have dispersed ownership, which remain relatively constant over the sample period. The ownership of overpaying firms seems to be more dispersed than non-overpaying firms. In terms of firm characteristics, firms with excessive pay tend to be smaller than counterpart firms. While the leverage level seems to be slightly increasing during the study period, the ROA ratio has also improved. Finally, the perecentage (about 65%) of firms with a stock compensation plan is relatively stable from 2003 to 2009.

4.2 Test of means

To test whether there are systematic differences between firms which pay excessive executive compensation and those which do not, tests of means for the full sample is performed and results are reported in Table 4. Statistical analysis reveals that 1,490 (18.4%) of the full sample) observations are classified as paying excessive executive compensation. For the remaining 6,610 observations' executive pay is at a reasonable level. As shown in Table 4, the PayNI ratio difference between the overpaying firms and non-overpaying group is highly significant ($p<0.01$). The CEO-chairman duality arrangement of firms with excessive executive compensation is also significantly higher than the counterpart. The independent director percentage of the excessive pay group is on a par with the peer group. There is a significant difference in average board size between over pay and normal pay firms ($p<0.01$). However, contrary to expectation, the normal pay group has a higher average board size. Whilst on average more firms in the excessive pay group (80.1%) have established a remuneration committee than counterparts (79.0%), this difference is not statistically significant. Moreover, for the period 2003 to 2009, the largest shareholders of normal pay firms have significantly greater ($p<0.01$) shareholding than firms that overpay. The reasonable pay group has a significant higher proportion of SOE firms than the excessive pay counterpart. Finally, consistent with the observation from Table 3, the ownership dispersion of the overpaying group is significantly higher than the peer group ($p<0.01$).

Table 4. Test of means

Variable	Mean		Mean Difference	t-statistic
	Excess=1 (*N*=1,490)	*Excess*=0 (*N*=6,610)		
PayNI	0.127	0.010	0.117	0.000***
Dual	0.170	0.134	0.036	0.000***
IndDir	0.355	0.352	0.003	0.109**
BoardSize	9.202	9.518	-0.316	0.000***
RemComm	0.801	0.790	0.010	0.374
TopShare	0.336	0.403	-0.067	0.000***
SOE	0.614	0.663	-0.049	0.000***
OwnDisp	0.348	0.244	0.103	0.000***
FSize	20.761	21.601	-0.839	0.000***
Lev	0.480	0.478	0.002	0.733
ROA	0.015	0.054	-0.039	0.000***
StcCom	0.630	0.650	-0.020	0.136

Where: ***, ** and * are significant at 1%, 5% and 10% significance level respectively (one-tailed).

4.3 Regression results

To incorporate other firm characteristics that might be expected to influence the level of executive pay, a multivariate probit regression is conducted to test the hypotheses. To mitigate any multicollinearity issue, Table 5 presents the Pearson and Spearman correlations for Equation 1. As indicated in Table 5, the highest correlation is between the ownership dispersion and shareholding of the biggest shareholder (Pearson ρ = -0.593, Spearman ρ = -0.623), and is below the deemed critical level for multicollinearity (i.e., 0.8, see Hair et al., 1995; Field, 2009). Therefore, multicollinearity is not considered a serious concern for the regression analysis. The additional check of Variance Inflation Factor (VIF) scores reveals that the highest VIF does not exceed the critical level which further indicates no serious multicollinearity problems.

Table 5. Pearson and Spearman correlations

	Excess	*Dual*	*IndDir*	*BoardSize*	*RemComm*	*TopShare*	*SOE*	*OwnDisp*	*FSize*	*Lev*	*ROA*	*StcCom*
Excess		0.027**	0.015	0.051***	0.017	-0.068***	-0.006	0.060***	-0.079***	0.007	-0.076***	-0.008
Dual	0.027**		0.060***	-0.114***	-0.030***	-0.051***	-0.135***	0.059***	-0.092***	-0.047***	0.038***	0.031**
IndDir	0.003	0.061***		-0.211***	-0.006	-0.039***	-0.081***	0.022**	0.035***	0.024**	0.022**	-0.039**
BoardSize	0.049***	-0.102***	-0.263***		0.030***	0.014	0.182***	0.020	0.176***	0.036***	-0.009	-0.021
RemComm	0.017	-0.030***	-0.014	0.027**		0.007	0.068***	-0.032***	0.045***	-0.002**	-0.027**	0.025*
TopShare	-0.073***	-0.054***	-0.032***	0.026**	0.007		0.276***	-0.623***	0.212***	-0.049***	0.099***	-0.163**
SOE	-0.006	-0.135***	-0.095***	0.177***	0.068***	0.271***		-0.234***	0.267***	0.053***	-0.111***	-0.045**
OwnDisp	0.060***	0.059***	0.018	0.011	-0.032***	-0.593***	-0.234***		-0.196***	-0.042***	0.050***	0.064**
FSize	-0.093***	-0.097***	0.040***	0.205***	0.045***	0.249***	0.266***	-0.186***		0.293***	0.040***	0.069**
Lev	0.017	-0.006	0.030***	-0.017	-0.002	-0.068***	-0.019	0.019	-0.004		-0.346***	0.004
ROA	-0.056***	0.027**	0.018*	-0.034***	-0.027**	0.017	-0.051***	0.033***	-0.065***	0.176***		-0.009
StcCom	-0.008	0.031**	-0.026*	-0.021	0.025*	-0.168**	-0.045**	0.064**	0.051**	-0.001	-0.013	

Where: ***, ** and * are significant at 1%, 5% and 10% significance level respectively (two-tailed).

Table 6 presents the regression findings. Overall, the model is highly significant with Chi Square value significant at 0.01 level. Of the board features, in line with the expectation, the coefficient on the Dual is positive and highly significant ($p<0.01$). Contrary to the hypothesis, the independence of directors is positively associated with possibility of overpay. However, it is statistically insignificant. Therefore, H1a is accepted whilst H1b is rejected. Meanwhile, the coefficient on board size is positive but insignificant. Therefore, H1c is rejected. As predicted there is a negative association between the existence of the remuneration committee and likelihood of excessive compensation. But the coefficient is insignificant and H1d, thus, is not accepted. As for the ownership structure, both the top shareholding and SOE status have negative associations with the possibility of excessive executive pay. However, only the coefficient on the top shareholding is significant ($p<0.01$). In addition, the ownership dispersion has a significant positive coefficient. Thus, H2a and H2c are accepted while H2b is rejected. Finally, regarding the control variables, the coefficients on firm size, leverage and ROA are all significant which reveals that smaller firms with higher leverage and poor performance tend to pay executives generously.

Table 6. Regression results

Variable	Coefficient	Wald	Significance
Intercept	-15.228	585.167	0.000
Dual	0.217	13.448	0.000***
IndDir	1.990	2.126	1.013
BoardSize	0.010	0.679	0.410
RemComm	-0.013	0.048	0.827
TopShare	-0.010	31.506	0.000***
SOE	-0.056	1.324	0.250
OwnDisp	0.106	3.330	0.068*
FSize	-0.706	551.734	0.000***
Lev	0.858	45.408	0.000***
ROA	-47.292	1072.617	0.000***
StcCom	-0.062	1.894	0.169
Industry Dummies	Controlled		
Region Dummies	Controlled		
Year Dummies	Controlled		
Chi^2	3237.038		
Prob> Chi^2	0.000***		
Pseudo R^2	0.536		
N	8,100		

Where: ***, ** and * are significant at 1%, 5% and 10% significance level respectively (two-tailed).

4.4 Robustness check

Additional sensitivity tests are conducted to check the robustness of the main regression results. The Excess is replaced with an indicator variable where a firm is scored one [1] if the ratio of total cash compensation to net income of a firm is higher than industry average whilst a firm's ROA is lower than industry average in time period t. Regression results remain the same. When the executive compensation is measured as the average compensation received by executives, directors and supervisors, the regression findings also stay largely the same. Therefore, the main findings are robust to sensitivity tests.

5 Conclusions

Executive compensation is a widely debated and politisized subject. The global financial crisis intensified critism of excessive executive pay that does not reflect the business performance. The PRC executives gained increased autonomy and discretion during the market-oriented reform process while weak corproate governance in PRC firms led to inadequateboard oversight and abuse of managerial power. With executive pay growing in the past decades there has been widespread concern that the senior managements in the PRC firms are overpaid.

This study investigated determinants of excessive executive pay in the PRC firms. Following managerial power theory, this paper hypotheses that a strong board and proper ownership structure can constrain the possibility of excessive executive pay. By examing 8,100 firm-year observations over 7 years, results suggest that CEO duality and ownership dispersion have significant positive associations with the possibility of excessive executive pay, while the presence of a large shareholder has a negative

association with likelihood of excessive executive pay. However, this study did not find board independence,board size, existence of remuneration committee or SOE status are associated with the possibility of excessive compensation.

Findings from this study have important ramifications for diretors, shareholders, stock exchanges and other PRC authorities and stakeholders. For example, the results suggest the separation of CEO-board chairman posts could reduce the possibility of executive overpay and more firms should be encouraged to adopt such an arrangement. Whilst SOE status is not foundto impact the executive overpay possibility, the presence of a large shareholder (i.e. no matter a SOE or an institutional shareholder) and less dispersed ownership do play a role in constraining the excessive executive pay. Therefore, more institutional investors, who can afford and have the expertise to oversee managers, need to be cultivated in the PRC market to strengthen the market monitoring forces. While this study did not find board independence and the establishment ofa remuneration committee helps constrain managerial power over executive compensation, it might imply the improvement in corporate governance in PRC firms needs to be in substance rather than in form. PRC stock exchanges could also consider implementing similar regulations to Taiwan Stock Exchange which publicise firms paying excessive compensation.

This study is not without limitations. Firstly, stemming from the managerial power theory, the determinants tested focus on the board features and ownership characteristics. There might be other determinants that are not incorporated. Secondly, although the measurement of the excessive executive compensation in this paper is constructed to minimise biases, it is acknowledged that it might not yet be perfect. Despite these limitations, this paper makes an original contribution to the PRC executive compensation literature. For instance, it seeks to bridge the gap between practitioners and academic benchmarking by adopting an industry-based excessive compensation assessment model. In addition, it provides unique insights into drivers of excessive executive compensation.

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