Determinants of Pay for Chinese Executives

(We would like our paper to be considered for publication in the EFM special issue for the conference.)

Abstract

We investigate the determinants of pay for Chinese executives. We extend the optimal contracting model by incorporating the managerial power hypothesis and the behavioural approach. Our findings show that CEO duality and CEO shareholding tend to entrench insider managers more to collude with government officials to extract firm's assets. The escalated global executive compensation standards provide attractive benchmarks for Chinese firms in setting their executive pay. The behaviour of Chinese compensation committees in deciding executive pay is highly influenced by the global pay benchmarks of peers, rather than by the Chinese authorities' expectation of controlling excessive managerial compensation.

Keywords: Executive Compensation; Managerial Power; Benchmark Effect; Corporate Governance; China.

I. INTRODUCTION

The departures of real world pay practices from the predictions of economic theory have attracted widespread interest. While Chinese executive compensation has been largely influenced by China's market oriented reforms, global governance convergence and pay level, Chinese listed firms are still characterised by concentrated state ownership and control under the incomplete institutional infrastructure. In this paper, we investigate the managerial power and global pay benchmark as determinants of pay for Chinese executives.

Prior studies on the determinants of executive compensation have largely rooted in the agency theory under the arms-length contracting and unbiased rational decision-making assumptions. The insufficient attention to both institutional and behavioural factors by the optimal contacting model make the agency theory alone inadequate to justify global executive pay practices. This is especially true for China because the Chinese institutions and listed firms have different features from those in Western economies. In particular, Chinese listed firms have a severe insider's control problem inherited from the former centrally planned economy. This problem make the sources of managerial power in Chinese listed firms different from those in dispersed ownership structure of listed companies in Western economies. Further, foreign investors in the Chinese stock markets bring in global corporate governance practices and global pay standards for setting Chinese executive compensation. Thus, foreign shareholding presents a challenge for the rational economic decision-making assumption and calls for the study of determinants of pay for Chinese executives from the behavioural perspective.

So far, little research has been conducted to distinguish the source of managerial power in Chinese listed firms and how the insider managers use their power to influence the board on setting the executive compensation. There is also little research investigating the impact of

global pay standards on Chinese executives' compensation. Motivated by these gaps in the literature, we extend the optimal contracting model firstly by incorporating the managerial power hypothesis to demonstrate how the insider's control could affect the Chinese executive compensation and secondly by adding the behavioural approach to investigate the impact of the global pay standards as benchmarks on Chinese executive compensation.

The remainder of this paper is organized as follows. Section 2 introduces the institutional background of Chinese executive compensation. Section 3 performs literature review and hypothesis development. Section 4 introduces the research methodology and data set. Section 5 presents and discusses the empirical results. Section 6 concludes the study with implications.

II. THE EVOLUTION OF CHINESE CORPORATE GOVERNANCE AND ITS IMPLICATION FOR EXECUTIVE COMPENSATION

One of the main economic reforms that China carried out during the 1990s and the 2000s was the corporatisation of state-owned enterprises (SOEs) through the establishment of two stock exchanges in Shanghai and Shenzhen. Public listing of SOEs in domestic stock exchanges has been a key measure of corporatisation. The corporatisation strategy aims to turn SOEs from public sole proprietorships into shareholding companies that are, at least in theory, independent in decision-making and diverse in ownership by share offerings. It is hoped that corporatisation will: (1) change the ownership structure of the SOEs that features both state and non-state institutional shareholders in addition to small individual shareholders; (2) separate the state from business operation in order for enterprises to achieve full autonomy, not only in business structure but also in operational decisions, and for the state to limit its liabilities to the enterprises; (3) improve managerial incentives by linking executive salaries and bonus to firm performance.

Share issue privatisation has been one of the major forms of privatising SOEs around the world since the 1980s with many successful cases in developed countries (Megginson and Netter 2001). The objective of such an action in China is also expected to introduce elements of corporate governance that facilitate improvements in firm's performance. However, there are striking differences between Chinese listed firms and US corporations, which have a bearing on executive compensation (Mengistae and Xu, 2004). It is neither the market, nor the motivation to obtain private benefits that determines the presence of shareholders. Ownership structures are largely determined by the government. At listing, a significant proportion of shares are held back by the government (state-owned). Institutional shareholding according to the Western definition is rare. The publicly listed shares are dispersed and minority shareholders have little legal protection.

Therefore, the corporatisation in China has not fundamentally changed the ownership structure of listed firms. The state still retains its control over the newly listed firms and in most cases as a controlling shareholder. The corporate governance practice is characterised by the excessive powers of CEO, insider's control, inadequate safeguards for minority shareholders and inadequate transparency and disclosure (Chen, 2005; Lin, 2001; Liu, 2006). This weak corporate governance system provides opportunities for the managers to exploit corporate resources through excessive executive compensation.

The governance problems in newly listed companies call for corporate governance reform. The implementation of the Code of Corporate Governance for Listed Firms in China in 2002 serves as a milestone of the subsequent corporate governance reforms in China. The Chinese corporate governance system and executive incentives are largely based on the regulations and practices in the Western economies. Firth et al. (2006) point out that one consequence of China basing its corporate governance reforms on those of the Western economies is that we,

as researchers, can partly resort to western studies to explain CEO pay in China. In terms of executive compensation, the Code offers guidance on the obligations of independent directors and compensation committee in setting executive compensation; however, how to operationalise the Code is hard to measure and assess.

It is worth mentioning that, regarding the board structure, China has adopted a two-tier board system for its listed firms since 1994 in contrast to the Anglo-American single board model. It is argued that a two-tier board structure may have advantages over a one-tier board system approach in the Chinese circumstance particularly where external governance mechanisms, such as stock market and legal protection for investors, are not well developed. However, the monitoring performed by the supervisory board in Chinese listed firms may be quite limited. The Company Law and the Corporate Governance Code delegate supervisory powers to supervisors, but do not prescribe how to exercise the powers, or the liabilities of supervisors in case of breach of duty. Unlike in developed countries, Germany for example, the composition of a supervisory board includes representatives of large institutional shareholders, such as banks that provide equity capital as well as make loans to companies, in China, independent institutional investors are rare and their role in corporate governance is arguable. Moreover, the Chinese supervisory boards usually consist of quite a few government appointees who play a leading role in monitoring, while in Germany, government representatives on the supervisory boards play a secondary role in monitoring to that of private shareholders.

Due to the fast growth of Chinese economy and the rapid expansion of its domestic stock exchanges since the 2000s, foreign institutional shareholders investing in the Chinese domestic stock exchanges in the form of B-share, or in the Hong Kong stock exchange in the form of H-share, have increased considerably. The involvement of foreign investors in Chinese listed firms has had a significant impact on Chinese executive compensation.

Foreign investors, especially those with relatively large ownership in Chinese firms, are the pioneer of introducing market oriented human resource management practices to China, especially the executive compensation systems (Ding, Akhtar, & Ge, 2006). In addition, the escalated global executive compensation standards also provide attractive benchmarks for Chinese executives, especially in those firms with relatively large foreign shareholding due to their interaction or competition with foreign firms (Cheffins, 2003). The recent wave of overseas Chinese listing further accelerates the Chinese convergence of executive compensation towards the global standard.

III. HYPOTHESIS DEVELOPMENT

A. The managerial power hypotheses

According to the optimal contracting model proposed by the agency theory, pay scheme is designed as a partial remedy to the agency problem. Executive compensation is the product of arm's length contracting between executives aiming to benefit themselves personally and boards seeking to protect the shareholders for their best interests (Bebchuk and Fried, 2005). However, the recent escalated compensation for top executives raises concerns on whether managers have too much influence over the board on deciding their pay packages.

Arguing against the assumptions that directors could resist the influence from managers and negotiate at arm's length with managers suggested by the agency theory, Bebchuk and Fried (2003) propose the managerial power hypothesis. By power, they mean the influence that managers can exert over setting compensation contract, which provides them both the abilities/access (strong power source) and the opportunities (weak power constraints) to exert considerable impact over their board, so that managers can pressure the board to increase their pay.

The managerial power hypothesis argues that managerial influence plays a key role in shaping executive compensation, which can explain practices and patterns that have puzzled

financial economists studying executive compensation, such as stealth compensation, pay for luck (Bertrand and Mullainathan, 2001) and even gratuitous severance pay (Yermack, 2006). Compensation packages are likely to be influenced by managers in the direction favorable to them, instead of serving as a control device against them as predicted by the agency theory, especially in the absence of a vigilant and responsible board. This power-pay relationship predicts that the more power the managers can exert over the board, the more generous the managers' pay packages. This is especially true when there is no influential institutional shareholders and if managers are entrenched by anti-takeover arrangements (Bebchuk and Fried, 2002, 2003).

It is worth mentioning that the manager power hypothesis is firstly introduced based on the publicly listed firms in the US without a controlling shareholder (Bebchuk and Fried, 2003). However, Chinese listed firms are characterised by strong government intervention under the state controlling ownership and insider's control (Aoki, 1994; Chen, 2005). Although the definition of power in China remains the same as it is in the Western setting, the sources of power and the constraint on the power in the Chinese context are very different from those in the Western context. In terms of the source of power, the managerial power in Anglo-American countries roots in the separation of ownership and control; while the managerial discretion in Chinese listed firms originates from the increasing autonomy delegated by the government to firms during the market-oriented reforms. On one hand, the economic reforms have substantially increased the managers' control over economic resources in China (Groves et al., 1994). For instance, the state control over business operations has been significantly reduced. Managers have taken much more responsibilities for production, investment, profits retention, personnel management and the distribution of bonuses. Firms can set their own internal wage structure and pay level within the overall budget guidelines established by the

government (Yueh, 2004). The transfer of the control empowers managers and enables them to engage in rent-seeking activities.

We define the source of managerial powers in Chinese listed companies by three proxies: CEO duality (i.e. CEO is also the chairman of the board), CEO shareholding, and the state as a controlling shareholder.

CEO duality is a matter of debate. Theoretically, researchers seem to reach a consensus that CEO duality does not benefit either the shareholders or the firm. Boyd (1994) argues that holding the position of chairman of the board would provide top manager with a wider power base and locus of control. Jensen (1993) argues that duality puts CEO in a position of evaluating his own performance. However, in practice, particularly in the US firms, CEO duality is not unusual and is often regarded as a means of facilitating the implementation of company's strategies and policies. It is worth mentioning that CEO duality may have some advantages in smoothing business operation only under well-functioned financial markets and well-defined legal system. It may work in the US but may not work in China. The Chinese corporate governance system was characterised by the excessive powers of CEOs, insider's control, inadequate safeguards for minority shareholders and inadequate transparency and disclosure (Chen, 2005; Lin, 2001; Liu, 2006). This weak corporate governance system provides opportunities for the managers to misappropriate corporate resources through excessive executive compensation. We argue that CEO duality actually facilitates the insider managers to pressure the board to increase their pay, and this is particular true in the absent of shareholder activism.

The argument of CEO shareholding is a double-edged sword (Morck, Shleifer, & Vishny, 1988). On one hand, such an ownership aligns the financial interests of managers with those of shareholders (Jensen and Murphy, 1990). The optimal contracting model suggests that CEO shareholding provides long-term incentives to managers, such as long-term equity

holding and stock options in Western markets (Murphy, 1999). On the other hand, excessive managerial ownership may entrench managers through consuming private benefits of control at the expense of shareholders with less fear of retribution as predicted by the managerial power hypothesis. CEO shareholding is implemented in Chinese listed firms through employee ownership plan and/or management buy-out (MBO). However, stock options are not normally available. Given the insider's control problem and the weak corporate governance in China, we tend to support the managerial power hypothesis by arguing that CEO shareholding tends to entrench insider managers more to collude with government officials to extract firm's assets. An easy way for managers to take more out of their firms is to push up their compensation levels. In addition, given the considerable influence of the state ownership on executive compensation in Chinese listed firms (Firth et al., 2006; Kato and Long, 2006), the state, even if not being a majority shareholder, can still control the firms.

Many managers in Chinese listed companies are appointed by the government and they are former government officials. Therefore, they have close connections with the government, especially in those firms that the state is a controlling shareholder. The insider's control prevails and has an impact on executive compensation. Fan, Wong and Zhang (2007) report that almost 27 % of the CEOs in 790 Chinese IPO firms between 1993 and 2001 were either former or current government officials. Firms with politically connected CEOs are more likely to appoint other officials to be directors and managers rather than those with adequate professional qualifications. The insider managers are thus likely to extract high level of compensation.

In summary, the managerial power hypothesis suggests that CEO duality, CEO shareholding and the state as a controlling shareholder in Chinese listed firms are all positively associated with the level of executive compensation. Therefore, we propose our managerial power hypotheses as follows:

Hypothesis 1.1. The executive compensation in Chinese listed firms is positively related to CEO duality.

Hypothesis 1.2. The executive compensation in Chinese listed firms is positively related to CEO shareholding.

Hypothesis 1.3. The executive compensation in Chinese listed firms is positively related to the state as a controlling shareholder.

Control for corporate governance mechanism

In order to study the effect of insider's control on the executive compensation, we need to control for the effect of corporate governance mechanism. In contrast to the increasing source of power of the managers, corporate governance constraints on managerial power in Chinese listed firms are not adequately in place and lag behind the pace of economic reforms (Chen, 2005; Lin, 2001; Liu, 2006). Liu (2006) argues that the Chinese corporate governance reforms start in an environment where most elements of institutional infrastructure (e.g. well-functioned financial markets and well-defined legal system) are not in place. For instance, both active takeover markets and regulatory framework, especially minority shareholders protection, are still almost absent and, therefore, are not able to discipline powerful insider managers. Only the internal monitoring governance mechanisms, including independent directors (Firth et al., 2007), the supervisory board and major shareholders (Li et al., 2007), are expected to discipline the managerial rent extraction during their compensation contracting process. Therefore, an effective internal control appears particularly needed given the inadequacy of external governance mechanisms.

In order to promote good corporate governance, the China Securities Regulatory Commission (CSRC) implemented the Code of Corporate Governance for Listed Firms in China in 2002. Regarding executive compensation, the Code offers guidance on the obligations of independent directors, board of supervisors and major shareholders in order to

restrain the impact of insider managers on setting generous pay package. It is reasonable to expect that the corporate governance mechanisms once in place could reduce managers' extracting excessive compensation. Therefore, we expect that internal governance constraints on managerial power, once in place, limit the insider managers' manipulation on their pay packages.

In addition, among the board committees, the most important one is the compensation committee. The majority of Chinese listed companies have established a compensation committee since 2002 in response to the implementation of the Code of Corporate Governance for Listed Firms in China. The Chinese government expects compensation committees to be an important corporate governance mechanism in designing effective performance-based pay to align managers' interests with shareholders' interests and control the managers' excessive use of their power to pursue any unreasonable high compensation for themselves (Main and Johnston, 1993). The role of compensation committee has become increasingly important as the board delegates the main responsibility of setting executive compensation to it.

B. The benchmark hypotheses

According to the optimal contracting model, the two parties involved in the compensation contract negotiation, namely the board, which is represented by the compensation committee, and the managers, are generally assumed to behave rationally and unbiased. However, research shows that the rational decision-making assumption does not always hold in practice (Ezzamel and Watson, 1998). There are widespread complaints from shareholders that the executive pays are not closely related to the change in shareholders' wealth.

The gaps between the unbiased rational assumption under the optimal contracting model and pay practices motivate researchers to exploit the behavioural factors in executive pay setting process that are beyond the consideration of economic incentives. Baker, Jensen and

Murphy (1988) point out the important role of a peer group's benchmark in executive pay determination. Murphy (1999) and Jensen et al. (2004) argue that, in most US corporations, compensation committees, who are responsible for setting executive pay, generally rely on "external market standards" to decide the level and structure of the compensation. A higher external pay benchmark tends to contribute to an upward creep in pay level. Conceptually, Hölmstrom (2005) argues that benchmarking is an essential piece of the puzzle of why executive pay rose so dramatically in the 1990s.

The benchmark effect suggests, based on human decision-making behaviour, firms tend to anchor the executive pay levels at, or near, the observable outside benchmark pay levels that their peers in a comparable position would make (Kahneman and Tversty, 1979; Kahneman, Knetsch, & Thaler, 1991). For instance, Ezzamel and Watson (1998) show that firms adjust their CEO pays upward due to external labor market competition in order to recruit and retain the scarce managerial resource. In addition, in an equilibrium model, Gabaix and Landier (2008) show that, if 10% of firms want to pay their CEOs twice as much as their competitors, the overall compensation for all CEOs in the market would double. Therefore, the evidence indicates that the competitive global benchmarks are influential factors for the increasing executive compensation.

Moreover, since the contract provides a reference point for a trading relationship, more precisely, for contracting parties' feelings of entitlement (Hart and Moore, 2008), underpaid compensation relative to the benchmarks is perceived to be disincentive for managers who are likely to reduce their effort at work. As a result, firms usually target the pay levels at, or above, the external benchmarks (Bizjak, Lemmon, & Naveen, 2008).

The entry of foreign investors in Chinese listed firms has made Chinese executives exposed to the global compensation standards. The escalated global executive compensation standards thus provide attractive benchmarks for Chinese firms in setting their executive pay.

The Chinese executive compensation is closer to high international standards in those firms with relatively large foreign ownership because these firms need to set up competitive compensation packages in order to attract foreign expatriates as well as high quality local Chinese managers (Cheffins, 2003; Ding et al., 2006). Foreign shareholders have pushed up the Chinese executive pay levels.

Therefore, we set our benchmark hypotheses to predict the relationship between executive compensation and foreign shareholding, which is used as a proxy for the global pay benchmarks.

Hypothesis 2.1. The executive compensation in Chinese listed firms is positively related to the global pay benchmarks favoured by foreign shareholders and is measured by B and/or H shares.

Hypothesis 2.2. The executive compensation in Chinese listed firms is positively related to the global pay benchmarks when foreign shareholders are controlling shareholders.

IV. RESEARCH DESIGN AND METHODOLOGY

In this study, we employ a panel data analysis. There is a methodological weakness in the extant empirical literature on Chinese executive compensation that they all adopt a cross sectional analysis (Firth et al., 2006; Li et al., 2007). As pointed by Murphy (1985), the compensation equations estimated on cross sectional data look quite differently from those that control for firm fixed effects because a cross sectional analysis omits some important variables which could seriously bias the estimation results. In addition, Devers et al.(2007) mention a short period data set make the cross sectional analysis less ideal to establish causality.

Our sample includes a balanced panel of 547 firms during 2003 and 2008 that had been listed more than ten years in the Chinese stock markets since 1997. This data set allows us to capture the evolution of Chinese executive compensation under the market-oriented reforms

and the global corporate governance convergence. Our panel analysis also enables us to control for the potential bias caused by unobservable firm and year fixed effects. This is important for this study given the limitation of information disclosure in China. The rich information content from a large panel data increases the freedom and estimation efficiency in the regressions, and allows us to reveal the impact of insider's control and global pay benchmarks in the dynamic evolution of Chinese executive compensation.

There are wide concerns on endogeneity in empirical corporate governance research (Coles, Lemmon & Meschke, 2003; Hermalin and Weisbach, 2003), especially when using the lead-lag model specification where pay determinants take the value a year earlier before the pay is set. In order to control for endogeneity, we use lagged values between 2002 and 2007 for all the independent variables, based on the fact that Chinese executive compensation (salary and bonus) is set annually according to the observed firm performance in prior years (Firth et al., 2007), such as the yearly salary system (Kato and Long, 2006).

A. Data sources and sample construction

To be consistent with the extant literature on Chinese executive compensation (Bai, Liu, Lu, Song, & Zhang, 2004; Kato and Long, 2006; Firth et al., 2007), we use the China Centre for Economics Research (CCER) database and the China Stock Market and Accounting Research (CSMAR) database as our main sources of information. The CCER database provides data on firm level executive compensation and corporate governance indicators, while the CSMAR database includes firm level financial and operational information.

We use the non-financial Chinese firms listed on the Shanghai and Shenzhen stock exchanges during 2003 and 2008 to construct our sample. There were 1266 listed firms in 2003 and 1575 listed firms in 2008 that disclosed their corporate governance information. We exclude those firms prior to 2000 because of their limited releases of executive compensation data. Those firms that disclosed their top three highest paid executives' compensation were

only 78 out of 837 firms in 1998, 103 out of 930 firms in 1999, and 118 out of 1092 firms in 2000. Given the fact that there was a major change in the Code of Corporate Governance for Listed Firms in 2002, which had immediate impact on setting executive compensation, we construct a six-year panel data from 2003, excluding those firms with missing annual observations in both the CCER and CSMAR databases, to control for this new legislation effect. Therefore, our final balanced panel consists of 547 listed firms during 2003 and 2008 with 3282 observations. In addition, our sample covers all 31 provincial areas in the mainland China and 12 out of a total of 13 industries (except financial and insurance industries) classified by the CSRC's industry category. The broad geographical and industrial coverage increases the representativeness of the data and helps us control for the potential biases caused by unobservable firm and year effects in the regressions.

B. Variable construction

Dependent Variable. The CCER database discloses the lump sum of firms' top three highest paid executives' cash compensations (salary and bonus). We use this indicator as a proxy of our dependent variable. We do not include stock options or stock ownership because they are not commonly used in China. This is a major difference between the components of executive compensation in China and those in the US and the UK. Firth et al. (2006) report that compensation in the form of stock options is not commonly used in China and the data on them is not sufficient to value the option grants. Furthermore, a large percentage of the stocks in Chinese stock markets were not allowed to be traded in the secondary market until 2006; therefore, it was hard to price them. Stock price was not a sufficient indicator of firm value. Consequently, stock options could hardly be considered as an effective incentive for the executives in Chinese listed firms.

Our dependent variable is measured by the natural logarithm value of cash compensation for the top three highest paid executives. This logarithm procedure mitigates

heteroskedasticity resulting from extreme skewness and facilitates the comparison of results with previous studies (Murphy, 1999; Firth et al., 2007).

Independent Variables for Testing the Managerial Power Hypotheses. In our managerial power hypotheses, we use three indicators to measure the managerial power: CEO duality, CEO shareholding and the state as a controlling shareholder. We use a dummy variable for CEO duality, taking the value of 1 if CEO is also COB, 0 if otherwise. CEO shareholding is measured by the fraction of outstanding shares owned by the CEO. The state's influence on the executive compensation is measured by a dummy variable, taking the value of 1 if the state is a controlling shareholder, 0 if otherwise.

We further consider the possible interaction between managerial power variables and corporate governance variables. We expect that if effective governance mechanisms are in place, such as board with independence directors, they could mitigate CEO power in setting exectuives' pay. Therefore, we add three interactive terms, including CEO duality and board independence, the state as a controlling shareholder and board independence, and shareholder concentration and board independence. The variable of compensation committee is more likely to interact with benchmark variables; therefore, we add these possible interactions in our tests for the benchmark hypotheses.

Table 1 provides a brief description of all the variables and their predicted signs in the regressions.

Insert Table 1 about here

Independent Variables for Testing the Benchmark Hypotheses. Our benchmark hypotheses predict that the executive compensation in Chinese listed firms will be higher in those firms that have foreign shareholdings or foreign controlling shareholdings. We employ two dummy variables to measure the degree of convergence of global pay standards: B and H

shareholdings and foreign controlling shareholding; their measurements are defined in Table 1. In addition, because executive compensation is set by a firm's compensation committee through the contract negotiation, we add an interactive variable to reflect the possible joint effect between the compensation committee and foreign shareholders.

Control Variables for Corporate Governance Effect. We include several corporate governance variables to control for the effect of firm-level corporate governance on the executive compensation, including independent directors, compensation committees (Firth et al., 2007), the supervisory board and shareholder concentration (Li et al., 2007). We measure the effectiveness of the board by its independence, that is, the percentage of independent directors on the board. An independent board is expected to restrain the managerial power of rent extraction. A board with a greater proportion of independent directors is more likely to perform the monitoring.

We measure the size of supervisory board by the total number of supervisors. Li et al. (2007) argue that a supervisory board, which represents employees' interests, tends to oppose excessive managerial compensation, given that a large supervisory board will be effective in giving priority to workers' pay grievances influenced by the Chinese equalitarianism tradition.

Generally speaking, the Chinese government expects compensation committees to be a corporate governance mechanism to design effective incentive contract, although our discussion on benchmark hypotheses may indicate otherwise. Nevertheless, we need to control for this effect and thus adopt a dummy variable to measure the presence of compensation committee.

In terms of the constraints from large shareholders on the managerial power, Shleifer and Vishny (1986) suggest that large shareholders should play a crucial role in corporate governance. The significant amount of shares they hold gives them both the ability and incentive to monitor and restrain managers' self-serving. Large shareholders in China may be

the state or private institutional investors. We use the Herfindahl 5 index to measure the top five largest shareholders, which is calculated by the square sum of the top five largest shareholdings.

All the above four corporate governance variables are expected to be negatively related to the executive compensation, and their brief descriptions are given in Table 1.

Control Variables for Firm Operation. In order to mitigate the potential bias resulting from firm's operation on setting executive pay, we add the following control variables to capture firm's operational characters to the regressions of testing the hypotheses. To be consistent with the prior research on the determinants of executive pay (Murphy, 1999; Tosi et al., 2000; Mengistae and Xu, 2004; Firth et al., 2007), we include firm operation complexity, prior performance and growth opportunity. In light of the research on managerial pay and firm scale (Murphy, 1999; Tosi et al., 2000), we use firm size to reflect its operation complexity, which is measured by the natural logarithm value of total assets. Regarding the performance measure, Mengistae and Xu (2004) and Firth et al. (2007) provide evidence that Chinese listed firms heavily rely on accounting data, such as profitability, to set their executive pay. Firth et al. (2007) show that Chinese listed firms reward those executives who make good operating profits instead of stock returns. Therefore, we adopt return on equity (ROE) to measure firm performance. Finally, we control for leverage, which is measured by the book value of debt divided by the assets.

C. Regression models

We estimate the following regression models to test the two sets of hypotheses respectively.

$$Lncomp_{it} = \alpha_i + \gamma_t + \beta_1 \text{Duality}_{it} + \beta_2 \text{CEOshare}_{it} + \beta_3 \text{State}_{it} + \beta_4 \text{Inddir}_{it} + \beta_5 \text{SB}_{it} + \beta_6 \text{CompensationCom}_{it} + \beta_7 \text{Herfindahl 5}_{it} + \beta_8 \text{Size}_{it} + \beta_9 \text{ROE}_{it} + \beta_{10} \text{Leverage}_{it} \quad (1)$$

$$Lncomp_{it} = \alpha_i + \gamma_t + \beta_1 \text{Foreign}_{it} + \beta_2 \text{BHshare}_{it} + \beta_3 \text{Inddir}_{it} + \beta_4 \text{SB}_{it} + \beta_5 \text{CompensationCom}_{it} + \beta_6 \text{Herfindahl 5}_{it} + \beta_7 \text{Size}_{it} + \beta_8 \text{ROE}_{it} + \beta_9 \text{Leverage}_{it} \quad (2)$$

$$Lncomp_{it} = \alpha_i + \gamma_t + \beta_1 \text{Duality}_{it} + \beta_2 \text{CEOshare}_{it} + \beta_3 \text{State}_{it} + \beta_4 \text{Foreign}_{it} + \beta_5 \text{BHshare}_{it} + \beta_6 \text{Inddir}_{it} + \beta_7 \text{SB}_{it} + \beta_8 \text{CompensationCom}_{it} + \beta_9 \text{Herfindahl 5}_{it} + \beta_{10} \text{Size}_{it} + \beta_{11} \text{ROE}_{it} + \beta_{12} \text{Leverage}_{it} \quad (3)$$

$$Lncomp_{it} = \alpha_i + \gamma_t + \beta_1 \text{Duality}_{it} + \beta_2 \text{CEOshare}_{it} + \beta_3 \text{State}_{it} + \beta_4 \text{Inddir}_{it} + \beta_5 \text{SB}_{it} + \beta_6 \text{CompensationCom}_{it} + \beta_7 \text{Herfindahl 5}_{it} + \beta_8 \text{Duality*Inddir}_{it} + \beta_9 \text{CEOshare *Inddir}_{it} + \beta_{10} \text{State *Inddir}_{it} + \beta_{11} \text{Size}_{it} + \beta_{12} \text{ROE}_{it} + \beta_{13} \text{Leverage}_{it} \quad (4)$$

$$Lncomp_{it} = \alpha_i + \gamma_t + \beta_1 \text{Foreign}_{it} + \beta_2 \text{BHshare}_{it} + \beta_3 \text{Inddir}_{it} + \beta_4 \text{SB}_{it} + \beta_5 \text{CompensationCom}_{it} + \beta_6 \text{Herfindahl 5}_{it} + \beta_7 \text{Foreign* CompensationCom}_{it} + \beta_8 \text{BHshare*CompensationCom}_{it} + \beta_9 \text{Size}_{it} + \beta_{10} \text{ROE}_{it} + \beta_{11} \text{Leverage}_{it} \quad (5)$$

where *i* and *t* present firm and year vector respectively.

Model 1 represents specifications for testing the managerial power hypotheses, controlling for corporate governance variables and firm operation effects. Model 2 tests the behavioral hypotheses, controlling for corporate governance variables and firm operation effects specified in Model 1. Model 3 includes all the variables for the two sets of hypotheses plus the variables controlling for the effects of corporate governance and firm operation in order to examine the joint explanatory power from these two hypotheses in explaining executive pay. In addition, Model 4 and 5 further test the interactions between corporate governance mechanisms and managerial power variables, and between corporate governance mechanisms and global pay benchmarks respectively. In particular, Model 4 examines the role of independent directors in mitigating CEO power in setting their own pay. Model 5 explores the role of compensation committee on setting executive pay influenced by the global pay benchmarks. Due to the nature of panel analysis, we do not include industry dummies and region dummies in the models because most of them are time invariant and will be automatically dropped from the estimation.

With respect to the selection between fixed effects regression and random effects regression, all the models specified reject the Durbin-Wu-Hausman test at the 1% significant level. Therefore, we apply fixed effects regression to all the models.

V. EMPIRICAL ANALYSIS

A. Descriptive statistics

Table 2 presents descriptive statistics of the dependent variable, independent and control variables in the models. The mean of executive annual compensation in natural log form from 2002 to 2008 was 13.31. This is equivalent to an annual pay of RMB¥601,428 (US$88,056). Compared with their counterparts levels in developed economies, the overall pay for Chinese executives is much lower. For instance, Murphy and Zabojnik (2007) report that the average cash compensation for CEOs in S&P 500 firms was US$3,300,000 in 2005.

Insert Table 2 about here

With regard to the managerial power variables, the mean of CEO duality was 10.2%, indicating a low level of combined role of CEO and COB. Equity incentive is not commonly used in Chinese listed firms. The mean percentage of CEO ownership was around 0.1%. On one hand, the very low CEO equity holding indicates that CEO ownership in Chinese listed firms is too low to serve as a tool of aligning the managers' interests with shareholders' interests as predicted by the optimal contracting model. On the other hand, the decline of managerial ownership reflects the Chinese authorities' concern over the managerial ownership in Chinese listed firms due to the problems of insider's control and the managers' exploitation of state property. The authorities have subsequently increased regulatory control for the managerial ownership. The fraction of firms with the state as a controlling shareholder was high (78.2%), showing that most listed firms were still under the control of the state. With regard to the behavioral variables, the mean of foreign B and H shareholdings was 9.5%. The mean of foreign controlling shareholding was only 1.2%, indicating foreign controlling shareholding was only a small percentage fraction of a firm's total shares.

With regard to corporate governance indicators, the mean proportion of independent directors was 32.7%, which reflects the requirement set by the CSRC in 2001. The mean size of supervisory board was about 4. The fraction of firms with a compensation committee was 46.3%, indicating firms' response to the implementation of the Code of Corporate Governance. With regard to the influence of shareholder concentration, the mean Herfindahl 5 suggests 21.4% of a firm's shares was held in the hands of the five largest shareholders.

B. Regression results

Table 3 reports a pair wise correlation matrix of all the explanatory variables.

Insert Table 3 about here

To assess potential the multicollinearity problem, we calculate variance inflation factors for each variable in all the regression models respectively; they are all below 3 (not reported here). Thus, multicollinearity is not a major concern in our regressions.

The estimation results for the two sets of hypotheses are reported in Table 4.

Insert Table 4 about here

Estimation Results for the Managerial Power Hypotheses. Model 1 represents specifications for testing the managerial power hypotheses, controlling for corporate governance variables and firm characteristics. The results in Model 1 demonstrate that the coefficients on both CEO duality and CEO ownership are positive and significant ($t=2.108$ $p<0.05$ and $t=2.116$, $p<0.05$, respectively). These results are also robust in Model 3, which examines the joint explanatory power from the two hypotheses in explaining executive pay, and in Model 4, which examines interactive effects of independent directors in mitigating CEO power in setting their own pay. Therefore, Hypothesis 1.1 and 1.2 are supported. The coefficient on CEO shareholding is very high, which indicates, rather then aligning

managers' interests with shareholders' interests, CEO shareholding provides an opportunity for managers to collude with the government officials and exploit state property as predicted by the managerial power hypothesis. The coefficient on state concentration variable in Model 1 and 3 is positive but not statistically significant. It is negative and significant at the 1% level after controlling for the interactive effects in Model 4, which provides some support for the prior literature that predicts executive pay to be lower in the firms controlled by the state (Firth et al., 2007; Li et al., 2007). Nevertheless, the inconclusive results of state concentration indicate that Hypothesis 1.3 cannot be confirmed.

Estimation Results for the Behavioural Hypotheses. Model 2 represents specifications for testing the behavioral hypotheses, controlling for corporate governance variables and firm characteristics. The coefficients on both foreign controlling shareholding (t=2.6932.48, p<0.0501) and B/H shares (t=3.0531.72, p<0.1001) are all positive and highly significant. These results are also robust in Model 3, which examines the joint explanatory power from the two hypotheses in explaining executive pay, and in Model 4, which explores the role of compensation committee on the executive pay under the influence of the global peer group's benchmarks. Therefore, Hypothesis 2.1 and 2.2 are supported.

Estimation Results for the Corporate Governance Effects.

The most significant corporate governance factor that has put effective constraint on the executive compensation is the shareholder concentration (the state and institutional shareholders). The coefficient of Herfindahl 5 is negative and highly significant in all the models testing for both sets of hypotheses. The results show that the state itself cannot effectively control for the excessive executive compensation, but the state together with institutional shareholders play a positive role in restraining managers' self-dealing through excessive compensation.

The coefficient on supervisory board is positive and statistically significant in most of the models except Model 4, indicating that the supervisory board actually help managers to push up their compensation. The supervisory board does not perform its role that represents employees' interests of curtailing excessive managerial compensation. With regard to the role of independent directors, the coefficient on independent director variable is negative but only shows the significance level of 5% in Model 4. The coefficients on both interactive variables between independent director and CEO duality, and between independent directors and CEO shareholding are negative but without any statistical significance. These results show that the role of independent directors as a constraint for executive compensation is weak. However, the interaction between independent directors and the state is positive (0.936) and highly significant at the 1% level. This result indicates that in those Chinese listed companies with the state as a controlling shareholder, insider managers are powerful to control the board in setting their own compensation. The independent directors and the board lose their power in controlling managers' extracting excessive compensation. In summary, our findings of the independent directors and supervisory board imply that Chinese executives could take the advantage of weak corporate governance mechanisms to benefit themselves. We argue although the proportion of independent directors on the board is not very low, the level of board independence and the professionalism of independent directors are questionable (Fan et al., 2007; Chen and Cheng, 2007).

Regarding the compensation committee, the coefficients of interaction variables between compensation committee and foreign controlling shareholding, and between compensation committee and B/H shares are all positive, and the latter has statistical significance at the 10% level. The results show that the benchmark effect is exaggerated by the presence of compensation committee. There is a joint effect between compensation committee and foreign shareholding on the upward increase in the executive pay level due to the global pay

benchmark effect. The behaviour of Chinese compensation committees in deciding executive pay is highly influenced by the global pay benchmarks rather than being a governance control mechanism for excessive managerial compensation.

It may be argued that the role of Chinese compensation committees in setting executive pay might be influenced by their connections with the State, such as the State-owned Assets Supervision and Administration Commission (SASAC) of the State Council who represents the state shareholding in Chinese listed firms. However, we do not expect this influence is significant in our investigation because less than 10% of our sample firms had SASAC representing the state shareholding. Therefore, our results should not be affected by this factor.

C. Robustness tests

In order to test the sensitivity of estimation results, we employ alternative proxies for some of the variables.

In terms of the managerial power hypotheses, we alternatively measure CEO duality by the position of being a CEO and a board member (instead of the chair of board) to further investigate the influence of insider's control problem. In terms of the internal governance mechanisms on managerial power, we replace the number of independent directors by board size and Herfindahl 5 index by Herfindahl 10 to further test the discipline from board and block shareholding on managerial misconduct respectively. The results remain similar.

Furthermore, we use total sales at the end of year T-1 as an alternative measure for firm size and earning per share as an alternative measure for firm performance, respectively. The direction and significance of main coefficients remain unchanged.

VI. CONCLUSION

This study contributes to the corporate governance in China. We extend the optimal contracting model by incorporating the managerial power hypothesis to demonstrate how the insider's control could affect the Chinese executive pay. We further add the behavioural approach to the optimal contracting model to reflect how the global compensation benchmarks could influence the Chinese executive pay via the negotiation between firm compensation committees and insider managers.

Our findings show that both CEO duality and CEO ownership exert significant influence on the Chinese compensation contracting, and they contribute to the increasing level of executive compensation. Unlike CEO duality in the US corporations that could be seen as a means of facilitating the implementation of company's strategies and policies, CEO duality in Chinese listed firms actually facilitates the insider managers to push up their compensation levels. Regarding CEO ownership, contrast to the interest alignment hypothesis suggested by the optimal contracting model, our finding supports the managerial power hypothesis by arguing that CEO shareholding tends to entrench the insider managers more to collude with the government officials to extract firms' assets. Our findings further reveal that the escalated global executive compensation standards provide attractive benchmarks for Chinese firms in setting their executive pay, especially in those firms with foreign shareholdings. There is an upward trend in the Chinese executive pay with more foreign shareholdings, in particular foreign controlling shareholdings.

With regard to the influence of internal corporate governance on executive compensation, we find that the private institutional investors are more active in restraining managerial power, or manipulation, on the executive pay setting process. However, the independent directors and the supervisory board fail to perform effective monitoring on in this aspect. Moreover, the supervisory board actually helps managers to push up their compensation. This is because, under the weak shareholder protection and the lack of market for corporate control, in firms

with concentrated state ownership, the insiders have more discretion to make corporate governance decisions that maximize their own wealth instead of the shareholders' value. This results in a low level of firm corporate governance compliance even if corporate governance standards are not low.

The behaviour of Chinese compensation committees in deciding executive pay is highly influenced by global pay benchmarks, rather than the incentives of controlling excessive managerial compensation predicted by the optimal contracting theory. The compensation committees' pay decisions also reflect the market demand for management talents. To be able to attract talented managers, the compensation committees need to set the executive pay levels closely to that of global peers.

The major limitation of our study lies in our measure for executive pay. We include cash compensation only because this is disclosed. However, the Chinese executives also enjoy a substantial amount of in-kind benefits and business perks (Kato and Long, 2006) which should not be underestimated. Further research should find a way of estimating the in-kind benefits to shed more insight on the determinants of Chinese executive compensation.

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Table 1. Definition of Variables and Predictions of Hypotheses

Variables	Label	Predicted sign	Definition
Cash compensation	Lncomp		Natural log of cash compensation for three highest paid top executives
Variables for the Managerial Power Hypotheses			
CEO duality	Duality	+	Equal to 1 if the CEO also serves as the chair of the board
CEO shareholding	CEOshare	+	Percentage of share the CEO holds
State controlling	State	+	Equal to 1 if state is a controlling shareholder
Variables for the Behavioral Hypotheses			
Foreign controlling	Foreign	+	Equal to 1 if foreign investor is a controlling shareholder
Foreign share	BHshare	+	Equal to 1 if a firm issues B share or H share
Control Variables			
Board independence	Inddir	−	Percentage of independent directors on the board
Supervisory board size	SB	−	The number of supervisors on the supervisor board
Compensation committee	CompensationCom	−	Equal to 1 if the firm has a compensation committee
Shareholder concentration	Herfindahl 5	−	The square sum of the biggest five Shareholdings
Firm size	Size	+	Natural log of assets
Firm performance	Roe	+	Return of equity
Leverage	Leverage	+	The ratio of debt to assets

Table 2. Descriptive Statistics

Variable	No.of Observations	Mean/Frenqucy	Std. Dev.	Min	Max
Lncomp	3282	13.307	0.799	10.536	16.163
Duality	3282	0.102	0.302	0	1
CEOshare	3282	0.001	0.000	0	0.008
State	3282	0.782	0.413	0	1
BHshare	3282	0.095	0.293	0.000	1.000
Foreign	3282	0.012	0.107	0	1
Inddir	3282	0.327	0.065	0.000	0.667
SB	3282	4.268	1.376	1	12
CompensationCom	3282	0.463	0.499	0	1
Herfindahl 5	3282	0.214	0.140	0.002072	0.719932
Lnassets	3282	21.509	0.907	18.798	25.346
ROE	3282	0.158	0.193	-1.307	1.853
Leverage	3282	3.900	8.388	0.005561	88.81985

Sources: CCER data base; CSMAR data base.

Table 3. Correlations Matrix

	Lncomp	Duality	CEOshare	State	Foreign	BHshare	Inddir	SB	CompensationCom	Herfindahl5	Lnassets	ROE	Leverage
Lncomp	1.000												
Duality	0.078***	1.000											
CEOshare	0.142***	0.109***	1.000										
State	0.060***	-0.059***	-0.035**	1.000									
Foreign	0.150***	0.039**	0.131***	-0.108***	1.000								
BHshare	0.185***	0.046***	0.035**	0.073***	0.198***	1.000							
Inddir	0.185***	0.031*	0.025	-0.097***	0.020	0.053***	1.000						
SB	0.008	-0.035**	-0.018	0.191***	-0.015	0.038**	-0.076***	1.000					
CompensationCom	0.089***	-0.005	0.003	0.033*	-0.003	-0.023	0.124***	0.073***	1.000				
Herfindahl 5	-0.083***	-0.077***	-0.032*	0.257***	-0.045**	0.003	-0.101***	0.046***	-0.076***	1.000			
Lnassets	0.369***	-0.005	0.025	0.129***	0.102***	0.216***	0.107***	0.173***	-0.032*	0.183***	1.000		
ROE	0.264***	0.029*	0.012	-0.020	0.030*	0.004	0.147***	0.009	0.066***	-0.026	0.185***	1.000	
Leverage	-0.042**	0.009	0.003	0.062***	-0.014	0.003	-0.165***	0.100***	-0.049***	0.160***	-0.016	-0.113***	1.000

Note: *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 4. Panel Estimations to Test the Hypotheses

	Dependent variable: Executive Compensation				
Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5
Duality	0.076**		0.063*	0.251**	
	(2.108)		(1.739)	(2.052)	
CEOshare	104.268**		90.968**	219.336**	
	(2.116)		(2.148)	(2.011)	
State	0.040		0.068	-0.269**	
	(0.839)		(1.377)	(-2.209)	
Foreign		0.416***	0.399***		0.377*
		(2.693)	(2.704)		(1.950)
BHshare		0.530***	0.522***		0.445**
		(3.053)	(2.997)		(2.493)
Duality*Inddir				-0.515	
				(-1.486)	
CEOshare *Inddir				-346.346	
				(-1.103)	
State *Inddir				0.936***	
				(2.725)	
Foreign* CompensationCom					0.092
					(0.465)
BHshare* CompensationCom					0.206*
					(1.784)
Inddir	-0.209	-0.169	-0.199	-0.894**	-0.158
	(-1.245)	(-1.013)	(-1.189)	(-2.566)	(-0.953)
SB	0.025*	0.030**	0.027**	0.021	0.029**
	(1.878)	(2.188)	(2.013)	(1.553)	(2.162)
CompensationCom	0.001	-0.001	0.003	-0.002	-0.029
	(0.020)	(-0.014)	(0.080)	(-0.053)	(-0.742)
Herfindahl 5	-0.457***	-0.448***	-0.448***	-0.433***	-0.464***
	(-2.921)	(-2.873)	(-2.887)	(-2.751)	(-2.963)
Lnassets	0.110***	0.117***	0.113***	0.111***	0.112***
	(3.687)	(3.955)	(3.800)	(3.743)	(3.789)
ROE	0.266***	0.273***	0.271***	0.261***	0.274***
	(4.167)	(4.240)	(4.278)	(4.115)	(4.249)
Leverage	-0.000	-0.000	-0.000	-0.000	-0.000
	(-0.392)	(-0.245)	(-0.320)	(-0.257)	(-0.243)
Constant	10.569***	10.375***	10.426***	10.786***	10.506***
	(16.495)	(16.260)	(16.339)	(16.680)	(16.548)
Firm effects	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes
N	3282	3282	3282	3282	3282
adj. R^2	0.413	0.416	0.419	0.416	0.417
F	115.822	124.515	104.270	97.891	111.149

Note: *, **, *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.
t statistics in parentheses.