Managerial power, agency cost and executive compensation – an empirical study from China

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Abstract

Purpose – Based on the theory of "optimal contracting approach" and "the managerial power approach", this paper aims to investigate whether senior executives of listed companies in China make use of their power to gain their own private benefits. The paper also compares compensation contracts between state- and private-owned enterprises to test whether there is a significant difference between senior executives from different ownership types of enterprises in terms of compensation contracts.

Design/methodology/approach – The paper raises four hypotheses based on the theories of "company agency", "optimal contracting approach" and "managerial power approach". After that, 5,680 A-share-listed companies of stock market in Shanghai and in Shenzhen Stock Market from 2008 to 2012 were taken as research samples to conduct a series of research analysis, including *t*-test, reliability analysis and regression analysis, with the help of SPSS 18.0.

Findings – The senior executives of listed companies in China could make use of their power to increase their own salary to gain power pay and, at the same time, company performance, company size and other factors that are important to influence the executive compensation. This paper further argues that senior executives of private-owned listed companies are more likely to use their power to obtain power pay and increase their own compensation. Additionally, the agency costs of Chinese listed companies are negatively related to the performance pay of senior executives, whereas there is no obvious negative correlation with the power pay of senior executives.

Practical implications – This paper takes multiple, in-depth approaches to study the relationship among managerial power, agency cost and executive compensation and to find out the differences in compensation contracts of senior executives between private-owned listed companies and state-owned companies. It also provides necessary suggestions to ensure the interests of stockholders, such as: optimizing the management structure of listed companies; improving the transparence of information

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disclosure of listed companies; establishing effective mechanism of incentive and constraint; and improving and standardizing the market of professional managers.

Social implications – The compensation contract of senior executives in China is critical to enhance enterprises' performance, and it will become an important factor that will facilitate the interests of stockholders and management. However, this paper argues that some phenomena of over-payment of senior executives in listed companies cannot be explained by the theory of "optimal contracting approach", but it is necessary and important to compare the differences of compensation contract of senior executives between private-owned listed companies and state-owned companies. A series of findings are proposed in this paper.

Originality/value – This paper made use of a principal analysis to extract the main factors that could represent the managerial power from different angles. In addition, this paper also compared the differences between compensation contracts of senior executives between private-owned listed companies and state-owned companies. Additionally, in this paper, the compensation of senior executives was divided into "power compensation" and "performance compensation", which were used to test the relationship with the management cost of companies.

Keywords Senior manager, Compensation incentive, Managerial power, Agency cost

Paper type Research paper

1. Introduction

The compensation for senior executives is an issue that has been the focus of the academic world in recent years. The "overpaid" phenomenon of senior executives in listed companies of China shows up frequently, and the disconnection between the compensation of senior executive and company performance has also widely attracted attention. The compensation contract of senior executives is regarded as an effective method to achieve common benefits for both shareholders and management and also to reduce agency costs of the company.

The managerial power approach based on compensation contracts for senior executives argued that a board of directors does not always take actions to maximize shareholders' interest. In fact, directors are always influenced by managerial power and tend to make compensation contracts more conducive to management, and, in this way, they deviate from company performance and even run against shareholder's interests. How to provide effective incentive mechanisms for senior executives of a company is related to not only the wealth of shareholders but also to concerns with regards to the survival and development of the company.

This paper analyzes whether the senior executives of the listed companies in China make use of their power to influence stipulation progress of compensation contracts of senior executives, whether the stipulation of contracts of executive compensation does not completely follow optimal compensation contract and deviates from the direction that is beneficial for management and whether the management obtains private benefit based on their power. The paper also compares compensation contract between state- and private-owned enterprises, and then tests whether there are significant differences between senior executives from different ownership types of enterprises of in terms of compensation contracts. After that, this paper further divides the compensation of executives into "power compensation" and "performance compensation" and conducts research on the relationship between the two compensations and the management costs of a company.

2. Literature review

2.1 Research on the correlation between executive compensation and company performance

The research carried out by Western scholars on the compensation of executives can be traced back to Taussings and Baker (1925), who came to the conclusion that there is a modest correlation between manager compensation of enterprise and enterprise performance. Based on the agency theory, Jensen and Meckling (1976) thought that there was an obvious positive correlation between executive compensation and company performance, and that it contributed to laying the foundation of the optimal contract theory. The optimal contract theory stated that the company should design an effective compensation package to solve ethical risk problems and to stimulate management. Lambert and Larcker (1987) found that there is an obvious positive correlation between executive compensation and company performance, and when formulating executive compensation, the companies with higher growth tend to take stock yield as the proxy variable of company performance rather than the accounting index ROE. After studying the role of accounting surplus in the formulation of executive compensation, Dechow and Sloan (1991) found that taking accounting surplus as proxy variable of company performance is helpful for executive compensation to avoid the influence of other factors beyond the control of management, such as the overall market trends. Firth *et al.* (2006) took the listed companies of China as samples and found that for the company with SASAC as big shareholders, there is no obvious correlation between executive compensation and company performance; for the company with individuals as big shareholders, there is an obvious correlation between executive compensation and shareholder wealth; and for the company with a state-owned enterprise as a big shareholder, there is an obvious correlation between executive compensation and accounting earning.

In China, as one of the earliest researchers on executive compensation, Li (2000) found out that the level of compensation of management in the listed company of China did not depend on company performance, but was related to company scale and location. Research by Wei (2000) found that the monetary income of senior executives of listed companies in China is lower, the compensation structure is unreasonable and the forms of compensation is simple; the ubiquity of "zero compensation" and "zero shareholding" existed, and, at the same time, there is no obvious positive correlation among compensation, shareholding quantity of senior executives and company operational performance. After analyzing the decisive factors of manager annual compensation, Shengli and Yanling (2005) thought that there were positive correlations among compensation and company scale, company performance, insider ownership, proportion of independent director, diversification and age of general manager; on the other hand, there are negative correlations among compensation and squared value of state-owned shares, intangible assets proportion, company risk, two-post and age. Among these variables, company scale, state-owned share proportion, intangible asset proportion and company performance have the significant influence on compensation. Research by Yuhui and Shinong (2010) found that, except for the return on asset (ROA) indicator, there is no obvious positive correlation between executive compensation and other indicators, such as asset convertibility, that represents cash performance and the stock yield that represents wealth of shareholders. It is possible for senior executives to exchange cash salary by the so-called "IOUs profit".

2.2 Research on managerial power's influence on executive compensation

Lambert *et al.* (1993) pointed out that the proportion of outside directors appointed by CEO has an obvious positive impact on the salary level of the CEO. Hambrick and Finkelstein (1995) found that the level of compensation of a CEO of a company under the control of shareholder is lower than that of the companies under the management's control. Core *et al.* (1999) stated that the agency problem of a company with an incomplete management structure is much more serious, whereas the company with more serious agency problems would have higher executive compensation. Bebchuk *et al.* (2002) systematically elaborated two approaches that influence the contracts of executive compensation: optimal contracting approach and managerial power approach. They thought that many phenomena that are hard to explain by optimal contracting approach could be explained easier by managerial power approach. Bebchuk *et al.* (2002) found that very few companies immediately gave stock options to management, excluding industry and market factors, whereas expected revenue gained by management from traditional share option was always higher than the options with influential factors of industry and market removed. Lu *et al.* (2008) found that, the bigger the managerial power, the larger the consumption of management on the post, but this not translate into positive company performance. Changjiang and Yuheng (2008) indicated that the differences among managerial power level of state-owned enterprise can influence the sensitivity coefficient between company performance after monetary compensation and earnings management. After making use of empirical analysis, they also found that managerial power did not improve companies' performance but, on the contrary, it has become the important cause for opportunism of earning management and false performance. The "power gains" do not play incentive roles as previously thought. Quanet *et al.* (2010) indicated that senior executives of state-owned enterprises made use of their right to gain private benefit and received excessive compensation through manipulated performance, and the bigger the power of senior executive of a Chinese state-owned enterprise, the bigger the private benefits.

2.3 Research on relation between executive compensation and company agency cost

Jensen and Meckling (1976) discovered that integrating the performance of management levels and agency costs reduce agency costs. Research by Stulz (1988) showed that conflicts of between management and shareholders could be eased if management levels have appropriate shares. However, Morck *et al.* (1988) and Jensen (1993) pointed out that compensation contracts for senior executives are not completely effective. Research conducted by Bebchuk *et al.* (2002) and Bebchuk and Fried (2003) further proved that executive compensation is possibly the result of executive-rent. According to this theory, if a senior executive can influence the stipulation of compensation, they would not give much effort to reduce agency costs of the company with regards to their compensation, and may even exercise their rights to increase company-paid consumption to enhance management costs; or they invest in invalid projects to cause investment failure so as to reduce asset turnover ratio and improve the agency costs of the company. Research by domestic scholars Yuhui and Shinong (2010) found that there is an obvious positive correlation between executive compensation and management cost rate of a Chinese listed company, while there is an obvious negative correlation with asset turnover ratio. Those results demonstrated that, along with increase of executive compensation, instead of cutting costs, management push up the agency costs.

3. Research hypothesis

Senior executives of a company are effectively the senior management. Executive compensation can be understood in either a narrow or a broad sense. The compensation in the narrow sense means that the currency and the payment that can be converted into currency. The compensation in the broad sense includes not only the compensation in a narrow sense but also the satisfactions obtained by various non-currency forms, such as the typical company-paid consumption. In China, company-paid compensation is an important part of executive compensation due to the influence of commercial culture. In America, most of the target of research related to executive compensation focuses on a company CEO, while the Chinese scholars always focus on senior executives as a team in their research. The executive compensation specified in the paper is the compensation in the broad sense, which not only includes currency compensation but also includes non-currency payment, such as share options and executive share gains.

March (1984) thought that managerial power is an ability to suppress discordant opinions. The "managerial power mode" proposed by Lambert *et al.* (1993) is widely accepted now. They have divided power into four kinds according to the content including: organizational status, information control, personal wealth and nomination on board of directors. Thus, it can be regarded that managerial power is an important influencing factor for various contracts of enterprises. As agency of shareholders, managers are the direct person to exercise power and the direct beneficiaries of power.

Bebchuk *et al.* (2002) have systematically concluded that there are two separate approaches: the optimal contracting approach and the managerial power approach. They thought that the boards of directors are not always the most honest guardians for shareholders' benefits, as they are always influenced by the power of management to make compensation contracts in favor of the management. Managerial power approach focuses on management having the ability to make use of their powers to extract the rental of the company, and they can also influence or manipulate stipulations of executive compensation. But Bebchuk *et al.* (2002) thought that the managerial power approach does not completely deny optimal contracting approach, but instead means that the existence of managerial power can make the executive compensation deviates from theoretical optimal contract more or less, and tends to be good for management. The level of managerial power and the level of "anger cost", which can be accepted by management, and can influence the degree of deviation.

Core *et al.* (1999) found that, when the scale of board of directors is big and mostly consists of external directors nominated by the CEO, the compensation of CEO is always better, but their performance might be worse. Research by Yuhui and Shinong (2010) showed that executive compensation does not reduce agency costs of the company, but that there is an obvious positive correlation with agency costs of the company. This means that the high executive compensation does not have an effect on incentive, but only on the performance of management self-interest behavior. Yunguo and Huyuming (2011) took the ST Company as an example and found that the greater the power the state-owned executive, the more likely they are to have an exemption from compensation punishment.

"Insider control" problems of Chinese listed companies are serious, and the effective negotiation ability of a board of directors is always restricted by the fact. Meanwhile, a shortage of managers in a market makes the restrictions of market reputation on behavior of a manager hard to be fulfilled. Asymmetry of information makes it difficult for the shareholders to directly maintain their own benefit.

Therefore, the paper proposes the first hypothesis:

H1. There is an obvious positive correlation between the executive compensation of Chinese listed companies and the managerial power.

According to the viewpoint of managerial power approach, the "anger cost", which is suffered by senior executives, is an important factor that influences the degree of deviation of executive compensation contracts from optimal contracts. Because the property rights of state-owned enterprise are universally owned and state-owned enterprise have more social functions, executive compensation of state-owned enterprise always attracts attention from the media and is subject to public opinions, so senior executives of state-owned enterprises should carefully consider before utilizing their power to improve their own compensation. Research conducted by an American scholar showed that criticism of outside observers can influence executive compensation. It has been clearly indicated in the magazines (1992-1994) including *Business Week*, *Forbes*, *Fortune* and *Institutional Investor* that the growth speed of executive compensation in the company with a negative report on executive compensation policies being lower than other companies.

Research by Liu (2001) and Chen *et al.* (2003) found that the manager market of Chinese state-owned enterprise is restricted to a certain extent.

Theoretically, in China, the general attitude toward the value of the manager is positive, but in fact, the Chinese Government always restricts the income levels of managers by the main restriction method linking the income of manager to the salary of staff.

Wei (2000) pointed out that most Chinese listed companies are state-owned enterprises. Most senior executives of those companies are at different administrative levels. Therefore, the non-currency income is always the function of title, position or honor. Motivation for senior executive of state-owned enterprises to aim for high currency compensation is not as strong as it is for the senior executive of non-state-owned enterprises.

Donghua *et al.* (2005) thought that, except for the compensation arranged by state-owned enterprises under restrictions, an alternative, diversified and non-currency compensation system could be formulated such as a typical company-paid consumption one. Senior executives of state-owned companies always tend to use high company-paid consumption to compensate for their own insufficient currency compensation. Research by Xia and Li (2004) argued that management of state-owned companies might utilize the loophole of corporation governance to obtain compensation beyond the illegal income for their own human resource capital. Company-paid consumption of management level has a substitutive effect on compensation of management.

Therefore, the second hypothesis of the paper is proposed:

H2. Compared to a state-owned listed company, a senior executive of a non-state-owned listed company is more likely to make use of power to improve their own compensation.

Principal-agent theory stated that there is an agency cost between a company operator and the owner. A director might damage shareholders' interest to fulfill their own benefit optimization, such as increasing in-job consumption or being inefficient. Sometimes, there might be under-investment and surplus-investment phenomenon. Based on the principal–agent theory, the optimal contracting approach stated that effective compensation incentive contract shall integrate interests of management level and shareholders together, so that management can take proper actions to make their best effort to increase interests of shareholders, and, at the same time, reduce agency conflict and costs of the company.

Bebchuk *et al.* (2002) made systematic statements on optimal contracting approach and managerial power approach. The managerial power approach stated that the management might influence the process of compensation formulation and even set the compensation themselves. The executive compensation might be the result of managerial power rent. Thus, the executive compensation related to managerial power could not have an effective incentive effect and is not good for reducing agency costs of the company; on the contrary, it is only one part of an agencies problem. As for the viewpoint of managerial power approach, if the management level can obtain high compensation through their power, they might not try their efforts to reduce agency cost of the company when they obtain high compensation. Even with the increase of their power, it might cause more serious agency problems.

Bebchuk *et al.* (2002) thought that the managerial power approach does not completely deny optimal contracting approach, but, because of managerial power, the executive compensation contract deviates from the theoretical optimal compensation contract to a certain extent. Therefore, theoretically, the executive compensation based on company performance shall have incentive effect and reduce agency cost of the company; however, under the influence of managerial power, the disconnection between executive compensation and company performance is the result of managerial power rent, and it will not lead to reduction of agency cost of the company.

Based on above theoretical analysis, the third and fourth hypotheses are proposed:

H3. There is an obvious negative correlation between the agency cost of a Chinese listed company and the performance compensation of an executive.

H4. There is no obvious negative correlation between the agency cost of a Chinese listed company and the power pay of senior executive.

4. Research design

4.1 Example selection and data source

The paper took A-share listed companies of the Shanghai and Shenzhen Stock Markets from 2008 to 2012 as research samples and removed the following companies:

- financial and insurance companies;
- ST, *ST and PT companies;
- the companies with total asset, owner's equity less than or equal to zero;
- company with net profit less than zero; and
- companies missing the related research data, such as executive compensation, business income growth rate and annual fluctuation.

Finally, we got the annual observation value of 5,680 companies. The data adopted by the research mainly come from GTA Research Service Center, REEST and WIND databases developed by the Shanghai Wande Company. And then we manually sorted out the value and utilized Excel to conduct series of calculations. Finally, we utilized SPSS 18.0 to test the measurement model.

4.2 Variable measurement
4.2.1 Explained variable

- *Executive compensation (Pay)*: With reference to methods of most Chinese scholars, this paper took the logarithm of total compensations of first three senior executives with highest compensation disclosed in annual reports to be the research objects. In robustness test, we took logarithm of "total annual pay of directors, supervisors and senior executives" as proxy variable of executive compensation.
- *Agency cost (AC)*: This paper refers to methods of an American scholar (James *et al.*, 2000) and numerous Chinese scholars, and adopted administration expense rate (M.EXP/SALES) to measure agency cost.

4.2.2 Explanatory variable

- *Managerial power variable (Power)*: This paper referred to methods of Chinese scholars and selected four indicators to measure the managerial power, including whether the management level holds shareholders or not, the proportion of shares held by biggest shareholder, proportion of independent directors and whether the general manager has an additional post as president or not. Meanwhile, with reference to Bai *et al.* (2005), he utilized principal component analysis methods to abstract the G indicator from eight management variables of the company so as to reflect the management skill of the company. This paper took one comprehensive indicator of managerial power from the aforementioned four indicators. In the first indicator, the loading coefficients of four variables, including whether the management level holds shareholders or not (1 for yes, 0 for no), the proportion of shares held by the biggest shareholder, the proportion of independent directors and whether the president is held by the general manager or not (1 for yes, and 0 for no), are respectively 0.677, −0.652, −0.059 and 0.336. The coefficient symbols of the four variables comply with the prediction.
- *Nature of property right (State)*: Nature of property right(State) is a dummy variable. In the regression model of the paper, when the sample company is state-owned enterprise, State is 0; when the sample company is private-owned enterprise, State is 1.
- *Power pay(Power-pay) and performance pay (Perf-pay)*: With reference to methods of Quan *et al.* (2010), this paper divided executive compensation into power pay(Power-pay) and performance pay (Perf-pay).

In which, estimation of β_1 and β_2 is obtained through year and region regressions of model 1 (refers to following text).
4.2.3 Control variables

- *Return on assets (ROA)*: The papers selected total ROA as variable to measure the accounting performance of the company.

- *Annual stock return (RET)*: The paper selected annual stock return (RET) as variable for measure market performance of the company.
- *Company size (Size)*: In Model 1 and Model 2, the paper took logarithm of total assets of the company at year end as proxy variable. In Model 3 and Model 4, the paper took logarithm of employee number of the company as a proxy variable to measure the company size and took it as the control variable of agency cost of the company.
- *Growth ability (Growth)*: This paper took growth rate of operation revenue as the control variable to measure the growth ability of a company.
- *Asset-liability ratio (Lev)*: It is a measurement indicator for company risk. The higher the assets-liability ratio is, the bigger bankruptcy risk the company shall face.
- *Short-term loan (SL)*: Executive compensation might be restricted by short-term loan of the company. To eliminate the influence of company size, the paper utilized the result of divided short-term loan by total assets at year end.
- *Annualized fluctuation of stock (Flu)*: It is another measurement indicator for company risk. Usually, the bigger the annualized fluctuation is, the bigger risk the senior executives shall bear, and the more compensation shall be obtained from the salary. The paper took annualized fluctuation in recent 24 months to measure the company risk.
- *Regional dummy variable*: With reference to methods of Fan and Wang, we divided companies into eastern part, central part and western part according to the region where they are registered. The eastern part includes ten provinces and municipalities: Beijing, Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Guangdong and Hainan; central part includes eight provinces: Shanxi, Jilin, Heilongjiang, Anhui, Jiangxi, Henan, Hubei and Hunan; and the western part includes 12 provinces and regions: Mongolia, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Xizang, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang.
- *Industry dummy variable*: In this paper, with reference to the China securities regulatory commission issued shares of the listed company industry classification guidance, after removing finance and insurance industries, we divided all the example companies to 12 industries and set 10 industrial dummy variables; and take manufacturing industry as baseline group.
- *Annual dummy variable*: Examples of the paper include companies from 2008, 2009, 2010, 2011 and 2012 and set four annual dummy variables with 2008 as the baseline group.
- *Growth (Growth)*: The paper predicted that there is a negative correlation between growth of company growth and agency cost.
- *Financial leverage (Lev)*: Debt can improve the possibility of company bankruptcy, so it shall force the management to work hard, because once the company goes bankrupt, the currency income and non-currency income would suffer loss. Research of Zhang *et al.* (2008) found that there is a positive correlation between total debt of listing companies and agency cost.

- *Equity concentration (HFDH10)*: The paper took representative HFDH10 index as a control variable, and we predicted that there is a negative correlation between equity concentration and agency cost.
- *Long-term investment rate (CQTZR)*: A number of research findings stated that many enterprise managers usually take lots of capital to circulate outside through foreign investment, so as to avoid supervision, and to hide the company-paid consumption or obtain private benefit. Therefore, they usually set many multi-level structures, such as subsidiary corporations or grandchildren companies, to conduct related transaction or interest arbitrage. It leads to continuous extension of chain relations with its entrusted agency, the increase of company assets risk and the increase of company supervision and control costs (Table I).

4.2.4 Definition table for research variables.

- *Model building (Analysis model)*: For *H4* proposed above, the paper builds three empirical models to verify the aforementioned hypothesis.
- Model 1:

$$\begin{aligned}\text{Pay} = {} & \beta_0 + \beta_1\text{Power} + \beta_2\text{ROA} + \beta_3\text{RET} + \beta_4\text{Size} + \beta_5\text{Growth} \\ & + \beta_6\text{Lev} + \beta_7\text{SL} + \beta_8\text{Flu} + \beta_9\text{Central} + \beta_{10}\text{West} + \sum\text{IND} \\ & + \sum\text{Year} + \varepsilon\end{aligned} \tag{1}$$

- Model 2:

$$\begin{aligned}\text{Pay} = {} & \beta_0 + \beta_1\text{Power} + \beta_2\text{Power} \times \text{State} + \beta_3\text{State} + \beta_4\text{ROA} + \beta_5\text{RET} \\ & + \beta_6\text{Size} + \beta_7\text{Growth} + \beta_8\text{Lev} + \beta_9\text{SL} + \beta_{10}\text{Flu} + \beta_{11}\text{Central} \\ & + \beta_{12}\text{West} + \sum\text{IND} + \sum\text{Year} + \varepsilon\end{aligned} \tag{2}$$

- Model 3:

$$\begin{aligned}\text{AC} = {} & \beta_0 + \beta_1\text{Powerpay} + \beta_2\text{Perfpay} + \beta_3\text{Size} + \beta_4\text{Growth} + \beta_5\text{Lev} \\ & + \beta_6\text{HFDH10} + \beta_7\text{CQTZR} + \varepsilon\end{aligned} \tag{3}$$

5. Empirical analysis

5.1 Descriptive statistics

Based on descriptive statistics result shown in Table II, it shows that executive compensation from 2008 to 2012 tends to gradually increase year by year. The average executive compensation and median also keep increasing year by year. The average growth rate of executive compensation over the five years is 12.38 per cent and the growth rate in 2012 is the lowest at 6.40 per cent. Standard differences between executive compensations in every year are close to the average value of executive compensation in the year. Therefore, the dispersion degree of executive compensation in a listed company in China is significant, and there is an obvious wealth gap among senior executives of a company.

	Name of variable	Variable identification	Description
Explained variable	Executive compensation	Pay	Logarithm of total compensations for the first three senior executives with highest salary
	Agency cost	AC	The paper took administration expense rate for measurement
Explaining variable	Managerial power index	Power	Take principal component analysis to abstract managerial power indicators from the four indicators: whether the management level holds shareholders or not, the proportion of shares held by biggest shareholder, proportion of independent directors and whether the general manager has additional post as president or not
	Nature of property right	State	0 for state-owned enterprise, 1 for private-owned enterprise
	Power pay	Power-pay	$\widehat{Powerpay} = \hat{\beta}_1 \widehat{Power}$
Explaining variable	Performance pay	Perf-pay	$\widehat{Perfpay} = \hat{\beta}_2 \widehat{ROA}$
Control variable	Return on assets	ROA	Net profit/total assets at year end
	Annual stock return	RET	
	Company size	Size	Take natural logarithm of total assets at year end
			Take logarithm of employee number
	Growth	Growth	Growth rate of operation income
	Asset-liability ratio	Lev	Company debt/total assets of company
	Short-term loan	SL	Short-term loan/total assets of company
	Annualized fluctuation of stock	Flu	Annualized fluctuation of stock in recent 24 months
	Equity concentration	HFDH10	Total squared number of share proportion of first ten shareholders
	Long-term investment rate	CQTZR	Ratio between long-term investment rate and total assets
	Regional dummy variable	Central	1 for the ones with registration address at central part
		West	1 for the ones with registration address at western part
	Industrial dummy variable	IND	11 industrial dummy variables, take 1 for the ones belong to one industry, otherwise, 0 shall be taken
	Annual dummy variable	Year	4 annual dummy variables, take 1 for the ones belong to the year, otherwise, 0 shall be taken

Table I.
The definition table for research variables

5.2 Comparative analysis between state-owned listing company and private-owned listing company

5.2.1 Comparison between executive compensations of state-owned listing company and private-owned listing company. According to the descriptive statistics and the results of the t-test, it is shown that the level of executive compensation of state-owned listing company is obviously higher than that of the executive compensation of private-owned listing company. It might be related to the factors that the size of a state-owned enterprise is bigger than private-owned enterprise, and most of the state-owned enterprises are in monopolizing industries, while most of private-owned enterprises are in competitive industries (Tables III and IV).

5.2.2 Comparison between managerial power index of state-owned listed company and private-owned listing company. According to the descriptive statistics and the result of the *t*-test above, it shows that the managerial power index of private-owned listed companies is obviously higher than the managerial power index of state-owned listed companies (Tables V and VI). The result is consistent with the conclusion of Lu *et al.* (2008), in which they measured the managerial power by two ways: dummy variable and integration variable.

5.3 Empirical result and analysis

The paper took use of model to test *H1* and the regression result is as follows (Table VII). According to the regression results, it shows that the imitative effect of model is good after adjusting R^2 to be 0.406. Based on the control implemented on industrial and annual variables, there is an obvious positive correlation between executive

Table II. Descriptive statistics table for executive compensation in years unit: Yuan

Total compensations for the first three senior executives with highest salary	Example data	Mean	Minimum	Median	Maximum	SD
2008	998	1,189,027.00	92,780.00	900,000,00	15,400,000.00	1,139,404.30
2009	1,046	1,301,000.00	30,000.00	880,000.00	12,700,000.00	1,216,756.27
2010	1,293	1,536,278.00	32,670.00	1,132,000.00	17,300,000.00	1,461,964.83
2011	1,123	1,776,136.00	51,600.00	1,300,450.00	19,000,000.00	1,716,796.26
2012	1,220	1,889,743.00	52,200.00	1,450,100.00	20,700,000.00	1,861,944.83

Table III. Descriptive statistic on executive compensation of state-owned listing company and private-owned listing company unit: Yuan

Nature of property right	*N*	Mean	SD	Standard error mean
State-owned	3,429	1,194,852.35	1,109,190.34	19,253.18
Private-owned	2,251	1,035,670.45	968,861.65	24,146.20

Table IV. The *t*-test result of two independent examples of executive compensations from state-owned listing company and private-owned listing company

	Levene's test for equality of variances		*t*-test for equality of means					95% confidence interval of the difference	
	F	Significance	*t*	df	Significance (two-tailed)	Mean difference	Standard error mean	Lower	Upper
Equal variances assumed	1.324	0.250	4.919	4,927	0.000	159,181.89	32,357.48	95,746.82	222,616.97
Equal variances not assumed	–	–	5.154	3,560	0.000	159,181.89	30,882.42	98,633.10	219,730.68

compensation and managerial power (obvious at 1 per cent level), and it can verify the *H1* of the paper: there is an obvious positive correlation between executive compensation of Chinese listing company and managerial power.

In addition, there is an obvious positive correlation (obvious at 1 per cent level) between executive compensation and measurement indicator ROA of company accounting performance, company size and asset–liability ratio. There is an obvious positive correlation between executive compensation and ROA. This shows that, to a certain extent, the executive compensation contract of a Chinese listing company follows optimal contracting approach and the existence of managerial power does not completely disconnect the executive contract with company performance and complies with the viewpoints of Bebchuk *et al.* (2002). The obvious positive correlation between executive compensation and company size shows that the company size is an important reason to decide the executive compensation. The bigger the company size is, the higher the requirements will be proposed on the quality and effort degree of management. The obvious positive correlation between executive compensation and asset-liability ratio shows that the higher the bankruptcy cost of human capital that the senior executive can bear, the more the senior executives can relevantly require the company to make compensation for the borne cost.

There is an obvious negative correlation (1 and 10 per cent levels, respectively) between executive compensation and short-term loans, and the executive compensation and the growth rate of operation revenue. The obvious negative correlation between executive compensation and short-term loans shows that when the company has too much short-term loan, the debt repayment pressure faced by the company will be higher and it leads to cut the executive compensation. The obvious negative correlation between executive compensation and the growth rate of operation revenue shows that when the growth is higher, the senior executive give up their current benefits due to the concern about greater benefits in the future.

Table V. Descriptive statics on managerial power index of state-owned listing company and private-owned listing company unit: Yuan

State-owned or not	N	Mean	SD	SE mean
State-owned	3,129	−0.213	1.069	0.019
Private-owned	2,151	0.264	1.024	0.026

Table VI. Inspection results of two independent examples of managerial power index of state-owned listing company and private-owned listing company

	Levene's test for equality of variances		*t*-test for equality of means					95% confidence interval of the difference	
	F	Significance	t	df	Significance (two-tailed)	Mean difference	SE mean	Lower	Upper
Equal variances assumed	5.839	0.016	−14.875	4,927	0.000	−0.476	0.032	−0.539	−0.414
Equal variances not assumed			−15.099	3,311	0.000	−0.476	0.032	−0.538	−0.415

Table VII.

Explaining variable \ Explained variable	Model 1 The first three senior executives compensation	Model 2 The first three senior executives compensation	Model 3 代理成本
Managerial power index	0.086*** (10.417)	0.075*** (7.207)	–
Return on assets	3.743*** (17.494)	3.776*** (17.321)	–
Annual stock return	−0.008 (−0.696)	0.002 (0.223)	–
Logarithm of total assets of the year end	0.272*** (31.748)	0.254*** (28.468)	–
Asset-liability ratio	0.141** (2.178)	0.130** (1.974)	−0.070*** (−14.954)
Short-term loan	−0.617*** (−6.747)	−0.517*** (−5.585)	–
Operating income growth rate	−0.025* (−1.844)	−0.025* (−1.789)	−0.004*** (−3.651)
Annualized fluctuation	−0.103 (−1.508)	−0.110 (−1.566)	–
Cross term	–	0.042** (−1.566)	–
Nature of property right	–	−0.134*** (−6.441)	–
Long-term investment rate	–	–	0.083*** (9.343)
Power pay	–	–	0.026*** (2.901)
Performance pay	–	–	−0.010** (−2.336)
Number of staff and workers	–	–	−0.005*** (−8.691)
Equity concentration	–	–	−0.037*** (−4.486)
Western part	−0.343*** (−14.281)	−0.366*** (−14.946)	0.011*** (5.596)
Central part	−0.265*** (−11.761)	−0.272*** (−11.831)	0.003 (1.640)
Constant	7.939*** (42.781)	8.369*** (42.859)	0.150*** (28.932)
Example data	5,680	5,280	5,419
Adjusted R^2	0.370	0.379	0.182
F value	127.140	112.597	50.296

There is no obvious correlation between executive compensation and annual stock return which complies with the research conclusion of Yuhui and Shinong (2010). There is an obvious correlation between executive compensation and accounting profit, while there is no obvious correlation with market performance. The senior executive might use the so-named "IOUs profit" to exchange compensation.

Additionally, the two regional dummy variables in the model are obvious (obvious at 1 per cent level). The result shows that the executive compensations of Chinese listed companies are obviously different among the eastern, central and western parts. According to the regression result, it shows that after other influential factors are controlled, the executive compensation of listed companies in the eastern region is obviously higher than central and western parts. Maybe it is decided by the difference of economic development among different regions.

To compare the influential difference of managerial power on executive compensation contracts between state-owned listed companies and private-owned listed companies, we added cross-term on the base of model 1 – verify by nature of property right × managerial power index. When verifying *H2*, we removed the companies with non-state-owned and state-owned nature of property rights, with a final sample selection of 5,280.

In the regression result, the cross-term, which is "the managerial power index × nature of property right", is obviously positive (obvious at 5 per cent level). In the model, if the dummy variable − nature of property right is 0, it means state-owned listing company; when it is 1, it means private-owned listing company. In the condition with same managerial power, the management of private-owned listing company can increase their own compensation to a larger extent so as to gain more power pay. It can be concluded that compared to state-owned listing company, the managerial power of private-owned listing company can influence executive compensation contract to a larger extent, which means that the senior executives of private-owned listing company are more likely to take use of their power to increase their own compensation. Thus, *H2* is supported.

The paper builds Model 3 to verify *H3* and *H4*, and to research the relations among agency cost, power pay and performance pay. When making regression, we removed the abnormal sample data that sales administration expenses rate is lower than 0 or bigger than 0.5, and then there were total 5,419 year-company samples.

According to the regression result, it shows that there is an obvious negative correlation (obvious at 5 per cent level) between administration expense rate and performance pay. It means that the performance pay can reduce agency costs of the company and achieve the aim to stimulate senior executives of the company. However, there is an obvious positive correlation (obvious at 1 per cent level) between administration expense rate and power pay which means that, along with the increase of power pay gained by management level, the management level is unable to reduce agency cost, and in reverse, it shall increase the agency cost. The power pay gained by the management level is completely the result of self-serving behavior of management level, so there is no incentive effect.

In addition, the research also found that there is an obvious negative correlation (obvious at 1 per cent level) between agency costs and employee number of the company, growth of company, asset–liability ratio and equity concentration, and there is an obvious positive correlation (obvious at 1 per cent level) with long-term investment rate.

5.4 Robustness test

In the robustness test, the paper has replaced the explained variables in the three models for hypothesis verification. It replaced the natural logarithm of "total compensation for first three compensations of senior executives" by nature logarithm of "total compensation of directors, supervisors and senior executives", and substitutes them into the three models of previous text for verification. The regression result is given in Table VIII).

According to the results of the robustness test, it shows that the symbol and conspicuousness of main explained variable are not changed and the research conclusion of the paper is robust.

6. Conclusion and suggestions

6.1 Research conclusion

Due to the existence of managerial power of Chinese listed companies, the senior executives of a company can make use of their power to increase their own salary to gain power pay based on the managerial power, which is consistent with the viewpoints of

Explaining variable / Explained variable	Model 1 Total annual pay of directors, supervisors and senior executives	Model 2 Total annual pay of directors, supervisors and senior executives	Model 3 Agency cost
Managerial power index	0.119*** (13.893)	0.111*** (10.126)	–
Return on assets	3.826*** (17.240)	3.861*** (16.890)	–
Annual stock return	−0.008** (−0.716)	0.001* (0.074)	–
Logarithm of total assets of the year end	0.324*** (36.456)	0.306*** (32.742)	–
Asset-liability ratio	0.154** (2.288)	0.158** (2.287)	−0.070*** (−14.864)
Short-term loan	−0.440*** (−4.641)	−0.348*** (−3.589)	–
Operating income growth rate	−0.041*** (−2.927)	−0.043*** (−2.969)	−0.004*** (−3.645)
Annualized fluctuation	−0.241*** (−3.412)	−0.239*** (−3.236)	–
Cross-term	–	0.042** (2.165)	–
State-owned or not	–	−0.118*** (−5.421)	–
Nature of property right	–	−0.134*** (−6.441)	–
Long-term investment rate	–	–	0.083*** (9.323)
Power pay	–	–	0.023*** (3.018)
Performance pay	–	–	−0.009** (−2.133)
Number of staff and workers	–	–	−0.005*** (−8.712)
Equity concentration	–	–	−0.035*** (−4.101)
Western part	−0.243*** (−9.731)	−0.262*** (−10.192)	0.011*** (5.471)
Central part	−0.189*** (−8.061)	−0.202*** (−8.360)	0.003 (1.585)
Constant	7.725*** (40.133)	8.135*** (39.723)	0.150*** (28.708)
Example data	5,680	5,280	5,419
Adjusted R^2	0.383	0.387	0.182
F value	134.166	116.229	50.288

Table VIII.

Bebchuk *et al.* (2002). The executive compensation of Chinese listing company is not completely disconnected with company performance. Based on the empirical result, the company performance and company size are still important factors for executive compensation. To a certain degree, the existence of managerial power would impel the executive compensation contract to deviate from the direction which is good for management.

Based on the special institutional background of Chinese listing companies, the paper made comparative analysis on the influence of managerial power on executive compensation contracts of state- and private-owned listing companies. The results show that the senior executive of private-owned listing company is more likely to use their power to obtain power pay and increase their own compensation.

The paper divided the executive compensation into power pay and performance pay, and respectively to investigate different relations among company agency cost and power and performance pay. The research shows that there is an obvious negative correlation between the agency cost of Chinese listed companies and performance pay of senior executive, whereas there is no obvious negative correlation with the performance pay. It means that the power pay gained by the senior executive of Chinese listed companies is the result of self-serving behavior for executive compensation and there is no incentive effect. In particular, it may reduce the incentive effect of compensation.

6.2 Policy suggestion

6.2.1 Optimize the management structure of listed companies. Based on the research of the paper, it shows that the senior executives of Chinese listed companies have more chance to seek power rent, while the improving company management structure can undoubtedly compress the power rent space of a senior executive to a maximum extent. Although China has introduced some systems, such as independent directors, supervisors and compensation appraisal committees, the effect is extremely limited. In practice, we suggest to improve the independence of independent directors, supervisors and compensation appraisal committee, so as to make the related supervision power to play positive role in restricting the influence of senior executive or even self-determined compensation. Big shareholders and institutional investors should positively execute their supervision functions on executives.

6.2.2 Improve the transparence of information disclosure of listed companies. When Chinese listed companies disclose executive compensation in annual reports, it makes public the total compensation obtained by every executive, but does not give specific descriptions for composition of their compensation. Therefore, Chinese listed companies should disclose more details of executive compensation in annual reports, for example, by subdividing the compensation into a series of indicators, including: basic salary, bonus, welfare, subsidy, housing allowance and other allowances. It would be helpful for all investors to figure out the details and constitutions of executive compensation, and to estimate whether the stipulation of executive compensation of the company is reasonable or not.

6.2.3 Establish effective incentive restriction mechanisms. During the term of office, building an effective internal incentive constraint mechanism is necessary to establish a more direct and viable alternative external market constraint mechanism. Therefore, a complete enterprise incentive restriction mechanism does matter in the establishment of the occupational manager market. Under the condition of asymmetric information, the manager incentive mechanism mainly includes two categories:

(1) the first is the income distribution mechanism with short-term incentive effect that links manager income and company operation achievement; and

(2) the second is the property distribution incentive with long-term incentive effect in which managers can hold shares of the company.

The former is to directly link income with work performance of manager so as to stimulate managers to work hard. Establishment effective management incentive restriction mechanism requires listed companies to optimize company performance assessment system, while the assessment system for evaluating performance of manager should be objective, fair and strict, and should compress rent-seeking space of the managerial power as more as possible.

6.2.4 Improve occupational manager market. In a perfect occupational manager market, reputation is of the utmost importance for a professional manager. However, the existing manager market in China just emphasizes the previous operation performance of the management, instead of commission; the product market just focuses on enterprise income and business volume, but not on the non-executive compensation. Thus, it is hard to formulate effective restrictions for a market. It is necessary to make the utmost effort to establish a more standard occupational manager market. When evaluating an occupational manager, it should take previous commissions as an important assessment factor, rather than only focus on its operation performance, as it is more effective to protect the interests of company's owners.

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