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CEO compensation components and company performance

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for the Bachelor of Science in Finance

by

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Abstract

Nowadays, the principal-agent relationship has become the mainstream of the management system of listed companies. Modern corporate governance theory believes that principals and agents have different economic interests and the problem of asymmetric information. Therefore, agency cost is inevitable. Most corporate executives are risk-averse, and corporate shareholders are risk neutral. How to give full play to the role of professional managers and improve the company's performance has become an urgent problem in the capital market. Linking CEO compensation with company performance is not only conducive to mobilizing the executive's operating enthusiasm, but also to promote the interests of agents and principals to be consistent, and it also increases the incentives and constraints for agents. Therefore, the establishment and improvement of salary composition is very important to solve the agency problem. This research will further study the relationship between CEO compensation and company performance, the impact of compensation components on company performance and how to make the compensation system more effectively linked to company performance.

1. Introduction

With the development of the modern enterprise system, the ownership and management of the enterprise are separated. The ownership belongs to the shareholders and the management right belongs to the managers. Also, the contractual relationship between the shareholders and the manager is established. The shareholders are the principal side. The company entrusts the agent to the management to conduct business. The principal-agent relationship also triggers several agency problems.

Under normal circumstances, the shareholders and managers of the company are inconsistent with the interests of the profit. Shareholders, in pursuit of maximizing their wealth, often expect the company's performance and its value to be maximized. Thus the value of the stocks they owns is appreciated. The management usually pursues the maximization of compensation and resting time, and this laziness will have a negative impact on work enthusiasm and efficiency. In this case, it may harm corporate value to some extent. Therefore, in the case of conflicts of interest or even contradictions, agency problems will arise. In order to alleviate this kind of agency problem and reduce the risky loss that the management may have on the self-interested behavior, many enterprises make full use of the compensation components and incentive mechanism of the salary to the executives when formulating the compensation structure.

For instance, the relationship between executive compensation levels and corporate performance is connected tightly to encourage executives to work hard. This is how the business performance be improved. When executive compensation is tied to corporate performance, in order to get more compensation, executives will invest more time and energy to create greater corporate value, which will help promote corporate performance. From the classification of existing executive compensation, it can be roughly divided into two categories, one is monetary compensation, such as fixed salary, cash bonus, etc. The other is incentive compensation, such as stocks and options. Therefore, this research will examine the relationship between the CEO compensation components, including monetary compensation and incentive compensation, and company performance.

From the situation of current compensation components, the US CEO compensation is mainly divided into basic annual salary, short-term reward, long-term salary, allowance, compensatory payment and bonus. Among them, fixed compensation accounts for a relatively low proportion, while performance allowance accounts for a relatively high proportion. Japan's salary structure is mainly divided into fixed salary and performance linkage compensation. Compared with the United States, the fixed salary in the Japanese executive compensation structure is higher, and the pay gap is even smaller. Compared with the United States, Japan's CEO compensation is more relevant to company performance, and less relevant to the company's stock price. The CEO compensation structure in Europe is somewhere in between, and the internal executive compensation gap is moderate. However,

because the compensation system guidance of different industries comes from different institutions, the pay gap between industries will be much greater.

Judging from the supervision and regulation of the compensation system, the legal environment in the United States is more complete, In the US, laws and regulations clearly stipulate the structure of the salary. Japan also has a clear definition of salary levels and structure. They has done a better job in the information disclosure system. European laws and regulations are biased in principle to know that the salary structure is proposed without mandatory norms, and the compensation committees of various industries are relatively independent.

At present, the executive compensation structure of China is mainly divided into basic salary, long-term salary, floating income and welfare allowance. The proportion of fixed salary is large, and the salary gap is gradually expanding. In terms of legal supervision, China's relevant laws also provide guidance only. There is no sound legal system for the details of CEO compensation structure. In addition, the imperfection of information disclosure also directly affects the efficiency of the management and governance of listed companies, and there is still much room for research and improvement in the income distribution of senior executives.

2. Literature Review

2.1 Overview of CEO compensation and company performance

From the existing literature, scholars' views on the relationship between executive compensation and corporate performance have not yet been agreed. Most scholars believe that CEO compensation is positively correlated with corporate performance. A few scholars believe that executive compensation and corporate performance are negative relationship or irrelevance.

Sigler (2011) selected US listed companies as sample data, and his research found that executive compensation is positively correlated with corporate performance. Neslihan (2011) examined the impact of executive compensation on corporate performance from the perspectives of monetary compensation and stock compensation. He found that the increase in monetary compensation helps to improve corporate performance, but for the rise of stock compensation for corporate performance, the effect is not significant.

In recent years, as listed companies have paid more attention to compensation incentives, this has led to the continuous improvement of executive compensation levels. At the same time, Ozdemir and Upneja (2011) have verified the relationship between the performance of listed companies and executive compensation levels from sufficient data.

2.2 The ownership structure's effects on the relationship between CEO compensation and company performance

2.2.1 The ownership structure and corporate performance

Chapple and Chen (2019) stated that the enterprise system reform will change the ownership structure, equity concentration, equity balance, equity mix, etc. In order to achieve the most effective goal of the relationship between executive compensation and company performance. A yardstick for measuring the success of a company's equity structure adjustment is corporate performance. Company performance can be used to measure the business management of the company and reflect the development capability of the company. At present, there is no final conclusion about the relationship between ownership structure and corporate performance.

2.2.2 The concentration of the company's equity and performance

Lskavyan and Spatareanu (2011) 's studies have shown that a highly concentrated equity structure can better protect the company's interests in the face of market chaos. Yan and Ma (2013) believe that when the company is in different stages of life cycle, the relationship between the concentration of the company's equity and performance is different. But no matter at what stage, the degree of concentration will have a significant positive effect on performance.

Tian and Wang (2016) subsequently incorporated innovation ability as an influencing factor into the research model and reached the same conclusion. Zhu (2010) found that there is a significant positive relationship between the concentration of ownership and the performance of the company. Mao and Yang (2014) found through empirical research that when corporate equity concentration is high, enterprises are more willing to carry out various business activities, and the controllers of the enterprise are more willing to supervise the management-related behaviors of management.

2.3 The relationship between stock-based incentive for CEO and company performance.

Osei-Bonsu and Lutta (2016) using theoretical frameworks and empirical evidence demonstrate that aggressive trading by existing investors can serve as a powerful mechanism to discipline the Chief Executive Officer (CEO), thus impacting firm performance. A CEO with much of her compensation tied to stock performance would naturally be expected to work hard to improve firm value.

Lilling (2006) states in the research that the administrative measures stipulate that the subject of equity incentives is the company's stock. The scope of incentives includes company directors, senior management personnel and other employees; the listed company's shareholding incentives should be based on restricted stocks and stock options, as permitted by laws and administrative regulations. In Smirnova and Zavertiaeva (2017) research, other methods are supplemented. Listed companies have a lot of room for improvement in equity incentives. The relationship between equity incentives and corporate performance. Most of the research conclusions focus on positive relationship, negative relationship, non-significant relationship and curve relationship.

2.4 Influence factors of the relationship between CEO compensation and company performance.

Jensen and Murphy (1990) came up with the idea that compensation-related incentives are directly controlled by the compensation committee and the board of directors. The table "Best Paid CEOs of Large Companies" lists 25 companies that reward CEOs who provide the best incentives based solely on salary-related wealth, including changes in salaries and bonuses, long-term incentives, dismissal and stock options. The table clearly shows that the main contributors to compensation-related incentives are stock options, and the present value of changes in salaries and bonuses.

Sun and Wei (2013) mentioned that "While revenue efficiency is associated with CEO cash compensation, cost efficiency is associated with incentive compensation."

The study of Yahya and Zahiruddin (2017) investigated whether CEO compensation is consistent with operational and market performance, and how board governance and dividend policies affect the performance of non-financial sector compensation performance. Empirical evidence shows that both operational performance and market performance are positively related to CEO compensation.

Sigler (2011) shows the result that the link between scale and compensation is reflected in the notion that US companies use scale as a determining factor to pay executives like bureaucrats. On the other hand, the bigger the company, the more complex it is to operate, which requires skills that most managers may not have. The term appears to be the next most important variable, indicating that the CEO gains more knowledge and expertise over time, or that he or she has greater power in the compensation committee that determines CEO compensation levels. This may be a combination of the two.

2.5 How to enhance the relationship between CEO compensation and company performance

Osei-Bonsu and Lutta (2016) demonstrate that simply establishing a number of rewarding compensation plans is not necessarily sufficient to control the principal-agent problem. These findings provide evidence for Heron and Lie's (2009) argument that the incentive pay plan tends to align the interests of shareholders and executives may depend on the ability to accurately measure performance, the monitoring system, and the degree of planning.

2.5.1 Establish and improve the equity incentive assessment indicator system

Huang and Liu (2019) studied equity incentive and corporate performance then summarized that consider long-term financial indicators and short-term financial indicators, both to assess net profit and to assess net interest rate. Additionally, the assessment indicators should not only compare the indicators of the company in different periods, but also consider the average of the same industry in which the company is located. The highest indicator.

Another point mentioned by Huang and Liu (2019) is that to improve the incentives for equity, it can start from two aspects. On the one hand, within the standards stipulated in the Measures for the Administration of Equity Incentives of Listed Companies, the proportion of incentives should be appropriately increased; on the other hand, the scope of equity incentives should be appropriately expanded.

3. DATA & SAMPLE:

Discussion and Explanation of DataSet and Sample

For testing the relationship between CEO compensation components and company performance, I will choose American companies as the sample, both horizontal and vertical to select data to analyse how salary, stock, option, bonus, award and non-equity incentive work in their compensation. By testing the relationship of CEO compensation and company performance to evaluate which are effective ways of putting their compensation components. In addition, are the famous CEOs actually worth the salary they are taking home. Most of the data, including the CEO's personal profile, compensation and salary component percentage, pay for performance, etc., are quoted from Bloomberg.

4. METHODOLOGY & MODEL:

4.1 Discussion and Explanation of Methodology

In the methodology part, all the pay as disclosed in the company's summary compensation and board tables which includes salary, bonus, stock, option, non-equity incentives and all other compensation. For the pay-for-performance, it measures the fraction of the CEO's awarded pay to the company's three-year average economic profit. The WACC economic value added overtime will also be listed regarding the CEO compensation.

4.2 Discussion and Explanation of Model and Hypotheses

Model: A relationship test will be used to analyze the relationship between CEO compensation and company performance. In addition, regression model is chosen to test how the CEO compensation components affect the company performance by using data of companies.

The compensation will be calculated by different coefficients multiple several components.

The first assumption of consisting compensation is

Total Compensation = $a_1 * \text{Salary} + a_2 * \text{performance} + a_3 * \text{bonus} + a_4 * \text{CompanySize} + a_5 * \text{Tenure} + a_6 * \text{Age} + a_7 * \text{Gender}$

H1: CEO compensation is related to company performance.

H2: The compensation components diversification have positive adjustment effect on company performance.

5. Data Analysis and Results

Nowadays, the principal-agent relationship has become the mainstream of the management system of listed companies. Modern corporate governance theory

believes that principals and agents have different economic interests and the problem of asymmetric information. Therefore, agency cost is inevitable. Most corporate executives are risk-averse, and corporate shareholders are risk neutral. How to give full play to the role of professional managers and improve the company's performance has become an urgent problem in the capital market. Linking CEO compensation with company performance is not only conducive to mobilizing the executive's operating enthusiasm, but also to promote the interests of agents and principals to be consistent, and it also increases the incentives and constraints for agents. Therefore, the establishment and improvement of salary composition is very important to solve the agency problem. This analysis will further study the relationship between CEO compensation and company performance, the impact of compensation components on company performance and how to make the compensation system more effectively linked to company performance.

5.1 The relationship between CEO Compensation and Company Performance

For testing the relationship between CEO compensation and company performance, a regression test will be used. Because a single indicator cannot fully reflect the company's performance in a short period of time, it is necessary to choose a measure that can express profitability and development ability in addition to revenue. Therefore, the indicators selected are: the company's existing market capitalization, return on asset (ROA), and return on equity (ROE). The reason to choose ROA and ROE is they are benchmarks of the management effectiveness. After using the regression model to test the relationship between these indicators and the total compensation, the results are shown in the figure 5.1.1

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 90.0%	Upper 90.0%
Intercept	0.62577	0.095246	6.570012	3.29E-09	0.436518	0.815023	0.467456	0.784085
X Variable 1	-0.00147	0.001308	-1.12394	0.264059	-0.00407	0.001129	-0.00364	0.000704

Figure 1 relationship between total compensation and R/M

The first regression is to test is there a significant relationship between total compensation and company revenue. However, the size of companies are various. In this case, the revenue can not be used directly to measure the profitability of companies. In order to normalize the revenue, we take the market capitalization as a measure of the company size and divide the revenue by the market capitalization as the dependent variable. In this univariate regression analysis, total compensation is

used as the independent variable. The result obtained is that p-value = 0.264 means that there is no significant relationship between total compensation and company performance revenue. Considering that the processing of the dependent variable may cause the data to be unreliable, a regression analysis of total compensation with ROA and ROE is performed again, and the results are shown below.

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 90.0%	Upper 90.0%
Intercept	0.039588	0.011686	3.387753	0.001051	0.016369	0.062808	0.020165	0.059012
X Variable 1	-0.00015	0.000161	-0.92791	0.355966	-0.00047	0.00017	-0.00042	0.000118

Figure 2 relationship between total compensation and ROA

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 90.0%	Upper 90.0%
Intercept	0.119269	0.096588	1.234831	0.220143	-0.07265	0.311187	-0.04127	0.279813
X Variable 1	-0.00081	0.001327	-0.61335	0.541209	-0.00345	0.001822	-0.00302	0.001391

Figure 3 relationship between total compensation and ROE

As the P-value shows, there is no significant relationship between total compensation and ROA or ROE. Moreover, it can be seen from the coefficients that the impact of compensation on performance and the relationship between the two will not increase with the increase in CEO compensation, which is inconsistent with the hypothesis. The reason for this situation is likely to be that the CEO does not have an efficient compensation structure, resulting in that the CEO's compensation cannot be mobilized by the company's performance. Combined with the surveys of the recent years, CEOs are overpaid is considered as one of the reasons for the poor effect of compensation structure on company performance. Fama and Jensen (1983) studied the governance mechanism to solve the agency problem, and the conclusion is that when the contract between the principal and the agent is result-oriented, the agent is more likely to act on the basis of the principal's interests. The result-oriented contract can effectively suppress agent opportunism. Because the benefits to both parties depend on the same actions and results, the preferences between the agent and the principal are reconciled. Conflicts have also been reduced. Therefore, the lack of clear contractual constraints on the incentive compensation system is considered to be another reason why there is no obvious relationship between compensation and performance.

5.2 The Effect of CEO Compensation Components Diversification on Company Performance

Another assumption about CEO compensation and company performance is that the compensation components diversification has positive adjustment effect on company performance. In order to verify whether this assumption holds, we need to choose an appropriate indicator to represent compensation components diversification. Herfindahl-Hirschman Index (HHI) is a comprehensive index that measures the concentration of industries. It refers to the sum of the squares of the total revenue or the percentage of total assets of the competitors in each market in an industry. It is used to measure the change in market share, that is, the dispersion of the size of manufacturers in the market. From this we apply it to pay breakdown by calculating the sum of the squares of the percentages of each component in the pay breakdown. The smaller the value, the looser the component composition in pay breakdown, which means that the higher the compensation components diversification. Then to run regression analysis to test is there a relationship between CEO compensation components diversification and company performance. The results are shown as figure 5.2.4, 5.2.5 and 5.2.6.

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 90.0%	Upper 90.0%
Intercept	1.056296	0.247929	4.260468	5.05E-05	0.563665	1.548926	0.644198	1.468393
X Variable 1	-0.76946	0.368478	-2.08822	0.039635	-1.50162	-0.03731	-1.38193	-0.157

Figure 4 relationship between compensation components diversification and R/M

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 90.0%	Upper 90.0%
Intercept	0.102242	0.030121	3.394329	0.001029	0.042391	0.162092	0.052175	0.152308
X Variable 1	-0.10769	0.044767	-2.40553	0.018219	-0.19664	-0.01874	-0.1821	-0.03328

Figure 5 relationship between compensation components diversification and ROA

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 90.0%	Upper 90.0%
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Intercept	0.407009	0.253713	1.604212	0.11221	-0.09711	0.911131	-0.0147	0.828719
X Variable 1	-0.50312	0.377073	-1.33428	0.185517	-1.25236	0.246116	-1.12988	0.123634

Figure 6 relationship between compensation components diversification and ROE

According to the P-Value of 5.2.4 and 5.2.5, a relationship can be presented. There is a clear positive relationship between compensation components diversification and firm performance. When CEO compensation is composed of salary, stock, option, bonus, award and non-equity incentive, the working ability of executives will face more challenges. Especially when the CEO holds a certain number of company stocks, the number of stocks held by executives can also measure the extent to which a company implements equity incentives. The annual compensation of executives under the widely adopted system of listed companies is composed of two parts: fixed and variable. The variable part is mainly the bonus, which is determined based on the performance of the executives. Since it is difficult to directly evaluate the performance of the executives, the company's performance is used instead. In this way, the annual compensation of executives is closely linked to the performance of the company. Therefore, the reasonable determination of the ratio of fixed salary and bonus of senior management, and increasing the proportion of bonus in senior management's compensation, can increase the enthusiasm of senior management and help improve the company's performance. Improving the salary incentive system, making executive pay more closely linked to company performance, and strengthening the supervision and restraint of company executives, will also help curb the impulse of executives to obtain higher pay by expanding the size of the company, and minimize the company's scale will reduce the adverse impact of the degree of relationship between executive compensation and company performance.

6. Conclusion

This research's limitation is mainly on the selection and processing of raw data. According to researches in recent years, even if there is a general problem of CEOs are overpaid, there should be a significant positive relationship between CEO compensation and company performance. The reason is that in data selection, the current CEO compensation of the US companies ranking in the top 100 with company performance are included. This leads to too small samples and too many outliers, and there is no obvious relationship when making a dot plot of the regression model.

As the data analysis shows, there is no significant relationship between total compensation and ROA or ROE. Moreover, it can be seen from the coefficients that the impact of compensation on performance and the relationship between the two will not increase with the increase in CEO compensation, which is inconsistent with the hypothesis. The reason for this situation is likely to be that the CEO does not have an efficient compensation structure, resulting in that the CEO's compensation cannot be mobilized by the company's performance. Combined with the surveys of the recent years, CEOs are overpaid is considered as one of the reasons for the poor effect of compensation structure on company performance.

A relationship can be presented in 5.2. There is a clear positive relationship between compensation components diversification and firm performance. When CEO compensation is composed of salary, stock, option, bonus, award and non-equity incentive, the working ability of executives will face more challenges. Especially when the CEO holds a certain number of company stocks, the number of stocks held by executives can also measure the extent to which a company implements equity incentives.

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Appendix

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.24708							
R Square	0.061049							
Adjusted R	0.050499							
Standard E	0.088424							
Observatic	91							
ANOVA								
	df	SS	MS	F	ignificance F			
Regressor	1	0.045244	0.045244	5.786585	0.018219			
Residual	89	0.695867	0.007819					
Total	90	0.741111						
	Coefficients	andard Err	t Stat	P-value	Lower 95%	Upper 95%	lower 90.0%	pper 90.0%
Intercept	0.102242	0.030121	3.394329	0.001029	0.042391	0.162092	0.052175	0.152308
X Variable	-0.10769	0.044767	-2.40553	0.018219	-0.19664	-0.01874	-0.1821	-0.03328
SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.14004							
R Square	0.019611							
Adjusted R	0.008595							
Standard E	0.744795							
Observatic	91							
ANOVA								
	df	SS	MS	F	ignificance F			
Regressor	1	0.987568	0.987568	1.780299	0.185517			
Residual	89	49.3701	0.55472					
Total	90	50.35767						
	Coefficients	andard Err	t Stat	P-value	Lower 95%	Upper 95%	lower 90.0%	pper 90.0%
Intercept	0.407009	0.253713	1.604212	0.11221	-0.09711	0.911131	-0.0147	0.828719
X Variable	-0.50312	0.377073	-1.33428	0.185517	-1.25236	0.246116	-1.12988	0.123634

Regression Statistics								
Multiple R	0.097886							
R Square	0.009582							
Adjusted R	-0.00155							
Standard E	0.090815							
Observatic	91							
ANOVA								
	df	SS	MS	F	ignificance F			
Regression	1	0.007101	0.007101	0.86101	0.355966			
Residual	89	0.73401	0.008247					
Total	90	0.741111						
	Coefficient	andard Err	t Stat	P-value	Lower 95%	Upper 95%	lower 90.0%	pper 90.0%
Intercept	0.039588	0.011686	3.387753	0.001051	0.016369	0.062808	0.020165	0.059012
X Variable	-0.00015	0.000161	-0.92791	0.355966	-0.00047	0.00017	-0.00042	0.000118

SUMMARY OUTPUT

Regression Statistics								
Multiple R	0.064878							
R Square	0.004209							
Adjusted R	-0.00698							
Standard E	0.750623							
Observatic	91							
ANOVA								
	df	SS	MS	F	ignificance F			
Regression	1	0.211963	0.211963	0.376198	0.541209			
Residual	89	50.14571	0.563435					
Total	90	50.35767						
	Coefficient	andard Err	t Stat	P-value	Lower 95%	Upper 95%	lower 90.0%	pper 90.0%
Intercept	0.119269	0.096588	1.234831	0.220143	-0.07265	0.311187	-0.04127	0.279813
X Variable	-0.00081	0.001327	-0.61335	0.541209	-0.00345	0.001822	-0.00302	0.001391