Journal of Applied Sciences

ISSN 1812-5654

science alert

ANSInet
an open access publisher
http://ansinet.com

Journal of Applied Sciences 13 (19): 3941-3944, 2013
ISSN 1812-5654 / DOI: 10.3923/jas.2013.3941.3944

Does CEO Compensation Stimulate Firm Performance Effectively in China?

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Abstract: Incentive is an effective way to stimulate the management to improve firm performance. And many firms have done it. The study has analyzed the performance flexibility of CEO compensation with the sample of listed companies in recent years in China. The result suggests there is flexibility between CEO compensation and firm performance to some extent, but it is lower. And there is no significant relation between the flexibility and future performance. These results suggest the incentive effect of CEO compensation is not significant in China and the study also analyses the possible reason.

Key words: CEO compensation, incentive effect, compensation, performance flexibility

INTRODUCTION

The core of agent-principle theory is the designation of incentive theme. How to incentive CEO is a hot topic. The different incentive schemes are carrying forward in listed companies. However, if the schemes can incentive CEO in effect. This study will analyze the incentive effect.

Agent-principle theory thinks that the information asymmetry between shareholders and managers is typical. The executive can not decide on behalf of the advantage of shareholders which will result supervision or guarantee fees. There is difference between manager's decision and shareholder's expected welfare, i.e., residual loss. Therefore, the agent cost consists of supervision cost, guarantee cost and residual loss. We can reduce the total cost by designing incentive contract towards performance (Larcker, 1983). Tosi and Gomez-Mejia (1994) think that the high sensitivity of CEO compensation and performance has a positive relation with future performance. However, agent theory this relation may be restricted by other factors. On the other hand, performance incentive could result in the risk the management facing with, then increase the agency's guarantee cost. Therefore, performance incentive is the second best, i.e., the higher sensitivity of compensation-performance, the sicker of risk by the management which will reduces the incentive effect and future performance (Tosi and Gomez-Mejia, 1989).

Apart from agent theory, managerialism focuses on the internal promote mechanism and external reputation. They argue that there is little relation between performance-compensation elasticity and future performance. Finkelstein think that the compensation consists of a basic salary and a variable bonus. There is no necessary to design the compensation scheme based on performance if the basic salary is enough high. The manager could have enthusiasm to make profit maximum for their reputation. The high basic salary maybe improves the safety of job. Sustaining or improving the reputation could help them convert to other companies easily and require a higher compensation. Therefore, a higher basic salary and reputation could stimulate the manager improve future performance. Besides, managerialists (Herman, 1981; Mace, 1971) think the manage power could change the incentive effect based on performance. The board of directors is a toy controlled by the management. They select the obedient directors into the board and bribe them or control the determination of pricing compensation. We could assume the management have enough capacity to control short performance. All these would reduce the relation between compensation-performance elasticity and future performance.

Many literatures empirically analyze the relation between performance incentive and future performance. Gerhart and Milkovich (1992) found that wage had little relation with future performance and the mixed compensation with variable bonus was related to future performance with a sample of 14000 top managers in 200 companies. McConaughy and Mishra (1996) found higher performance-compensation sensitivity would result in well future performance expect higher historical performance. For them, lower sensitivity was effective to performance. Tosi and Gomez-Mejia (1989) had an agreement with them. All in short, agent theory is proved by many empirical literatures (Allcock, 2010).

There are little literatures to analyze incentive effect in China. Li (2003) thought there is a significantly positive relation between shares of top management and firm size and not for operating performance and firm risk with a

sample of 209 listed companies in 2000 in China. Li (2006) found that there are industry differences between management compensation and incentive effect with a sample of 1090 listed companies from different industries in 2003 and suggested every enterprise should select compensation incentive or stock incentive according to its property. Gu (2007) found long-term incentive effect was not apparent based on 64 listed companies carrying on stock incentive scheme until 2002.

From the above literatures, the analysis is limited to management compensation and operating performance in the same time (Liu and Li, 2012; Lu and Zhao, 2008). This study will analyze CEO compensation and historical performance and estimate compensation-performance elasticity, then analyze the relation between this elasticity and future performance and judge the incentive effect of CEO compensation. Here, incentive effect is the extent CEO compensation affecting performance and the effect maybe positive of negative.

Elasticity of ceo compensation and historical performance: Agent-principle theory is extensively accepted and proved by empirical literatures. However, it is not doubt that it is faint about incentive and performance. Here, this study will analyze the elasticity of CEO compensation and historical performance to measure the extent of performance incentive.

Sample: The sample is limited to CEO compensation. These data have been disclosed since 2001 in China. So, we select the data from 2001 to 2005 to get the elasticity of CEO compensation and historical performance.

We select the data as following:

- Listed companies in Shenzhen and Shanghai exchange and having corporation and accounting information
- Listed companies with full information about CEO compensation
- Excluding listed companies with B and H shares
- Excluding finance listed companies
- Deleting extreme data

At last, we can get 102 samples.

Model: The study analyzes the elasticity of CEO compensation and historical performance referring to Tosi and Gomez-Mejia (1994) model:

Table 1: Definition of variables

Variables	Definition
Compensation	The logarithm of CEO compensation
ROA	The average of ROA from 2001 to 2005
Herf	Square sum of shares percent of first ten shareholders
Firm risk	Variance of EPS from 2001 to 2005
Provwage	The logarithm of CEO compensation in the location

$$Compensation = \alpha+\beta ROA+\beta_2 Herf+ \beta_3 firmrisk+\beta_4 provwage+\mu \quad (1)$$

where, Compensation is CEO compensation, α is constant, β is the regression coefficient, μ is random error. Addition to that, we logarithm the variables of Compensation and provwage. Other variables are listed in Table 1.

To ensure the accuracy of model (1), we include control variables, such as firm size, corporate government, industry etc. The result suggests the regression efficient between CEO compensation and ROA is 0.05 which is significant at the level of 0.088; the regression efficient between CEO compensation and EPS is 0.067 which is significant at the level of 0.022. All these results suggest ROA and EPS can be set to delegate firm performance.

Description statistics: The variables and their description statistics are definite as following.

From Table 2, the average of CEO compensation is 183196.5 while the average wage in the location is 15350.06. The former is 11.94 times of the latter. The average of ROA is 0.0613 which is lower in China. The average of Herf is 24.92%, i.e., shares is concentrated in listed companies in China and above 50% listed companies has 19.75% concentration which suggests there is no apparent variance from the above results. The risk of firm is lower which is 0.0179, i.e., EPS is not apparently different from 2001 to 2005 in listed companies in China.

Sensitivity analysis: We divide the sample into different industry in order to eliminate industry difference and analyze the elasticity of CEO compensation and historical performance. We divide the sample into 5 industries according to the standard of Chinese security supervision board, i.e., industry, commerce, realty, utility and comprehensive. We analyze the sample with model (1). The result is described in Table 3.

Table 3 shows the sensitivity of CEO compensation and historical performance is lower than 1 in 5 industries and significant at the level of 0.1. The sensitivity of industry is the highest while that of utility is the lowest.

Table 2: Description statistics

Variables	CEO compensation	Compensation	ROA	Herf	Fimrisk	Average wage in the location	Provwage
Average	183196.50	11.6984	0.0613	0.2492	0.0179	15350.06	9.5811
Medium	108193.50	11.5917	0.0582	0.1953	0.0151	12901.50	9.4648
Mode	108000.00	11.5900	-0.0100	0.0300	0.0000	13923.00	9.5400
Standard error	213586.43	0.9220	0.0430	0.1437	0.0155	5916.92	0.3256
Minimum	15000.00	9.62	-0.01	0.03	0.00	10305.00	9.2400
Maximum	1127915.00	13.94	0.22	0.52	0.07	28464.00	10.2600

Table 3: Sensitivity analysis of CEO compensation and historical performance

Industry code	Industry	Sample	Sensitivity	T	Significant	Rank
2	Utility	12	-0.0610	0.000	0.00	1
3	Commerce	9	0.0062	0.000	0.00	2
4	Comprehensive	20	-0.0280	0.000	0.00	1
5	Industry	56	0.3750	1.737	0.099	3
6	Realty	5	0.0017	0.000	0.00	2
all sample		102	0.4100	2.363	0.025	3

Table 4: Variables in different industries

Industry	Rank	Industry competition	Industry assets	Future-ROA	Future-EPS
2	1	135	3052436382	0.0291	0.1675
3	2	65	2706298592	0.0282	0.1584
4	1	142	1676532956	0.0320	0.0982
5	3	814	2958945726	-0.0126	-0.1317
6	2	79	1952998028	0.0222	0.1189

Table 5: Single-variable covariance analysis of sensitivity and future-ROA

Variables	Type III sum of squares	Degree	Mean square	F	Sig.	
Corrected model	0.001	3	0.00	24.288	0.148	
Intercept	1.41E-007	1	1.41E-007	0.008	0.944	
Rank	8.34E-005	1	8.34E-005	4.527	0.280	
Industry competition	0.000	1	0.025	16.035	0.156	
Industry asset	1.46E-006	1	1.46E-006	0.80	0.825	
Error	1.84E-005	1	1.84E-005			
Total	0.003	5				
Correct total	0.01	4				
Adjusted R^2						94.6%

To simplify, we convert the sensitivity to Rank. If the sensitivity is lower than 0, Rank is 1, indicating there is little sensitivity between CEO compensation and historical performance. If it belongs to [0, 0.1], Rank is 2, indicating there is weak sensitivity between CEO compensation and historical performance. If the sensitivity is higher than 0.1, Rank is 3, indicating there is strong sensitivity between CEO compensation and historical performance. The results are showed in Table 3.

INCENTIVITY EFFECT OF CEO COMPENSATION ON FUTURE PERFORMANCE

This chart will analyze the relation between sensitivity and future performance and judge whether CEO compensation is in effect. According to the above literatures, we propose two hypotheses:

Hypothesis 1: There is positive relation between sensitivity and future performance

Hypothesis 2: There is industry difference in incentive effect

Besides variables in Table 1, we introduce co-variables such as industry competition and asset. If industry competition is fierce, CEO will reduce the requirement of compensation to obtain a job. Here, we define industry competition as the quantity of listed companies in Shanghai and Shenzhen exchange. We introduce firm assets since Managerialist focus on firm size. As for future performance, we define it as future-ROA and future-EPS. We can get them by calculating the average after CEO compensation incentive from 2006 to 2007. The results are showed in Table 4-6.

Table 4 shows the competition is the fiercest in industry since listed companies are the most. Assets in utility and industry are more than that in other industries relating to their characters.

We can find the coefficient Rank and future-ROA or future-EPS is not significant, indicating there is no apparent difference in CEO compensation incentive in different industries. Therefore, hypothesis 1 and 2 are refused.

Of course, there are so many factors affecting corporation performance such as controlled level,

Table 6: Single-variable covariance analysis of sensitivity and future-EPS

	Type III sum of squares	Degree	Mean square	F	Sig.
Corrected model	0.06	3	0.02	76.317	0.084
Intercept	0.002	1	0.002	8.431	0.211
Rank	0.000	1	0.000	1.777	0.410
Industry competition	0.25	1	0.025	93.2	0.066
Industry asset	0.003	1	0.003	9.82	0.197
Error	0.000	1	0.000		
Total	0.094	5			
Correct total	0.06	4			
Adjusted R^2					98.3%

technology and industry policy etc. So, we introduce corporation governance and find the result is consistent.

CONCLUSION

The study analyzes the incentive effect after carrying on CEO compensation scheme with a sample of listed companies in China. First, it analyzes the sensitivity of CEO compensation and historical performance and finds the sensitivity is weak at a significant level of 0.1. sec, it analyzes the relation between the sensitivity and future performance and finds the relation is not apparent significant in different industries. The possible reason is that the incentive extent to CEO is not enough to weak CEO compensation and future performance. Another reason maybe that CEO focus on job promotion in China. Lastly, it is short of special managers-market in China which restricts CEO to pursue improving performance.

ACKNOWLEDGMNTS

This study is supported by Soft Science Research Program of Henan Province(122400440011, 132400410042), High-level talent research start-up project of NCWU(No.201009), The Key Project of the Education Department of Henan Province (2009A630031,12B630028) and Special funds for public welfare of The Ministry of Water Resources.

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