

INSTITUTIONAL OWNERSHIP AND CEO COMPENSATION

by

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Abstract

Based on the traditional agency theory, our objective is to analyse the relationship between institutional ownership and CEO compensation. We collected panel data of 1959 companies over the 22 years of period from 1992-2013, and found significant evidence that institutional shareholders influence corporate governance through CEO compensation. Greater institutional ownership concentration is negatively related with total CEO compensation, salary and options. In addition, ownership concentration is associated with greater use of behaviour-based compensation (salary). On the other hand, ownership level is associated with increased level of CEO compensation and greater use of incentive-based compensation (options). These results broadly confirm the idea that if there is a large institutional owner, compensation levels of CEO are lower; while, when there is dispersed ownership of many institutions, institutions are less likely to monitor. These results are broadly consistent with Hartzell and Starks (2003).

Keywords: Institutional ownership; CEO compensation; Concentration; Ownership level

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1: Introduction

Institutional ownership refers to the ownership stake in a company that is held by large financial organizations, pension fund insurance companies and endowments. Recent years have seen dramatic growth of institutional ownership and now it shares almost 62% of the “pie”, compared with in 1965, when it only accounts for less than 20%.

To better satisfy the objectives of outside investors, especially institutional shareholders, the importance of corporate governance cannot be stressed more since there exists interest conflicts-agency problem between management and its principals. The institutional investors now are more vocal about the levels and forms of the executive compensation. For example, new requirements were established by SEC authorities to extend shareholders a non-binding vote on executive compensation packages (Statement by Treasury Secretary Tim Geithner on Compensation on June 10, 2009). In the same year, the House of Representatives passed the “Corporate and Financial Institution Compensation Fairness Act of 2009” (H.R. 3269), which take into consideration of the ‘say on pay’ of all public institutions in the United States. In addition, the Act included a provision which favours shareholders’ vote on golden parachutes. Following was the Wall Street Reform and Consumer Protection Act signed by President Obama in 2010, which legally provides shareholders with the right to a non-binding vote on executive compensation.

Thus an interesting topic is how shareholders, especially institutional investors, influence corporate executive compensation practices in firms they invest in. In our paper, we extend our empirical analysis for a longer period of time based on precious paper and try to figure out how institutional ownership affects CEO compensation. Thus the paper may offer substantial implications on the behaviour of institutional owners and the design of CEO compensation plans.

2: Literature review

There was an interesting survey conducted by Watson Wyatt, the result of which shows that 90% of institutional shareholders think corporate executives are overpaid (Watson Wyatt, 2005). The finding can partially serve to explain the active involvement of institutional shareholders in corporate governance, which mostly concentrate on executive compensations and boards of directors (Georgeson, 2000, 2005).

Agency problem, in corporate finance, which refers to a conflict of interest between a company's management and the company's stockholders, was first popularized by Berle and Means (1932) and afterwards has been applied in broader academic fields. Jensen and Meckling (1976) then formalized the agency relations by pointing out the monitoring expenditure by principal and bonding expenditure by the agents, based on which they took steps forward to analyse executive compensation incentives. Beatty and Zajac (1994) updated the theory by considering the costs of incentives and monitoring in large corporations as well as their benefits. Traditional agency researchers have proved that principals (institutional investors) can effectively monitor agents (managers) and use outcome-based incentive contracts to alleviate principal-agent conflict of interests.

Institutional shareholders played an important monitoring role in mitigating the agency problem between shareholders and managers, stressed by Jay C. Hartzell and Laura T. Starks (2003). More specifically, evidenced from Hong Kong, a finding showed that in the presence of information asymmetry, entrenched managers would extract higher compensations for themselves at the advantage of shareholders. There is also weaker evidence that top executives with larger shareholdings may be using dividends as a way of supplementing their cash salaries (Yan-Leung Cheung, Aris Stouraitis *, Anita W.S. Wong, 2005). Some scholars analyzed public listed companies and maintained that CEO compensation risk is significantly higher in a company with a higher level of aggregate institutional holdings excluding top five holdings (Yixi Ning & Xiankui Hu & Xavier Garza-Gomez, 2012).

Ample empirical evidence support that the activism of institutional shareholders effectively limits management's power over the boards of directors which has the final say on compensation decisions. An interesting thing is that equity-based compensation awards and grants will dilute the shareholders' rights. Thus institutional owners may use the organizations' approval as a bargaining tool when managers turn to their principals for approval of compensation plans. As a result, researchers (Pamela Brandes, Maria Goranova, and Steven Hallhow, 2008) surveyed how management tries to work with owners to secure their compensation packages.

Based on agency theory, people investigated how institutional ownership concentration and ownership level affect CEO compensation, pay mix, stock option and pay sensitivity, and found that largest owner's concentration is associated with lower levels of compensation, as well as with higher ratios of salary to total compensation and lower ratios of options to total compensation (Raihan Khan, Ravi Dharwadkar*, Pamela Brandes, 2002). Research also supported previous conclusions, and added that clientele effects exist among institutions for firms

with certain compensation structure (Jay. C Hartzell, Laura T. Starks*, 2003). Evidence suggests that greater institutional ownership level is associated with greater emphasis on incentive-based compensation (higher pay-performance sensitivity of CEO compensation), and total compensations for CEO (C. F. Sirmans, 2010).

3: Hypothesis

Monitoring role of institutional investors is an important corporate governance mechanism for corporate management. Theory suggests, and empirical evidence confirms, that institutional shareholders are advantageous over smaller, more passive or less-informed investors (Hill and Snell, 1989) in that they can provide active monitoring at a lower cost, such as their voting power, shareholder activism, election of board members, and their abilities to influence management decisions. As mentioned above, large institutional shareholders may also negotiate with management in a manner to neutralize the interests. Additionally it is not hard to believe that large institutional shareholders have more power and expertise over large individual stockholders (Cubbin and Leech, 1983).

Thus, our paper will collaborate on the traditional agency theory to get an insight. From concentration of institutional ownership perspective (Top Five Institutional Ownership), we can expect that the greater the holdings of the largest institutional owner, the greater their ability to influence CEO compensation, including salaries, options granted, and total compensation. Combined with previous analysis, it is expected that ownership concentration will decrease compensation levels and will vote for greater salary compensation and reduce incentive-based payment as CEO compensation.

Distinct from concentration of institutional ownership, the greater ownership level may lead to weaker monitoring because of the higher coordination costs among diversified shareholders (Hoskisson and Turk, 1990; Tosi and Gomez-Mejia, 1994). As mentioned above, dispersed shareholders reduce the ability of shareholders to remove and monitor managerial activity. Ownership level also provides managers incentives to exploit their protected positions and extract benefits for themselves (Julie Ann Elston, 2001). It is also proved that non-diversified shareholders would be reluctant to provide executive with option compensation, while diversified shareholders would prefer it (Alan Kraus, Amir Rubin, 2009).

Thus, with the increase of the number of institutional owners, the marginal benefit of monitoring management decreases because greater costs will be needed to coordinate among

dispersed investors. From the level of institutional ownership perspective, we expect that incentive-based compensation will be favoured from the standing point of dispersed shareholders.

Hypothesis: Institutional ownership concentration will be negatively related to compensation levels, positively related to behaviour-based compensation, and negatively related to outcomes-based compensation. Institutional ownership level will be positively related to compensation levels, negatively related to behaviour-based compensation, and positively related to outcomes-based compensation.

4: Method

4.1 Sample

In this study, we used the panel data set and OLS regression to investigate the relationship between institutional ownership and CEO compensation. The data for the analysis is collected from three databases. First, we collected annual CEO compensation data over 1992-2013 from ExecuComp database at the Wharton Research Data Services. Second, we collected end-of-year institutional ownership data from Thomson Reuters at WRDS by keeping the companies and time zone the same as that of CEO compensation. Third, we collected annual return data from CRSP at WRDS in a similar way. The dependent variable was lagged by one year in order to make the results more accurate. We have 12922 observations for our final analysis in total.

4.2 Dependent Variables

4.2.1 Total compensation

This variable is defined as the value of all the components of CEO compensation (Execomp item TDC1) for a specific year.

4.2.2 Salary

This variable is defined as the value of the base salary (Execomp item SALARY) earned by the CEO during the year. In our study, we use salary as a measure of behaviour-based compensation.

4.2.3 Stock options

This variable is defined as the value of stock options granted to CEO during the year (Execomp item OPTION_AWARDS_BLK_VALUE). In our study, we use stock options as a measure of outcome-based compensation.

4.2.4 Salary as a percentage of total compensation

This variable is defined as salary divided by total compensation. We use this variable to illustrate the extent of behaviour-based compensation affected by institutional ownership.

4.2.5 Stock options as a percentage of total compensation

This variable is defined as stock options divided by total compensation. We use this variable to illustrate the extent of outcome-based compensation affected by institutional ownership.

4.3 Independent variables

4.3.1 Top five institutional ownership

This variable is defined as the sum of the top five institutional investors divided by total institutional ownership (Thomson Reuters item top5instown) (Amir, 2007). We consider this variable as a measure of institutional ownership concentration.

4.3.2 Total institutional ownership

This variable is defined as the total equity holdings by institutional investors (Thomson Reuters item Total Inst. Ownership, Percent of Shares Outstanding). We use total institutional ownership as a measure of institutional ownership level.

4.4 Control variables

There are several possible other explanations for the relationship between CEO compensation and institutional ownership.

4.4.1 Market value

This variable is defined as the price (Thomson Reuters item End of Qtr Share Price) of stock multiplied by number of shares outstanding (Thomson Reuters item End of Qtr Shares Outstanding in 1000s).

4.4.2 Annual Return

Another variable we controlled is annual return for each company. In general, CEO compensation is positively associated with Annual Return. Therefore, we controlled annual return.

5: Univariate analysis

5.1 Sample distribution analysis

Table 1 reports summary statistics including means, standard deviations and sample distributions for the nine variables used in our analysis. From the table, we find that salary constitutes 35% of total compensation, whereas stock options constitute 32%. The mean and standard deviation of stock options is 1.595 million and 4.937 million respectively, which are substantially larger than those of salary (mean = US\$.531 million, S.D. = US\$.334 million). The mean of top five institutional ownership is nearly 44% (S.D. =.15) and the mean of total institutional ownership is nearly 60% (S.D. =.22).

From the sample distributions, we also find that the compensation measures are highly skewed, therefore, we use the log of dependent variables respectively.

5.2 Univariate analysis

Table 2 reports the cross-sectional correlations obtained by the nine variables in our analysis.

Panel A reports correlations between the two ownership variables. We can find that the correlation between top five institutional ownership and total institutional ownership is -0.424($p < 0.01$), which is consistent with our hypothesis.

Panel B reports correlations between compensation variables. The salary/total and option/total are negatively related since they are mutually exclusive in the total compensation base. Salary/option is positively associated with total compensation since the latter grow proportionately to the former two variables.

Panel C reports cross-sectional correlations between ownership and compensation variables. The table precisely shows the significant relation of dependent variables and independent variables. The hypothesis that institutional ownership concentration (represented by top five institutional ownership) is negatively related to compensation levels, positively related to behaviour-based compensation, and negatively related to outcome-based compensation is testified.

6: Multivariate analysis

In our analysis, we want to test the relation between institutional ownership and CEO compensation using the following model:

$$\text{CEO compensation} = \beta_0 + \beta_1 (\text{ownership variable}) + \beta_2(\text{market value}) + \beta_3(\text{annual return}) + \varepsilon_i$$

Table 3 reports the regression results of the relationship between CEO compensation and institutional ownership to test the two hypothesized. Column (1), (2), (3), (4), (5) shows the results when using total compensation, salary, stock options, salary as a percentage of total compensation, options as a percentage of total compensation as dependent variable respectively.

Table 4 and table 5 reports the regression results with firm and year fixed effect/industry and year fixed effect. We note that the value of R^2 in table 4 and 5 is substantially larger than that in table 3, especially for table 4.

6.1 Hypothesis analysis

Hypothesis, which proposed that the concentration of institutional ownership would be negatively related to compensation levels including total compensation, salary and options, was supported for the top five institutional ownership in table 3 ($\beta = -1.838$, $P < .01$; $\beta = -.949$, $P < .01$; $\beta = -1.476$, $p < .01$, respectively), table 4 ($\beta = -.747$, $P < .01$; $\beta = -.317$, $P < .01$; $\beta = -1.1$, $p < .01$, respectively) and table 5 ($\beta = -1.729$, $P < .01$; $\beta = -.848$, $P < .01$; $\beta = -1.775$, $p < .01$, respectively). In addition, we find that top five institutional ownership was associated with an increased percentage of salary to total compensation and a decreased percentage of options to total compensation, supported by table 3 ($\beta = .816$, $P < .01$), table 4 ($\beta = .374$, $P < .01$; $\beta = -.374$, $P < .01$; respectively) and table 5 ($\beta = .805$, $P < .01$; $\beta = -.154$, $P < .01$; respectively).

Hypothesis, which proposed that institutional ownership level would be positively related to compensation levels including total compensation, salary and options, was supported by the

total institutional ownership in table 3($\beta=.978, P < .01$; $\beta=.468, P < .01$; $\beta=1.533, p<.01$, respectively), table 4 ($\beta=.289, P < .01$; $\beta=.174, P < .01$; $\beta=.401, p<.01$, respectively))and table 5($\beta=.864, P < .01$; $\beta=.458, P < .01$; $\beta=1.038, p<.01$, respectively). In addition, we find that the institutional ownership level was associated with a decreased percentage of salary to total compensation and an increased percentage of options to total compensation in table 3($\beta= -.547, P < .01$; $\beta=.588, P < .01$; respectively), table 4($\beta= -.144, P < .01$; $\beta=.204, P < .01$; respectively) and table5($\beta= -.423, P < .01$; $\beta=.363, P < .01$; respectively).

7: Discussion

In conclusion, we find that institutional ownership concentration has a negative effect on compensation levels illustrated by top-five institutional ownership and has the consistent result with hypothesis regarding to pay mix. We also find that institutional ownership level has a positive effect on compensation levels, which is illustrated by total institutional ownership. Besides, the result is in line with our original hypothesis regarding to the relationship between institutional ownership level and behaviour-based compensation/outcome-based compensation.

That institutional ownership concentration has a negative effect on compensation levels was consistent with agency theory, which states that large institutional ownership concentration would increase monitoring on executives and large institutional owners have the ability to conduct more interference on executives' compensation decisions.

In addition, large institutional owners are more willing to use salary as compensation compared to options compensations. This is because institutional owners are not insiders and they cannot directly design compensation structure (Raihan Khan, 2004). Another possible explanation is that when the monitoring conducted by institutional owners increases, executives do not need to use outcome-based compensation to improve self-monitoring (Yixi Ning, 2012).

The explanation why institutional ownership level has a positive effect on compensation levels is that when the total institutional ownership increases, which is probably due to the increase of the number of institutional owners, the effectiveness of monitoring would decrease and executives have more management discretion to make compensation decisions.

Additionally, institutional owners are more willing to design option compensations compared to salary compensations. The previous research also indicates that the higher institutional ownership, the more option grants allocated to managers (Amir, 2008). This is because institutional shareholders possess professional expertise in comprehending and applying option grants compared to individual investors(Raihan Khan, 2004).

8: Appendix

Table 1 Sample distribution

	Mean	S.D	Percentile						
			1th	5th	25th	50th	75th	95th	99th
Total compensation levels(US\$000)	3445.04	6569.42	135.80	315.35	810.89	1628.45	3609.96	12240.48	29594.67
Salary(US\$000)	531.94	334.41	22.31	151.67	310.00	462.73	698.08	1038.46	1570.46
Options(US\$000)	1595.34	4937.91	0.00	0.00	0.00	396.78	1416.52	6546.85	18623.63
Salary/total	0.35	0.25	0.01	0.05	0.16	0.29	0.48	0.91	1.00
Options/total	0.32	0.28	0.00	0.00	0.00	0.28	0.53	0.83	0.96
Market value(US\$ million)	4921.37	17375.08	34.30	108.65	360.00	940.84	3010.44	20026.75	64031.13
Annual return	0.03	0.13	-0.28	-0.16	-0.04	0.02	0.08	0.23	0.43
Top five institutional ownership	0.44	0.15	0.21	0.25	0.34	0.42	0.52	0.74	0.92
Total institutional ownership	0.58	0.22	0.09	0.20	0.43	0.59	0.74	0.92	1.08

Table 2 Cross section correlations

Panel A	Top five institutional ownership	Total institutional ownership
Top five institutional ownership	1	
Total institutional ownership	-0.424***	1

Panel B	Total Compensation	Salary	Options	Salary/total	Options/total
Total Compensation	1				
Salary	0.406***	1			
Options	0.881***	0.207***	1		
Salary/total	-0.410***	-0.193***	-0.321***	1	
Options/total	0.292***	0.035***	0.419***	-0.599***	1

Panel C	Total Compensation	Salary	Options	Salary/total	Options/total
Top five institutional ownership	-0.208***	-0.307***	-0.132***	0.263***	-0.109***
Total institutional ownership	0.113***	0.207***	0.085***	-0.235***	0.160***

Table 3 The relation between ownership variables and compensation variables

	(1) Ln(Total compensation)	(2) Ln(Salary)	(3) Ln(Options)	(4) Ln(Salary/total)	(5) Ln(Options/total)
Market value	1.74e-05*** (5.25e-07)	7.45e-06*** (3.63e-07)	2.11e-05*** (8.94e-07)	-1.02e-05*** (4.56e-07)	2.84e-06*** (5.06e-07)
Annual return	0.274*** (0.0686)	-0.111** (0.0467)	0.690*** (0.112)	-0.386*** (0.0597)	0.301*** (0.0631)
Top five institutional ownership	-1.838*** (0.0694)	-0.949*** (0.0473)	-1.476*** (0.116)	0.816*** (0.0607)	0.115* (0.0655)
Total institutional ownership	0.978*** (0.0444)	0.468*** (0.0304)	1.533*** (0.0753)	-0.547*** (0.0387)	0.588*** (0.0426)
Constant	7.608*** (0.0494)	6.208*** (0.0338)	6.286*** (0.0815)	-1.327*** (0.0431)	-1.458*** (0.0461)
Observations	12,364	12,775	8,188	12,311	8,188
R-squared	0.233	0.124	0.179	0.104	0.032

Standard errors in parentheses

*** p<0.01

** p<0.05

* p<0.1

Table 4 Results of fixed firm and year effects

	(1) Ln(Total compensation)	(2) Ln(Salary)	(3) Ln(Options)	(4) Ln(Salary/total)	(5) Ln(Options/total)
Market value	5.98e-06*** (8.53e-07)	7.90e-07 (6.05e-07)	1.04e-05*** (1.17e-06)	-5.09e-06*** (8.44e-07)	2.57e-06*** (7.37e-07)
Annual return	0.254*** (0.0578)	0.0305 (0.0413)	0.557*** (0.0868)	-0.247*** (0.0573)	0.172*** (0.0546)
Top five institutional ownership	-0.747*** (0.0783)	-0.317*** (0.0556)	-1.100*** (0.120)	0.374*** (0.0777)	-0.374*** (0.0752)
Total institutional ownership	0.289*** (0.0641)	0.174*** (0.0458)	0.401*** (0.0943)	-0.144** (0.0636)	0.204*** (0.0593)
Constant	6.952*** (0.0621)	5.771*** (0.0444)	5.954*** (0.0923)	-1.091*** (0.0616)	-1.226*** (0.0581)
Observations	12,364	12,775	8,188	12,311	8,188
R-squared	0.660	0.567	0.730	0.484	0.606

Standard errors in parentheses

*** p<0.01

** p<0.05

* p<0.1

Table 5 Results of fixed industry and year effects

	(1) Ln(Total compensation)	(2) Ln(Salary)	(3) Ln(Options)	(4) Ln(Salary/total)	(5) Ln(Options/total)
Market value	1.55e-05*** (5.32e-07)	6.15e-06*** (3.73e-07)	1.85e-05*** (8.69e-07)	-9.49e-06*** (4.65e-07)	2.34e-06*** (4.94e-07)
Annual return	0.209*** (0.0681)	-0.0709 (0.0471)	0.495*** (0.107)	-0.286*** (0.0596)	0.199*** (0.0606)
Top five institutional ownership	-1.729*** (0.0689)	-0.848*** (0.0477)	-1.775*** (0.110)	0.805*** (0.0606)	-0.154** (0.0624)
Total institutional ownership	0.864*** (0.0499)	0.458*** (0.0347)	1.038*** (0.0781)	-0.423*** (0.0438)	0.363*** (0.0444)
Constant	7.177*** (0.0585)	5.980*** (0.0405)	6.000*** (0.0913)	-1.113*** (0.0513)	-1.430*** (0.0519)
Observations	12,364	12,775	8,188	12,311	8,188
R-squared	0.307	0.183	0.323	0.180	0.194

Standard errors in parentheses

*** p<0.01

** p<0.05

* p<0.1

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