

A Myth vs. Fact, the influence of Firm Size on CEO Cash Compensation: A Longitudinal Study

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Abstract

This study investigated the relationship between the Chief Executive Officer (CEO) cash compensation and firm size in NYSE index companies from 2005 to 2010. The totaled of one hundred and twenty companies were selected through stratified sample method from NYSE index. The sample population was divided into “small”, “medium”, and “large”. The research question for this study was - is there a relationship between CEO cash compensation and firm size?. To answer this question, eight statistical models were created. Overall, all the test results were found to have the relationship between CEO cash compensation and firm size. The correlations among CEO salary and bonus, total sales and total number of employees, were found to be ranged from weak negative to strong positive ratios. In addition, firm size had a negative impact on the relationship between CEO salary, CEO bonus, total sales and total employees. That is, the larger the firm size, the weaker the correlation between CEO salary, CEO bonus, total sales and total employees.

Index Terms: CEO Compensation, Cash Compensation, Firm Size, Firm Performance, and Total Employees.

Introduction

The purpose of this research is to understand in clear terms the extent and nature of the relationship between CEO cash compensation and firm size among NYSE index companies. The CEOs and other executives would like to eliminate the risk exposure in their compensation packages by decoupling their pay from performance and linking it to a more stable factor, firm size. This strategy indeed deviates from obtaining the optimum results from a principal - agent contract. It perhaps may bring inefficiencies and may not be able to maximize the list of goals to be achieved by CEOs in the due course of time. Nevertheless, the concept of “larger the firm size pay more to CEO” is practiced widely throughout industries as it is believed that CEOs deserved more pay based on the organizational complexity and management of human capital. The previous studies had found a strong relationship between CEO compensation and firm size, but the correlation results were ranged from nil to strong positive ratios. That is, previous studies were based on the overall relationship between CEO compensation and firm size, rather than at different firm sizes. The variables used in previous studies as a proxy for firm size were either total sales, total number of employees, or total assets. This study will test the relationship between CEO cash compensation and firm size on the group firm size basis, to understand in finer terms the effect on CEO cash compensation.

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The most researched topics in the executive compensation are between CEO compensation and firm performance. Although executive compensation and firm performance have been the subject of debate amongst academics, however, there was little consensus on the precise nature of the relationship as such, further researched in greater detail need to be conducted to understand in finer terms the true extent of the relationship between them. As such, this research had unprecedentedly used eight variables to test with CEO compensation, that is, return on assets (ROA), return on equity (ROE), earnings per share (EPS), cash flow per share (CFPS), net profit margin (NPM), book value per common shares outstanding (BVCSO), and market value per common shares outstanding (MVCSO).

Literature Review

CEO Cash Compensation and Firm Size Gomez-Mejia and Barkema (1998) found that CEO cash incentives had a strong relationship with firm size as CEOs in large companies make high income than CEOs in small companies. This is supported by Finkelstein and Hambrick (1996) who find that firm size is related to the level of executive compensation. According to Tosi and Gomez-Mejia (1994), firm size had the composite score of standardized values of reported total sales and number of employees. Shafer (1998) found that pay sensitivity (measured as dollar change in CEO wealth per dollar change in firm value) falls with the square root of firm size. That is, CEO incentives are ten times higher for a \$10 billion firm than for a \$100 million firm. From the famous meta-analysis conducted by Tosi, Werner, Katz, and Gomez-Mejia (2000), they found that the estimated correlation between CEO pay and aggregate firm size factor was .643, indicated that firm size accounts for over 40% of the variance in CEO pay. Similarly, the adjusted composite correlation between change in CEO pay and change in firm size was .225, accounting for about 5% of the variance in changes in CEO pay.

In addition, they found that CEOs can exert more influence over firm size than CEO performance; therefore, they would prefer to use firm size as the criterion for compensation. Simmons, & Wright (1990) find that that CEO pay increased considerably following a major acquisition even when firm performance suffers. Kostiuk (1990) and Posner (1987) argued that greater the size may be used to legitimize higher CEO pays by appealing to justify a size premium. Rationalizations may include: greater organizational complexity; more CEO human capital required to run the business (Agarwal, 1981); and the hierarchical stratification with bigger firms having more layers (Mahoney, 1979; Peck, 1987; Simon, 1957). Dyl (1988) and McEachern (1975) believed that executives are risk averse. They can reduce or eliminate risk exposure in their compensation package by decoupling their pay from performance and linking it to a more stable factor, the firm size. Gomez-Mejia (1994) stated that a host of structural factors and pragmatic problems make it difficult for the corporations to effectively control executives, leading to the compensation packages that were more closely tied to firm size than performance. According to Sigler (2011), firm size appeared to be the most significant factor in determining the level of total CEO compensation. His examination was based on 280 firms listed on the New York Stock Exchange from 2006 to 2009.

There was substantial evidence that firm size was a major determinant of CEO pay (Ciscel, 1974; Ciscel and Carroll, 1980; Fox, 1983; McGuire, Chiu, and Elbing, 1962; Patton, 1961; Roberts, 1959). Finkelstein and Hambrick (1989) believed that bigger firms tend to pay more because CEO oversees substantial resources, rather than because of their number of hierarchical pay levels. Similarly, Fox (1983) and Simon (1957) believed that CEOs were paid more in larger firms primarily due to its leadership demand and more hierarchical layers exist in the larger firms. However, Finkelstein and Hambrick (1989) found that the results have varied from nil to strong positive correlations between CEO compensation and larger firms. However, Jones (1993) and Darnes (1970) argued that using firm size as a compensable factor for CEOs were also good for board members. Sigler (2011) found that firm size appears to be the most significant factor in determining the level of total CEO compensation. His examination was based on 280 firms listed on the New York Stock Exchange from 2006 through 2009.

Gomez-Mejia, Tosi, and Hinkin (1987) believed that firm size was a less risky basis for setting executives' pay than performance, which was subject to many uncontrollable forces outside the managerial sphere of influence. Similarly, McEachern (1975) argued that CEOs in management-controlled firms will prefer to avoid the risk of tying pay to performance, therefore, firm size, which was likely to vary less than performance, will most affect pay. However, he believed that company size should not be more important than performance as a determinant of CEOs' pay for the largest firms, due to the fact that organizational efficiencies may yield larger increased in total company profits than the firms would obtain through further increases in size. Murphy (1985), who found that holding the value of a firm constant, a firm whose sales grows by 10 percent will increase salary and bonus of its CEO by between 2 percent and 3 percent. These findings suggested that the size-pay relation was causal. It had also suggested that CEOs can increase their pay by increasing firm size, even when the increase in size reduced the firm's market value. Hambrick and Finkelstein (1995) and Gomez-Mejia et al. (1987) found that firm size was related to total pay in management-controlled firms, but not owner-controlled firms indicated that managerial control was a moderator of pay-size relationship. Overall, nevertheless, the studies conducted by Belkaoui and Picur (1993), David, Koachhar, and Levitas (1998), and Gray and Cannella (1997) found that the correlations between firm size and CEO pay are as low as .107, .110, and .170, while studies conducted by Boyd (1994), Finkelstein and Boyd (1998), and Sanders and Carpenter (1998) reported correlations of .62, .50, and .42.

Research Methodology

This research had adopted quantitative research method, as it is the method to be used for historical data collection and descriptive studies. The longitudinal study approach was adopted to study corporate financial records from 2005 to 2010. The totaled of one hundred and twenty companies were selected through stratified sample method from NYSE index companies. For statistical tests, CEO compensation was assigned as dependent variable, firm size was assigned as control and independent variables, and accounting performance and corporate governance had been assigned as independent variables. Each sub-variables of CEO compensation had been used separately to test with all sub-independent variables of firm size, firm performance, and corporate governance. The totaled of nine statistical models were created to address the research question. The survey method had been adopted as it is the most appropriate approach to collect historical data. The inferential statistics-based methodology, which is very instrumental in quantitative research, had been used to obtain statistical results. The 95 percent confidence level will be assumed for all the statistical tests.

Data Findings and Conclusions

Table 1 (Regression Analysis - ANOVA)

NYSE	Table 1 (ANOVA)			
	Small	Medium	Large	Total Population
Salary vs. Firm Size	F(2,235)=84.103 p=.000, R ² =.412	F(2,237)=10.34 p=.000, R ² =.286	F(2,229)=36.659 p=.000, R ² =.243	F(2,707)=147.239 p=.000, R ² =.294
Bonus vs. Firm Size	F(2,215)=15.502 p=.000, R ² =.126	F(2,232)=1.759 p=.000, R ² =.015	F(2,218)=5.558 p=.000, R ² =.049	F(2,596)=211.155 p=.000, R ² =.028

The above table 1 summarized ANOVA results were based on the linear regression tests. It had shown that there were relationships between CEO salary, CEO bonus, and firm size across all four populations as such, null hypotheses were rejected at $\alpha=.025$ under a two-tailed test system.

The first three categories of firm size were used to assess its effect on the relationship between CEO cash compensation and firm size. The fourth category was used to assess with the results of the first three categories. The regression (R^2) was found to be ranged from weak to moderate statistical models across all eight sub-population groups.

Table 2: Correlations (CEO Compensation vs. Sales)

	Small	Medium	Large	Total Population
	Sales	Sales	Sales	Sales
Salary	0.575	0.107	0.422	0.486
Bonus	0.355	0.121	0.09	-0.152

The above table 2 results had shown that there was a weak to good positive ratios between CEO salary and total sales, among NYSE index companies. The correlations between CEO salary and total sales had decreased from .575 to .107 and then had increased to .422, as the size of a population group changed from small, to medium, and to large. The correlation between bonus and total sales had decreased from .355 to .121 and then had decreased further to .09, as the size of a population group changed from small, to medium, and to large. Thus, these results had shown that firm size had a negative impact on the correlations between CEO salary, CEO bonus, and total sales. That is, the larger the firm size, the weaker would be the correlations between CEO salary, CEO bonus, and total sales. This was perhaps due to an increased organizational complexity; high proportion towards stock-based compensation; or lesser importance of a CEO contribution in meeting strategic objectives in large size companies.

Table 3: Correlations (CEO cash compensation vs. Employees)

	Small	Medium	Large	Total Population
	Employees	Employees	Employees	Employees
Salary	0.542	-0.208	0.407	0.459
Bonus	0.121	0.027	-0.15	-0.147

The table 3 had shown that there were mixed correlations between CEO salary, CEO bonus, and total number of employees, in the NYSE index companies. That is, the correlation between CEO salary and total number of employees had decreased from .542 to -.208 and then had increased further to .407, as the size of the population group changed from small, to medium, and to large. The correlations between CEO bonus and total number of employees had decreased from .121 to .027 and then had decreased further to -.15, as the size of the population group changed from small, to medium, and to large. Thus, the larger the firm size, the weaker would be the correlation between CEO salary, CEO bonus, and total number of employees, perhaps again due to an increased organizational complexity; high proportion towards stock-based compensation; or less reward of a CEO contribution in meeting strategic objectives in large size companies. As such, the new theory had been developed from this research study that, the correlations between CEO salary, CEO bonus, and firm size is mixed and the extent of the correlation between them decrease as the firm size increase over time.

This phenomenon was perhaps experienced due to large companies achieve an efficiency as such CEO actions became the less of a milestone for the board to reward in the form of a high salary and bonus, or perhaps board selected to reward CEO on a stock-based compensation.

Conclusion

Overall, although there was a relationship between CEO cash compensation and firm size in NYSE index companies, however, the correlations among the sub-variables were divergent and were ranged from weak negative to strong positive ratios. The new theory had been developed from this research study that, the correlations between CEO salary, CEO bonus, and firm size is mixed and the extent of the correlation between them decrease as the firm Size increase over time. This research had obtained the results that were similar but in finer terms relative to the studies conducted by Belkaoui and Picur (1993), David, Koachhar, and Levitas (1998), and Gray and the Cannella (1997). That is, they had found the correlations between CEO pay and firm size as low as .107, .110, and .170, while studies conducted by Boyd (1994); Finkelstein and Boyd (1998); and Sanders and the Carpenter (1998), reported the correlations of .62, .50, and .42. However, this research result categorically refuted any such believe or claim that the larger the company size the higher CEO cash compensation, perhaps true in non-cash or long-term benefit component factors of CEO compensation.

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Appendix

Operational Hypothesis Statement

- H₀: There is no relationship between CEO cash compensation and firm size in NYSE index companies.
- H₁: There is a relationship between CEO cash compensation and firm size in NYSE index companies.

To address this operational hypothesis statement, separate models were developed for each dependent variable:

Firm Size

For Salary: $Y_1 = c + B_1X_1 + B_2X_2 + \epsilon$

For Bonus: $Y_2 = c + B_1X_1 + B_2X_2 + \epsilon$

(Y₁=Salary; Y₂=Bonus; c=constant predictor; B₁=influential factor for Total Sales; B₂=influential factor for Total Number of Employees; and ϵ =error).

(X₁=Value of the Total Sales; X₂=Value of the Total Number of Employees).

All nine models assumed to have a confidence level (α) of 5 percent.