

## The Effect of Earnings Per Share and Cash Flow Per Share on CEO Cash Compensation: An Empirical Study of TSX/S&P And NYSE Indexes Companies

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### Abstract

*This study investigated the relationship between CEO cash compensation, earnings per share (EPS), and cash flow per share (CFPS) of TSX/S&P and NYSE indexes companies from 2005 to 2010. The totaled of two hundred and forty companies were selected through stratified sample method from TSX/S&P and NYSE indexes. The research question for this study was: among TSX/S&P and NYSE indexes companies, is there a relationship between CEO cash compensation, earnings per share (EPS), and cash flow per share (CFPS)?. To answer this question, sixteen statistical models were created. Overall, all the test results were found to have a relationship between CEO cash compensation, earnings per share (EPS), and cash flow per share (CFPS). The correlations between CEO salary, bonus, and earnings per share (EPS), and cash flow per share (CFPS) were found to have weak mixed ratios. Similarly, group firm sized effect on the relationships between CEO cash compensation, earnings per share (EPS), and cash flow per share (CFPS) were also found to have weak mixed ratios among TSX/S&P and NYSE companies.*

**Key words:** CEO compensation, business performance, cash flows, earnings per share, Toronto Stock Exchange (TSX/S&P), New York Stock Exchange (NYSE), and firm size.

### Introduction

The purpose of this research is to understand in-depth the relationship between CEO cash compensation, earnings per share (EPS), and cash flow per share (CFPS) of TSX/S&P and NYSE indexes companies from 2005 to 2010. Over the past decade, Canadian and American public had raised concerns over bonuses declared to CEOs by their board of directors. The failure to understand the determinants of CEO compensation from the public had led to blame CEOs of rent grabbing (compensation manipulation using compensation consultants) through monopolization of the compensation system. Thus, these ever growing concerns bring to the foreground conclusion the need to further study CEO compensation. As such, this research will conduct in depth study between CEO cash compensation, earnings per share (EPS), and cash flow per share (CFPS) using companies listed in TSX/S&P and NYSE indexes.

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 the principal-agent contract. In general, 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.

The variables used in previous studies as a proxy for firm size were either total sales, total number of employees, or total assets. To understand in-depth, firm size needs to be studied with CEO compensation using both total sales and total number of employees.

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 used two variables to test with CEO compensation, that is, earnings per share (EPS) and cash flow per share (CFPS).

## ***Literature Review***

### **2.1 CEO Compensation and Firm Size**

Prasad (1974) believed that executive salaries appear to be far more closely correlated with the scale of operations than its profitability. He also believed that executive compensation is primarily a reward for previous sales performance and is not necessarily an incentive for future sales efforts. McEachern (1975) believed that executives are risk averse. They can reduce or eliminate risk exposure in their compensation package by linking it to a more stable factor, firm size. Gomez-Mejia, Tosi, and Hinkin (1987) believed that firm size is a less risky basis for setting executives' pay than performance, which was subject to many uncontrollable forces outside the managerial sphere of influence. Deckop (1988) believed that a strong sales compensation relationship would suggest that CEOs are given an incentive to maximize size rather than profitability. Tosi and Gomez-Mejia (1994) believed that measurement of firm size is the composite score of standardized values of reported total sales and number of employees. Gomez-Mejia and Barkema (1998) defined the relationship between CEO compensation and firm size as "positive". That is, CEOs in large companies make higher income than CEOs in small companies. This is supported by Finkelstein and Hambrick (1996), who believed that firm size is related to the level of executive compensation. This is further supported by Murphy (1985), who find that holding value of a firm constant, firm whose sales grow by 10% will increase CEO salary or bonus between 2% and 3%. Therefore, it shows that size pay relation is causal, and CEOs can increase their pay by increasing firm size, even when increase in size reduces the firm's market value. Shafer (1998) shown that pay sensitivity, which measured as change in CEO wealth per dollar and change in firm value, falls with the square root of firm size. That is, CEO incentives are 10 times higher for a \$10 billion firm than for a \$100 million firm.

### **2.2 CEO Compensation and Firm Performance Linkage**

According to previous studies conducted in the United States and the United Kingdom, CEO compensation is believed to be weakly related to firm performance. Loomis (1982) argued that pay is unrelated to performance. Henderson and Fredrickson (1996), and Sanders and Carpenter (1998, 2002) argued that CEO total pay may be unrelated to performance but it related to organizational complexity they manage. Likewise, studies conducted by Murphy (1985), Jensen and Murphy (1990), and Joskow and Rose (1994) find similar conclusions.

Jensen and Murphy (1990) argued that incentive alignment as an explanatory agency construct for CEO pay is weakly supported at best. That is, objective provisions of principal agent contract are not comprehensive enough to effectively create a direct link between CEO pay and performance. They find that pay performance sensitivity for executives is approximately \$3.25 per \$1000 change in shareholder wealth, small for an occupation in which incentive pay is expected to play an important role.

This is supported by Tosi, Werner, Katz, and Gomez-Mejia (2000), who find that overall ratio of change in CEO pay and change in financial performance is 0.203, an accounting for about 4% of the variance. This weak relationship is explained by Borman & Motowidlo (1993) and Rosen (1990), who stated that archival performance data focuses only on a small portion of a CEO's job performance requirements as such; it is difficult to achieve a robust conclusion.

According to Jensen and Murphy (1990) who believed that CEO bonuses are strongly tied to an unobservable performance measure. They believed that if bonuses depend on performance measures observable only to the board of directors, they could have provided a significant incentive. They believed that one way to detect the existence of such phantom performance measures is to examine the magnitude of year to year fluctuations in CEO compensation. They believed that such fluctuations signify CEO pay is unrelated to accounting performance. In addition, they argued that although bonuses represent 50% of CEO salary, such bonuses are awarded in ways that are not highly sensitive to performance. And the variation in CEO pay can be explained by changes in accounting profits than stock market value. Overall, they believed that pay performance sensitivity remains insignificant.

Jensen and Murphy (1990) find in their study that CEO received an average pay increase of \$31,700 in years when shareholders earned a zero return, and received an average additional 1.35¢ per \$1,000 increase in shareholder wealth. These findings are comparable to those of Murphy (1985 and 1986), Coughlan and Schmidt (1985), and Gibbons and Murphy (1990), who find that pay performance elasticity of approximately 0.1, indicating, salaries and bonuses increased by about 1% for every 10% rise in the value of the firm. In addition, they find an average pay increase of CEOs whose stockholders gains \$400 million is \$37,300, compared to an average pay increase of CEO whose stockholders lose \$400 million is \$26,500. These findings are supported by Jensen and Murphy (1990), who believed that CEO cash compensation should be structured to provide big rewards for outstanding performance and meaningful penalties for poor performance. In addition, they believed that the relationship between CEO cash compensation and firm performance would be less troubling if CEO owned a large percentage of corporate equity. Gilson and Vetsuypens (1993) argued that the association between pay and performance is small in economic terms when performance is measured in terms of changes rather than levels. This is supported by Iyengar (2000) who argued that changes in CEOs compensation are unrelated to changes in firms' performance perhaps due to stockholders in poorly performing firms would like to adopt a cautious wait and see attitude, to assess whether a change in performance is permanent before rewarding senior managers. This is further supported by Antle and Smith (1986), who find no relation between CEO cash compensation and firm performance. However, these statements are contradicted by Jensen and Zimmerman (1985), who stated that evidences are inconsistent with a view that executive compensation is unrelated to firm performance and enriches managers at the expense of shareholders. This is supported by Gibbons and Murphy (1990), who finds that CEO pay changes by about 1.6% for each 10% of return on common stock. That is, the CEO pay structure is positively and significantly related to firm performance, as measured by the rate of return on common stock. This is supported by Lambert and Larcker (1987) and Sloan (1993), who find that there is a positive relation between CEO compensation and stock returns. According to Blanchard, Lopez-de-Silanes and Shleifer (1994), Iyengar, Raghavan J. (2000), and Bertrand and Mullainathan (2001), who stated that CEO cash compensation increases when firm profits rise for reasons that have nothing to do with managers' efforts. Murphy (1986) believed that top executives are worth every nickel they get.

## 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 two hundred and forty companies from TSX/S&P and NYSE indexes were selected through stratified sample method. The survey method was selected for this research study. For statistical tests, CEO compensation was assigned as the dependent variable; firm size was assigned as control and independent variables; and earnings per share (EPS) and cash flow per share (CFPS) had been assigned as independent variables. The totaled of sixteen 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 was assumed for all the statistical tests.

## Data Analysis

### CEO Cash Compensation and Earnings per Share (EPS)

TSX/S&P	Small	Medium	Large	Total Population
	EPS	EPS	EPS	EPS
Salary	0.036	0.005	-0.1	0.053
Bonus	-0.008	0.054	-0.057	0.06
NYSE	Small	Medium	Large	Total Population
	EPS	EPS	EPS	EPS
Salary	-0.052	0.103	0.207	0.102
Bonus	0.05	-0.008	0.059	0.028

The above summarized correlation results had showed that among the TSX/S&P and the NYSE companies, the relationship between the CEO Salary, the CEO Bonus, and the EPS was either weakly positive or weakly negative. In the TSX/S&P population, the correlation between the CEO Salary and the EPS had decreased from .036 to .005 and then had decreased further to -.10, as the size of the population group changed from the Small, to the Medium, and to the Large. In contrary, in the NYSE population, the correlation between the CEO Salary and the EPS had increased consistently from -.052 to .103 and then to .207, as the size of the population group changed from the Small, to the Medium, and to the Large. In the TSX/S&P population, the correlation between the CEO Bonus and the EPS had increased from -.008 to .054 and then had decreased to -.057, as the size of the population group changed from the Small, to the Medium, and to the Large. Similarly, in the NYSE population, the correlation between the CEO Bonus and the EPS had decreased from .05 to -.008 and then had increased to .059, as the size of the population group changed from the Small, to the Medium, and to the Large. Thus, these results had shown inconsistencies among the TSX/S&P and the NYSE populations, that is, there is a mixed weak correlation between the CEO Salary, the CEO Bonus, and the EPS. This result finding was consistent to the extent of weak relationship, that is, the EPS is believed to be mostly used to determine the long-term remuneration.

In addition, the group firm-sized effect was divergent among the TSX/S&P and the NYSE populations, that is, in the TSX/S&P companies, as the firm size became larger, there was a negative influence on the relationship between the CEO Salary, the CEO Bonus, and the EPS; whereas, in the NYSE companies, as the firm size became larger, there was a positive influence on the relationship between the CEO Salary, the CEO Bonus, and the EPS. This demonstrated that the EPS was more incorporated with the CEO Cash Compensation in the NYSE index companies than with the TSX/S&P indexes companies. Through the literature review it was determined that there weren't any in depth study on the relationship between the CEO Cash Compensation and the EPS. Rather, it was more indirectly mentioned with the studies related to the firm earnings, the firm accounting policies, the stock-based compensation, and the CEO wealth. For example, Gerhart et al. (2009) believed that earnings are imperfectly related to the shareholder return primarily due to the fact that the CEO firm-specific wealth is generated via equity positions. Murphy (1999) argued that the relationship between the shareholder and the CEO financial outcomes was sufficiently obvious and explicit.

The reason was that both the executive and the shareholder return were based on the value of the same underlying asset, company stock (Conyon, 2006). Gaver et al. (1998) and Holthausen et al. (1995a) found that executives manage earnings downward when their reported performance exceeds the maximum, but show that executives manage earnings upward when below the threshold. The executive may also smooth performance in the incentive zone if the pay-for-performance relation is concave above the standard but convex below (Indjejikian and Nanda, 2002). As mentioned above, these past studies lacked the direct studies between the Earnings per Share and the CEO Cash Compensation. As such, this research study had not only succeeded in conducting as a new research on the relationship between the CEO Salary, the CEO Bonus, and the EPS, but also had studied on a firm group-sized basis. Thus, the above research conclusions led to a development of a new theory in this overall research that there is a weak relationship between the CEO Cash Compensation and the EPS. In addition, the firm size could either have a positive or negative effect on the relationship between the CEO Cash Compensation and the EPS subject to the extent of EPS linkage to short-term CEO remuneration payment - the CEO Salary and the CEO Bonus.

### CEO Cash Compensation and Cash Flow per Share (CFPS)

<b>Table 2: Correlations [CEO Cash Compensation and Cash Flow per Share (CFPS)]</b>				
TSX/S&P	Small	Medium	Large	Total Population
	CFPS	CFPS	CFPS	CFPS
Salary	-0.02	0.028	-0.008	0.05
Bonus	0.053	-0.022	-0.015	0.056
NYSE	Small	Medium	Large	Total Population
	CFPS	CFPS	CFPS	CFPS
Salary	0.05	0.142	0.158	-0.001
Bonus	-0.066	0.029	-0.012	-0.052

The above summarized correlation results had shown that the overall relationship between CEO salary, CEO bonus, and CFPS was either positively or negatively correlated among TSX/S&P and NYSE companies. In the TSX/S&P population, the correlation between CEO salary and CFPS had increased from -.02 to .028 and then had decreased to -.008, as the size of the population group changed from



small, to medium, and to large. In contrary, in NYSE population, the correlation between CEO salary and CFPS had increased consistently from .05 to .142 and then had increased further to .158, as the size of the population group changed from small, to medium, and to large.

In the TSX/S&P population, the correlation between CEO bonus and CFPS had decreased from .053 to -.022 and then had increased to -.015, as the size of the population group changed from small, to medium, and to large. Similarly, in the NYSE population, the correlation between CEO bonus and CFPS had increased from -.066 to .029 and then had decreased to -.012, as the size of the population group changed from small, to medium, and to large. Thus, among the TSX/S&P and the NYSE populations, these results had shown mixed correlations between CEO salary, bonus, and CFPS. These results findings were consistent to the extent of a weak relationship with CEO salary, that is, CEO salary is determined irrespective of the firm's cash flow level in both TSX/S&P and the NYSE companies; however, it was found that CEO bonus and CFPS correlation had been impacted by the market culture. In addition, the group firm-sized effect was divergent among TSX/S&P and NYSE populations, that is, in the TSX/S&P companies, the larger the firm size, there was a negative influence on the relationship between CEO salary, CEO bonus, and CFPS; in contrary, in the NYSE companies, the larger the firm size, there was a positive influence on the relationship between CEO salary, CEO bonus, and CFPS. This demonstrated that CFPS was more correlated with CEO cash compensation in NYSE index companies than with TSX/S&P indexes companies.

According to previous studies, cash flows from operations were often used by researchers to approximate performance because the cash flows were less subject to accounting accruals and deferrals, and consequently mitigate sources of potential manipulation. For example, Iyengar (2000) found that the level of CEO cash compensation was positively related to the firm's level of operating cash flows but was unrelated to either accounting or market performance. Kumar et al. (1993) and Natarajan (1996) didn't find a significant association between cash flows from operations and CEO compensation after controlling for net income. In contrary, Nwaeze et al. (2006) found that the cash flows from operations were compensation contract-relevant, especially when the quality of the earnings relative to the quality of the cash flows from the operations.

Thus, these above studies indicated that the relationship between the CEO Compensation and the CFPS was positive but the extent of the relationship was unknown. As such, this research study had succeeded not only in conducting as a new research between CEO salary, bonus and CFPS but also had studied on a group firm-sized basis. The above research conclusions led to a development of a new theory in this research that there is a weak mixed relationship between CEO salary, bonus, and cash flow per share. That is, CEO salary has a weak correlation with cash flow per share; however, CEO bonus depends upon the level of positive or negative operating cash flow in the firm, and the board decision to reward either through cash or stock options. In addition, firm size has a weak mixed effect on the correlation between CEO salary, CEO bonus, and cash flow per share.

### **Conclusion**

The purpose of this research study was to understand the nature and extent of the relationship between CEO cash compensation, earnings per share, and cash flow per share. This research study had found that there is a relationship between CEO cash compensation, earnings per share, and cash flows per share. The correlations between CEO salary and earnings per share were characterized weak mixed ratios, among TSX/S&P and NYSE indexes companies. The firm size could either have a positive or negative effect on the relationship between CEO cash compensation and earnings per share, subject to the level of

importance given in CEO contract. The correlations between CEO salary and earnings per share was also found to have weak mixed ratios, among TSX/S&P and NYSE indexes companies. The firm size could either have a positive or negative effect on the correlation between CEO salary, CEO bonus, and cash flow per share, subject to market culture of CEO compensation.

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## Appendix

### Operational Hypothesis Statement

- H<sub>0</sub>: Among TSX/S&P and NYSE indexes companies, there is no relationship between CEO cash compensation, earnings per share (EPS), and cash flow per share (CFPS).
- H<sub>1</sub>: Among TSX/S&P and NYSE indexes companies, there is relationship between CEO cash compensation, earnings per share (EPS), and cash flow per share (CFPS).

To address this Operational Hypothesis Statement, sixteen statistical models were developed.

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

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

Total Compensation:  $Y_3 = c + B_1X_1 + B_2X_2 + \epsilon$

( $Y_1$ =Salary;  $Y_2$ =Bonus;  $c$ =constant predictor;  $B_1$ =influential factor for Earnings per Share (EPS);  $B_2$ =influential factor for Cash Flow per Share (CFPS);  $X_1$ =Value of Earnings per Share (EPS);  $X_2$ =Cash Flow per Share (CFPS); and  $\epsilon$ =error).

Confidence level ( $\alpha$ ) was set at 5 percent.

Earnings Per Share= Net Income divided by Total Common Shares Outstanding.

Cash Flow per Share= Total Operating Cash Flow divided by Total Common Shares outstanding.

The confidence level ( $\alpha$ ) was set at 5 percent for one-tailed test.

df=degree of freedom

weak ratio=+/- .000 to .249; moderate ratio=+/- .250 to .499; good ratio=+/- .500 to .749

strong ratio=+/- .750 to 1.000