

Is Accounting Net Profit Margin a valid measure of CEO Cash Compensation?: A Comparative Analysis on NYSE and TSX/S&P Indexes Companies

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Abstract— This study investigated the relationship between the CEO Cash Compensation and the Accounting earnings (Net Profit Margin) of the companies in the TSX/S&P and the NYSE indexes from 2005 to 2010. The research question for this study was: among the TSX/S&P and the NYSE companies, is there a relationship between the CEO Cash Compensation and the Accounting earnings (Net Profit Margin)? Overall, most of the attestations results were found to have the relationship between the CEO Cash Compensation and the Accounting earnings (Net Profit Margin). The correlations among the sub-variables of the CEO Cash Compensation and the Net Profit Margin were found to be consistently positive ranging from weak positive to the Strong positive. The firm group-sized had a positive effect on the relationship between the CEO Salary, the CEO Bonus, and the Net Profit Margin, both in the TSX/S&P and the NYSE companies.

Index Terms— CEO Cash Compensation, Accounting Performance, Net Profit Margin, Accounting Earnings, NYSE CEO Compensation, TSX/S&P CEO Compensation

1 INTRODUCTION

The most researched topic in the executive compensation is between the CEO Compensation and the Firm Performance and in particular, the relationship between the accounting earnings and the CEO compensation. Although the executive compensation and the firm performance had been the subject of debate amongst the academic, 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 the finer terms the true extent of the relationship between them. As such, this research study will focus on one famous proxy of the Firm Performance, the Accounting Earnings (Net Profit Margin), to attest with the CEO Cash Compensation, to determine its significance to the CEO Cash Compensation. In addition, the unique part of this extensive research study is the study of the group firm-sized basis, that is, the entire sampling population will be divided into the "Small", the "Medium", and the "Large" groups, to understand in the finer terms how these groups affect the CEO cash compensation when attesting with the Net Profit Margin (NPM). The Canadian equity market, the prestigious TSX/S&P (Toronto Stock Exchange) index, was selected due to being the largest and most stable stock exchange in the Canada and all the leading companies of the Canadian economic sectors participated in its stock listings. Similarly, the American equity market, the prestigious NYSE (New York Stock Exchange) index, was selected due to being the largest stock exchange in the United States and in the world. As such, it was expected that both indexes will provide the quality of sampling companies and consistent performance of data for the attestations.

The relationship between the CEO Cash Compensation and the Net Profit Margin was not attested before on the group

firm-sized basis. The past studies were primarily based on the general relationship between the Total Compensation and Net Income or Net Profit Margin (NPM). In addition, the focus of those studies was based on the third party data and the duration of the research study and the sampling techniques used were different from the study to the study. As such, and according to the past studies, the results of the correlation between the CEO Cash Compensation and the Net Profit Margin (NPM), although were consistently positive but found to be divergent. Indeed, it had created a concern as to the existence of the inconsistent results. Therefore, the Net Profit Margin (NPM) needs to be re-studied but with more focused manner: attesting with the sub-variables of the CEO Cash Compensation - the CEO Salary and the CEO Bonus; focusing on the recent past period from 2005 to the 2010; the targeting the larger highly credible population bases for the sampling such as TSX/S&P and the NYSE indexes; and selecting the relevant sample size such as the one hundred and twenty companies each for the both indexes, and above all, the testing on a stratified basis such as, based on the three groups of the firm size, the "Small", the "Medium", and the "Large", to gain clearer understanding the extent of the true relationship between them.

2 LITERATURE REVIEW

2.1 CEO CASH COMPENSATION AND ACCOUNTING PERFORMANCE

The accounting performance measures is one of the performance measures used to determine the payoffs of the incentive contracts. This is supported by Healy (1985); Lambert and Larcker, (1987);

Pavlick et al. (1983); and Verrechia (1986), that incentive schemes based on the accounting performance measures appear to influence both the accounting earnings and the market performance measurements processes. Porac and Pollack (1997) found that, when the accounting returns are high, the firms emphasize the accounting returns and downplay the market returns. The bonus is usually a piecewise linear contract in the accounting earnings (Healy, 1985). However, Lambert and Larcker (1987) argued that firms place relatively more weight on market performance measures than on the accounting performance measures in compensation contracts for situations in which the variance of the accounting performance measures is high relative to that of market performance measures; the firm is experiencing a high rate of growth, and the manager's holdings of the firm's stock are low. However, Gibbons and Murphy (1989) argued that basing compensation on potentially informative additional variables often distorts the CEO incentives. The accounting profits, for example, may yield information that is valuable in assessing an executive's unobservable actions. But paying executives based on the accounting profits rather than on the changes in the shareholder wealth not only generates incentives to directly manipulate the accounting system, but also generates to ignore projects with the large net present values in favor of less valuable projects with the large immediate profits. Ronen and Sadan (1981) argued that the corporate managers often engage in income smoothing, taking actions to dampen fluctuations in their firms' publicly reported net incomes. Trueman and Titman (1988) hypothesized that, by smoothing income, the managers may attempt to reduce the estimate of various claimants of the firm about the volatility of its underlying earnings process, which in turn could lower the firm's cost of borrowing and favorably affect the terms of trade between the firm and the customers, the workers, and the suppliers. Similarly, Baiman, Evans, and Noel (1987); Blazenco and Scott (1987); and Baiman, Evans, and Nagarajan (1991) in their respective studies provided evidence of the misrepresentation of the accounting performance measures by the management. Jensen and Murphy (1990) found in their study that the CEO compensation is related to the changes in the accounting profits and the sales, but is unrelated to the market and the industry performance. According to them, while the CEO pay appears to be about equally sensitive to the accounting profits and the shareholder wealth, the estimated magnitude of both the effects were small. That is, the amount of the CEO pay "at risk" for a \$48 million change in the accounting profits (which is twice the median standard deviation) is \$9,000, or less than 2 percent of compensation for the CEO with median earnings of \$490,000.

Murphy (1999) stated that bonus contracts are usually written based on the accounting earnings and not explicitly on the stock returns. Bushman et al. (1995 and 1996) reported that the 40 percent of their sampled CEOs received bonuses based on individual performance evaluation which they argued includes discretionary and subjective bonuses. However, Murphy and Oyer (2002) provided evidence suggesting that the CEOs are less likely than the non-CEO executives receive discretionary bonuses. Ellig (2002) argued that the accounting measures are backward-looking

and pertain to the short-term firm performance. However, Dechow (1994), and Easton, Harris & Ohlson (1992) argued that the overtime accounting based earnings measures do begin to approximate the shareholder return.

Shaw and Zhang (2010) found that, when the earnings performance is very poor, the CEO's bonus is zero and the cash compensation is insensitive to the performance. As earnings performance improves beyond the lower bound, a linear relation between the CEO cash compensation and the firm earnings performance is expected in the incentive zone. For performance above the upper bound, no further bonus is awarded, and cash compensation is insensitive to the performance. Murphy (1999) reported that 62% of the performance measures used in the bonus contracts are accounting based, while the other measures include the individual performance measures. In addition, they believed that the earnings-based bonus contracts often contain lower and upper bounds, suggesting reduced sensitivity of cash pay to the earnings when the earnings are either very high or very low. Secondly, since the accounting earnings exclude unrealized gains and include unrealized losses, CEO pay will react symmetrically to accounting earnings and the losses.

Lambert and Larcker (1987), and Sloan (1993) argued that the CEO cash compensation may be more closely related to the accounting performance rather than the stock performance. This is supported by Warfield and Wild (1992) who reported explained variance (adjusted R^2) in the relationship between the earnings and the shareholder return over a quarter period as .02, but increasing to .09 over one year and to .40 over four years. Leone et al. (2006) argued that if the accounting system was designed solely for use in the compensation contracts, there would be no asymmetry in the relation between the cash compensation and the accounting earnings as in the case of stock returns. However, this only holds when the firms have no other accounting-based contracts; the litigations; the taxes; and the accounting method choice do not materially impact the accounting earnings. On the other hand, Gilson and Vetsuypens (1993) argued that the accounting earnings may be an unreliable indicator of the firms' true financial condition because the CEOs have the strong economic incentives to manage the accounting earnings, when the firms are in distress.

Holthausen et al. (1995) and Leone and Rock (2002) argued that the accounting based annual bonus plans motivate executives to be more productive in the short-term, at the same time, but the manner in which the firms design and revise the accounting-based bonus plans may also encourage executives to misrepresent their reported accounting performance. In addition, they believed that the executive target bonuses reflect ex ante intentions to motivate their executives thereby increasing the firm value. Indjejikian and Nanda (2002) found that the executives' target bonuses was negatively associated with a proxy for the measurement noise in the accounting-based performance metrics, and positively associated with the proxies for the firms' growth opportunities and the extent of the executives' decision-making authority. In addition, they also found that the firms do not fully adjust performance standards for executives' past performance. In par-

ticular, if the executive previously earned more than his target bonus, then he has a 72 percent chance of earning more than his target bonus again in the current year. In contrary, if the executive previously earned less than his target bonus, then he has only a 42 percent chance of earning more than his target bonus in the current year. The parametric test of differences in proportions shows that this difference was statistically significant with the Z-statistic of 9.48. Likewise, they also found that the executive's expected the abnormal bonus (difference between actual and target bonus) in the current period is highly correlated with the abnormal bonus received in the prior period. However, their study lacked large performance standard data, and the evidence about the performance standards was indirect to form any direct relationship conclusions. Antle and Smith (1986) believed that the executive's ability to hedge the systematic or unsystematic risk imposed on himself through a compensation plan based on the financial accounting measure is likely to be less than his ability to hedge such risk when the plan is based on the market measure.

3 RESEARCH METHODOLOGY

This research had adopted the quantitative research method as it is the method to be used for the historical data collection and the descriptive studies. The longitudinal study approach had been selected under the quantitative research methodology to study the corporate financial records from 2005 to 2010. The stratified sampling method had been selected to obtain the total sampling population of the one hundred and twenty companies each from the TSX/S&P and the NYSE indexes companies. The total population had been divided into three groups of the Firm Size: the "Small", the "Medium", and the "Large". The "Small" size company had a Total Sales of up to \$500 million; the "Medium" size company had a Total Sales greater than \$500 million to the maximum of \$2 billion; and the "Large" size company had a Total Sales of over \$2 billion. Each group will have a sample size of forty to ensure the statistical testing results are comparable between these groups.

For the statistical tests, the CEO Cash Compensation was assigned as the dependent variable; the Firm Size was assigned as the control variables; and the Net Profit margin was assigned as the independent variable. Each sub-variables of the CEO Cash Compensation had been used separately to attest with all the sub-independent variables of each independent variable. The total of the sixteen models were created and accordingly attest each of them to address the research question.

The survey method had been adopted as it is the most appropriate approach to collect the historical data. The historical data of the sampled companies had been obtained from the TMX Group Inc. and the CDS Inc. The Inferential statistics-based methodology, which is very instrumental in this quantitative research, had been used to obtain statistical results. The 95 percent confidence level will be assumed for all the research attestations.

4 DATA FINDINGS AND CONCLUSIONS

DATA FINDINGS

4.1 CEO CASH COMPENSATION AND ACCOUNTING NET PROFIT MARGIN

Table 1 – Correlations (CEO Cash Compensation and Accounting Net Profit Margin)

TSX/S&P	Small	Medium	Large	Total Population
	NPM	NPM	NPM	NPM
Salary	0.077	0.182	0.427	0.527
Bonus	0.111	0.142	0.527	0.64
NYSE	Small	Medium	Large	Total Population
	NPM	NPM	NPM	NPM
Salary	-0.123	0.118	0.159	0.171
Bonus	-0.076	0.23	0.124	-0.025

The above table 1 showed that overall there is a positive relationship between the CEO Cash Compensation and the NPM, among the TSX/S&P and the NYSE populations. In the TSX/S&P population, the correlation between the CEO Salary and the NPM had increased from .077 to .182 and then had increased further to .427, as the size of the population group changed from the Small, to the Medium, and to the Large. Likewise, in the NYSE population, the correlation between the CEO Salary and the NPM had increased consistently from -.123 to .118 and then had increased further to .159, 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 NPM had increased from .111 to .142 and then had increased further to .527, as the size of the population group changed from the Small, to the Medium, and to the Large. In the NYSE population, the correlation between the CEO Bonus and the NPM had increased from -.076 to .23 and then had decreased to .124, as the size of the population group changed from the Small, to the Medium, and to the Large. Thus, these results showed that there was a consistent positive relationship between the CEO Salary, the CEO Bonus, and the NPM. In addition, the moderator variable the group firm-sized had played an important role in understanding the nature of the influence of the NPM on the CEO Cash Compensation.

From the past studies, such as: Lambert and Larcker (1987) argued that the firms place relatively more weight on the market performance measures than on the accounting performance measures in the compensation contracts for situations in which (i) the variance of the accounting performance measures is high relative to that of market performance measures, (ii) the firm is experiencing a high rate of growth, and (iii) the manager's holdings of the firm's stock is low. Jensen and Murphy (1990) found in their study that the average pay increase for a CEO whose share-

holders gain \$400 million was \$37,300, compared to an average pay increase of \$26,500 for a CEO whose shareholders lose \$400 million. Mehran (1995) reported that the CEO pay structure was positively related to the same-year performance. Blanchard, Lopez-de-Silanes and Shleifer (1994); and Bertrand and Mullainathan (2001) found that the CEO Cash Compensation increases when the firm profits rise for the reasons that clearly have nothing to do with managers' efforts. Thus, these past studies demonstrated that there was a weak relationship between the CEO Compensation and the NPM and in fact, there weren't any single direct study done on the relationship between the CEO Salary, the CEO Bonus, and the NPM. As such, this research study had succeeded in exploring the relationship between the CEO Salary, the CEO Bonus, and the NPM on a firm group-sized basis, and therefore, had refuted the past studies generalized claim of the weak influence of the NPM on the CEO compensation. Therefore, these research findings led to a development of a new theory in this overall research that there is a moderate positive relationship between the CEO Salary, the CEO Bonus, and the NPM, signifying, the accounting earnings is one of the influential criteria the board considered towards determining the CEO Salary and the CEO Bonus. In addition, the firm size is a positive influence factor towards the extent of the relationship between them.

5 CONCLUSION

The purpose of studying the relationship between the CEO Cash Compensation and the Net Profit Margin (NPM) was to understand the nature and the extent of the relationship among them. As such, this research study found that there was a relationship between the CEO Cash Compensation and the Net Profit Margin. The overall correlation between the CEO Salary and the Net Profit Margin (NPM) in the TSX/S&P companies was consistently moderate to strong positive ratio, this was perhaps due to the accounting earnings were weighted higher in the CEO compensation contract. The overall correlation between the CEO Salary and the Net Profit Margin (NPM) in the NYSE companies was consistently weak positive ratio, this was perhaps due to the accounting earnings and short-term compensation was lesser of a weight in the CEO compensation contract. As such, this research illustrated the important divergence between the respective TSX/S&P and the NYSE CEO Compensation systems. In addition, although, in both the TSX/S&P and the NYSE indexes, the group firm-sized had a positive effect on the correlation between the CEO Salary, the CEO Bonus, and the NPM, but the extent of the impact of the shift from one group of the firm-size to the other group of the firm-size was higher in the TSX/S&P index than in the NYSE index. This phenomena again was perhaps due to the different designing of the Canadian and the American CEO compensation systems.

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7 APPENDIX

Operational Hypothesis Statement

- H0: Among the TSX/S&P and the NYSE indexes companies, there is no relationship between the CEO Cash Compensation and the NPM.
- H1: Among the TSX/S&P and the NYSE indexes companies, there is a relationship between the CEO Cash Compensation and the NPM.

To address this Operational Hypothesis Statement, the separate model was developed for each dependent variable:

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

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

(Y_1 =Salary; Y_2 =Bonus; c =constant predictor; B_1 =influential factor for the Net Profit Margin (NPM); X_1 =Value of Net Profit Margin (NPM); and ϵ =error).

Confidence level (α) was set at 5 percent.

Net Profit Margin= Net Profits divided by Total Sales.