

The Effect of Return on Assets (ROA) on CEO Compensation System in TSX/S&P and NYSE Indexes Companies

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Abstract—This study investigated the relationship between CEO compensation and return on assets (ROA) of TSX/S&P and NYSE indexes companies from 2005 to 2010. The quantitative research method was selected for this research study. The totaled of two hundred and forty companies were selected through stratified sample method for this study. The research question for this study was: among TSX/S&P and NYSE indexes companies, is there a relationship between CEO compensation and return on assets?. It was found that most of the test results were found to have no relationship between CEO compensation and return on assets, except for the relationships between: CEO bonus and ROA in TSX/S&P small sized companies; CEO salary and ROA in NYSE small sized companies; and CEO bonus and ROA in NYSE large sized companies. The correlations among sub variables of CEO salary, CEO bonus, and CEO total compensation, and ROA were found to have weak mixed ratios, among both populations. In addition, in TSX/S&P population, firm size had a mixed effect on the relationship between CEO compensation and ROA relative to positive firm size effect on NYSE population.

Index Terms— CEO Compensation, Accounting Performance, Firm Performance, Return on Assets, NYSE CEO Compensation, TSX/S&P CEO Compensation

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1 INTRODUCTION

The most researched topic in executive compensation was between CEO compensation and firm performance. Although executive compensation and firm performance had been subject of debate amongst academics, there was little consensus on the precise nature of the relationship as such, further researched in greater detail need to be conducted to understand clearly the extent of the relationship between them. This research study will focus on one aspect of firm performance, return on assets (ROA). That is, to understand the nature and extent of the relationship between CEO compensation and ROA. In addition, the unique part of this research study is to understand this relationship on firm sizes (small, medium, and large) perspective. The Canadian equity market, TSX/S&P (Toronto Stock Exchange), and American equity market, NYSE (New York Stock Exchange) will be selected. Previous studies had shown, the results of correlations between CEO compensation and ROA were found to have weak ratios. Overall, purpose of this research is to investigate in clear terms the extent and nature of the relationship between CEO compensation and ROA among TSX/S&P and NYSE indexes companies.

2 LITERATURE REVIEW

2.1 CEO CASH COMPENSATION AND RETURN ON ASSETS (ROA)

Jensen and Murphy (1990) and Ely (1991), who argued that applying return on assets (ROA) as a firm performance measure is considered highly important in determining executive compensation. This is supported by Finkelstein and Boyd (1998) and Finkelstein and Hambrick (1996), who have used ROA in their respective executive compensation studies. Antle and Smith (1986) find that

there is a strong correlation between CEO compensation and ROA. This is supported by Shawn and Zhang (2010), who find that changes in CEO cash compensation is significantly and positively correlated with changes in ROA. However, from the meta analysis conducted by Tosi, Werner, Katz, and Gomez-Mejia (2000), they find that estimated correlation between CEO pay and ROA is 0.117 which accounts for less than 2% of variance in CEO pay levels. On the other hand, Mehran (1995) finds that ROA is inversely related to the percentage of CEOs' total cash compensation, despite controlling for firm's growth opportunities, assets in place, leverage ratio, business risk, and size.

Sigler (2011) argued that rewarding cash bonuses to executives may encourage the undesired behavior. That is, cash bonuses tied to accounting performance such as ROA may motivate executives to manipulate the timing of revenues and expenses. Balsam, Fan, and Mawani (2011) find in their study that CEOs of large firms (as a proxy by Sales) earned higher levels of compensation. The accounting profitability (ROA) is positively associated with total cash compensation, and the market return is positively associated with CEO salary and total compensation. Their study is based on a sample of 300 companies obtained from TSX/S&P index from 2001 to 2006. On the other hand, Leone et al. (2006) find that there is no change in CEO pay to changes in ROA based on positive and negative stock returns. Overall, most of previous studies have found weak relationships between CEO compensation and ROA. Overall, these specific studies lacked extensivity and robustness. In addition, firm size has never been used as a control variable towards understanding the relationship between CEO cash compensation and ROA.

3 RESEARCH METHODOLOGY

This research study will be numerical, objective, descriptive, and demands clear results as such, quantitative research method will be selected. The longitudinal study method will be selected to collect historical financial data from 2005 to 2010. The stratified sample method will be selected to obtain a total sample population of one hundred and twenty companies each from TSX/S&P and NYSE indexes companies. For statistical tests, CEO compensation will be assigned as dependent variable, firm size will be assigned as a control variable, and return on equity will be assigned as independent variable. The total of twenty four models were created among TSX/S&P and NYSE populations, to answer research question of this study. The survey method will be adopted to collect the historical data. The inferential statistical method, linear regression, will be used to obtain statistical models. The 95% confidence level will be assumed for statistical model tests.

4 DATA FINDINGS AND CONCLUSIONS

DATA FINDINGS

4.1 CEO CASH COMPENSATION AND RETURN ON ASSETS (ROA)

The following were the analysis of variance (ANOVA) results of the relationships between CEO salary, CEO bonus, CEO total compensation, and return on equity (ROA), among TSX/S&P and NYSE populations:

Table 1 – ANOVA (CEO Compensation and ROA)

TSX/S&P	Small	Medium	Large
	ROA	ROA	ROA
Salary	F(1,233)=.958 R ² =.004 p=.329	F(1,238)=.075 R ² =.000 p=.903	F(1,227)=.025 R ² =.000 p=.874
Bonus	F(1,207)=6.483 R ² =.03 p=.012	F(1,225)=.552 R ² =.002 p=.458	F(1,214)=.008 R ² =.000 p=.928
Total Compensation	F(1,207)=.598 R ² =.003 p=.440	F(1,217)=2.216 R ² =.010 p=.138	F(1,230)=.480 R ² =.002 p=.489
NYSE	Small	Medium	Large
	ROA	ROA	ROA
Salary	F(1,231)=4.70 R ² =.02 p=.031	F(1,232)=.001 R ² =.000 p=.979	F(1,234)=3.000 R ² =.013 p=.085
Bonus	F(1,231)=.160 R ² =.000 p=.745	F(1,232)=3.552 R ² =.011 p=.061	F(1,221)=9.021 R ² =.035 p=.003
Total Compensation	F(1,218)=3.656 R ² =.016 p=.057	F(1,236)=.981 R ² =.004 p=.323	F(1,178)=.339 R ² =.001 p=.561

The ANOVA results had indicated that there were no relationships between CEO salary, CEO bonus, CEO total compensation, and ROA, among TSX/S&P & NYSE populations, except for the

relationships between: CEO bonus and ROA in TSX/S&P small sized companies; CEO salary and ROA in NYSE small sized companies; and CEO bonus and ROA in NYSE large sized companies. The models fitness R² were consistently weak among both populations and firm sizes. Overall, it had shown that ROA was not directly linked to CEO compensation as such it was not included as a performance criteria in CEO contracts among TSX/S&P and NYSE companies.

The following were the correlation results between CEO salary, CEO bonus, CEO total compensation, and ROA among TSX/S&P and NYSE indexes companies:

Table 2 – Correlations (CEO Compensation and ROA)

TSX/S&P	Small	Medium	Large
	ROA	ROA	ROA
Salary	.064	.008	.101
Bonus	.174	.049	-.006
Total compensation	.054	-.101	-.046
NYSE	Small	Medium	Large
	ROA	ROA	ROA
Salary	-.141	-.002	.113
Bonus	.021	.123	.198
Total compensation	-.128	.064	.039

In TSX/S&P population, it was found that there were weak mixed correlations between CEO salary, CEO bonus, CEO total compensation, and ROA, among firm sizes. The correlations between CEO salary and ROA had increased as firm size had increased from small to medium and to large, indicated that CEO salary had weak positive influence over the correlations between them. In addition, correlations between CEO bonus, CEO total compensation, and ROA had decreased as firm size had increased from small to medium and to large, indicated that firm size had weak negative influence over the correlations between them. Overall, in TSX/S&P population, ROA had a weak mixed effect on CEO compensation system, indicated that total assets and return had negligible impact on CEO compensation. In NYSE population, it was found that there were weak mixed correlations between CEO salary, CEO total compensation, and ROA, among firm sizes. However, it was found that there were positive correlations between CEO bonus and ROA, among firm sizes. In addition, the correlations between CEO salary, CEO bonus, and CEO total compensation had increased from small to medium and to large, indicated that firm size had weak positive influence over the correlations between them. Overall, in NYSE population, ROA had a weak mixed effect on CEO compensation system, indicated also that total assets and return had negligible impact on CEO compensation system. In addition, CEO compensation system was depended on particular contract and perhaps impact of industry culture.

5 CONCLUSION

The purpose of this study was to understand the nature and extent of the relationship between CEO compensation and ROA. The results found that there were no relationships between CEO compensation and ROA, except for the relationships between: CEO bonus, and ROA in TSX/S&P small sized companies; CEO salary and ROA in NYSE small sized companies; and CEO bonus and ROA in NYSE large sized companies. The correlations among sub variables of CEO salary, CEO bonus, and CEO total compensation, and ROA were found to have weak mixed ratios, among both populations. In addition, in TSX/S&P population, firm size had a mixed effect on the correlation between CEO compensation and ROA relative to, positive firm size effect on NYSE population.

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7 APPENDIX

Operational Hypothesis Statement

- H0: Among TSX/S&P and NYSE indexes companies, there is no relationship between CEO compensation and ROA.
- H1: Among TSX/S&P and NYSE indexes companies, there is a relationship between CEO compensation and ROA.

To address this Operational Hypothesis Statement, the separate models were developed for each dependent variable:

$$\text{Salary: } Y_1 = C + B_1 X_1 + \epsilon$$

$$\text{Bonus: } Y_2 = C + B_1 X_1 + \epsilon$$

(Y_1 =Salary; Y_2 =Bonus; c =constant predictor; B_1 =influential factor for ROA; X_1 =Value of ROA; and ϵ =error).

Confidence level (α) was set at 5%.