

CEO Age and Top Executive Officer Compensation: An Empirical Study on Canadian Companies

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Abstract— This research study investigated the effect of CEO age on CEO compensation using accounting performance as an independent variable or benchmark on TSX/S&P companies from 2005 to 2010. The quantitative research and stratified sample methods were selected for this research. The research question for this study was: is there a relationship between CEO compensation and CEO age using accounting performance as a benchmark. It was found that there was a relationship between CEO salary, CEO bonus, CEO total compensation, CEO age, and accounting performance among all CEO age groups. The correlations between CEO salary, CEO bonus, CEO total compensation, CEO age, return on assets, return on equity, earnings per share, cash flow per share, net profit margin, common stocks outstanding, book and market values of common stocks outstanding were ranged from moderate negative to strong positive ratios.

Index Terms— CEO compensation, accounting performance, CEO age, net profit margin, Canadian CEO salary, and Canadian CEO bonus.

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1 INTRODUCTION

The purpose of this research is to understand in-depth the effect of CEO age on CEO compensation system using accounting performance as a benchmark in TSX/S&P companies from 2005 to 2010. This study in executive compensation will reveal some scientific methodologies or trends to understand the nature and extent of the relationship between CEO salary, CEO bonus, CEO total compensation, and CEO age groups. This study is conducted primarily due to, over the past decade, the United States public has raised concerns of bonuses declared to CEOs by their board of directors. That is, they believed that CEO should only be rewarded based on firm performance. As such, failure to understand the determinants of CEO compensation has led to blame CEOs of rent grabbing (CEO monopolization of the compensation system through his power and influence). Thus, these ever growing concerns bring to foreground conclusion the need to further study CEO compensation system. As such, this article has focused on one aspect of executive compensation study, that is, the impact of CEO age on CEO compensation.

The CEOs and the other executives would like to eliminate the risk exposure on their compensation packages by decoupling between pay and 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. The literature finds to have limited studies on this relationship as such further research need to be conducted to understand in clear terms the nature and extent of the relationship between them. As such, this research will use eight accounting variables to understand the effect of CEO age on CEO compensation, namely: 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 stocks outstanding (BVCSO), and market value per common stocks outstanding (MVCSO).

2 LITERATURE REVIEW

2.1 CEO COMPENSATION AND CEO AGE

Deckop (1988) argued that CEO age has little effect on CEO compensation. However, Finkelstein and Hambrick (1989) find an inverted U-shaped relationship between CEO age and CEO cash compensation, indicating, CEO cash compensation increases until CEO reached the age of 59 years and then it starts to decline. This is consistent with the view that earnings over time is in line with CEO's need for cash, which tends to drop off as he or she gets older due to no major expenditures to incur such as, house and child rearing expenses. This is supported by McKnight et al. (2000), who find that CEO compensation is positively related to a certain age, but it starts to decline afterward. This is further supported by Weir (2000), who finds that the relationship between CEO salaries and CEO age are significantly related but has weakened over time; and the relationship between CEO age and CEO bonus appears nonlinear in nature. That is, at about age 53, the proportion of bonus as a percentage of salary begins to decrease at an increase rate. On the other hand, according to Gibbons and Murphy (1992), who finds that CEO age is a well recognized determinant of compensation and have shown to be significantly related to CEO pay. Overall, previous studies have found the relationship between CEO compensation and CEO age as curvilinear. However, previous studies have lacked detail investigation of this relationship.

3 RESEARCH METHODOLOGY

This research is historical, numerical, objective, and statistical as such, has adopted the quantitative research method. The longitudinal study approach has been selected to study the corporate financial records from 2005 to 2010. The random sample method will be selected to obtain a total sample population of one hun-

dred and nineteen companies from TSX/S&P index companies. For statistical tests, CEO compensation is assigned as dependent variable, accounting performance is assigned as independent variable, and CEO age as a control variable. The total of eighteen statistical models were created to address the research question of this study. The survey method has selected to conduct surveys of one hundred and twenty companies. The data of sampled companies are obtained from EDGAR database. The linear regression method has selected, and 95% confidence level is assumed for statistical tests.

4 DATA FINDINGS AND CONCLUSIONS

DATA FINDINGS

4.1 CEO COMPENSATION AND FIRM SIZE

Table 1 (Regression Analysis – ANOVA)

	Salary	Bonus	Total Compensation
CEO Age 40-45 yrs.	F(8,22)=5.097 p=.001 R ² =.650	F(8,21)=1.111 p=.011 R ² =.552	F(8,21)=3.871 p=.001 R ² =.686
CEO Age 46-50 yrs.	F(8,117)=23.773 p=.000 R ² =.619	F(8,116)=14.077 p=.000 R ² =.493	F(8,120)=23.698 p=.000 R ² =.612
CEO Age 51-55 yrs.	F(8,286)=20.024 p=.000 R ² =.359	F(8,258)=64.813 p=.000 R ² =.658	F(8,269)=81.792 p=.000 R ² =.709
CEO Age 56-60 yrs.	F(8,154)=10.099 p=.000 R ² =.344	F(8,152)=12.719 p=.000 R ² =.401	F(8,153)=16.535 p=.000 R ² =.464
CEO Age 61-65 yrs.	F(8,46)=19.269 p=.000 R ² =.770	F(8,42)=17.198 p=.000 R ² =.766	F(8,44)=29.703 p=.000 R ² =.844
CEO Age ≥ 66 yrs.	F(8,15)=7.122 p=.001 R ² =.792	F(8,15)=4.832 p=.004 R ² =.720	F(8,15)=2.844 p=.039 R ² =.603

The analysis of variance (ANOVA) results was based on the linear regression test. It had shown that there was a relationship between CEO salary, CEO bonus, CEO total compensation, CEO age, and accounting performance, among all CEO age groups. That is, relationships between CEO salary, CEO age, and accounting performance were characterized as moderate to strong ratios, indicated model fitness varies with CEO age groups. Similarly, the relationships between CEO bonus, CEO age, and accounting performance were characterized as moderate to strong ratios. The relationships between CEO total compensation, CEO age, and accounting performance were characterized as moderate to good ratios. Overall, accounting performance had material influenced on short and long-term CEO compensation system statistical models, across all CEO age groups.

4.2 CEO SALARY, CEO AGE, ACCOUNTING PERFORMANCE

Table 2 – Correlations (CEO Salary vs. Accounting Performance)

	CEO AGE (YRS.)					
	40-45	46-50	51-55	56-60	61-65	≥ 66
SALARY	1.000	1.000	1.000	1.000	1.000	1.000
Return on Assets	.196	.215	.122	.114	.088	.379
Return on Equity	.068	.158	.172	.182	.261	.078
Earnings per Share	.376	.105	.050	-.025	.485	.211
Cash Flow per Share	-.479	.005	.038	.011	.310	.517
Net Profit Margin	.549	.364	.514	.544	.560	.070
Common Stocks Outstanding	-.113	.513	.555	.345	.651	-.198
Book Value per Share	.281	.629	.441	.415	.657	.133
Market Value per Share	.456	.630	.345	.518	.566	.482

The correlation results between CEO salary and return on assets across all CEO age groups were characterized as weak positive ratios. That is, the correlations were .196, .215, .122, .114, .088, and .379 respectively. As such, return on assets had a positive influence to CEO salary irrespective of CEO age groups, indicated that CEO age groups were irrelevant to the correlation between CEO salary and return on assets. Similarly, the correlation results between CEO salary and return on equity across all CEO age groups were also characterized as weak positive ratios. That is, the correlations were .068, .158, .172, .182, .261, and .078 respectively, indicated return on equity too had a weak impact on CEO salary across all CEO age groups. In addition, the correlations between them had further weakened as a CEO age group had increased till 65 years. The correlation results between CEO salary and earnings per share across all CEO age groups were characterized as weak negative to moderate positive ratios. That is, the correlations were .376, .105, .050, -.025, .485, and .211 respectively, indicated earnings per share had weak to moderate influence on CEO salary. The correlation results between CEO salary and cash flow per share across all CEO age groups were characterized as moderate negative to good positive ratios. That is, the correlations were -.479, .005, .038, .011, .310, and .517 respectively, indicated cash flow per share was not a good predictor to CEO salary between 40 to 65 years age. The correlation results between CEO salary and net profit margin across all CEO age groups were characterized as weak to good positive ratios. That is, the correlations were .549, .364, .514, .544, .560, and .070 respectively, indicated that net profit margin had a moderate to good positive influence on CEO salary from 40 to 65 years age. Overall, net profit margin had a positive influence to CEO salary irrespective of CEO age groups, indicated that CEO age groups were irrele-

vant to the correlation between CEO salary and net profit margin. The correlation results between CEO salary and common stocks outstanding across all CEO age groups were characterized as weak negative to good positive ratios. That is, the correlations were -.113, .513, .555, .345, .651, and -.198 respectively. The correlation results between CEO salary and book value per share across all CEO age groups were characterized as moderate to good positive ratios. That is, the correlations were .281, .629, .441, .415, .657, and .133 respectively, indicated common stocks outstanding had a weak to good positive influence on CEO salary, indicated CEO age groups were irrelevant to the correlation between CEO salary and book value per share.. The correlation results between CEO salary and market value per share across all CEO age groups were characterized as moderate to good positive ratios. That is, the correlations were .456, .630, .345, .518, .566, and .482 respectively. As such, market value per share too had a positive influence to CEO salary irrespective of CEO age groups, indicated also that CEO age groups were irrelevant to the correlation between CEO salary and market value per share.

4.3 CEO BONUS, ACCOUNTING PERFORMANCE, AND CEO AGE

Table 3 – Correlations (CEO Bonus vs. Accounting Performance)

	CEO AGE (YRS.)					
	40-45	46-50	51-55	56-60	61-65	≥ 66
BONUS	1.000	1.000	1.000	1.000	1.000	1.000
Return on Assets	.308	.181	.094	.118	.04	.219
Return on Equity	.796	.116	.177	.134	.331	.476
Earnings per Share	.246	.078	.080	.005	.348	.551
Cash Flow per Share	.118	.129	.052	.017	.237	.510
Net Profit Margin	.231	.296	.771	.575	.577	.371
Common Stocks Outstanding	.137	.451	.693	.224	.677	-.241
Book Value per Share	.158	.593	.570	.425	.653	.201
Market Value per Share	.348	.567	.374	.539	.548	.376

The correlation results between CEO bonus and return on assets across all CEO age groups were characterized as weak mixed ratios. That is, the correlations were -.036, .092, .141, .135, -.002, and -.008 respectively, indicated that CEO age groups were irrelevant to the correlation between CEO bonus and return on assets. Similarly, the correlation results between CEO bonus and return on equity across all CEO age groups were characterized as weak to strong positive ratios. That is, the correlations were .766, .116, .177, .134, .331, and .476 respectively. As such, return on equity had a positive influence to CEO bonus irrespective of CEO age groups, indicated also that CEO age groups had influenced the correlation between CEO bonus and CEO age. The correlation results between CEO bonus and earnings per share across all

CEO age groups were characterized as weak to moderate positive ratios. That is, the correlations were .246, .078, .080, .005, .348, and .551 respectively. As such, earnings per share too had a positive influence to CEO bonus irrespective of CEO age groups, indicated also that CEO age groups were irrelevant to the correlation between CEO bonus and earnings per share. The correlation results between CEO bonus and cash flow per share across all CEO age groups were characterized as weak to positive ratios. That is, the correlations were .118, .129, .052, .017, .237, and .510 respectively. As such, cash flow per share too had a positive influence to CEO bonus irrespective of CEO age groups, indicated also that CEO age groups were irrelevant to the correlation between CEO bonus and cash flow per share. The correlation results between CEO bonus and net profit margin across all CEO age groups were characterized as moderate to strong positive ratios. That is, the correlations were .231, .296, .771, .575, .577, and .371 respectively. As such, net profit margin too had a positive influence to CEO bonus irrespective of CEO age groups, indicated also that CEO age groups were irrelevant to the correlation between CEO bonus and net profit margin. The correlation results between CEO bonus and common stocks outstanding across all CEO age groups were characterized as weak negative to good positive ratios. That is, the correlations were .137, .451, .693, .224, .677, and -.241 respectively. The correlation results between CEO bonus and book value per share across all CEO age groups were characterized as weak to good positive ratios. That is, the correlations were .158, .593, .570, .425, .653, and .201 respectively. As such, book value per share too had a positive influence to CEO bonus irrespective of CEO age groups, indicated also that CEO age groups were irrelevant to the correlation between CEO bonus and book value per share. The correlation results between CEO bonus and market value per share across all CEO age groups were characterized as moderate to good positive ratios. That is, the correlations were .348, .567, .374, .539, .548, and .376 respectively. As such, market value per share too had a positive influence to CEO bonus irrespective of CEO age groups, indicated also that CEO age groups were irrelevant to the correlation between CEO bonus and market value per share. Overall, CEO age had on the correlation between CEO bonus and accounting performance.

4.4 CEO TOTAL COMPENSATION, ACCOUNTING PERFORMANCE, AND CEO AGE

Table 4 – Correlations (CEO Total Compensation vs. Accounting Performance)

	CEO AGE (YRS.)					
	40-45	46-50	51-55	56-60	61-65	≥ 66
CEO TOTAL COMPENSATION	1.000	1.000	1.000	1.000	1.000	1.000
Return on Assets	.295	-.022	.098	.045	-.018	.15
Return on Equity	.253	-.019	.173	.119	.282	.08
Earnings per Share	.453	.010	.062	.027	.434	.166
Cash Flow per Share	-.494	.019	.048	-.065	.275	.380
Net Profit Margin	.761	.053	.720	.650	.777	.304
Common Stocks Outstanding	.341	.359	.797	.513	.763	.059
Book Value per Share	.340	.736	.709	.475	.772	.479
Market Value per Share	.603	.536	.426	.609	.810	.562

The correlation results between CEO total compensation and return on assets across all CEO age groups were characterized as weak negative to moderate positive ratios. That is, the correlations were .295, -.022, .098, .045, -.018, and .150 respectively, indicated that the return on assets had a weak mixed impact on CEO total compensation among all CEO age groups. Similarly, the correlation results between CEO total compensation and return on equity across all CEO age groups were also characterized as weak negative to moderate positive ratios. That is, the correlations were .253, -.019, .173, .119, .282, and .080 respectively. The correlation results between CEO total compensation and earnings per share across all CEO age groups were characterized as weak to moderate positive ratios. That is, the correlations were .453, .010, .062, .027, .434, and .166 respectively. As such, earnings per share had a positive influence to CEO total compensation irrespective of CEO age groups, indicated that CEO age groups were irrelevant to the correlation between CEO total compensation and earnings per share. The correlation results between CEO total compensation and cash flow per share across all CEO age groups were characterized as moderate negative to moderate positive ratios. That is, the correlations were -.494, .019, .048, -.065, .275, and .380 respectively. The correlation results between CEO total compensation and net profit margin across all CEO age groups were characterized as weak to strong positive ratios. That is, the correlations were .761, .053, .720, .650, .777, and .304 respectively. As such, net profit margin too had a positive influence to CEO

total compensation irrespective of CEO age groups, indicated that CEO age groups were also irrelevant to the correlation between CEO total compensation and net profit margin. The correlation results between CEO total compensation and common stocks outstanding across all CEO age groups were also characterized as weak to strong positive ratios. That is, the correlations were .341, .359, .797, .513, .763, and .059 respectively. As such, common stocks outstanding too had a positive influence to CEO total compensation irrespective of CEO age groups, indicated that CEO age groups were also irrelevant to the correlation between CEO total compensation and common stocks outstanding. The correlation results between CEO total compensation and book value per share across all CEO age groups were characterized as moderate to strong positive ratios. That is, the correlations were .340, .736, .709, .475, .772, and .479 respectively. As such, book value per share too had a positive influence to CEO total compensation irrespective of CEO age groups, indicated that CEO age groups were also irrelevant to the correlation between CEO total compensation and book value per share. The correlation results between CEO total compensation and market value per share across all CEO age groups were also characterized as moderate to strong positive ratios. That is, the correlations were .603, .563, .426, .609, .810, and .562 respectively. As such, market value per share too had a positive influence to CEO total compensation irrespective of CEO age groups, indicated that CEO age groups were irrelevant to the correlation between CEO total compensation and market value per share. Overall, CEO age groups had some influence on the correlations between CEO total compensation, return on assets, return on equity, earnings per share, and cash flow per share; however, CEO age groups had no influence on the correlations between CEO total compensation, net profit margin, common stocks outstanding, book value per share, and market value per share.

5 CONCLUSION

Overall, there was a relationship between CEO salary, CEO bonus, CEO total compensation, CEO age, and accounting performance. The correlations between CEO salary, CEO bonus, CEO total compensation, CEO age, return on assets, return on equity, earnings per share, cash flow per share, net profit margin, common stocks outstanding, book and market values of common stocks outstanding were ranged from moderate negative to strong positive ratios. The CEO age groups were irrelevant: the correlations between CEO salary, return on assets, return on equity, net profit margin, book and market values per shares; the correlations between CEO bonus, return on equity, earnings per share, cash flow per share, net profit margin, and book and market values per share; and the correlations between CEO total compensation, earnings per share, net profit margin, common stocks outstanding, and book and market values per share.

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7 APPENDIX

Operational Hypothesis Statement

- H0: There is no relationship between CEO compensation, CEO age, and accounting performance in TSX/S&P companies.
- H1: There is a relationship between CEO compensation, CEO age, and accounting performance in TSX/S&P companies

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

Firm Performance

Salary: $Y_3 = c +$

$B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + B_7X_7 + B_8X_8 + \epsilon$

Bonus: $Y_4 = c +$

$B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + B_7X_7 + B_8X_8 + \epsilon$

(Y_1 =salary; Y_2 =bonus; c =constant predictor;

B_1 =influential factor for return on assets; B_2 =influential

factor for return on equity; B_3 =influential factor for earnings

per share; B_4 =influential factor for cash flow per

share; B_5 =influential factor for net profit margin;

B_6 =influential factor for common stocks outstanding;

B_7 =influential factor for book value for common stock

outstanding; B_8 =influential factor for market value of

book value of common stock outstanding; and ϵ =error)

Let X_1 =value of return on assets; X_2 =value of return on

equity; X_3 =value of earnings per share; X_4 =value of cash

flow per share; X_5 =value of net profit margin; X_6 =value

of common stocks outstanding; X_7 =value of the book

value of common stocks outstanding; and B_8 =value of

the market value of common stocks outstanding.

CEO age: control variable.

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