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# Introduction

In recent history, there has been much debate on the compensation and bonuses taken away by the top executives of large companies and whether its justifiable. Their compensation is also linked with firm’s performance during their tenure i.e. measuring the impact of their actions/strategies on firm’s performance and offering executives compensation in line with the performance.

This report summarizes our key findings from an analysis of Executive’ s compensation at US publicly traded companies. In this analysis, we have investigated potential factors that may have an impact on Executive’s compensation like Gender, Age, Designation etc. Further, we have explored the relationship between Executive’s compensation and performance of the company. For the purpose of this study, an Executive is defined as a person with the of CEO, CFO, Director and Others (combining President, Vice President etc.).

In the paper, we present empirical evidence that supports/refute our claim on various factors w.r.t having an impact on Executive’s compensation. For example, our initial belief is that Age and Gender will have an impact on Executive’s compensation and in this paper, we will support/refute this claim.

# Data Summary

We have analyzed the data from Execucomp that comprise of 98 variables and 8300 records with the information on CEO, CFO, Director, President and VP) etc. From the data, we have observed following:

1. 60 cases have no age for the executives.
2. 5 records have TDC1 (Total Compensation) less than or equal to 0.
3. 41 records have Salary less than or equal to 0.
4. 25 records with Salary between 0 & $10K.
5. 1 record with Bonus less than 0.
6. 3 records with OTHCOMP less than 0.

Since 130 cases represent a small number of records, we have removed these cases from our data leaving us with 8170 data entries.

1. Variable Total Compensation (TDC1)

*Figure 1* indicates that Total Compensation distribution is right skewed with small number of high values (i.e. outliers) deriving the mean, hence median is more effective measure of the center of the distribution. Histogram for Total Compensation is positively skewed. However, the logarithm of Total Compensation is more symmetrical & much less skewed.

Figure 1: Distribution of Total Compensation



1. Variable Salary

*Figure 2* indicates that Salary distribution is right skewed with small number of high values (i.e. outliers) deriving the mean, hence median is more effective measure of the center of the distribution. Histogram for Salary is positively skewed. However, the logarithm of Salary is more symmetrical & much less skewed.

Figure 2: Distribution of Salary



Other continuous variables like Bonus, Other Compensation, Non-Equity Incentive Plan Compensation, Option Awards, Stock Awards, Net Income and Value of Restricted Share also have right skewed distribution but we are not taking Logarithm of the same because large number of values have 0.

1. Designation Variable

An Executive can be a CEO, CFO, Director, President etc. or a combination of multiple such designations. In order to understand the impact of Designation, we derived a new variable: Designation from CEOANN, CFOANN, EXECDIR and Title. We restricted ourselves to four Designations: CEO, CFO, Director and Others. In cases of multiple positions, the preference order was CEO, CFO, Director and Others.

# Model - Variables

We have short listed following variables for our model:

Dependent Variable

TDC1 represents the Total Compensation of the Executive. We believe that this is one feature that comprise of all factors that form an Executive’s Compensation like **Salary, Bonus, Other Annual, Total Value of Restricted Stock Granted, Total Value of Stock Options Granted (using Black-Scholes), Long-Term Incentive Payouts, and All Other Total.**

Independent Variable

Our initial list of independent variables is:

Age, Bonus, Noneq\_Incent, Option\_Awards\_FV, Othcomp, Salary, Shrs\_Vest\_Val, Stock\_Awards\_FV, AT, DLTT, NI, Gender, Designation, LTIP, BECOMECEO, RSTKGRNT, PENSION\_PYMTS\_TOT and OTHANN. However, we found that:

1. LTIP, OTHANN (Other Annual) and RSTKGRNT (Restricted Stock Grant) is blank for all the entries.
2. BECOMECEO is not available for other Designations like CFO and is company specific ie. date at which the person became CEO in company X.
3. PENSION\_PYMTS\_TOT is other than 0 only for 112 entries.

Therefore, we have removed the variables mentioned in 1, 2, 3.

We expect TCD1 to increase with an increase in Bonus, Salary, Noneq\_Incent, Option\_Awards\_FV, Othcomp, Shrs\_Vest\_Val, Stock\_Awards\_FV, AT, DLTT and NI.

Also, our initial beliefs are as follows:

1. CEOs compensation to increase with an increase in Age.
2. Male Executives to have higher compensation than their Female counterparts.
3. CEOs to be paid more than CFOs, Directors and Others.
4. CEOs of high performing firms are paid more than their counterpart of low performing firms.

Detecting Collinearity

*Table 1* represents the Correlation on the Independent Variables. There are number of variables (highlighted cells) which have high correlation (>0.3), hence we can conclude Multi-Collinearity exists.

Table 1: Correlation of the Independent Variables

We estimated the following model with complete (8170 entries) and reduced (7000 entries) data set:

log(TDC1) ~ Age + Bonus + Noneq\_Incent + Option\_Awards\_FV + Othcomp + log(Salary)+ Shrs\_Vest\_Val + Stock\_Awards\_FV + AT + DLTT + NI + Gender + Designation

***Table 2*** and ***Table 3*** detail the estimates from both the models and we have observed swing in signs, magnitudes and statistical significance for multiple variables. Also, R2 and Adjusted R2 have changed. This is another indicator of Multi-Collinearity.

Table 2: Estimates with Complete Data set



Table 3: Estimates with Reduced Data set



Therefore, we have removed columns ***Shrs\_Vest\_Val, DLTT*** and ***AT*** from our model.

Summary of variables in our final model:

# Model Estimation

*Table 4* comprise of the estimates of our base model which is as follows:

log(TDC1) ~ Age + Bonus + Noneq\_Incent + Option\_Awards\_FV + Othcomp + log(Salary)+ Stock\_Awards\_FV + NI + Gender + Designation

Table 4: Estimation of Base Model

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Coefficient | Estimate | Std. Error | t value | Pr(>|t|) |  | % Impact |
| (Intercept) | 2.71E+00 | 9.57E-02 | 28.336 | < 2e-16 | \*\*\* | 0 |
| AGE | -5.66E-03 | 8.48E-04 | -6.672 | 2.68E-11 | \*\*\* | -0.564 |
| BONUS | 1.11E-04 | 9.56E-06 | 11.599 | < 2e-16 | \*\*\* | 0.011 |
| NONEQ\_INCENT | 1.52E-04 | 5.65E-06 | 26.886 | < 2e-16 | \*\*\* | 0.015 |
| OPTION\_AWARDS\_FV | 8.71E-05 | 4.18E-06 | 20.848 | < 2e-16 | \*\*\* | 0.009 |
| OTHCOMP | 9.49E-05 | 6.00E-06 | 15.809 | < 2e-16 | \*\*\* | 0.009 |
| log(SALARY) | 8.20E-01 | 1.28E-02 | 63.893 | < 2e-16 | \*\*\* | 0.820 |
| STOCK\_AWARDS\_FV | 5.43E-05 | 1.46E-06 | 37.115 | < 2e-16 | \*\*\* | 0.005 |
| NI | 1.73E-05 | 2.63E-06 | 6.579 | 5.02E-11 | \*\*\* | 0.002 |
| GENDERMALE | 6.78E-02 | 2.45E-02 | 2.763 | 0.00574 | \*\* | 7.015 |
| DesignationCFO | -1.61E-01 | 2.02E-02 | -7.962 | 1.92E-15 | \*\*\* | -14.871 |
| DesignationDirector | -5.01E-02 | 2.66E-02 | -1.882 | 0.05988 | . | -4.887 |
| DesignationOthers | -1.92E-01 | 1.75E-02 | -10.969 | < 2e-16 | \*\*\* | -17.469 |
| R2 = 0.6848 | **R2Adj = 0.6843** | **σ = 0.5338** | **F- Stat = 1477** |  |  |  |

Interpretation:

1. All variables are statistically significant.
2. 68% of variance in Executive’s compensation can be explained by above model.
3. Column % Impact in ***Table 4*** explains the impact of unit change (apart from Salary) in a particular variable keeping all other variables constant. For ex. $1000 increase in Bonus will lead to 0.011% increase in Total Compensation.
4. 1 Year increase in Executive’s Age will lead to a decrease of 0.57% in total compensation.
5. 1% increase in Salary will lead to 0.82% increase in Total Compensation.
6. Male Executives earn 7.015% more compensation than their Female counterparts.
7. CEOs earn 14.87%, 4.89% and 17.47% more compensation from CFOs, Directors and Other Executives respectively. However, coefficient for Directors is statistically significant only at 90%.

**Executive’s total compensation increases with most of the dependent variables except Age.**

*Figure 3* depicts the actual vs. predicted of our base model with the regression line and determines the Goodness of fit of our model. When the values of Predicted compensation are between 5 to 10 our model follows the regression line with some dispersion. After which the model steadily overestimates the Actual values.

Figure 3: Actual vs. Predicted



# Heteroscedasticity

***Figure*** 4 plots residuals of our base model vs. the fitted values. From this plot, we can summaries that the variance in error is not constant across various levels of total compensation i.e. red line in the plot is not a straight line. This means Heteroscedasticity exists in our model and it will not be able to explain total compensation completely and hence our results will be over or understated.

Figure 4: Residual vs. Fitted values



# Model Adequacy

Performing RESET test on our base model, we get the following results:

log(TDC1) ~ Age + Bonus + Noneq\_Incent + Option\_Awards\_FV + Othcomp + log(Salary)+ Stock\_Awards\_FV + NI + Gender + Designation + TDC1\_Hat2 + TDC1\_Hat3

Hypothesis Testing: H0: Coefficient of TDC1\_Hat2 &TDC1\_Hat3 = 0

H1: Coefficient of TDC1\_Hat2 &TDC1\_Hat3 ≠ 0

|  |  |  |
| --- | --- | --- |
| F.stat | F.critical | F.stat > F.critical |
| 2669 | 2.996833 | Reject H0 |

This means our model is inadequate or mis-specified.

# Add Squared terms for Bonus and Other Compensation

log(TDC1) ~ Age + Bonus + Noneq\_Incent + Option\_Awards\_FV + Othcomp + log(Salary)+ Stock\_Awards\_FV + Gender + Designation + NI + BonusSq + OthcompSq

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Coefficient | Estimate | Std. Error | t value | Pr(>|t|) |  |
| (Intercept) | 2.65E+00 | 9.24E-02 | 28.741 | < 2e-16 | \*\*\* |
| AGE | -5.93E-03 | 8.18E-04 | -7.252 | 4.47E-13 | \*\*\* |
| BONUS | 2.60E-04 | 1.46E-05 | 17.79 | < 2e-16 | \*\*\* |
| NONEQ\_INCENT | 1.59E-04 | 5.46E-06 | 29.083 | < 2e-16 | \*\*\* |
| OPTION\_AWARDS\_FV | 8.76E-05 | 4.03E-06 | 21.747 | < 2e-16 | \*\*\* |
| OTHCOMP | 2.59E-04 | 9.72E-06 | 26.626 | < 2e-16 | \*\*\* |
| log(SALARY) | 8.22E-01 | 1.24E-02 | 66.421 | < 2e-16 | \*\*\* |
| STOCK\_AWARDS\_FV | 5.50E-05 | 1.41E-06 | 38.937 | < 2e-16 | \*\*\* |
| GENDERMALE | 6.76E-02 | 2.37E-02 | 2.858 | 0.004279 | \*\* |
| DesignationCFO | -1.29E-01 | 1.95E-02 | -6.631 | 3.54E-11 | \*\*\* |
| DesignationDirector | -5.82E-02 | 2.57E-02 | -2.265 | 0.023554 | \* |
| DesignationOthers | -1.61E-01 | 1.70E-02 | -9.483 | < 2e-16 | \*\*\* |
| NI | 8.74E-06 | 2.57E-06 | 3.4 | 0.000676 | \*\*\* |
| BonusSq | -1.00E-08 | 7.31E-10 | -13.746 | < 2e-16 | \*\*\* |
| OTHCOMPSq | -5.03E-09 | 2.43E-10 | -20.688 | < 2e-16 | \*\*\* |
| (Intercept) | 2.65E+00 | 9.24E-02 | 28.741 | < 2e-16 | \*\*\* |
| AGE | -5.93E-03 | 8.18E-04 | -7.252 | 4.47E-13 | \*\*\* |
| R2 = 0.7069 | **R2Adj = 0.7064** | **σ = 0.5148** | **F- Stat = 1405** |  |  |

Performing a RESET test on this model still stays the model is inadequate, however we can also conclude that Bonus and Other Compensation are jointly significant in determining Total Compensation.

# Impact of Gender on CEOs Total Compensation

We are analysing whether Male CEOs receives higher compensation than Female CEOs. CEO Flag is coded as binary variable with the value equal to 1 for CEO and 0 for Non-CEO (i.e. Executive holds another title). Gender is also coded as binary variable with the value equal to 1 for Female and 0 for Male. Our model for this is as follows:

log(TDC1) ~ Age + Bonus + Noneq\_Incent + Option\_Awards\_FV + Othcomp + log(Salary)+ Stock\_Awards\_FV + NI + CEO\_Flag \* Female

Hypothesis testing: H0, Coefficient of CEO\_Flag \* GENDER = 0

H1, Coefficient of CEO\_Flag \* GENDER ≠ 0

Table 5: Estimates for this Model

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Coefficient | Estimate | Std. Error | t value | Pr(>|t|) |  |
| (Intercept) | 2.56E+00 | 8.45E-02 | 30.323 | < 2e-16 | \*\*\* |
| BONUS | 1.13E-04 | 9.57E-06 | 11.759 | < 2e-16 | \*\*\* |
| log(SALARY) | 8.21E-01 | 1.29E-02 | 63.798 | < 2e-16 | \*\*\* |
| NONEQ\_INCENT | 1.54E-04 | 5.66E-06 | 27.143 | < 2e-16 | \*\*\* |
| OPTION\_AWARDS\_FV | 8.76E-05 | 4.19E-06 | 20.916 | < 2e-16 | \*\*\* |
| OTHCOMP | 9.61E-05 | 6.01E-06 | 15.997 | < 2e-16 | \*\*\* |
| STOCK\_AWARDS\_FV | 5.46E-05 | 1.46E-06 | 37.33 | < 2e-16 | \*\*\* |
| NI | 1.68E-05 | 2.63E-06 | 6.381 | 1.86E-10 | \*\*\* |
| AGE | -4.80E-03 | 8.30E-04 | -5.779 | 7.77E-09 | \*\*\* |
| CEO\_Flag | 1.61E-01 | 1.70E-02 | 9.471 | < 2e-16 | \*\*\* |
| Female | -8.49E-02 | 2.66E-02 | -3.187 | 0.00144 | \*\* |
| CEO\_Flag:Female | 9.85E-02 | 6.93E-02 | 1.421 | 0.15528 |  |
| R2 = 0.6835 | **R2Adj = 0.6831** | **σ = 0.5349** | **F- Stat = 1602** |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **CEO** | **Female** | **Estimated Co-efficient for the Category** | **Percentage Increment in Compensation (eβ - 1) \* 100** |
| Yes | Yes | 0.0984890 – 0.0848 + 0.16067 = 0.174359 | 19.04% |
| Yes | No | 0.16067 | 17.43% |
| No | Yes | – 0.0848 | -8.85% |

The estimated compensation differential between Male CEO and Female CEO is

(exp(0.0984890– 0.0848) - 1) \* 100 = 1.378%.

Reject Null Hypothesis. This means Female CEO’s monthly salary is 1.37% more than Male CEO’s. From the regression output, the interaction variable for CEO\_Flag \* Female is not statistically significant. Hence the effect of being a CEO does not differentiate between Male & Female.

# Impact of Age on Executive’s Total Compensation

We are analysing whether Older Executives receives higher compensation than younger Executives. Old is coded as binary variable with the value equal to 1 if AGE > 45 (Old Executives) & equal to 0 if AGE is <= 45 (Young Executives). Our model for this is as follows:

log(TDC1) ~ Bonus + Noneq\_Incent + Option\_Awards\_FV + Othcomp + log(Salary)+ Stock\_Awards\_FV + NI + Old + Gender + Designation

Hypothesis testing: H0, Coefficient of Old = 0

H1, Coefficient of Old ≠ 0

Table 6: Estimates for this Model

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Coefficient | Estimate | Std. Error | t value | Pr(>|t|) |  | |
| (Intercept) | 2.43E+00 | 8.80E-02 | 27.572 | < 2e-16 | \*\*\* | |
| BONUS | 1.11E-04 | 9.58E-06 | 11.577 | < 2e-16 | \*\*\* | |
| log(SALARY) | 8.08E-01 | 1.29E-02 | 62.767 | < 2e-16 | \*\*\* | |
| NONEQ\_INCENT | 1.51E-04 | 5.66E-06 | 26.701 | < 2e-16 | \*\*\* | |
| OPTION\_AWARDS\_FV | 8.75E-05 | 4.19E-06 | 20.889 | < 2e-16 | \*\*\* | |
| OTHCOMP | 9.35E-05 | 6.02E-06 | 15.543 | < 2e-16 | \*\*\* | |
| STOCK\_AWARDS\_FV | 5.49E-05 | 1.47E-06 | 37.487 | < 2e-16 | \*\*\* | |
| NI | 1.70E-05 | 2.64E-06 | 6.442 | 1.25E-10 | \*\*\* | |
| GENDERMALE | 6.96E-02 | 2.46E-02 | 2.828 | 4.69E-03 | \*\* | |
| DesignationCFO | -1.36E-01 | 2.00E-02 | -6.801 | 1.11E-11 | \*\*\* | |
| DesignationDirector | -6.73E-02 | 2.66E-02 | -2.531 | 1.14E-02 | \* | |
| DesignationOthers | -1.76E-01 | 1.75E-02 | -10.1 | < 2e-16 | \*\*\* | |
| Old | 4.77E-02 | 1.91E-02 | 2.5 | 0.01244 | \* | |
| R2 = 0.6833 | **R2Adj = 0.6829** | **σ = 0.5351** | **F- Stat =1467** |  | |  |

Reject the Null Hypothesis. Older Executive’s Compensation is expected to be 4.88% higher than Young Executive, by holding everything else constant. Based on P-Value, Old Executive Compensation is statistically significant.

Base on Chow Test:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| SSE.rm | SSE.1 | SSE.2 | Chow Value | P-Value | F-critical | F.Critical < Chow |
| 2337.1209 | 1738.6999 | 250.5378 | 142.5294 | 0.0000 | 1.831862 | Reject H0 |

Hence, we confirmed that Older Executives receives more salary than young Executives.

# Impact of Designation on Executive’s Total Compensation

We are analysing whether CEOs receives higher compensation than other Executives (CFOs, Directors and VP etc.). CEO Flag is coded as binary variable with the value equal to 1 for CEO and 0 for Non-CEO (i.e. Executive holds another title). Our model for this is as follows:

log(TDC1) ~ Bonus + Noneq\_Incent + Option\_Awards\_FV + Othcomp + log(Salary)+ Stock\_Awards\_FV + NI + Age + Gender + CEO\_Flag

Hypothesis testing: H0, Coefficient of CEO\_Flag = 0

H1, Coefficient of CEO\_Flag ≠ 0

Table 7: Estimates for this model

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Coefficient | Estimate | Std. Error | t value | Pr(>|t|) |  | | |
| (Intercept) | 2.49E+00 | 8.81E-02 | 28.271 | < 2e-16 | \*\*\* | |
| BONUS | 1.13E-04 | 9.57E-06 | 11.78 | < 2e-16 | \*\*\* | |
| log(SALARY) | 8.21E-01 | 1.29E-02 | 63.801 | < 2e-16 | \*\*\* | |
| NONEQ\_INCENT | 1.54E-04 | 5.66E-06 | 27.144 | < 2e-16 | \*\*\* | |
| OPTION\_AWARDS\_FV | 8.75E-05 | 4.19E-06 | 20.897 | < 2e-16 | \*\*\* | |
| OTHCOMP | 9.63E-05 | 6.01E-06 | 16.026 | < 2e-16 | \*\*\* | |
| STOCK\_AWARDS\_FV | 5.46E-05 | 1.46E-06 | 37.348 | < 2e-16 | \*\*\* | |
| NI | 1.68E-05 | 2.63E-06 | 6.369 | 2.01E-10 | \*\*\* | |
| AGE | -4.81E-03 | 8.30E-04 | -5.79 | 7.29E-09 | \*\*\* | |
| GENDERMALE | 7.03E-02 | 2.46E-02 | 2.86 | 4.24E-03 | \*\* | |
| CEO\_Flag | 1.65E-01 | 1.67E-02 | 9.895 | < 2e-16 | \*\*\* | |
| R2 = 0.6834 | **R2Adj = 0.6831** | **σ = 0.5349** | **F- Stat =1762** |  | |  | |

(exp(0.1650709) – 1) \* 100 = **17.94%.**

Holding the other values fixed, the difference between compensation for CEO’s and Non-CEO’s is: 17.94 %. This means CEO’s earn approximately 18% more than other executives.

Based on P value, we can say that the difference is statistically significant.

Perform F Test: To state that designation doesn't have any impact on the Compensation.

H0: beta\_8(i.e. Coefficient of CEO\_Flag) = 0

H1: beta\_8(i.e. Coefficient of CEO\_Flag) ≠ 0

|  |  |  |
| --- | --- | --- |
| F.rm | F.critical | F.rm > F.critical |
| 97.90381 | 3.842599 | Reject H0 |

Reject Null Hypothesis. Adding designation to the model adds explanatory power and the difference in compensation for CEO's and Non-CEO's is statistically significant.

# Impact of Firm’s Performance on CEO’s Total Compensation

We are analysing whether CEOs of high performing Firm earn more than the CEOs of low performing Firm. CEO Flag is coded as binary variable with the value equal to 1 for CEO and 0 for Non-CEO (i.e. Executive holds another title). Net Income(NI) is also coded as binary variable with the value equal to 1 if Firm’s Net Income > 0 and equal to 0 if Firm’s Net Income <= 0. Our model for this is as follows:

log(TDC1) ~ Age + Bonus + Noneq\_Incent + Option\_Awards\_FV + Othcomp + log(Salary)+ Stock\_Awards\_FV + NI + CEO\_Flag\*HighNI

Hypothesis testing: H0, Coefficient of CEO\_Flag\*HighNI = 0

H1, Coefficient of CEO\_Flag\*HighNI ≠ 0

Table 8: Estimates for this Model

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Coefficient | Estimate | Std. Error | t value | Pr(>|t|) |  |
| (Intercept) | 2.40E+00 | 8.78E-02 | 27.351 | < 2e-16 | \*\*\* |
| BONUS | 1.20E-04 | 9.52E-06 | 12.618 | < 2e-16 | \*\*\* |
| log(SALARY) | 8.34E-01 | 1.27E-02 | 65.527 | < 2e-16 | \*\*\* |
| NONEQ\_INCENT | 1.56E-04 | 5.67E-06 | 27.461 | < 2e-16 | \*\*\* |
| OPTION\_AWARDS\_FV | 8.77E-05 | 4.20E-06 | 20.908 | < 2e-16 | \*\*\* |
| OTHCOMP | 9.70E-05 | 6.03E-06 | 16.092 | < 2e-16 | \*\*\* |
| STOCK\_AWARDS\_FV | 5.68E-05 | 1.43E-06 | 39.762 | < 2e-16 | \*\*\* |
| AGE | -4.82E-03 | 8.32E-04 | -5.794 | 7.11E-09 | \*\*\* |
| GENDERMALE | 6.50E-02 | 2.46E-02 | 2.639 | 8.34E-03 | \*\* |
| CEO\_Flag | 1.56E-01 | 3.55E-02 | 4.388 | 1.16E-05 | \*\*\* |
| HighNI | 2.41E-02 | 1.75E-02 | 1.38 | 1.68E-01 |  |
| CEO\_Flag:HighNI | -4.56E-03 | 3.82E-02 | -0.119 | 9.05E-01 |  |
| R2 = 0.682 | **R2Adj = 0.6815** | **σ = 0.5362** | **F- Stat = 1590** |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **CEO** | **NI >= 0** | **Estimated Co-efficient for the Category** | **Percentage Increment in Compensation (eβ - 1) \* 100** |
| Yes | Yes | -0.0045595 + 0.0241013 + 0.1557914 = 0.175332 | 19.16% |
| Yes | No | 0.1557914 | 16.86% |
| No | Yes | 0.0241013 | 2.44% |

The estimated compensation differential between Male CEO and Female CEO is

(exp(-0.0045595 + 0.0241013) - 1) \* 100= 1.97 %.

Reject Null Hypothesis. This means CEOs of high performing Firm earns 1.97% more than the CEOs of low performing Firm. From the regression output, the interaction variable for CEO\_Flag:HighNI is not statistically significant. Hence the effect of Firm’s performance does not differentiate between CEO’s Compensation.

# Conclusion

We can conclude that there are several factors that impacts the Executive’s Total Compensation. As discussed in ***Section 4*** variables like Salary, Bonus, Other Compensation have a direct impact on Total Compensation. Furthermore, our model is able to describe 68% of variations in Total Compensation but it is still inadequate. We believe that for future work we would look at including the data for the features like Other Annual and Restricted Stock Grant (currently missing from the data).

We have determined that Older Executives (over 45 years) are paid more than the younger ones and CEOs are paid more than any other executives (CFO, Directors, President etc.) which is aligned with our initial beliefs. Furthermore, it is derived from the data that Female CEOs are paid more than Male CEOs which is contrary to our initial belief. However, since this is not statistically significant we concluded that we cannot extrapolate this to all CEOs. Similarly, it has been discovered that CEOs of High performing firms earn more than the CEOs of low performing firms which is aligned to our initial belief. However, this being statistically insignificant can’t be extrapolated to all CEOs.