

Journal of Hospitality Financial Management

The Professional Refereed Journal of the International Association of Hospitality Financial Management Educators

Volume 18 | Issue 2

Article 2

Winter 2010

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Recommended Citation

Dalbor, Michael; Oak, Seonghee; and Rowe, Toni (2010) "How closely is CEO compensation tied to performance? An examination of the U.S. restaurant industry," *Journal of Hospitality Financial Management*: Vol. 18 : Iss. 2 , Article 2.

Available at: <https://scholarworks.umass.edu/jhfm/vol18/iss2/2>

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**How closely is CEO compensation tied to performance?
An examination of the U.S. restaurant industry**

Abstract

The purpose of this research is to assess the elasticity of CEO compensation in the U.S. restaurant industry. Using a sample of 30 restaurant firms for the years 1993 through 2006, we find that a 1% increase in current year firm return yields an increase of approximately .43% for salary, bonus and stock options, .20% for salary and bonus and 2.74% for bonus and options. Mergers do not appear to impact CEO compensation significantly. Our findings are within the range found by many previous researchers.

Keywords: CEO compensation, restaurant industry

Introduction

The purpose of this research is to understand if chief executive officer (CEO) compensation fluctuates with firm performance in the U.S. restaurant industry. We believe this research is topical given the negative publicity recently concerning bonuses paid to the executives of financial firms who have received U.S. taxpayer “bailout” funds. Furthermore, very little work has been done in this area. Kim and Gu (2005) examine the determinants of CEO compensation in the restaurant industry, but they do not include the value of stock options in their research. Barber, Ghiselli and Deale (2006) examine CEO compensation in the restaurant industry but do not calculate compensation elasticities specifically.

Restaurant companies tend to offer cash compensation to their CEOs regardless of firm performance. The determinants of the sensitivity in CEO cash compensation in the restaurant industry are common stock returns and return on assets (Madanoglu & Karadag, 2008). As stated by Hall and Liebman (1998), the increase in CEO compensation is largely due to stock options. Therefore, we include the value of these options in our research.

We are concerned primarily with the dollar change in total CEO compensation given the change in firm return during the same or previous periods. Total compensation includes salary, bonus and the value of grants and stock options. There is some disagreement in the literature about the appropriate measure for compensation elasticities (Gibbons & Murphy, 1990; Hall & Liebman, 1998). Accordingly, we intend to examine how restaurant CEO compensation changes compare to previous studies.

This paper is organized in the following manner. The next section will discuss the pertinent literature. This will be followed by a description of our data and methodology. We will subsequently discuss results and conclude with implications for future research.

Literature Review

CEO compensation is often under scrutiny, particularly in difficult economic times when firms and the overall stock market are performing poorly (Beck & Fordahl, 2008). Although this may seem like a very popular topic as of late, researchers have been examining the topic for a while to try and understand if compensation packages are actually controlling potential moral hazard by CEOs. Some research suggests that CEO compensation does not appear to be strongly tied to firm performance (Jensen & Murphy, 1990b; Gibbons & Murphy, 1990) while other research suggests that there is a relationship (Hall & Liebman, 1998). Thus, more research needs to be conducted to better understand the sensitivity of compensation to firm performance.

The CEO is the agent of the shareholders in whose best interest he or she is expected to act. This requires an alignment of incentives between the parties (Jensen & Meckling, 1976). As stated by Hall and Liebman (1998), there should be a “sharing rate” of one-to-one between the CEO and the firm (this also applies to all workers). This would provide the appropriate incentives for everything from the selection of value-creating projects to the consumption of perquisites.

Jarque (2008) examines in detail the trends in CEO compensation-related research. One thing she finds is that “compensation” can be defined in different ways. For example, Kim and Gu (2005) only use salary and bonus. However, as explained by

Jarque (2008), compensation includes items such as stock options, retirement and severance packages, insurance and expense accounts. According to an annual *Forbes* survey from 2008, the average pay for the CEO in one of the largest 500 firms in the U.S. is approximately \$11.4 million (Decarlo and Zajac, 2009).

Further examination of historical survey data is also enlightening. Using values in constant 2007 dollars, Jarque (2008) documents the increase in CEO pay of the 500 largest firms in the U.S. These CEOs were paid an average of approximately \$2.3 million in 1989, of which over 65 percent of that was in the form of salary and bonus. By the year 2007, the total compensation package increased to an average of \$15.5 million with only 23 percent of that in the form of salary and bonus. Nearly half (approximately 48 percent) of that figure in 2007 was attributable to the value of stock options. Total CEO compensation during the 1989-2007 time period increased over 670 percent in nominal terms.

Certain firms tend to offer more stock options than others. For example, companies in highly regulated industries are less likely to use stock options for managerial incentives (Carroll & Ciscel, 1982; Joskow, Rose & Shepard, 1993; Yermack, 1995). This finding is important in restaurants since the industry is not as regulated as banks or utility companies, which historically have been highly regulated. The frequent use of stock options will be shown later in this paper. Previous studies that do not include stock options in total compensation or look at industries that do not use stock options may have significantly different results than what we would anticipate in restaurants.

When accounting earnings vary greatly, firms provide CEOs with greater incentives through stock options (Yermack, 1995). If earnings variations make it difficult for the board of directors to know the quality of managerial decisions, they cannot make good decisions about managerial cash salaries and bonuses. Therefore, stock-based compensation is used instead of salary. In addition, corporations facing internal liquidity problems shift the compensation from cash salaries and bonuses to stock options (Yermack, 1995). This is because stock options are a form of cashless compensation. This may be a strategy used by restaurants due to the historically low profit margins.

Conyon (2006) offers several explanations for the changes and increase in U.S. CEO compensation. If agents are less risk-averse, firms use more incentives. Also changes in the supply and demand of qualified CEOs impacts executive pay. If demand increases for skilled CEOs, the compensation of CEOs increases. When a board of directors is more diligent, the CEOs are more likely to be monitored. Thus, a board gives the CEO incentives to work harder. In addition, the accounting treatment for options in the 1990s which allowed boards to grant them to executives without the cost appearing on the income statement led to an increase in the number of stock options.

Given these large increases, many researchers and investors are interested to know if salary increases are tied to firm performance. Jarque (2008) compiles a graph of the *Forbes* salary survey against the Dow Jones Industrial Average for the previous year during the period 1988 to 2007. While only a graphical measure, there appears to be a fairly strong correlation between the two measures. However, there is a debate about whether or not this relationship is valid statistically. Gibbons and Murphy (1990) find a positive and significant relationship in that a 10% increase in stock price leads to

a 1%-2% increase in CEO salaries and bonuses. Pennathur and Shelor (2002) also find a significant positive relationship between changes in CEO compensation and stock return for REITs.

Some of the earliest research involving the sensitivity of CEO compensation to firm performance was completed by Jensen and Murphy (1990a, 1990b). Using data from Forbes for the years 1974-1986, they find that CEO wealth only changed \$3.25 for every \$1,000 change in firm value, which was less than 1 percent (Jensen & Murphy, 1990b). The change in value included both contemporary and lagged firm performances. Approximately two cents of this wealth change was attributable to salary and bonus. Furthermore, the pay sensitivity varied greatly depending on firm size with an average of only \$1.85 for large firms yet \$8.05 for small firms. The second study added two more years (1974-1988) and for the largest 250 companies, a \$1,000 change in corporate value increased salary and bonus 6.7 cents over two years while total compensation changed \$2.59 (Jensen & Murphy, 1990a).

John and Qian (2003) evaluate bank and manufacturing CEOs direct compensation (including salary, bonus and options), and firm-related wealth for the years 1992 through 2000. Firm-related wealth includes value changes in grants and options and the profit from exercising options. They find in banks that for every \$1,000 increase in shareholder wealth, CEO direct compensation decreases 24 cents but when evaluating firm-related wealth, a \$1,000 increase in shareholder wealth increases CEO wealth \$4.70. Manufacturing firms did not have the same results. A \$1,000 increase in shareholder wealth increases manufacturing CEO's direct compensation 16 cents and increases their firm-related wealth \$17.50.

These findings seem to confirm a literature survey by Rosen (1992) that indicates a compensation elasticity of somewhere between .10 and .15. This research includes a study by Gibbons and Murphy (1990) that indicates an elasticity of about .16. Sloan (1993) also finds that CEO compensation changes .15 with the company's change in stock price. Some authors (Jensen and Murphy, for example) are mystified by their finding that CEO compensation is relatively fixed and not very strongly tied to firm performance.

However, more recent research by Hall and Liebman (1998) tends to show that the elasticity range of .10 - .15 is too low. Not only is sensitivity larger, but it has increased over time. Their findings indicate that the median CEO compensation elasticity grew from 1.2 to 3.9 from 1980 to 1994. There are a number of reasons for the large discrepancy. The primary reason is that earlier researchers such as Jensen and Murphy (1990b) ignored the value of stock options as part of total compensation. This also relates to a scale issue where a large firm can increase a CEO's pay a few million dollars but still be dwarfed by the change in the market value of the company.

Additionally, the years examined by Jensen and Murphy (1990b) are 1974 – 1986, a period before the large increase in the number of stock option grants awarded to CEO's in the late 1980's and 1990's. Finally, Hall and Liebman's (1998) sample uses the year 1994, and only includes firms that have improved firm performance from a median level to that in the 70th percentile, which means they are only concerned about firms that increased firm performance dramatically.

A recent study evaluates CEO pay for non-banking and non-utility firms (Cadman, Klasa, & Matsunaga, 2010). The authors find that in both samples and combined, CEO

cash compensation is significant and positively related to stock return. They also find the same relationship between stock return and total compensation. For their combined sample, a 1% change in stock return leads to a .13% change in the logarithm of CEO cash compensation and a .26% change in the total compensation.

Other recent studies that evaluate CEO cash compensation relative to stock returns find there is a different relationship between compensation and negative and positive stock returns. Leone, Wu, and Zimmerman (2006) find that CEO cash compensation is more sensitive to negative stock returns than to positive. The compensation elasticity is 0.29 for periods of negative stock returns which is twice that of periods of positive returns. On the other hand, Shaw and Zhang (2010) find that a CEO is not penalized on their cash compensation for poor stock return and that pay is not more sensitive with negative stock returns than with positive.

In the restaurant industry specifically, Barber, Ghiselli and Deale (2006) find that there is a significant positive relationship between stock price and CEO compensation for 73 firms in the Nations Restaurant News Stock Index from 2000 to 2004. Although the authors do not look at the change in stock price in relation to the change in CEO compensation they do find that CEO compensation increased 49% during the period evaluated but stock price only increased 35%.

A paper by Bertrand and Mullainathan (2001) examines a different side and argues that CEOs are rewarded based on luck and not performance. For example, oil prices are largely influenced by OPEC and if OPEC increases prices that usually equates to increased profits, but these profits aren't attributable to CEO performance. Instead these profits are most likely attributable to the increased prices. The authors examine

the CEO pay and firm performance of 51 of the largest oil companies for the years 1977 and 1994. Their results fall between those of Jensen and Murphy (1990b) and Hall and Liebman (1998). Their elasticities for the sensitivity of total compensation to changes in shareholder wealth are .25 and .31, depending on the measure of luck utilized.

Another factor that was found to effect CEO compensation is firm size. There are numerous studies that discuss the relationship between CEO compensation and firm size. Dorata and Petra (2008) find a significant positive relationship between CEO compensation and firm size. The authors find that as firm size changes, which is measured by the log of sales, the percentage of performance based compensation to total compensation increases by .128, which is significant at the .001 level. In a similar study by Nourayi and Daroca (2008), the authors also find a positive significant relationship between the log of sales and cash and total compensation. In a third recent study, Canarella and Gasparyan (2008) also find a positive and significant relationship between the change in the log of sales and the change in total CEO compensation. Gu and Choi (2004) find that in the casino industry, CEO compensation was positive and significant at the .001 level in relation to firm size, measured as total assets. They also find that size is the most significant factor of all the factors evaluated in determining CEO compensation.

Data and Methodology

Sample and Data Description

The primary variable of interest in this study is total CEO compensation. This study uses the executive compensation from a sample of 30 U.S. restaurant firms from

the ExecuComp database. Only companies that had at least two years of CEO data were included. Additionally, years in which there was a change in CEOs were excluded along with the year immediately following the new CEO. Accordingly, the final sample size is 296. The restaurant firms included in the sample are listed in Table 1 below.

****insert table 1 here****

We calculate CEO compensation for the years 1993 (the first year of data available) through 2006. This period of time is used so that it includes both strong economic times and recessions. Additionally, as discussed by Jarque (2008), CEO compensation is more closely tied to firm performance now than it was in the 1980's—meaning more stock options. However, we did not include data from 2007 and 2008 because there were no stock options listed in the Execucomp database for these firms during that period.

The value of the options is based upon the cost reported by the company on its income statement or otherwise capitalized on its balance sheet. Thus, this value is the cost to the shareholders in that year, not necessarily the value of the option on the data of its award.

We also examined the trends in restaurant CEO compensation over the past 15 years. The average (mean) compensation in 2006 dollars for restaurant CEOs is presented in Table 2 below.

****insert Table 2 here****

As can be seen from the table, total direct compensation peaked in 2005 at nearly \$4.5 million. Total direct compensation dropped dramatically in 2006, becoming the

lowest since 1993. Salaries were the highest in 2006, but bonuses dropped to the lowest since 1996 and options were the lowest for the period examined.

Methodology

There are two important issues that need to be addressed in the methodology. The first to be considered is the timing of CEO rewards. In other words, are CEO rewarded for current year's performance or for the previous year's performance? Similar to methodology used by Hall and Liebman (1998) and Bertrand and Mullainathan (2001), we include the current year's firm return and previous year's firm return from the CRSP database in our regression.

Secondly, similar to Gibbons and Murphy (1990), we attempt to assess if there is a relative component to the compensation. Thus, we also include the returns of the current and previous year's S&P 500 index in the regression. Additionally, Bliss and Rosen (2001) found that mergers increase executive compensation since the company is larger and requires more skills. The regression model uses data for the years 1993 through 2006 and is shown below.

$$(DC_{t,i} - DC_{t-1,i}) / DC_{t-1,i} = \alpha + \text{Return}_{t,i} + \text{Return}_{t-1,i} + \text{S\&P500}_{t,i} + \text{S\&P500}_{t-1,i} + \text{merger} + \varepsilon_i$$

$DC_t - DC_{t-1} / DC_{t-1}$ is the percentage change in the CEO's direct compensation (including salary, bonus and options) from year to year. Return_t and Return_{t-1} are the return on the firm's stock in the current year and firm return in the previous year, respectively. S\&P500_t and S\&P500_{t-1} are the returns on the proxy for the market portfolio in the current year and the previous year, respectively. Merger is a dummy

variable for years in which a merger occurred and ε_i is the error term of the regression. The return of a firm's stock is calculated as the difference in stock price over the year divided by the original price and excludes dividends.

We ran a variety of regression models, six in total. We wanted to assess the change of just CEO salary and bonus, in a fashion similar to that of Hall and Liebman (1998). Based on their results, we would expect the change when using the salary and bonuses alone to be lower than when total compensation is used. In addition, we wanted to examine the change in bonuses and options only, excluding salary. We also ran regressions that adjusted the compensation for inflation to 2006 dollars in three of the models. Models were also run with firm size included as an independent variable. Firm size was measured as total sales and change in sales. These variables were found not to be significant or meaningful in terms of adjusted R squared. This may indicate that larger firms in the restaurant industry do not necessarily pay their executives more. Therefore, firm size is excluded from our regression models.

Discussion of Results

We first examined the descriptive statistics for all the variables. We delineated compensation into total, salary and bonuses only and bonuses and options only. We also adjusted these figures for inflation. These are included in Table 3 below.

****insert table 3 here****

As can be seen in the first row, the average percentage change in direct compensation was 32%. As expected, the average percentage change in salary and bonus only was 22%. The average percentage change in bonuses and options only

was much higher at 56%. The figures when adjusted for inflation follow a similar ordinal pattern. Firms earned an average return of approximately 14% while the S&P 500 index yielded an average return of 10%. These variables were used in a variety of ways in six different regression models. The regression results are shown in table 4.

****insert table 4 here****

The dependent variable in the first two models is the percentage change in direct compensation, including stock options. The only difference between the first two models is that Model 2 is adjusted for inflation to 2006. The two models produce very similar results. The main variables of interest are the Return_t and the Return_{t-1} . The current return is highly significant in both models and the elasticities are very similar (.43% in Model 1 and .42% in Model 2). Moreover, the lagged returns of one year are also highly significant and nearly identical (.46% in Model 1 and .45% in Model 2). The signs of all coefficients are positive, as expected. The variables concerned with the change in the S&P 500 return and mergers were not significant in either of the first two models.

The third and fourth models are salaries and bonuses only, excluding stock options, with the fourth model being adjusted for inflation. Similar to the first two models, the inflation adjustment has no material effect on the results. The elasticity for salaries and bonuses only for current return is approximately .20% and .19% when adjusted for inflation. Interestingly enough, lagged returns show higher elasticities of .43% and .42% in models three and four. This would indicate a natural inclination for companies to reward a CEO with a higher salary or pay a bonus the next year after having a successful previous year. Once again, the S&P 500 variables and merger indicator variables are insignificant in the regression models.

Models five and six are concerned with only bonuses and stock options which may be linked to management performance since these are more discretionary than salary. Results for these models show great significance for both current and previous returns. Additionally, the changes are quite large. As shown in model five, a 1% increase in the current firm returns increases the difference in bonuses and options 2.74%. When examining previous year's returns, the change in bonus and options is much less, approximately .50%. The numbers are very similar when including an inflation adjustment (2.67% and .48%, respectively). As in the previous four models, the S&P 500 and merger variables were not significant at $\alpha = .05$. However, models five and six have much higher adjusted r-squared percentages.

As shown in some previous research by Jarque (2008), it appears that stock options are the main driving variable in these models. Our results appear to fall within the range of previous researchers. For only salary and bonus alone, the elasticities for current returns are approximately .20%. While this elasticity is somewhat higher than that found by Cadman, Klasa, and Matsunaga (2010), it is within the range found by Gibbons and Murphy (1990).

When examining our elasticities for current returns on bonus and options, they range from 2.67% to 2.74%. Although Hall and Liebman (1998) use total compensation, they report an increase in elasticity from 1.2% to 3.9% from 1980 to 1994. As discussed by Jarque (2008), there has been a major shift over the last 20 years or so from salary and bonus to the use of stock options. Our sample begins in 1993, when the shift toward the use of options was already well underway.

Conclusions and recommendations for further research

Using data from the restaurant industry, we find the average total direct CEO compensation to increase .43% with a 1% increase in a restaurant firm's stock return. The elasticity of salary and bonuses is lower at .20% and the elasticity of bonuses and options is much higher at 2.74%. Each of these elasticities is different than previous research, but each fall within the ranges for their respective categories as compared to work done by Gibbons and Murphy (1990) and Hall and Liebman (1998).

There are limitations to this research. Our dataset only goes back to 1993 and reflects a relatively short period of time. Additionally, the sample had to be reduced because of changes in CEOs during the middle of a year. Finally, a sample will be decreased by mergers and public firms becoming private firms once again. All of these factors can hamper insight into the industry as a whole.

A potential topic for future research would be to see if the compensation elasticity has changed over time. Furthermore, if the samples would be substantially large enough and normally distributed, then an examination could be conducted regarding "high-growth" and "low-growth" restaurant firms. Additionally, research could examine other areas of the hospitality industry such as hotel and casino firms. Finally, one could extend the related work of Kim and Gu (2005) and examine potential determinants of CEO compensation if compensation were to include both salary and stock options.

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Table 1. List of restaurant companies.

Applebee's	NPC International
Aramark	O'Charley's
Bob Evans	Outback Steakhouse
Brinker International	Panera
Buffets, Inc.	Papa John's
Carl Karcher	PF Chang's
Checker's Drive-In	Rare Hospitality
Cheesecake Factory	Ruby Tuesday
Chuck E. Cheese	Ryan's
Darden	Sonic
Denny's	Starbucks
Jack in the Box	Steak and Shake
Landry's	Taco Cabana
Luby's	Worldwide Restaurant
McDonald's	Yum

Table 2. Mean sample restaurant CEO compensation trends, 1993-2006.

	Salary	Bonus	Value of stock option grants	Total Direct compensation
1993	\$618,000	\$126,000	\$1,130,000	\$1,874,000
1994	\$694,000	\$387,000	\$1,778,000	\$2,859,000
1995	\$637,700	\$285,200	\$1,384,000	\$2,307,000
1996	\$636,900	\$251,300	\$1,581,000	\$2,470,000
1997	\$661,600	\$383,100	\$1,961,000	\$3,006,000
1998	\$668,100	\$470,100	\$3,104,000	\$4,243,000
1999	\$687,900	\$574,000	\$2,227,000	\$3,489,000
2000	\$649,800	\$477,000	\$1,830,000	\$2,956,000
2001	\$705,000	\$589,000	\$2,325,000	\$3,619,000
2002	\$723,400	\$661,000	\$2,634,000	\$4,019,000
2003	\$691,000	\$496,000	\$1,932,000	\$3,119,000
2004	\$707,900	\$685,000	\$2,305,000	\$3,698,000
2005	\$792,100	\$841,000	\$2,866,000	\$4,499,000
2006	\$838,800	\$277,000	\$907,000	\$2,023,000

Compensation is presented in 2006 value dollars.

Table 3. Descriptive statistics for the variable used in the regressions.

Variable	N	Mean	Std. Dev.	Minimum	Maximum
Diff. in Direct Comp	296	.32	1.57	-4.61	19.22
Diff. in Salary/Bonus	296	.22	1.46	-2.21	23.37
Diff. in Bonus/Option	265	.56	4.10	-4.04	59.07
Diff in I Direct Comp	296	.29	1.54	-4.96	18.67
Diff. in I Salary/Bonus	296	.19	1.42	-2.45	22.71
Diff. in I Bonus/Option	265	.52	4.00	-4.16	57.49
Annual Return	296	.14	.89	-.71	9.98
Lag Annual Return	296	.19	.95	-.73	9.98
S&P 500 Return	296	.10	.18	-.28	.46
Lag S&P 500 Return	296	.09	.18	-.28	.46
Merger	296	.08	.27	0	1

Diff. in Direct Comp is the yearly percentage change in direct compensation, including salary, bonus and options.

Diff. in Salary/Bonus is the yearly percentage change in salary and bonus (no options).

Diff. in Bonus/Option is the yearly percentage in bonus and options (no salary).

Diff. in I Direct Comp is the yearly percentage change in direct compensation (including salary, bonus and options), adjusted for inflation.

Diff. in I Salary/Bonus is the yearly percentage change in salary and bonus (no options), adjusted for inflation.

Diff. in I Bonus/Option is the yearly percentage in bonus and options (no salary), adjusted for inflation.

Annual Return is the return for the firm during the year.

Lag Annual Return is the return for the firm during the year, lagged one year.

S&P 500 Return is the return for the S&P 500 index during the year.

Lag S&P 500 Return is the return for the S&P 500 index during the year, lagged one year.

Merger is an indicator variable ("1" if the firm was involved in a merger that year, "0" otherwise).

Table 4. Regression results.

Model	Constant	Return _t	Return _{t-1}	S&P500 _t	S&P500 _{t-1}	Merger	Adj. R ²	*DW
1	0.16	0.43***	0.46***	-0.80	0.74	0.23	12.5%	2.06
2	0.13	0.42***	0.45***	-0.78	0.73	0.22	12.3%	2.06
3	0.13	0.20**	0.43***	-0.54	0.44	-0.11	8.2%	1.74
4	0.10	0.19**	0.42***	-0.53	0.42	-0.10	8.2%	1.74
5	0.14	2.74***	0.50**	-2.30*	1.95	-0.16	37.0%	2.20
6	0.11	2.67***	0.48*	-2.22*	1.93	-0.16	36.8%	2.20

*Significant at alpha = .10; **Significant at alpha = .05; ***significant at alpha = .01. *DW = Durbin-Watson statistic.

Return_t is the return for the firm during the year

Return_{t-1} is the return for the firm during the year, lagged one year.

S&P500_t is the return for the S&P 500 index during the year.

S&P500_{t-1} is the return for the S&P 500 index during the year, lagged one year

Merger is an indicator variable ("1" if the firm was involved in a merger that year, "0" otherwise).

The dependent variable in Model 1 is the percentage difference in direct compensation (salary, bonus, and options) between the current year and the previous year with no inflation adjustment.

The dependent variable in Model 2 is the percentage difference in direct compensation (salary, bonus, and options) between the current year and the previous year with an inflation adjustment.

The dependent variable in Model 3 is the percentage difference in salary and bonus compensation between the current year and the previous year with no inflation adjustment.

The dependent variable in Model 4 is the percentage difference in salary and bonus compensation between the current year and the previous year with an inflation adjustment.

The dependent variable in Model 5 is the percentage difference in bonus and options between the current year and the previous year with no inflation adjustment.

The dependent variable in Model 6 is the percentage difference in bonus and options between the current year and the previous year with an inflation adjustment.