

The Disconnect between CEO Compensation and Firm Performance during Recessional Periods

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Abstract

The purpose of my research is to use the “stress tests” of two recent recessions to differentiate between two conflicting views about management compensation - efficient contracting versus managerial power. This study estimates a compensation regression in the year before each recession, and the residuals from the regressions are the proxies for excess compensation. I formed portfolios that bought firms with the smallest excess compensation and sold or shorted firms with the highest excess compensation. The abnormal daily stock returns of this portfolio measures firm performance during the recession. During the 2001 recession, the stock of firms with CEOs that had high excess compensation prior to the recession performed significantly worse than firms with CEOs that had low excess compensation. The managerial power view of CEO compensation provides a better explanation of firm performance under the stress of a recession. The paper contributes to the managerial compensation literature by providing new evidence related to the debate about managerial compensation, and the evidence in this study provides support for the managerial power view.

Keywords: Executive Compensation, Excess Compensation, Recessions, Corporate Performance

1. Introduction

There are two dominant views of CEO compensation. One view is that CEO compensation contracts are the outcome of efficient contracting between the Board of Directors and the CEO (e.g., Baker and Hall, 2004; Murphy and Zábojník, 2004; Gabaix and Landier, 2008). The alternative is the managerial power view that claims CEOs to a large extent set their own compensation subject only to avoiding outrage from shareholders (e.g., Bebchuk and Fried, 2006; Acharya and Volpin, 2010). Despite a substantial body of work in this area, it remains an open question as to which of these views provides a better explanation of CEO compensation.

I provide evidence on the question by examining the relation between CEO compensation and firm performance during recessions. Recessional periods are challenging times for firms, and arguably periods when CEO talent matters most to the success of the firm. Recessions require greater effort by management, as funding is more difficult to obtain and shareholders are more disillusioned (Bebchuk and Grinstein, 2005). It is during recessional periods that CEOs should best differentiate themselves from one another.

I study two recent recessional periods – 2001 and 2007-2009. My first step is to estimate a cross-sectional regression of the determinants of CEO compensation in the year prior to the recession. The residuals from the regressions are my measures of excess CEO compensation. To measure performance during the recessions I sort firms into deciles by excess compensation. Taking the extremes, I choose the firms in the top and bottom deciles of excess compensation.

Finally, I form a portfolio that takes a long position in the stock of firms in the bottom decile (smallest excess compensation) and a short position in the stock of the firms in the top decile (highest excess compensation). The abnormal daily stock returns of this portfolio measure firm performance during the recession. I measure abnormal returns with the Carhart (1997) four-factor model.

Under the efficient contracting view of CEO compensation, high excess compensation should indicate superior managerial talent. Under the stress of a recession, firms with superior managers should perform better. Hence, if the efficient contracting view is correct, I would expect firms with high excess CEO compensation to outperform firms with low excess CEO compensation resulting in negative abnormal returns from my long-short portfolio. Conversely, if managers largely set their own compensation, there could be no relation between excess compensation and abnormal returns during recessions. It is also possible that managers who set their own compensation would underperform during recessions due to higher agency costs. Hence, under the managerial power view I expect the abnormal returns from the long-short portfolio not to be statistically significant, or possibly positive.

My results are more supportive of the managerial power view. During the 2001 recession, I find positive abnormal returns for an equally-weighted portfolio that shorts firms with high excess CEO compensation and takes a long position in firms with low excess CEO compensation. The relation is economically as well as statistically significant. In my baseline results based on total CEO compensation, the long-short portfolio has positive annualized abnormal returns of 29.2% per year.

During the more severe 2007-2009 recession, the abnormal returns from the long-short portfolio are not statistically significant in any of my models. I conjecture that this “non-result” could be due to the severity of the 2007-2009 financial crisis. A strongly ebbing tide may lower all boats. It is also possible that market participants learned about the importance of CEO compensation for firm performance and adjusted prices accordingly before the onset of the recession.¹ In either case I find no evidence that firms with high excess compensation perform better during the recession.

2. Review of the Literature

2.1 Arm’s-length Bargaining and the Contracting View

Increases in CEO compensation do not necessarily mean that agency issues lead to a pay-for-performance disconnect. CEO compensation can increase based on increases in the value of the executive’s service to the company, increases in the executive’s reservation wage (enticement to forgo leisure consumption and continue working), or increases in the job requirements of the executive (Bebchuk and Grinstein, 2005). CEO compensation could increase during periods of economic expansion as the demand for executives’ services increases that ultimately lead to an increase in executive pay. The principal agent theory relies on aligning shareholder management incentives based on a strong sensitivity of management behavior and pay-for-performance (Bruce, Buck, and Main, 2005). In an arm’s-length transaction, the parties are related or affiliated, but both parties function independently, and transactions occur without either party able to unduly influence or taint the process so that there is no apparent conflict of interest. Kaplan (2008) asserts that current CEO compensation is appropriate. In support of his position, he cites that from 1990 to roughly 2007, the United States performed well on both absolute and relative basis, indicating that U.S. firms were not mismanaged by their executives. Kaplan acknowledges that CEOs do receive large compensation packages, but he argues that increases in the salaries of other “talented and fortunate groups” (hedge fund managers, professional athletes, top lawyers, for example) have risen at least as much as those realized by CEOs, suggesting that “pay at the top appears to be systemic” (Kaplan (2008, p 6). As further support for the appropriateness of CEO compensation, Kaplan finds that CEOs paid in the top quintile generate greater stock returns (60%) than their industry peers, while bottom quintile CEOs generate smaller returns (20%). CEO turnover has increased, especially for poorer performing firms, a fact that Kaplan uses to suggest that boards of directors are not dominated by their CEOs. The author does acknowledge that corporate governance is not perfect, and that there have been some ethical abuses, but he goes so far as to suggest that the higher turnover rates increase the personal risk for CEOs indicating that they might actually be underpaid.

Gabaix and Landier (2008) present a model in which CEO compensation is related to firm size and CEO ability. They argue that recent increases in CEO pay can be fully explained by the increase in market value of firms. Gabaix, Landier, and Sauvagnat (2014) update this research using information after the financial crisis, and they argue that the explanatory power of firm size remains.

2.2 CEO Rent Extraction and the Managerial Power View

Opposing the arms-length or contracting view is the managerial power view. The managerial power approach argues that executives exert influence over boards and compensation committees. CEO salaries have increased at a disproportionately greater rate to corporate earnings over the past few decades (Frydman and Jenter, 2010). Similarly, in his research on the supply and demand for CEOs, Nagel (2010) finds a greater than 600% increase in CEO pay since 1980. Bebchuk and Grinstein (2005) find that between 1993 and 2003, CEO compensation for S&P 500 firms increased 146% and that top-five executive compensation increased 125% (on an inflation adjusted basis). These substantial increases in compensation as compared to firm performance have fueled debate over the potential disconnect in pay-for-performance, and the ability of stronger corporate governance to mitigate this disconnect.

Bogle (2008) refutes Kaplan (2008), maintaining that the growth in corporate profits is not commensurate with the growth in CEO compensation nor the growth in the average worker's wage. Bebchuk and Grinstein (2005) propose an alternate managerial influence bargaining model, maintaining that managers not only influence boards and ultimately compensation, but that their attempts to shield these practices waste even more resources and further reduce shareholder value.² The managerial power view suggests that directors with personal or ancillary relationships to management are more susceptible to managerial influence in the compensation process resulting in the management diverging from a shareholder maximization objective and potentially leading to rent extraction.³ Executives' desire to obfuscate their rent extraction might lead to the use of inefficient pay arrangements that provide suboptimal incentives and thereby hurt shareholder value (Bebchuk, Fried, and Walker, 2002). Bebchuk and Fried (2006) provide an overview of executive pay procedures and the associated corporate governance structures. They believe that defective compensation is "widespread, persistent, and systemic" (Bebchuk and Fried (2006, p. 6), as CEO compensation is subject to intentional manipulation in a flawed corporate governance system, and they maintain that boards do not operate in an arm's length manner in determining pay arrangements.

2.3 Recessions and Firm Performance

Recessions are periods of economic contraction which create very challenging environments for firms and their CEOs. Recessions require greater effort by management as capital is more difficult to obtain and shareholders are more disillusioned (Bebchuk and Grinstein, 2005), and managing employees becomes even more challenging (Bidya, 2009). Gulati, Nohria, and Wohlgezogen (2010) study 4,700 public companies during recessions including the three year before and after the recession. They find that 17% of companies in their sample do not survive a recession, and more importantly, that 80% do not regain their prior financial status in the three year post-recession window. The authors maintain that the CEOs of the more prosperous companies are able to navigate successfully a difficult balance between operating too defensively and operating too aggressively during recessionary periods. According to Bidya (2009, p. 27), employee morale is difficult to maintain during recessions, and that human capital is "integral and indispensable" to the organization's success and emphasizes the importance of calming the firm's workforce.

Recessions are challenging times for firms, and arguably a period when CEO ability matters the most. Ferrary (2009) examines managerial performance during recessions and finds that firms with predominantly higher levels of women managers perform better during recessionary periods. Research by Song and Tsai (2012) examines whether firms whose CEO receive higher pay perform better during the most recent 2007 – 2009 recession. Song and Tsai (2012) maintain that recessionary periods such as the one associated with the most recent financial crisis provide a good metric for measuring CEO ability.

3. Data and Empirical Models

3.1 Data

My data are taken from four data sets: ExecuComp for executive compensation; the Center for Research in Security Prices (CRSP) for stock return data; Compustat for financial data; industry codes and market factors from the website of Kenneth French.⁴ I collect data from 1995 through 2010 breaking the data set into two periods, the 2001 recession and the 2007 – 2009 recession.

Table 1 contains a complete listing of all variables used while

Table 2 contains descriptive statistics for the variables.

3.2 Empirical Models

3.2.1 Determinants of CEO Compensation

The first step in my analysis is to estimate the excess CEO compensation for the year prior to each recession. I do this by estimating cross-sectional regressions in 2000 for the first recession and in 2007 for the second recession. The residuals from the regressions are my measures of excess compensation. Similar to Bebchuk and Grinstein (2005), I estimate the following equation:

$$\begin{aligned} \ln(\text{compensation}_{i,t}) = & b_0 + b_1 \ln(1 + ROA_{i,t-1}) + b_2 \ln(1 + \text{ret}_{i,t-1}) \\ & + b_3 \ln(1 + \text{ret}_{i,t-2}) + b_4 \ln(\text{Rev}_{i,t-1}) + b_5 (\text{std_ret}_{i,t-1}) \\ & + b_6 \text{Ind_Code}_{i,t-1} + \varepsilon_{i,t} \end{aligned} \quad (1)$$

The dependent variable, $\text{compensation}_{i,t}$, is CEO compensation during the year prior to each recession. I use two measures of CEO compensation - cash compensation (salary plus bonus) and total compensation (salary, bonus, value of restricted stock grants, value of stock options grants, long-term incentive payouts, and all other miscellaneous compensation).

The independent variables are: $ROA_{i,t-1}$, the firm's net income divided by the total assets for the preceding year; $\text{ret}_{i,t-1}$, the firm's annualized monthly returns for the preceding year; $\text{ret}_{i,t-2}$, the two year lag of the firm's annualized monthly returns; $\text{Rev}_{i,t-1}$, the firm's annual revenues for the prior year; $\text{std}_{\text{ret}_{i,t-1}}$, the standard

deviation of the firm's monthly returns for the preceding 48 months. Dummy variables for the Fama-French 48 Industries $Ind_Code_{i,t-1}$, are included to control for industry fixed effects.

I also augment the base specification with the E-Index of Bebchuk, Cohen, and Ferrell (2009) to control for the role of corporate governance in determining executive compensation. Adding E-Index to the compensation regression equation should adjust for effects of poor corporate governance, and the regression equation residuals (unexplained portion of CEO compensation) should no longer contain any effects of entrenchment. The higher residuals should just be associated with CEO ability.

$$\begin{aligned} \ln(\text{compensation}_{i,t}) = & b_0 + b_1 \ln(1 + ROA_{i,t-1}) + b_2 \ln(1 + \text{ret}_{i,t-1}) \\ & + b_3 \ln(1 + \text{ret}_{i,t-2}) + b_4 \ln(\text{Rev}_{i,t-1}) + b_5 (\text{std_ret}_{i,t-1}) \\ & + b_6 \text{Ind_Code}_{i,t-1} + b_7 \text{EIndex}_{i,t-1} + \varepsilon_{i,t} \end{aligned} \quad (2)$$

3.2.2 Measuring Performance

Next, I sort the residuals from the CEO compensation regression, separate them into deciles and form two portfolios - the top decile of excess compensation and the smallest decile of excess compensation. Finally, I measure the returns during the recession from shorting the high excess compensation portfolio and going long the low excess compensation portfolio. Positive abnormal returns from this trading strategy during recessions would lend support to rent extraction, while negative abnormal returns would lend support to CEO ability hypothesis.

I use the Carhart (1997) four-factor model and daily returns to evaluate performance of the long-short portfolios:

$$\text{diff}_t = a + b_1 \text{mkt_rf}_t + b_2 \text{hml}_t + b_3 \text{smb}_t + b_4 \text{mom}_t + \varepsilon_t \quad (3)$$

Where:

- *diff* is the daily return on the long low excess CEO compensation portfolio and short the high excess CEO compensation portfolio trading strategy.
- *mkt_rf* is the excess daily return on the market calculated as the value-weighted return on all CRSP firms minus the risk free rate (Treasury bill rate).
- *hml* (high minus low) adjusts for the difference between the average return on two value portfolios and two growth portfolios.
- *smb* (small minus big) reflects difference between the average return on the three small portfolios (value, neutral and growth) and three big portfolios.
- *mom* (momentum) which captures the effect of a firm's stock return momentum where momentum typically produces higher returns.
- *a*, the regression equation intercept, represents the daily abnormal return from the long low excess CEO compensation portfolio and short high excess CEO compensation portfolio trading strategy.

3.2.3 Identifying Recessions

I use the National Bureau of Economic Research (NBER) delineation of recessionary periods. The NBER lists the dates of the two most recent recessions as March through November, 2001 (eight months) and December, 2007 through June, 2009 (18 months). The 2001 recession lasted slightly less than the average recession, while the 2007 – 2009 recession was the longest recession since World War II.⁵

4. Results

4.1 Estimation of Excess Compensation

The compensation regression results are reported in

Table 3. Column (1) provides parameter estimates (t -statistics are in parentheses below parameter estimates) for the year 2000 CEO compensation regression utilizing cash compensation (salary plus bonus) as the dependent variable, column (2) provides estimates utilizing total compensation. Columns (3) and (4) provide the same information for the year 2007 compensation regressions. The parameter estimates for the market based annual return performance measures, $\ln(1 + ret_{i,t-1})$, are positive and significant for three of the four compensation regressions, while the two year lag of the annual return, $\ln(1 + ret_{i,t-2})$, is only significant (and positive) for the year 2000 total compensation regression. As expected, the proxy for firm size, $\ln(Rev_{i,t-1})$, is the most robust determinant of CEO compensation, and the parameter estimate is positive and significant at the 1% level for all CEO compensation regressions. The operating performance measure, $\ln(1 + ROA_{i,t-1})$, is not significant for any of the regressions, nor is the measure of total firm risk, $\ln(std_ret_{i,t-1})$. An F-test of the industry dummies is significant for all four regressions. The regression R^2 ranges from a low of 0.22 for the year 2007 cash compensation regression (salary plus bonus regression) to a high of 0.44 for the for the year 2000 total compensation regression. The model is more successful in explaining total compensation than cash compensation.

4.2 Results from the 2001 Recession

With the residuals from the equation (1) regressions as my measure of excess compensation, I now turn to my research question: Do firms that reward their CEOs with high excess compensation perform better during recessions? To do this I first sort the residuals from the CEO compensation regression into deciles. I form portfolios that take a short position in the top decile (highest excess compensation) and a long position in the bottom decile (smallest excess compensation). The difference between firm performance during recessions from shorting the highest decile of excess CEO compensation and taking a long position in the lowest decile of excess CEO compensation provides evidence about whether this excess compensation is attributable to CEO ability or CEO rent extraction. Positive abnormal returns from this trading strategy during recessions would lend support to CEO rent extraction while negative abnormal returns would lend support to CEO ability.

Table 4 provides the abnormal return results from the 2001 recession. Column (1) provides parameter estimates for a value-weighted long-short portfolio based on excess cash compensation, while and column (2) shows results for an equal-weighted portfolio. Columns (3) and (4) provide similar results for portfolios formed using total excess compensation. The abnormal returns are positive and significant for equal-weighted portfolios formed from cash compensation residuals and total compensation residuals. The results are economically as well as statistically significant. The daily abnormal return ranges from 0.0801%/day for cash compensation residuals (a compound annual return of 22.4%/year) to 0.102%/day for total compensation residuals (a compound annual return of 29.2%/year). Abnormal returns for the value-weighted portfolios are positive but not significant.

During the 2001 recession a trading strategy of taking a long position in firms in the lowest decile of excess CEO compensation and a short position in firms in the highest decile of excess CEO compensation yields positive annual compound abnormal returns just under 30%/year for the 2001 recessionary period. This result lends support to the theories siding with managerial malfeasance and rent extraction as opposed to those espousing that excess CEO compensation is a reward for ability leading to firm performance.

Since firm performance can be impacted even after the official end of a recession, I repeat the analysis of the 2001 recession (Table 5), by extending the period of the abnormal return calculation for one year past the official end of the recession. The results are similar to, but somewhat weaker than, the results using only the recessionary period. For the equal-weighted portfolio based on cash compensation residuals, the daily abnormal return is

0.0479%; and, for the equal weighted portfolio based on total compensation residuals the daily abnormal return is 0.0609% (significant at the 10% and 5% levels respectively). Both of these daily abnormal returns decrease from the results during the 2001 recession (0.0801%/day for cash compensation residuals and 0.102%/day for total compensation residuals). This is a decrease in the compound annual return from 29.2%/year to 16.5%/year when the timeframe is extended by one year into the economic recovery period. Neither of the abnormal return regressions for value-weighted portfolio is statistically significant.

4.3 Results from the 2007-2009 Recession

Tables 6 and 7 present results of abnormal regressions for the 2007-2009 recession and for the extended period including the recessionary period and one year past the official end of the recession respectively. None of the alphas are statistically significant. There are several possible reasons for this “non-result.” The 2007-2008 recession was much more severe than the 2001 recession. Some people call it the “Great Recession.” It was also the result of a financial system crisis and not simply a downturn in the economic cycle. In such an extreme environment firm performance may have been beyond the control of the firm’s CEO. It is also possible that market participants learned about the importance of CEO compensation during the decade and adjusted market prices accordingly prior to the onset of the 2007-2009 recession (Bebchuk, Cohen and Wang, 2013).

Regardless of the reason for the lack of statistical significance, the results in Tables 6 and 7 provide no evidence that the firms with CEOs with high excess pay perform better during the recession.

5. Conclusion

I use the “stress tests” of two recent recessions to help differentiate between two conflicting views in the literature about CEO compensation. Is the level of CEO compensation better explained as the outcome of efficient contracting, or as the result of CEOs in effect setting their own compensation? My argument is that recessions should more clearly demonstrate managerial ability. Under the efficient contracting view, CEOs that have high compensation should have superior ability. Hence the stock of their firms should outperform during recessions. I test this argument during two recent recessions 2001 and 2007-2009.

In my tests I first estimate cross-sectional regressions of the determinants of CEO compensation in the year prior to each recession. The residuals from the regressions are my measures of excess CEO compensation. I form a portfolio that takes a short position in the stock of firms whose CEOs are in the top decile of excess compensation and a long position in the stock of firms whose CEOs are in the bottom decile of excess compensation. Finally, I estimate the abnormal daily returns of the long-short portfolio during the period of the recession and for an extended period ending one year after the official end of the recession. If CEOs with high excess compensation indeed have more talent, their firms should outperform under the stress of a recession, and the abnormal returns of the long-short portfolio should be negative.

During the 2001 recession I find the opposite – abnormal returns are positive and significant (statistically and economically) during the recession and for the period extending one year beyond the recession. Firms with CEOs that had low excess compensation prior to the recession performed better than firms with CEOs that had high excess compensation. During the more severe 2007-2009 recession abnormal returns from the long-short portfolio are not statistically significant. Even this non-result provides no support for the efficient contracting view. I conclude that the managerial power view of CEO compensation provides a better explanation of firm performance under the stress of a recession.

Endnotes:

¹ Bebchuk, Cohen, and Wang (2013) provide evidence for a similar learning phenomenon concerning abnormal returns based on corporate governance indices.

² See also Bebchuk, Cohen, and Ferrell (2009).

³ Shleifer and Vishny (1997) also advocate against an arm’s-length bargaining process for executive compensation, positing a similar entrenchment theory, maintaining that managers make decisions that hinder the ability for them to be terminated.

⁴ I thank Kenneth French for making this information available. It can be found at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html

⁵ Previously the longest postwar recessions were those of 1973-75 and 1981-82, both of which lasted 16 months.

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Table 1
Variable List

This table describes the variables used in the study and the database from which they are taken.

Variable Name	Description	Database
At	Firm's total assets (used in the ROA calculation)	COMPUSTAT
Bonus	CEO bonus	ExecuComp
Csho	Common shares outstanding (used in market capitalization calculation)	COMPUSTAT
Execid	Unique company / executive identification number	ExecuComp
ff_48	Fama French 48 Industry Portfolio classification	Fama French website
Hml	High minus Low Fama French factor	Fama French website
Hsiccd	Standard Industrial Classification Code (4 digit)	CRSP
mkt_rf	Stock market risk premium (value-weighted)	Fama French website
Mom	Momentum Carhart factor	Fama French website
Ni	Net Income (used in the ROA calculation)	COMPUSTAT
option_awards_blk_value	CEO stock option grant Black Sholes value (pre-FAS124r)	ExecuComp
option_awards_fv	CEO stock option grant value (post-FAS123r)	ExecuComp
Prc	Firm's stock price (used in the market capitalization calculation)	CRSP
Ret	Firm's holding period stock return	CRSP
Revt	Firm's revenue (used as a proxy for size)	COMPUSTAT
Salary	CEO salary	ExecuComp
Shroud	Common shares outstanding (used in market capitalization calculation)	CRSP
Sich	Standard Industrial Classification Code (4 digit)	COMPUSTAT
Smb	Small minus Big Fama French factor	Fama French website
tdc1	CEO total compensation	ExecuComp

Table 2**Summary Statistics**

This table provides summary statistics for the sample. Variable definitions are in Table 1.

Variable Name	Period	Frequency	N	Mean	Median	Std. Dev.
Hml	1995-	Daily	3778	0.000165	0.000100	0.00676
Hml	1995-	Monthly	180	0.003290	0.003400	0.03636
mkt_rf	1995-	Daily	3778	0.00026	0.00080	0.01267
mkt_rf	1995-	Monthly	180	0.00499	0.01420	0.04746
Mom	1995-	Daily	3778	0.00025	0.00070	0.01029
Mom	1995-	Monthly	180	0.00486	0.00770	0.05959
Smb	1995-	Daily	3778	0.00005	0.00030	0.00619
Smb	1995-	Monthly	180	0.00214	-0.00155	0.03833
Firm Market Capitalization (thousands)	1995-	Daily	5,326,138	6,897,233	1,532,936	22,598,302
Firm Market Capitalization (thousands)	1995-	Monthly	256,374	6,899,372	1,545,725	22,489,612
Firm Returns	1995-	Daily	5,326,091	0.000661	0.00000	0.03215
Firm Returns	1995-	Monthly	256,329	0.01280	0.00953	0.1403
CEO Cash Compensation (thousands)	2000	Annual	725	1,541.62	1,049.84	1,696
CEO Cash Compensation (thousands)	2007	Annual	833	1,104.07	847.56	2,336
CEO Total Compensation (thousands)	2000	Annual	721	6,670.31	2,792.00	24,494
CEO Total Compensation (thousands)	2007	Annual	833	5,805.82	3,831.21	7,015
ROA	1999	Annual	725	0.05131	0.04599	0.09188
ROA	2006	Annual	833	0.05992	0.05529	0.08395
Stock Return	1998	Annual	700	0.1226	0.0400	0.6062
Stock Return	1999	Annual	692	0.2112	-0.0219	1.2372
Stock Return	2005	Annual	820	0.1136	0.0704	0.3358
Stock Return	2006	Annual	829	0.1684	0.1390	0.2864
Std. Deviation Monthly Stock Return	1999	Monthly	692	0.1215	0.1059	0.0882
Std. Deviation Monthly Stock Return	2006	Monthly	829	0.0864	0.0790	0.0395
Revenue (million)	1999	Annual	725	4,538.83	1,364.46	10,958
Revenue (million)	2006	Annual	833	7,431.98	1,827.49	22,946
CEO Stock Option Grants	2000	Annual	817	4,506.58	923.15	24,280
CEO Stock Option Grants	2007	Annual	949	1,344.26	390.96	3,317

Table 3
Compensation Regressions for 2000 and 2007

This table provides the results of compensation regressions in the year prior to two recent recessions. The independent variables are: ROA_{t-1} , the return on assets for the prior year (net income divided by total assets); ret_t , the annual stock return for the prior year; ret_{t-2} , the annual stock return from two years prior; Rev_{t-1} , the firm's sales from the prior year; std_ret_{t-1} , the standard deviation of monthly stock returns based on the prior four years; and, Ind_Code_{t-1} , the firm's Fama French industry code from a portfolio of 48 industries (categorical variable; F-value is reported). Column (1) regression is for year 2000 with cash compensation (salary + bonus) as the dependent variable. Column (2) regression for year 2000 with total compensation as the dependent variable. Column (3) regression for year 2007 with cash compensation (salary + bonus) as the dependent variable. Column (4) regression for year 2007 with total compensation as the dependent variable. t -statistics appear below parameter estimates in parenthesis. Statistical significance at the 1%, 5%, and 10% levels are indicated by ***, **, and *, respectively.

F-value is reported for the categorical Fama French 48 Industry Code variable.

Variable	Parameter Estimates							
	(1)		(2)		(3)		(4)	
	Year	2000	Year	2000	Year	2007	Year	2007
	Salary + Bonus		Total Comp		Salary + Bonus		Total Comp	
b_0	8.444	***	6.605	***	9.700	***	5.502	***
	(8.25)		(5.93)		(12.07)		(5.02)	
$Ln(1+ROA_{t-1})$	-0.256		-0.403		0.108		-0.369	
	(-0.91)		(-1.32)		(0.56)		(-1.40)	
$Ln(1+ret_{t-1})$	0.168	**	0.437	***	0.088		0.264	*
	(2.24)		(5.38)		(0.81)		(1.78)	
$Ln(1+ret_{t-2})$	-0.101		0.233	***	-0.106		0.143	
	(-1.24)		(2.62)		(-1.17)		(1.16)	
$Ln(Rev_{t-1})$	0.305	***	0.463	***	0.187	***	0.447	***
	(11.64)		(16.28)		(10.13)		(17.80)	
$Ln(std_ret_{t-1})$	-0.278		0.027		-0.037		0.560	
	(-0.68)		(0.06)		(-0.05)		(0.53)	
Ind_Code_{t-1}	2.13	***	3.14	***	1.53	**	1.92	***
Observations	685		686		813		818	
R^2	0.29		0.44		0.22		0.38	

Table 4**Abnormal Return for Long Bottom Decile of Excess Compensation and Short Top Decile for 2001 Recession**

This table provides abnormal daily returns from the Carhart (1997) four factor model for long-short portfolios. α represents the daily abnormal return for the portfolio trading strategy. Column (1) returns are based on value-weighted portfolios based on shorting firms in the highest decile of excess CEO compensation and going long the lowest decile of excess compensation for compensation regressions based on cash compensation for the recessionary period 3/2001-11/2001. Column (2) returns are based on equal-weighted portfolios for the same period. Column (3) returns are based on value-weighted portfolios based on shorting firms in the highest decile of excess CEO compensation and going long the lowest decile of excess compensation for compensation regressions based on total compensation for the recessionary period 3/2001-11/2001. Column (4) returns are based on equal-weighted portfolios for the same period. t -statistics appear below parameter estimates in parenthesis. Statistical significance at the 1%, 5%, and 10% levels are indicated by ***, **, and *

Variable	Parameter Estimates			
	(1)	(2)	(3)	(4)
	Year 2000 Salary + Bonus		Year 2000 Total Compensation	
	Value-Weighted	Equal-Weighted	Value-Weighted	Equal-Weighted
α	0.000404 (0.70)	0.000801 * (1.75)	0.00036 (0.38)	0.00102 ** (2.06)
mkt - rf	-0.26484 *** (-3.24)	-0.07713 (-1.15)	-0.43435 *** (-3.45)	-0.12439 * (-1.65)
Smb	0.30469 *** (3.09)	0.16593 * (1.94)	-0.21505 (-1.20)	0.42183 *** (4.10)
Hml	0.17189 (1.21)	-0.00215 (-0.02)	-0.44666 * (-1.81)	0.30963 ** (2.11)
Mom	0.0699 (0.72)	0.2405 *** (3.46)	-0.01173 (-0.09)	0.05450 (0.73)
Observations	188	188	188	188
R ²	0.38	0.35	0.10	0.37

Table 5**Abnormal Return for Long Bottom Decile of Excess Compensation and Short Top Decile for 2001 Recession and Post-Recession**

This table provides abnormal daily returns from the Carhart (1997) four factor model for long-short portfolios. α represents the daily abnormal return for the portfolio trading strategy. Column (1) returns are based on value-weighted portfolios based on shorting firms in the highest decile of excess CEO compensation and going long the lowest decile of excess compensation for compensation regressions based on cash compensation for the recessionary period 3/2001-11/2002. Column (2) returns are based on equal-weighted portfolios for the same period. Column (3) returns are based on value-weighted portfolios based on shorting firms in the highest decile of excess CEO compensation and going long the lowest decile of excess compensation for compensation regressions based on total compensation for the recessionary period 3/2001-11/2002. Column (4) returns are based on equal-weighted portfolios for the same period. t -statistics appear below parameter estimates in parenthesis. Statistical significance at the 1%, 5%, and 10% levels are indicated by ***, **, and *

Variable	Parameter Estimates							
	(1) Year 2000 Salary + Bonus		(2)		(3) Year 2000 Total Compensation		(4)	
	Value-Weighted		Equal-Weighted		Value-Weighted		Equal-Weighted	
α	0.000356 (0.93)		0.000479 (1.66)	*	0.00314 (0.52)		0.000609 (2.15)	**
mkt - rf	-0.13737 (-2.87)	***	-0.0449 (-1.16)		-32755 (-4.40)	***	-0.04198 (-1.15)	
smb	0.37645 (5.66)	***	0.16649 (2.95)	***	0.07723 (0.73)		0.36519 (6.27)	***
hml	0.29363 (3.40)	***	0.0730 (2.48)	**	-0.31862 (-2.64)	***	0.29427 (4.31)	***
mom	0.20942 (3.47)	***	0.1921 (4.68)	***	0.05510 (0.66)		0.14673 (3.46)	***
Observations	439		439		439		439	
R ²	0.42		0.33		0.12		0.39	

Table 6
Abnormal Return for Long Bottom Decile of Excess Compensation and Short Top Decile for 2007-2009 Recession

This table provides abnormal daily returns from the Carhart (1997) four factor model for long-short portfolios. α represents the daily abnormal return for the portfolio trading strategy. Column (1) returns are based on value-weighted portfolios based on shorting firms in the highest decile of excess CEO compensation and going long the lowest decile of excess compensation for compensation regressions based on cash compensation for the recessionary period 12/2007-6/2009. Column (2) returns are based on equal-weighted portfolios for the same period. Column (3) returns are based on value-weighted portfolios based on shorting firms in the highest decile of excess CEO compensation and going long the lowest decile of excess compensation for compensation regressions based on total compensation for the recessionary period 12/2007-6/2009. Column (4) returns are based on equal-weighted portfolios for the same period. *t*-statistics appear below parameter estimates in parenthesis. Statistical significance at the 1%, 5%, and 10% levels are indicated by ***, **, and *

Variable	Parameter Estimates							
	(1)		(2)		(3)		(4)	
	Year 2007 Salary + Bonus		Year 2007 Total Compensation		Year 2007 Total Compensation		Year 2007 Total Compensation	
	Value-Weighted	Equal-Weighted	Value-Weighted	Equal-Weighted	Value-Weighted	Equal-Weighted	Value-Weighted	Equal-Weighted
α	0.00039		0.000114		0.000041		-0.00029	
	(0.82)		(0.34)		(0.12)		(-0.86)	
mkt - rf	0.25146	***	0.10942	***	0.02502		-0.10056	***
	(4.17)		(4.19)		(0.66)		(-3.80)	
smb	-0.22755	***	0.26620	***	-0.10385		0.37292	***
	(-2.61)		(4.96)		(-1.54)		(8.82)	
hml	-0.36813	***	0.26981	***	-0.22177	***	0.15789	***
	(-3.59)		(4.47)		(-3.18)		(2.97)	
mom	0.11332	**	0.10815	***	0.11445	***	0.03241	
	(2.49)		(3.32)		(3.29)		(0.98)	
Observations	397		397		397		397	
R ²	0.28		0.23		0.22		0.28	

Table 7**Abnormal Return for Long Bottom Decile of Excess Compensation and Short Top Decile for 2007-2009 Recession and Post-Recession**

This table provides abnormal daily returns from the Carhart (1997) four factor model for long-short portfolios. α represents the daily abnormal return for the portfolio trading strategy. Column (1) returns are based on value-weighted portfolios based on shorting firms in the highest decile of excess CEO compensation and going long the lowest decile of excess compensation for compensation regressions based on cash compensation for the recessionary period 12/2007-6/2010. Column (2) returns are based on equal-weighted portfolios for the same period. Column (3) returns are based on value-weighted portfolios based on shorting firms in the highest decile of excess CEO compensation and going long the lowest decile of excess compensation for compensation regressions based on total compensation for the recessionary period 12/2007-6/2010. Column (4) returns are based on equal-weighted portfolios for the same period. *t*-statistics appear below parameter estimates in parenthesis. Statistical significance at the 1%, 5%, and 10% levels are indicated by ***, **, and *

Variable	Parameter Estimates							
	(1)		(2)		(3)		(4)	
	Year 2007 Salary + Bonus		Year 2007 Total Compensation		Year 2007 Total Compensation		Year 2007 Total Compensation	
	Value-Weighted		Equal-Weighted	Value-Weighted		Equal-Weighted		Equal-Weighted
α	0.000359		-0.00008		0.000152		-0.00021	
	(1.14)		(-0.35)		(0.52)		(-0.91)	
mkt - rf	0.23016	***	0.06865	***	0.006635		-0.12176	***
	(4.26)		(3.03)		(0.20)		(-5.69)	
smb	-0.19669	***	0.21457	***	-0.12081	**	0.32398	***
	(-2.59)		(4.67)		(-2.12)		(8.88)	
hml	-0.37359	***	0.13808	***	-0.27289	***	0.05969	
	(-4.37)		(2.92)		(-4.73)		(1.45)	
mom	0.09229	***	0.02212		0.07444	***	-0.0230	
	(3.56)		(1.03)		(3.23)		(-1.01)	
Observations	649		649		649		649	
R ²	0.24		0.18		0.21		0.24	