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CEO Compensation and Firm Performance - Are They Related?

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Abstract
This paper attempts to assess the ability of compensation packages to affect firm performance. Following a review of principal-agent theory and previous research, a section is devoted to the explanation of the model that is utilized in this paper.

About the author: **Barb Kube '94,** *an economics major, wrote this paper for her Econometrics class, which she described as being enormously useful. Econometrics is one of the first highly quantitative classes Economics majors encounter, and Barb felt that for a "non-math person" like herself/ working on this paper was excellent preparation for her Senior Project. She tested for forms of discrimination against female lawyers for her Senior Project which she is presently extending into a Research Honors Project. It is an issue of personal concern to her since she is going on to law school after graduation.*

CEO Compensation and Firm Performance— Are They Related?

Barb Kube

What do IBM, Sunbeam/Oster, Westinghouse Electric, Time Warner, General Motors and American Express all have in common? In the past year all of these companies have acquired new chief executive officers (CEOs) (Saporito, p. 10). These changes are just a small example of the growing power of disgruntled shareholders. Upset at increasing wealth of CEOs in the face of poor or stagnant corporate performance, shareholders are speaking out, and they aren't the only ones. This controversy has also prompted the Securities Exchange Commission (SEC) to enact stricter guidelines for proxies. Additionally, movements to enact compensation-limiting legislation have been initiated by several members of Congress. Alternatively, it can be argued that well-structured compensation packages, by increasing CEO incentives, actually benefit shareholders.

This paper attempts to assess the ability of compensation packages to affect firm performance. Following a review of principal-agent theory and previous research, a section is devoted to the explanation of the model that is utilized in this paper. Both theoretical and empirical models are outlined. The next portion reports the results of the statistical testing of the model. Finally, this paper addresses the "real-world" implications of its findings.

I. LITERATURE REVIEW

At the heart of the debate surrounding CEO compensation is a classic principal-agent problem. Economists theorize that a principal-agent problem arises whenever there are incentives for the agent to pursue interests that differ from those of the principal. In this case the CEO (agent) may be tempted to maximize his/her personal utility, as opposed to maximizing

shareholder (principal) wealth. Adam Smith expressed such an opinion of non-owning corporate executives in The Wealth of Nations:

> Being the managers rather of other people's money than of their own, it cannot well be expected that they should watch over it with the same anxious vigilance.... Negligence and profusion must always prevail.(Wechsler, p. 211)

Thus, it would seem that the principal-agent problem arises as CEOs become less dependent upon corporate performance for their income. Acting as key decision-makers, but without having a personal stake in the performance of the company, CEOs can benefit and prosper even when the corporation performs poorly.

Enter the era of pay-for-performance compensation programs. Leonard asserts that,"by 1985 long-term incentive plans had been nearly universally adopted by large corporations" (Leonard, p. 13-S). This course of action is aimed at reconciling the interests of the CEO with those of the shareholders by tying executive pay to some measure of firm performance. As compensation becomes more performance-based, both the expected cost of the compensation package and the expected performance of the firm increase. Therefore, the theoretical solution to the principal-agent problem lies in establishing an equilibrium between the value of an incremental change in corporate performance and the value of an incremental change in CEO compensation (Abowd, p. 53-S). While it may sound simple, measuring compensation can be tricky.

First, firm performance can be measured by either accounting, economic or market measures. Return on assets (ROA) and return on equity (ROE) are both accounting measures; after-tax gross economic return (ERET)is an economic measure of profitability; and total shareholder return (TSR) is a market measure of firm performance. All of these examples are expressed as percentages. Even though ERET is the best measure of profitability, it is often difficult to find the necessary data with which to calculate this measure of performance.

Aside from performance measures, there are many components of compensation packages that must be considered: salary, bonus payments, stock options, payments from long-term compensation plans, restricted stock awards, thrift-plan contributions, company-paid health and insurance plans, auto allowances and other executive "perks." It is not always easy to determine how much and in what form a CEO is being compensated. Thus, examining the relationship between compensation and firm performance can be quite involved.

In the real world there appear to be numerous examples in which poor corporate performance is accompanied by increasing CEO compensation. In light of such evidence, one might wonder how well these compensation programs are achieving their objective. Recent research conducted by Michael C. Jensen of Harvard University and Kevin J. Murphy of the University of Rochester analyzes the sensitivity of total CEO compensation to firm

performance for the years of 1974-1986 (Jensen, pp. 226-227). They used regression analysis to compute the sensitivities for the individual components of compensation packages, including base salary, bonus and stock options. Additionally, they compared the various sensitivities for large versus small companies (Jensen, p. 260J[1].

Of particular interest is the regression equation that tests the overall sensitivity of CEO wealth [TC=TP+pv(S+B)] to changes in shareholder in shareholder wealth (reproduced from Jensen, p. 229):

TABLE 1. Estimates of Pay-Performance Sensitivity: coefficients of Ordinary Least Squares Regressions of **CHANGE(SALARY+BONUS), CHANGE(TOTAL PAY),** and **CHANGE(PAY-RELATED WEALTH)** on CURRENT and LAGGED **CHANGE(SHAREHOLDER WEALTH)**—in thousands of 1986 constant dollars.

DEPENDENT VARIABLES

INDEPENDENT VARIABLES	change (SALARY +BONUS)	change (SALARY +B0NUS)	change (TOTAL PAY)	TOTAL PAY+ [change (SALARY+BONUS)]
Intercept	31.7	30.8	36.6	918.0
Change SHW	.000014 (8.0)	.000014 (8.4)	.000024 (5.2)	.000197 (9.7)
Change SHW, year (t-1)		.000008 (5.5)	.000009 (2.4)	.000103 (5.8)
R^2	.0082	.0123	.0041	.0157
Estimated pay-performance sensitivity **b**	.000014	.000022	.000033	.000300
F-statistic for **b**	64.0*	93.0*	28.5*	117.7*
Sample size	7,750	7,688	7,688	7,688

Note-The sample Is constructed from longitudinal data reported In *Forbes* on 1, 688 CEOs serving In 1,049 firms for the years 1974-86. Change(SHW) Is defined as the beglnnlng-of-perlod market value multiplied by the Inflation-adjusted rate of return on common stock, t-statistics are in parentheses.
'Significant at the 0.01 percent level.
The *Forbes* definition of total compensation typically includes salary, bonus, value of restricted stock, savings and thrift plans, and other benefits but does not include the value of stock options granted or the gains from exercising stock options.
Present value based on the assumption that the CEO receives salary and bonus increment until age 70 at a discount rate of 3 percent.
Estimated *b* is the sum of the coefficients on the contemporaneous and lagged shareholder wealth change.

Results of Jensen and Murphy's study revealed that bonuses were the least sensitive to changes in firm performance (Jensen,

p. 262). Overall they estimated that:

> ...[T]he total pay-performance sensitivity—including both pay and dismissal—is about 75 cents per $1,000 change in shareholder wealth for the full sample (45 cents and $3.15 per $1,000 for large and small firms, respectively).(Jensen, p. 261)

Based on these results, they concluded that annual changes in executive compensation are not significantly responsive to changes in corporate performance.

Suppose that studies like that of Jensen and Murphy establish that pay is based on performance. This result would not, by itself, guarantee that higher pay is an effective incentive. To decide that question, we need to know not the effect of performance on pay, but the effect of pay on performance.

Bhile the Jensen^Murphy study did not address the issue of whether or not firms are able to^design compenFation: packages that positively influence future performance, Cornell .University's John Abowd did just that. Dr. Abowd used data from 1981-1986 and tested to see if corporate performance depends on executive compensation programs. More specifically, he wanted to know if the composition of compensation packages elicits specific behavior from the agents. Using OLS regression analysis, he was able to estimate the ability of compensation plans to affect corporate performance during the next time period (Abowd, p. 52-S). Abowd tested four different measures of corporate performance: after-tax return on equity (ROE), after-tax return on assets (ROA), after-tax gross economic return (ERET) and total share-holder return (TSR)[2].

Abowd's most compelling work involved the performance equation of his continuous model, which was designed to,"focu[s] on the conditional expectation of future corporate performance given an elaborate, nonlinear function of current performance and compensation (Abowd, p. 52-S)". For a dependent variable, he used the conditional expectation of the four performance variables: ROE, ROA, ERET or TSR. Independent variables included the current performance measure (calculated in the same manner in which the dependent variable was figured), current adjusted J.og of jtqtal salary, total assets at the beginning of the year and two interaction terms^ that combimed^expected^future performance with current compensation (1) when current performance was below average and (2) when current performance was above average. The model was further tested by substituting the bonus as a percentage of base salary for total salary in the interaction terms and substituting base salary for total salary in the log variable (Abowd, pp. 52-S, 62-S, 66-S, 67-S). (See Table 2)

TABLE 2. Performance Equation for Abowd's Continuous Model

Dependent Variables	Independent Variables[3]
PERF(t+1)	PERF(t)
	In TOTAL SALARY(t)
	TOTAL ASSETS
	PERF(t) * COMP(t);
	PERF(t)>median
	PERF(t) * COMP(t);
	PERF(t)<median

ROE and ROA, accounting measures of profitability, were not as sensitive to CEO compensation as were ERET, an economic measure of performance and TSR, a market measure of corporate performance. However, Abowd conceded that a bias against the accounting measures of performance may have been present because he excluded multi-year plans of compensation from his study; multi-year plans are generally based on ROE and ROA. Even so, he concluded that basing compensation on, or increasing compensation-sensitivity to ERET or TSR "...may be associated with better performance on that measure in the future" (Abowd, p. 68-S).

II. <u>MODEL</u>

Combining the empirical techniques used by Abowd, the measurement methodology of Jensen and Murphy and principal-agent theory will hopefully provide additional insight into the controversies surrounding CEO compensation. Particular attention is paid to the ability of firms to influence future performance through their CEO compensation packages. To begin, the list of factors that influence firm performance for any given year is seemingly endless. Some of the dominant variables include: the state of the economy, the financial position of the firm at the beginning of the studied year, management and firm performance in the preceding time period. Thus, performance can be expressed as the following:

$$\text{PERF(t) - f(SOE, Assets, CEO comp, PERF(t-1))}$$

Various measures of performance exist. Using performance measures such as ROE, ROA, ERET and TSR, which are expressed as percentages can help avoid biasing results against small firms just because they deal in smaller monetary transactions. A complete analysis would evaluate accounting, economic and market-based measures.

Measuring assets helps to account for size differentials between firms—those with more assets are likely to have higher total compensation packages for CEOs, and the CEOs are less likely to own a significant percentage of the outstanding stock (the firm will probably have a larger number of stock shares outstanding). The most appropriate measure of a firm's assets is the value of total assets at the beginning of the time period in question (this is equivalent to the total value of a firm's

assets at the end of the previous time period).

As Leonard pointed out, most firms claim to link CEO compensation to firm performance (Leonard, p. 13-S). Accordingly, compensation should serve as an incentive to improve performance. Including the various components of compensation packages as influences on performance may help identify ways in which to close existing gaps between the often competing goals facing the CEO, those of personal wealth maximization and the goals of the firm (shareholders), profit maximization. Annual base salary, bonuses, stock options and other "long-term" perks such as health insurance, auto allowances and thrift plan contributions are used in varying degrees to reward CEOs for their role in affecting performance. Compensation for one year serves as incentive for the following year: if performance increases and the CEO is rewarded with a larger compensation package, then future performance is more likely to improve; and if poor performance is accompanied by a similar change in the compensation package, then future performance is likely to improve as the CEO takes quick, profit-maximizing action in hopes of increasing the value of his/her compensation package.

Table 3 shows the explanatory variables and the effects that they would be expected to have on performance.

TABLE 3. EXPLANATORY VARIABLES

State of the Economy: (+) The SOE is positively related to firm performance. In general, as the economy improves so does performance, and when the economy is experiencing a downturn so too do most companies. Also, how a firm's performance is impacted by the economy is determined by the type of products or services in which the firm deals—normal vs. inferior.

Assets: (+ or -) Assets can be an indicator of firm size, depending on whether economies of scale or diseconomies of scale are present. As company size increases it is more difficult to monitor the actions of and the decisions facing the CEO; it is easier for the CEO to undertake activities that will maximize his/her own utility instead of maximizing firm performance. Because of this, it is more difficult and more costly to establish a compensation package that successfully coordinates the interests of the CEO with those of the firm. Stock holder apathy, which also tends to increase as the size of the firm increases, can also contribute to lower performance—stock holders are less likely to be aware of CEO compensation and less likely to get involved in decision making. If larger firms are expected to be less efficient than their smaller counterparts, the coefficient for assets is expected to be negative (diseconomies of scale); if larger firms are more efficient than their smaller counterparts, the coefficient for assets is expected to be positive (economies of scale).

Annual base salary and bonus for CEO (S+B): (+*) Base salary does vary from year to year, and theoretically it should move in the direction of firm performance. This tends to be the most stable portion of a compensation package. Given out annually as well as other times throughout the fiscal year when performance figures are announced, bonuses are perhaps the most performance-sensitive element of compensation packages. Accordingly, performance should be sensitive to (S+B)—anticipation of a larger portion of compensation being in the form of bonuses should positively influence performance.

Stock options awarded to CEO: (+) Stock options are positively related to market-based performance measures because, theoretically, a CEO will increase his/her wealth only if the firm performs well in the marketplace. Since stock options can be held for up to ten years before exercising them, it is possible for a CEO to hold on to them during years of poor performance and exercise them in the more prosperous future (Byrne, p. 34). This makes it hard to predict whether or not the relationship will be statistically significant.

    Furthermore, it is possible for CEOs to benefit from options even when real performance is not improving. This occurs during periods of inflation or bull markets. A CEO may realize a significant profit from exercising options while real firm performance has either not changed or has worsened. Thus, the suggested incentive provided by stock options appears to be overstated.

Other components of CEO compensation: (–) Additional elements of compensation are often referred to as executive "perks". These are very rarely tied to firm performance. Therefore, they do not provide an incentive to maximize profit. In fact, some CEOs may prefer to maximize perks and thereby decrease profits.

III. <u>EMPIRICAL MODEL AND RESULTS:</u>

    Since this study is primarily concerned with the ability of compensation packages to influence firm performance, it will focus on the following relationship:

$$\text{PERF(t)} = (\text{size, CEO COMPENSATION(t-1)})$$

Cross-sectional data found in the Executive Compensation Surveys for Corporate America's Most Powerful People as well as those for The 200 Best Small Companies, published by *Forbes*, provides a sample of compensation and corporate performance information for nearly 1000 CEOs. Using cross-sectional data serves as a control for the state of the economy (SOE), since all firms will be observed at the same point in the business cycle. Therefore, SOE will not be included. This study utilizes compensation and performance figures for the years of 1989-1991. Forty CEOs were randomly selected from each survey group with the stipulation

that the same individual serve as CEO for both 1990 and 1991. Other performance and asset values were obtained from *Standard & Poor's Stock Reports* as well as *The Market Guide*[4].

Unfortunately, a potential for bias exists because the *Forbes* surveys only include the "best" firms; there is a chance that important relationships may go undetected simply because certain companies did not make the "A" list. The voluntary nature of the surveys results in some data not being reported for all firms. Additionally, large financial institutions were omitted from this study due to a lack of comparable performance information. Such inaccessibility to data may hinder the accuracy of the results.

Prior to the 1992 passage of a SEC regulation, firms had not been required to report the amount of stock options that were awarded to their CEOs. Therefore, it is not surprising that the *Forbes* data is neither complete nor consistent—the data for stock options is sometimes listed as a dollar value, at other times only the number of options is recorded and in some cases the data is omitted all together. Given the importance of such options in CEO compensation packages, excluding them from this study will diminish the explanatory power of the equations (Peale, p. 1). Furthermore, the *Forbes* data reports annual salary and bonuses as one figure. This makes it more difficult to determine which elements of compensation are most effective in influencing firm performance.

Table 4 presents a summary of all the variables used during statistical analysis:

TABLE 4. VARIABLE DEFINITIONS

Performance measures (current—1991 and lagged—1990);
Return on Assets (ROA): An accounting measure of performance, ROA is sometimes calculated as (Net Income + Interest)/(Average total assets for the fiscal year).

Return on Equity (ROE): An accounting measure of performance that can be calculated as (Net Income - Income to Minority Interests - Preferred Stock Dividends Paid)/(Average Common Stock Equity over the fiscal year).

Total Shareholder Return (TSR): This is a market measure of performance and is calculated as (Dividends per share + Capital Gain per share)/(Price per share of common stock at the end of the previous calendar year) (Abowd, pp. 59-S, 60-S).

Change in the performance variables was also tested.

Compensation Variables (current—1991 and lagged—1990);
(Salary + Bonus): (S+B) includes all cash, deferred salary, bonus payments plus any directors fees and commission; this variable is measured in millions of dollars.

Other: Payments from long-term compensation plans, restricted stock awards (vested or released from restriction), thrift plan contributions, company-paid health and insurance plans plus any other benefits such as auto allowances—does not include stock options. This is measured in millions of dollars.

Total Pay: (S+B) + (Other); measured in millions of dollars.

Present Value of Total Pay: Total Pay * $(1+i)^{\wedge}T$; T=70-present age and i=.03. This assumes that the CEO receives an increment of (S+B) until age 70, at a discount rate of .03. This is measured in millions of dollars.

Pay-related Wealth: PRW = Total Pay + pv(Total Pay), and is measured in millions of dollars.

Both percentage change and change in total compensation were also analyzed.

Other:
Assets (current and lagged): This is the total value of a firm's assets at the beginning of the fiscal year; measured in millions of dollars.

Size: A dummy variable for firm size; 1 if large, 0 if small. This variable, like Assets, is included as a possible way of controlling for economies of scale.

Dividends (lagged): Dividends (Div) given out per share of common stock; measured in dollars per share.

Stock Price (lagged): Stock price (SP) per share of common stock; measured in dollars per share.

Capital gains (lagged): Capital gains (CG) reported; measured in dollars per share.

Interaction terms: Interaction variables were created between the dummy variable for size and the various measures of compensation.

Statistical results are presented in Tables 5, 6 and 7.

TABLE 5. Coefficients of regression analysis with t-statistics given in parentheses. Significance: * = .10, ** = .05 and *** = .01.

Dependent Variable—ROE(t)   (%)

Independent Variables	(1) OLS	(1) WLS	(2) OLS	(3) OLS
SIZE	-.1283 (5.654***)	-.1408 (6.639***)	-.1247 (5.650***)	-.1237 (5.603***)
PRW(t-1)	.0039 (2.121 **)	.0043 (8.327***)	....	....
(S+B)(t-1)	....	....	.0113 (2.083 **)	.0112 (2.064 **)
(OTHER)(t-1)	. . . .	. . . s	. co*	-.0016 (0.093)
Intercept	.2404	.2397	.2402	.2402
adj. R^2	.2762	.9012	.2748	.2653
F-stat	16.074	244.4853	15.9664	10.5102
Sample size	80	80	80	80

At first glance the low R^2 values of these regressions may seem to indicate the failure of this model. However, the primary relationship to be examined is not accounted for by R^2. Rather than trying to account for all of the determinants of performance, these regressions focus on the effects that firm size and CEO compensation elements have on performance. For all three performance measures firm size is negatively related to performance. This can be seen in the negative coefficients for the dummy variable for **SIZE** as well as the variable **ASSETS** (with the exception of its insignificantly positive correlation to **TSR).** This indicates the presence of diseconomies of scale, and there are two possible explanations for this. First, the recent recession has resulted in large-scale corporate down-sizing. Second, large firms face higher employee-monitoring costs; it costs more to develop a successful, performance-sensitive CEO compensation package.

Perhaps most importantly, in all instances compensation variables have the expected signs. Overall, size and compensation elements are most successful in affecting **ROE.** Their impact on **TSR** is somewhat lower. These results are just the opposite of what Abowd found, but that is probably due to the differences **in** calculating compensation. Additionally, in light of the results for autocorrelation correction, the ability of size and compensation to affect **ROA** remains questionable.

TABLE 6. Coefficients of regression analysis with t-statistics given in parentheses. Significance: * = .10, ** = .05 and *** = .01.

Dependent Variable—TSR(t)
(return per dollar)

Independent Variables	(4) OLS
SIZE	-.3040 (1.635 *)
PRW(t-l)	.0530 (2.096 **)
ch(PRW)	.0525 (1.831 *)
ASSETS(t)	.0000 (.114)
DlV(t-l)	.0438 (.389)
SP(t-l)	-.0086 (3.047***)
CG(t-l)	-.0106 (2.116 **)
Intercept	.6016
adj. R^2	.2019
F-stat	3.7827
Sample size	78

The fact that **TSR** did not fare as well as **ROE** as a dependent variable does not mean that CEO compensation does not affect shareholder return. It is very likely that the missing stock options data would fill in this missing link, giving a better picture of the true relationship between CEO compensation and **TSR.** With that data now becoming available, so too is the opportunity for future research. Such research could enhance the explanatory power of this study.

Although the results for the regression using **ROA** as a dependent variable cannot be viewed as reliable, it is encouraging that the variables had the theoretically correct signs. On the other hand, it is surprising that the coefficient for **ASSETS** is not significant in either the OLS or the Hildreth-Lu corrected model[5].

TABLE 7. Coefficients of regression analysis with t-statistics given in parentheses. Significance: * = .10, ** = .05 and *** = .01.

Dependent Variable—ROA(t)   (%)

(5)

Independent Variables	OLS	Hildreth-Lu for Autocorrelation
SIZE	−.0925 (5.323***)	−.0410 (1.786 *)
(S+B)(t−1)	.0070 (1.937 **)	.0076 (1.664 *)
ASSETS(t)	−.0000 (1.305)	−.0000 (0.992)
Intercept	.1418	.0886
adj. R^2	.3605	−.1158
F-stat	13.2119	0.0000
Sample size	66	66

Additional regressions were run using the interaction terms between firm size and the various compensation elements in order to test the hypothesis that performance was jointly affected by size and compensation. The results did not confirm such a relationship. When regressed against **ROE,** coefficients for the interaction terms were negative, which would substantiate the belief that larger firms are not as successful as small firms at making CEO compensation sensitive to performance. However, t-statistics were around .337 with prob values of .737. Thus, the results cannot be viewed as reliable. **ROA** and **TSR** regressions had similarly insignificant results.

By far, the most encouraging results were achieved with the equations that used **ROE** as the performance-measuring, dependent variable. When interpreting the results, it can be seen that in the WLS version of equation (1) a $1 million increase in **PRW(t-1)** brings about an estimated .43% increase in **ROE,** other things being equal. Similarly, holding all else constant, a small firm is expected to have an estimated **ROE** of 23.97% while its larger counterpart has an expected **ROE** of 9.89%. Furthermore, equation (3) reveals that performance, as measured by **ROE,** is positively related to the **(S+B)** portion of compensation—a $1 million increase in **(S+B),** ceteris paribus, brings about a 1.12% increase in **ROE.** These results support the theoretical predictions that were presented earlier. One disappointment, however, is that the coefficient for the **(Other)** element of compensation was not significant.

So, what do these results reveal about the possibility of influencing firm performance through CEO compensation? All in

all, the results are encouraging. Not only do the results
indicate that performance is significantly affected by CEO
compensation, but they also reveal that performance is influenced
by more than just the level of compensation. In fact, these
results hint at specific ways in which stockholders and boards of
directors can shape compensation packages in order to bring about
better performance on specific performance measures. For
example, it appears that one way in which to increase **ROE** is to
decrease the amount of compensation that is accounted for by
(Other) components and increase the performance-based **(S+B)**
portion of compensation. Thus, it is possible to better
coordinate the interests of CEOs with those of shareholders.

   Perhaps compensation committees and stockholders alike would
do well to heed Dr. Murphy's advice, "The level of CEO pay is not
an important shareholder [performance-related] issue. The
structure of CEO pay is much more important....The cost of paying
the CEO too much is trivial compared to the cost of paying the
CEO in a way that provides inadequate incentives" (Yates, p. 2).
It is only by recognizing and understanding these important
relationships between CEO compensation and firm performance that
society can take meaningful actions toward resolving this
divisive issue. Hopefully the results of studies such as this
will help to resolve the compensation controversy.

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<div align="center">ENDNOTES</div>

1. Jensen and Murphy acquired their data from the *Forbes*
Executive Compensation Surveys from 1974 to 1986, Standard and
Poor's Compustat data service and the Center for Research in
Security Prices (CRSP) (Jensen, p. 228). Instead of using
separate sources for large and small firm data, they merely
considered firms with a market value above the median in the
Forbes surveys to be large, and those below the median to be
small (Jensen, p. 237).

2. Abowd utilized information provided by Standard & Poor's
COMPUSTAT, as well as the U.S. Department of Commerce Bureau of
Economic Analysis time series (Abowd, p. 68-S—69-S).

3. Abowd's definition of Total Salary only included annual base
salary plus annual bonuses; he did not account for any long-term
components or "perks". Total assets for year t were computed as
total assets at the end of fiscal year *t-1*. Additionally, the
interaction terms were figured in the following manner: one term
had a value equal to *Perf(t)*Comp(t-l)* if performance was above
the median performance of firms listed with the NYSE, otherwise;
and the other had a value equal to *Perf(t)*Comp(t-l)* if
performance was below the median performance of firms listed with
the NYSE, 0 otherwise. Both interaction terms were expected to
be positively correlated with *performance(t)*, assuming that
compensation packages were indeed performance-sensitive (Abowd

p.58-S).

4. Data was acquired from the following sources:

ROE: large, _Moody's Handbook of Common Stock_
small, _Forbes_ survey of The 200 Best Small Companies

Stock Prices: large, _Forbes_ Executive Compensation Surveys for America's Most Powerful People
small, _Forbes_

Dividends: large, _Forbes_
small, _Moody's_ and _The Market Guide_ (data from these two sources is comparable)

ROA: large, _Standard & Poor's Stock Reports_
small, _Standard & Poor's_ and _The Market Guide_ (data from these two sources is comparable)

Total Assets: large, _Standard & Poor's_
small, _Standard & Poor's_ and _The Market Guide_

Compensation: large, _Forbes_
small, _Forbes_

5. Unfortunately all of my attempts at manually correcting for autocorrelation ended in frustration as Y-stat locked up on me. While I expected the significance of my regression to diminish after the correction, I was very surprised at the drastic change in both R^2 and the t-statistics as a result of the Hildreth-Lu correction for autocorrelation. The other automatic correction produced similar results. Since the variables were fairly significant before correction, I decided to include them in my results.

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