RE-EXAMINATION OF CONNECTIVITY BETWEEN CEO COMPENSATION AND TENURE AT THE HELM AND FIRM PERFORMANCE

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Abstract

This paper presents empirical evidence related to a CEO's tenure, compensation, and performance. It reviews some generally accepted assumptions that have driven the rationale for CEO compensation packages, performance, and monitoring by the boards in charge of corporate governance. The empirical results of this paper provide only partial support for the underpinning basis of many of the compensation and corporate governance packages in today's corporate world. The paper uses data that was available to management and shareholders prior to the onset of the asset bubble that imploded during 2007-2009 period, and shows that there was already by then room for concern. The empirical findings presented here suggest that there is a mild positive relation between improvement in firm performance and the compensation package but even this is more evident in firms where the CEO service has a longer tenure compared to firms with a shorter tenure serving CEO. The results also support the findings from earlier studies that it is desirable to have an incentive scheme contingent on future returns, not only on the short time horizon. The findings presented here also confirm that CEOs who have passed the "early probation" test of time and skills and gained time to develop experience to lead the firm and its business have a stronger relationship between compensation and firm performance. However, the relatively low statistical relationships between compensation and firm performance for the whole sample overall leave room for concerns about the limited extent of their effectiveness. This paper also raises indirectly also concerns that the theoretical motivations of some compensation packages and the actual practices in the real world were not well aligned despite the large number of studies and efforts aimed at improving the relationship between CEO compensation and firm performance.

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keep shifting as the manager's tenure in the firm is changing. This is further complicated by dynamic exogenous uncertainties that shift over time. Thus, many theoretical models, including the one presented, even when they are supported by empirical various findings, work only partially in the real world due to its shifting dynamic and constantly changing multi-layers that produce suboptimal constraint-optimization solutions. These conclusions support the findings of several studies regarding the relation between the CEO's tenure or age and the firm's performance. Moreover, this paper adds some additional important insights and discussions that can improve our understanding of previous studies' results and remaining challenges. As is indicated in this paper, we need to acknowledge the tenure "multi-layered" complexity in our search for management incentive contracts and to continuously keep in mind the possibility of different outcomes that may occur due to the constrained multi-layered exogenous

1. Introduction

Despite the substantial increase in interest and studies related to improving corporate governance and CEO performance, recent decades continue to witness a serious turmoil in these areas. Corporate boards have tried various incentives to align the interests of shareholders and management. The failure of many of these incentives to prevent disasters that have devastated prominent financial institutions and others in the first decade of the 21st century and in previous decades is blamed on a variety of reasons. The reasons often mentioned include improper monitoring of management's misconduct regarding erroneous and excessive focus on stock options with short-term perspectives. While having merit, many of those explanations still leave unexplained questions as to why the incentives work in some firms and not in others. One of the contributions of this paper is that it demonstrates, both in the theory and in empirical findings, that the dynamics of management's concerns

always consistent with exogenous contingencies. This may explain why so much turmoil exists in corporate governance and in the literature that studies this area. The summary discussion of the results and their implications is presented in the Summary Section 4.

2. Literature Reviews

Numerous studies have examined ways to align the interests of agents with those of the principals. Jensen and Meckling (1976) define the relation between agents and principals as an agency problem attributed to both parties acting rationally and maximizing their own self-interests. Many studies have followed in finance and economics, as well as in other disciplines (Lane, Cannela, and Lubatkin, 1998; Mueller and Lawrence, 1997; Veliyath, 1999; Mishra, Heide, and Cort, 1998; Barkema and Gomez-Mejia, 1998). Barkema and Gomez-Mejia (1998) report that they find over 300 studies related to various aspects of the principal-agent relationship. There are also some studies seeking to explore the relationship between the board and CEO compensation. Hermalin (2005) argues that the trend of more outside directors sitting on a board is accompanied by higher CEO compensation. Many studies search for the best mechanism to motivate the manager to act in the best interests of the principal. Some of those particularly relevant to this paper are summarized in the next paragraph.

Brookman and Thistle (2009) examine the determinants and effect on a firm's value of the CEO's risk of termination. Using survival analysis, they find that the risk of termination increases for about thirteen years before decreasing slightly with CEO tenure; 82% of CEOs have tenure of less than thirteen years. Likewise, in this current study, we also find that tenure increases with performance and compensation and decreases with monitoring by the board, and changes in the risk of termination do not have a significant effect on firm value. Chhaochharia, and Grinstein (2008) find a significant decrease in CEO compensation upon compliance with the board's requirements. The significant decrease in compensation is due to a decrease in the option-based portion of the compensation. They conclude that board structure is a significant determinant of the size and structure of CEO compensation. Coles, McWilliams, Victoria and Nilanjan (2001) find that while some of the traditional agency variables do impact performance, both individually and as interactions, industry performance is a strong and significant driver of performance for their sample of firms. Nourayi and Mintz (2008) compare the influence of firms' performances on CEOs' cash and total compensation based on the length of tenure. They also examine pay–performance relationships for new CEOs versus those serving their last years in such positions. They find that firm size appears to be a significant explanatory variable for CEOs' cash and factors impacting the effectiveness of management incentives and corporate governance results.

To demonstrate these contingencies and considerations, this paper presents a dynamic three-period agency model that demonstrates how and why the agent's attitude toward risk changes along his/her career life cycle in the firm. Specifically, the model suggests that in the early stages of a CEO's tenure or the tenure of other senior executives, the CEO may be more subject to termination risk (being "on probation") and may not have had time to develop strong support among the firm's board of directors. The CEO needs to produce strong results to secure board support and contract longevity. To do so, however, involves taking business risks that can actually bring about the CEO's termination unless it produces results to the board's satisfaction. However, the model also suggests that if the CEO has survived "probation" and has an opportunity to serve longer, thus obtaining additional support from board members and feeling more secure in longevity prospects at the firm's helm, (or alternatively has gained more experience and familiarity with the firm's challenges), this CEO will become more confident and more risk averse as he/she reaches the end of his/her contract. Alternatively, having gained experience, knowledge, and consistent support, this CEO becomes more capable of improving the firm's performance, which exposes it to less risk. Therefore, the risk in the pursuit of growth and earnings volatility is more likely to occur in the early stages of the agent's employment in the firm. However, these two different scenarios have different implications for the golden parachutes and stock option contracts. The CEO has survived the "probation" of Period 1 and managed to build additional support from the board, which can allow the CEO to be paid more even if his/her performance diminishes in Period 3, which in the second scenario simultaneously improves performance and gets further support from the board. The implications, however, are different in each scenario. These two varying scenarios also have different consequences for the firm's performance in the period after the CEO's departure (retirement or severance), namely in Period 3. A firm that wishes to maintain growth in the periods immediately preceding and following the agent's retirement could devise the agent's contract in such a way as to ensure that this individual will also share in the results of his/her labor during the period subsequent to his/her employment termination. Some recent empirical evidence from firms experimenting with such contingent contracts is still inconclusive.

The paper proceeds as follows. Section 2 of the paper discusses some of the pertinent literature. Section 3 presents the motivation and the details of empirical tests relating age, tenure, compensation, and firm performance. The test results demonstrate that the theory generally supported by the empirical evidence is still not fully conclusive, and hence is not

over the appointments to the Board of Directors, the CEO is likely to enjoy large benefits (e.g., salary, bonuses, and stock options) that are disproportionate to the firm's performance (Bhagat, Carey, and Elson, 1999; Fama and Jensen, 1985; Baker, Jensen, and Murphy, 1998; Fosberg, 1999; Core, Holthausen, and Larcker, 1999; Barkema and Gomez-Mejia, 1998; Mueller and Lawrence, 1997). A recent paper from M. M. Cornett et al. (2008) studies the effects of earnings management on governance and compensation structure and also on the firm's performance. They conclude that governance structure has more influence on the firm's performance than the incentive-based compensation scheme when discretionary earning is removed. Effective monitoring or inclusion of an independent board could make pay-for-performance compensation more effective. They do agree that including stock options in the compensation package could have a negative impact causing agents to consume more discretionary accruals.

While studies like Anderlini and Felli (1998), Banks and Sundaram (1998), and Veliyath (1999) explore the combinations of compensation packages that might succeed in aligning the principal's and agent's interests. Barkema and Gomez-Mejia (1998) suggest looking at new directions and theories altogether. They suggest following Jensen and Murphy's (1990) advice to integrate agency theory with other paradigms as alternatives to agency-based paradigms. The alternatives that Barkema and Gomez-Mejia (1998) suggest (e.g., marginal productivity theory, information processing theory, social compensation theory, and managerial discretion theory) are interesting, but they do not address many issues related to management compensation and alignment with principal-agent interest. Thus, these arguments are not sufficiently compelling to the point where one can fully accept them as theories capable of replacing Jensen and Meckling's (1976) agency theory.

Schleifer and Vishny (1989) suggest that the entrenched CEO seeks to avoid debt since creditors are likely to closely monitor the CEO's behavior; thus, his/her firms are likely to be less leveraged. They also argue that golden parachutes and contingent stock options (which are exercisable only upon the manager's departure) raise the difference between the firm's worth and its value under the next best replacement. Therefore, Schleifer and Vishny (1989) contend that managers entrench themselves by increasing the costs of replacing them. Douglas (2006) studies the conflicts between shareholders and bondholders that make managerial incentive compensation more complicated. He finds that in pay-for-performance and investment opportunities, pay-for-performance and leverage are negatively related consistent with the result of Schleifer and Vishny (1989) even though this is from a different perspective.

total compensation regardless of CEOs' tenure and measure of performance. Additionally, firms' performance is a significant determinant of cash compensation for CEOs during the first three years of their work as CEOs and not significant for those with 15 years or more as the company's CEO. Both market-based and accounting-based performance measures are negatively correlated with CEOs' total compensation regardless of length of experience. Rose and Shepard (2007) find substantial compensation premia for managers of diversified firms. The CEO of a firm with two distinct lines of business averages 10 to 12 percent more in salary and bonuses and 13 to 17 percent more in total compensation than the CEO of a similar-sized but undiversified firm, all else equal. This corresponds to average 1990 salary gains of $115,000 to $145,000 per year for the sample in this study. Diversification may raise pay because the CEO's job requires higher ability, or because it is associated with CEO entrenchment. They conclude that their data supports an ability model over an entrenchment explanation. They also find that the diversification premium is unaffected by tenure, and increasing diversification reduces compensation for incumbent CEOs, all else equal.

Other studies find that performance-related compensation contracts are the best solution to the agency problem. The asymmetry in information observable by the principal with regard to the agent's efforts and risk taking (both of which the agent may want to minimize) makes performance-based contracts necessary. For example, some incentive packages are designed to include stock and options, aiming to align CEOs' personal wealth with shareholders' wealth. Coles, Daniel, and Naveen (2006) find that there is a positive relationship between stock volatility and pay-for-performance sensitivity, providing some basis for the argument that a firm can tie CEOs' compensation to stock or stock options. Other studies find that commonly used performance contracts (e.g., stock options, tournament-based salary increase, golden parachutes, etc.) are not very effective in aligning the interests of shareholders and managers. Jensen (2005) has studied the issues raised by the CEO's tendency to boost short-term stock prices with increased benefits from the options they are holding in their compensation packages. Kadan and Swinkels (2008) contend that bankruptcy risk is highly correlated with more use of stock in the compensation contract. These arguments are different from the very early literature reviews in that by including options in the compensation scheme, principals (shareholders) could align agents' activities with shareholders' interests and increase investment opportunities.

Several studies (Baghat, Carey, and Elson, 1999; Fosberg, 1999) point out that a frequent explanation for such misalignment is that in corporations where the CEO has effective control

significant in explaining the firm's performance. They couldn't identify CEO horizon even if they had the data for age and tenure. This paper overcomes this limitation and makes the empirical tests more complete in the three-period continuous-time model providing a very detailed panel of the CEO horizon in the above empirical tests.

There is disagreement concerning the impact that a board of directors who is "friendly" to the CEO has on the firm's performance as compared to a firm whose board is independent and/or "unobligated" to its leader. It is sometimes implied, but not always clear, from previous studies that the CEO's tenure (or age) may be driving a portion of the performance results. Yet some studies suggest that the length of tenure of the CEO is related to the "friendliness" of the board towards this CEO. This, in turn, may affect the leeway or freedom that the board grants the CEO in his/her pursuit of risk taking and subsequent performance. It is often very difficult to separate one factor from others that may be driving or affecting performance. However, given that boards have a dual role as advisors and monitors, management-friendly boards can be optimal as the CEOs face a trade-off in disclosing information to them: high quality advice and tougher monitoring by furnishing private information (Adams and Ferreira, 2007).

Kadan and Swinkels (2008) argue that agents will be less responsive to stock prices at a higher level because agents will have diminishing marginal utility when the agents accumulate enough wealth. Therefore, it is necessary to find a compensation contract that can motivate CEOs consistently. My model is consistent with He (2008) whose paper recommends dynamic compensation scheme models that are time-continuous and argues that the role of firm size can be very significant in the principal-agent framework. Our paper continues the continuous-time principal-agent model study by exploring the factor of tenure in the CEO compensation scheme.

A contingent golden parachute is necessary in order to create the conditions of continuity that existed in the first period (when the agent took on more aggressive investments and efforts in order to secure employment into Period Two). This has implications regarding the controversy in the literature as to the effectiveness of golden parachutes. The golden parachute should be likened to the consequences of the agent's performance in the employment period prior to departure and to the measurable residual impact that the agent's prior actions had on outcomes after that departure. This would then extend the Period One conditions (where the agent's compensation in Period Two was affected by his/her performance in Period One) to the Period Three conditions (after termination) that are related to performance in Period Two.

However, this does not solve a persistent problem inherent in many such models. Namely, it is difficult for a theoretical compensation model to encompass all

When reviewing the literature, it becomes apparent that there are many issues that are still unresolved despite all the studies that have been done. One of the questions lacking satisfactory explanation so far is "what is the theoretical basis for creating golden parachutes in the first place?" Studies like those of Banks and Sundaram (1998) argue that solutions like a golden parachute are needed as the agent has a short horizon. As such, a long horizon principal (or board) must overcome problems of moral hazard and adverse selection to retain the agent's services. Similarly, Agrawal and Knoeber (1998) find empirical evidence that managers facing takeovers receive higher compensation (e.g., salary, bonuses, and golden parachutes) due to reduced job security compared to those managers who have more job security. Yet, which theory would link the agent's career life cycle dynamics to golden parachutes in the first place? This is where the current paper makes its contribution. This paper provides a dynamic, simplified three-period model and demonstrates that in the second period, the agent, or CEO, who faces voluntary or involuntary termination in the third period will make less risky investments (relative to the optimal scenario for the principal).

Why is there such inconsistency in the compensation scheme and CEO's performance when so many advanced elements such as stock options and debt covenant have been introduced into the incentive package? As yet, most of the aforementioned literature hasn't recognized the role of the CEO's tenure that might account for a large part of the explanation of the principal and agent model. The classical principal-agent models, such as the Hidden Action model, do achieve an equilibrium in which a certain compensation scheme subject to some constraints can induce somewhat expected agent action; however, these models have very weak predictability and are too complicated to be applied to reality. A very important and intuitively correct variable related to the time consistency issue, the CEO's tenure is not added into the model. Due to the unique nature of the CEO's position, this position in some industries might have a high turnover ratio; therefore, it is difficult to design a package to induce the agent to make continuous efforts (a package maximizes shareholders' wealth) for a very short period of time.

Consistent with the classic principal-agent models, this paper introduces a more advanced three-period model to study the effect of tenure in designing compensation structure. Theoretically, our model suggests that a better compensation scheme could be designed by making the incentive factors contingent on previous contributions to future growth deeper into ex post contract periods. Empirically, this paper finds that there is a significantly positive correlation between CEOs' tenure and their performance. M. M. Cornett et al. (2008) do include age and tenure in the empirical tests, but they don't find age and tenure

3.c. *Methodology*

The data are collected for every CEO in ExecuComp for each year from1993 to 2003. The variables are collected or constructed as the following

- Annual R&D expense is obtained from COMPUSTAT.
- SALES represents the net annual sales in millions of dollars as reported by the company. SALECHG is the year-to-year percentage change in SALES.
- ASSETS represents the total assets in millions of dollars.
- ASSETCHG is the year-to-year percentage change in ASSETS.
- OIBD represents the operating income before depreciation in millions of dollars. OIBDCHG is the year-to-year percentage change in OIBD.
- EPS represents the earnings per share excluding extraordinary items and discontinued operation in dollars and cents.
- EPSCHG is the year-to-year percentage change in EPS.
- CEO_AGE is the CEO's age in the year when the CEO takes that position.
- CEO_Tenure is computed as the difference between the year at which the CEO assumes that position and the year in which the CEO steps down.
- R&D expense represents all costs incurred relating to development of new products or services in millions of dollars.
- SALARY and BONUS represent the dollar value of the base salary and a bonus (cash and non-cash) in thousands of dollars earned by the CEO during the fiscal year.
- Total_Compensation represents the total compensation comprised of salary and bonus. Total_Compensation1 is the total compensation for the individual year, comprised of salary, bonus, other annual compensation, the total value of restricted stock granted, total value of stock options (using Black-Scholes), long term incentive payouts, and all other compensation.[1] Total_Compensation2 is the total compensation for the individual year comprised of salary, bonus, other annual compensation, total value of restricted stock granted, net value of stock options exercised, and all other compensation.
- Number_Option_Grants represents the aggregate number of stock options/stock appreciation rights granted in thousands.
- Value_Option_Grants represents the aggregate value of stock options granted to the CEO during the year as valued using S&P's Black-Scholes methodology in thousands of dollars.

possible contingent externalities which may affect the final outcome. The purpose of the next two sections (theory in Section 3 and empirical tests in Section 4) is to demonstrate that we should be cognizant of the added compensation of each of them, but at the same time to avoid the assumption that an optimal, all encompassing solution is at hand. This, however, does not prevent us from continuing the effort to improve and modify solutions on an ongoing dynamic basis.

3. Empirical tests

3.a *Motivation*

As the survey of the literature shows (and that survey covers only part of the vast literature on the subject), much of the literature has investigated how CEO compensation plays a role in improving firm value or performance. However, only a few studies have looked at the CEO's age and/or tenure at the helm of the firm and the firm's performance. Their conclusions are either somewhat inconclusive regarding this relationship or conflict with each other regarding the relationship and its causes if any. The need to resolve this issue is a partial motivation for this paper. Another motivation is the desire to resolve another disagreement regarding the CEO's tenure and its relation to total compensation and firm performance. For example, some studies argue that an entrenched CEO has more opportunities to make a friendly board raise his/her salary. Other studies argue that the board becomes friendlier towards a well performing CEO, hence the compensation package simply reflects a reward for good performance, and the friendliness of the board is just coincidental. Still, a question remains--does a longer tenure (regardless of its causes) indeed have a positive correlation to better firm performance and to the total compensation of the CEO? This paper tries to aid in resolving some of this controversy by demonstrating several possible explanations and suggests new directions for further research.

3.b *Empirical tests and results*

The sample data for our analysis is obtained from the ExecuComp database (1993-2003). From the database, we extract only the data containing age information and then use it as our sample. Panel A and Panel B in Table 1 illustrate that the firm and compensation characteristics of the total sample (16,639) are not significantly different from those of our sample (6,321). Thus, our results have implications that can also be relevant to firms that do not report information about the CEO's age. We find that the CEO's age is reasonable, regardless of how long the individual has been the CEO of that firm.

[1] For the Black_Scholes Methodology refer to http://umi.compustat.com/docs-mi/help/blk_schol.htm

59.00 (60.48), the median (mean) age of the CEO if the CEO's tenure is between five and ten years is 61.00 (60.62), and the median (mean) age of the CEO if the CEO's tenure is greater than ten years is 65.00 (64.41). However, we find considerable differences in various parameters when we differentiate the sample into four groups. Group One with the CEO serving three years or less, Group Two with the CEO serving over three years and less than five years, Group Three with the CEO serving five to ten years, and Group Four with the CEO serving over ten years.

Insert Table 2 here

We see that the earnings and sales of the firms with short serving CEOs (Group One) have actually been falling relative to those firms belonging to other groups. The first three columns in Table 3 demonstrate the comparison between Groups One, Two, and Three. The differences in the sales and EPS are negatively significant, whereas in Groups Three and Four (with longer serving CEO's), the earnings, assets, and sales are growing more impressively. In Group Two, the result is less deterministic.

The differences are also noticeable with respect to CEO compensation (salary and non-salary components) with the CEO's compensation in the early stage in that position much more dependent on performance incentives. Those with longer tenure with the firm find their salary component and overall compensation increasing relative to those individuals with briefer tenure, although the distinction was not uniform. Table 3 demonstrates these points further.

Insert Table 3 here

The findings presented in Tables 1 through 3 suggest that early in his/her career as the firm's CEO, the executive is still on probation, and his/her employment is likely to be terminated if the firm's performance is weak. Hence, this CEO has not had enough time to build a "friendlier" board that would be more willing to make his/her pay more secure in terms of salary. However, if the CEO has managed to prove himself/herself with better performing earnings and sales growth, his/her tenure will become longer and the additional ability to earn the confidence and support of the board for higher pay and other "non-probationary" components of his/her total package improves. Thus, it is possible that the finding from previous studies that the board that are friendlier to the CEO is more common in firms with stronger performance does actually suggest the reason is that this CEO has served longer by passing the preliminary "probation." Hence, the CEO has proved his/her already and earned shareholders' trust, gaining more ability to change the compositions of the board in his/her favor. It is not clear, however, from our results thus far, whether there is an optimal tenure threshold or benchmark beyond which the CEO gets

- SHROWN represents the aggregate number of shares owned by the CEO excluding stock options in thousands.
- SHROWNPC represents the percentage of the company's shares owned by the CEO.
- SAL_PCT is the year-to-year percentage change in salary.
- RD_RATIO is defined as R&D expense over total expense where total expense is computed as the difference between Net Sales (Item 12 in COMPUSTAT) and Operating Income before Depreciation (Item 13 in COMPUSTAT).
- RD_RATIO1 is defined as R&D expense over total revenue.
- RD_RATIO2 is defined as R&D expense over Earnings before Interest and Taxes (EBIT). RD_RATIO3 is defined as R&D expense over Earnings before Interest (EBITDA).

3.d. ***Results***

In Table 1, we see (Panel A) that although the entire sample is much larger (16,639 observations), this is the subsample that has "tenure" data in firm size and performance. We go to further analysis with a subsample that has the tenure data (321 observations. The mean average sales are rather similar in the subsample and the whole sample from which it is taken ($4.7 billion mean and $1.39 billion median in the tenure subsample compared to $3.93 billion mean and $1.07 billion median sales in the whole sample). In the assets categories, the median assets' size in the "tenure" subsample is $1.39 billion and $1.28 billion in the complete "whole" sample. In the age categories, the median age in the tenure subsamples is 63 years, which is higher than the median age of 58 years in the whole sample. Likewise, size (sales and assets) in both groups is rather similar, but in the subsample with information about CEO's, the average age is about 5 years older than the whole sample. Table 2 indicates that the CEO's tenure increases, as do the salary and the total compensation. Yet, interestingly, the firm performance also improves, as demonstrated by the EPS and growth rate of EPS and sales. Not surprisingly, the firm's tendency to grow in asset size increases as well. But these improvements diminish when the CEO's tenure is 10 years or more. The relative ratio of non-salary component to total compensation also demonstrated an increase as the CEO's tenure grows. Finally, EPS that is worse (a mean 0.12, a median 0.63, and a negative growth rate of EPS in Panel A) for "beginner" CEOs at the firm was reported for the group, as the CEO's tenure in the firm is less than 3 years, as shown in Table 1.

Insert Table 1 here

Table 2 reports that the median (mean) age of the CEO if the CEO's tenure is less than three years is 60.00 (59.44), the median (mean) age of the CEO if the CEO's tenure is between three and five years is

It is also interesting that the results for the effect of compensation (in absolute level and the change in TOT COM on the growth in the firm's assets) is positive only for concurrent year assets growth in the firms where the CEO has tenure of more than 5 years but not in the subsequent years. In fact, it remains flat in one year and declines in two years for firms with CEO tenure longer than 10 years. Moreover, in no case is there a significant r-square for any of the compensation size or for any of the percentage Change in total CEO Compensation in any of the groups for any positive impact of the percentage change in the firm's performance as measured either by the change in the EPS (concurrent or 1 or 2 years later) or for predicting the growth rate of the firm's assets. Although the latter is positively linked to the concurrent compensation or to the concurrent change in assets and in EPS growth rate, this is true for the class with longer serving CEO's, and in no class is the r-square statistically significant for any of the compensation categories.

4. Conclusions and summary

As discussed in the literature review, some previous studies suggest that in a firm whose management faces retirement or in which the agent's incentive system is fixed and terminates at the end of employment, stagnation and decline may be predicted. Some studies suggest that there are potential problems in a solution that offers the manager stock options that can be easily exercised during a stock market bubble. This can motivate the manager to take short-term actions to boost the stock price enabling them to make a quick gain from these options. The model presented in this paper offers a better solution. Golden parachutes and incentives that are contingent upon previous contributions to future growth that continue for some time after termination of employment may encourage the agent to invest efforts and maintain growth even when it approaches his/her contract's termination.

The empirical results only partially support the theory that underpins many of the compensation and corporate governance packages in today's corporate world. The empirical results suggest that there is an improvement in firm performance when the compensation package and CEO Service have a longer horizon, supporting the findings from the earlier studies that it is better to have an incentive scheme contingent on future returns. The empirical findings also confirm that CEOs who have passed the "early probation" test of time and skills and gained time to develop experience leading the firm and its business and time for developing a "friendly" relationship with the board, have a stronger relationship between compensation and firm performance. Future studies can contribute by testing explicitly which of the CEO experience factors including experience outside the firm as well as too complacent and if the firm's performance suffers behind such a tenure length threshold for CEOs who serve very long terms. It is also not clear if the CEO has served in a similar position elsewhere prior to coming to the firm. Does prior overall experience of the CEO play a role, or is it only their tenure at this firm that is relevant? As yet, we have not tested for this effect.

The results so far show that the performance of the firm is related to many factors, among which are also the tenure of the CEO at the helm of the firm and the CEO's compensation. These relations have been used in the past as a justification for the Board of Directors to draft compensation contracts that are sometimes criticized elsewhere as being too generous or as being unjustified, given the subsequent performance of the firm. Hence, the following Tables 4 through 7 evaluate the specific relationships between compensation and firm performance where the latter is approximated by the percentage change in the Earnings Per Share (CHANG_EPS) and by percentage growth of the firm's assets. There are many other possible measures of firm performance (many of which were included in Tables 1 through 3 earlier), but for space economy reasons the following tests are focused on those two performance measures that were selected here. However, the tests are also stratified by subsamples that take into account the CEO's tenure already served at the helm of the firm (Tables 4 through 6) in order to see if there are any significant differences in concurrent as well as in future performance of the firm in tests that have more "seasoned" versus less "seasoned" CEOs at the helm of the firm. The motivation for this particular testing methodology is to see if a CEO who has had more time to develop longer experience with leading this specific firm and to develop confidence and familiarity with and from the Board, has exhibited any stronger (weaker) relationship between his/her compensation and the performance of the firm. The tests are repeated again for the whole database without stratifying by the "tenure service time" factor in Table 7.

Insert Tables 4 through 7 here

The results which are presented in Tables 4 through 7 are interesting since they show that the total compensation or the change in compensation has no real significant impact on EPS performance of new CEOs (occasionally even a negative later effect), but the TOPT COM or TCC_PCT has a positive relation on concurrent EPS for firms with CEO serving between 5-10 years and more than 10 years, but one year later the concurrent TOT COM has already a negative effect on the future EPSCHG and no effect is evident for the change in TOT COM in producing stronger EPS one or two years later in any of the tenure categories.

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experience in non-CEO position in the firm are more important for performance and whether those factors were also related to ability to build a friendly relationship with the board. Those are interesting questions but exceed the scope of this paper. However, the empirical results also demonstrate that the reality is not strongly "clear-cut," and the statistical significance between CEO compensation and firm performance is fairly low. Thus, there is a justification for questioning the effectiveness of many existing compensation packages and the levels of CEO compensations (in total as may be also in the composition of the compensation package as a whole), given its inconclusive demonstrated effectiveness. The strong public reactions in early 2010 to the bonuses and compensation packages by many financial institutions while they were still recovering from the massive financial crisis (see Fortune Magazine, January 18,2010) will undoubtedly inspire more future studies on more effective metrics to link CEO performance and their compensation. Some of the metrics described in this paper may eventually become part of future new measures of Economic Value Added (EVA), but further studies are needed to evaluate their effectiveness under different circumstances from those of the past, as firms and their executives learn from past mistakes and set the stage for new ones. that firms encounter. There are likely to remain ambiguities that sometimes complicate the implications and suggestions for better connections between compensation and CEO performance. Hopefully, the empirical findings that are presented here as well as the tests can lead to further studies that would address them and benefit from the current study.

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Appendices

Table 1. Comprehensive summary statistics of firms' performances and CEOs' compensation and tenure in the data sample for this study

The data are collected for every CEO in ExecuComp for each year 1993-2003. Annual R&D expenses are obtained from COMPUSTAT. SALES represents the net annual sales in millions of dollars as reported by the company. SALECHG is the year-to-year percentage change in SALES. ASSETS represents the total assets in millions of dollars. ASSETCHG is the year-to-year percentage change in ASSETS. OIBD represents the operating income before depreciation in millions of dollars. OIBDCHG is the year-to-year percentage change in OIBD. EPS represents the earnings per share excluding extraordinary items and discontinued operation in dollars and cents. EPS is the year-to-year percentage change in EPS. CEO_AGE is the CEO's age in the year when the CEO takes that position. CEO_Tenure is computed as the difference between the year at which the CEO assumes that position and the year in which the CEO steps down. R&D expense represents all costs incurred relating to development of new products or services in millions of dollars. SALARY and BONUS represents the dollar value of the base salary and a bonus (cash and non-cash) in thousands of dollars earned by the CEO during the fiscal year. Total_Compensation represents their total compensation comprised of salary and bonus. Total_Compensation1 is the total compensation for the individual year, comprised of salary, bonus, other annual compensation, total value of restricted stock granted, total value of stock options (using Black-Scholes), long term incentive payouts, and all other compensation.[2] Total_Compensation2 is the total compensation for the individual year comprised of salary, bonus, other annual compensation, total value of restricted stock granted, net value of stock options exercised, and all other compensation. Number_Option_Grants represents the aggregate number of stock options/stock appreciation rights granted in thousands. Value_Option_Grants represents the aggregate value of stock options granted to the CEO during the year as valued using S&P's Black-Scholes methodology in thousands of dollars. SHROWN represents the aggregate number of shares owned by the CEO excluding stock options in thousands. SHROWNPC represents the percentage of the company's shares owned by the CEO. SAL_PCT is the year-to-year percentage change in salary. RD_RATIO is defined as R&D expense over total expense where total expense is computed as the difference between Net Sales (Item 12 in COMPUSTAT) and Operating Income before Depreciation (Item 13 in COMPUSTAT). RD_RATIO1 is defined as R&D expense over total revenue. RD_RATIO2 is defined as R&D expense over Earnings before Interest and Taxes (EBIT). RD_RATIO3 is defined as R&D expense over Earnings before Interest (EBITDA). Panel A reports summary statistics of the full ExecuComp sample while Panel B contains only CEOs with both starting year and ending year as CEO to compute the CEO tenure.

Panel A. Full ExecuComp Sample

	#of Obs	Mean	Median	Std Dev	Min	Max
SALES	16,639	3,932.96	1,072.18	10,635.09	0.00	244,524.00
SALECHG	16,593	17.98	8.69	82.99	-100.00	6,001.53
ASSETS	16,646	9,256.22	1,277.44	38,585.55	3.43	1,097,190.00
ASSETCHG	16,627	21.45	8.11	104.47	-97.48	6,389.02
OIBD	16,415	720.31	158.15	2,363.99	-5,743.00	61,188.00
OIBDCHG	15,549	31.45	11.11	1,114.73	-10,229.81	125,060.00
EPS	16,616	2.11	1.29	40.24	-231.67	2,795.00

[2] For the Black_Scholes Methodology refer to http://umi.compustat.com/docs-mi/help/blk_schol.htm

EPSCHG	14,096	25.19	10.79	894.83	-23,050.00	42,900.00
CEO_AGE	8,112	57.61	58.00	7.87	31.00	89.00
CEO_TENURE	6,321	10.18	8.33	7.75	0.10	54.61
R&D_EXPENSE	6,586	158.93	21.85	582.16	0.00	8,900.00
SALARY	16,663	581.43	525.00	322.97	0.00	5,294.10
BONUS	16,663	604.36	300.00	1,479.60	0.00	102,015.16
TOTAL_COMPENSATION	16,663	1,185.80	838.83	1,604.33	0.00	102,448.77
TOTAL_COMPENSATION1	16,501	4,187.68	1,816.67	12,091.24	0.00	655,448.00
TOTAL_Compensation2	16,663	3,590.37	1,304.91	12,826.96	0.00	706,119.85
Number_Option_Grants	16,663	188.13	56.00	606.13	0.00	20,664.63
Value_Option_Grants	16,501	2,294.92	487.46	9,937.89	0.00	600,347.36
SHROWN	16,346	2,415.09	214.24	22,789.55	0.00	1,321,271.32
SHROWNPC	8,110	5.87	2.00	8.90	0.002	64.20
SAL_PCT	15,787	22.85	6.25	245.92	-100.00	18,050.51
RD_RATIO	6536	0.09	0.03	0.14	0	1.93
RD_RATIO1	6573	0.20	0.03	3.29	0	237.85
Table1_Panel_A.cont. RD_RATIO2	6585	1.22	0.16	93.72	-756.29	7503.05
RD_RATIO3	6536	-4.57	0.14	328.31	-26,355.60	108.23

Panel B. Sample Used in Analyses

	#of obs.	Mean	Median	Std Dev	Minimum	Maximum
SALES	6,318	4,716.75	1,390.64	11,931.47	0.00	174,694.00
SALECHG	6,301	17.47	8.33	73.48	-100.00	3,614.50
ASSETS	6,319	9,552.68	1,585.58	35,764.94	3.43	716,937.00
ASSETCHG	6,314	19.68	7.46	80.09	-97.48	3,179.63
OIBD	6,214	831.89	205.80	2,494.15	-5,743.00	42,342.00
OIBDCHG	5,895	41.30	10.78	1,655.37	-4,481.96	125,060.00
EPS	6,307	1.21	1.33	3.94	-231.67	25.29
EPSCHG	5,375	18.34	9.61	826.40	-13,800.00	42,900.00
CEO AGE	1,004	62.39	63.00	7.65	31.00	83.00
CEO TENURE	6,321	10.18	8.34	7.76	0.11	54.62
R&D EXPENSE	2,591	214.50	24.62	732.80	0.00	8,900.00
SALARY	6,321	598.78	541.82	335.80	0.00	4,000.00
BONUS	6,321	566.38	300.00	1,030.08	0.00	15,550.00
TOTAL_COMPENSATION	6,321	1,165.16	855.19	1,215.20	0.00	16,700.00
TOTAL_COMPENSATION1	6,232	3,933.51	1,744.08	11,961.40	0.00	655,448.00
TOTAL_COMPENSATION2	6,321	3,719.58	1,360.69	12,542.96	0.00	655,448.00
Number_Option_Grants	6,321	158.07	48.00	421.37	0.00	10,000.00
BLK_VALUE	6,232	1,919.37	388.79	7,122.05	0.00	244,538.69
SHROWN	6,128	1,939.99	185.05	15,269.06	0.00	787,055.60
SHROWNPC	2,650	5.39	1.90	8.55	0.002	64.20
SAL_PCT	5,857	18.61	5.65	135.64	-100.00	7,140.63
RD_RATIO	2,580	0.08	0.03	0.13	0	1.25
RD_RATIO1	2,583	0.25	0.02	4.89	0	237.85
RD_RATIO2	2,591	3.16	0.18	147.45	-67.25	7,503.05
RD_RATIO3	2,580	-10.04	0.14	518.90	-26,355.60	67.09

Table 2. Descriptive statistics of CEOs and firms by CEO tenure

The data are collected for every CEO in ExecComp for each year from 1993-2003. Annual R&D expenses are obtained from COMPUSTAT. SALES represents the net annual sales in millions of dollars as reported by the company. SALECHG is the year-to-year percentage change in SALES. ASSETS represents the total assets in millions of dollars. ASSETCHG is the year-to-year percentage change in ASSETS. OIBD represents the operating income before depreciation in millions of dollars. OIBDCHG is the year-to-year percentage change in OIBD. EPS represents the earnings per share excluding extraordinary items and discontinued operation in dollars and cents. EPS is the year-to-year percentage change in EPS. CEO_AGE is the CEO's age in the year when the CEO acquires the position. CEO_tenure is computed as the difference between the year at which the CEO acquired the position and the year at which the CEO steps down. R&D expense represents all costs incurred relating to development of new products or services in millions of dollars. SALARY and BONUS represents the dollar value of the base salary and a bonus (cash and non-cash) in thousands of dollars earned by the CEO during the fiscal year. Total_Compensation represents their total compensation comprised of salary and bonus. Total_Compensation1 is the total compensation for the individual year comprised of salary, bonus, other annual compensation, total value of restricted stock granted, total value of stock options (using Black-Scholes), long term incentive payouts, and all other compensation. Total_Compensation2 is the total compensation for the individual year comprised of salary, bonus, other annual compensation, total value of restricted stock granted, net value of stock options exercised, long term incentive payouts and all

other compensation. Number_Option_Grants represents the aggregate number of stock options/stock appreciation rights granted in thousands. Value_Option_Grants represents the aggregate value of stock options granted to the CEO during the year as valued using S&P's Black-Scholes methodology in thousands of dollars. SHROWN represents the aggregate number of shares held by the CEO excluding stock options in thousands. SAL_PCT is the year-to-year percentage change in salary. SHROWNPC represents the percentage of the company's shares owned by the CEO. RD_RATIO is defined as R&D expense over total expense where total expense is computed as the difference between Net Sales (Item 12 in COMPUSTAT) and Operating Income before Depreciation (Item 13 in COMPUSTAT). RD_RATIO1 is defined as R&D Expense over total revenue. RD_RATIO2 is defined as R&D Expense over Earnings before Interest and Taxes (EBIT). RD_RATIO3 is defined as R&D Expense over Earnings before Interest (EBITDA). Panel A contains financial information of the firm and CEO compensation information if the CEO's tenure is less than three years. Panel B contains financial information of the firm and CEO compensation information if the CEO's tenure is between three and five years. Panel C contains financial information of the firm and CEO compensation information if the CEO's tenure between five and ten years. Panel D contains financial information of thefirm and CEO compensation information if the CEO's tenure is greater than ten years.

Table 2. Panel A. CEO Tenure Less Than Three Years

	#of Obs.	Mean	Median	Std Dev	Min	Max
SALES	778	4,228.36	926.22	12,575	0.00	170,064.0
SALECHG	774	23.94	5.22	156.52	-100.00	3,614.50
ASSETS	779	8,251.10	871.16	41,840	5.88	716,937.0
ASSETCHG	779	24.00	4.34	116.62	-96.94	1,853.57
OIBD	761	674.23	104.79	3,024.1	-5,743.00	42,342.00
OIBDCHG	680	7.86	5.84	177.9	-2,275.6	2,281.50
EPS	777	-0.12	0.63	9.00	-231.67	12.32
EPSCHG	564	-36.85	-4.88	500.2	-4,366.7	4,125.0
CEO AGE	79	59.44	60.00	7.42	43.00	75.00
CEO TENURE	780	1.72	1.74	0.76	0.11	2.99
R&D EXPENSE	381	187.48	24.00	732.7	0.00	7,400.00
SALARY	780	514.80	439.08	318.8	0.00	2,007.7
BONUS	780	484.25	178.54	1,035	0.00	11,000.0
TOTAL_COMPENSATION	780	999.05	642.83	1,206.9	0.00	11,464.68
TOTAL_COMPENSATION1	763	4,574.37	1,543.4	12,566	0.00	193,784.1
TOTAL_COMPENSATION2	780	2,670.42	1,010.1	5,363	0.00	70295.92
LTIP	780	88.90	0.00	517.0	0.00	6,189.00
Number_Option_Grants	780	256.39	54.45	742.5	0.00	10,000.0
Value_Option_Grants	763	2,741.50	338.18	11,256.	0.00	182,319.4
SHROWN	718	1,052.39	100.00	3,769	0.00	36,777.56
SHROWNPC	218	4.62	1.33	8.05	0.01	49.4
SAL_PCT	663	71.68	11.40	352.5	-96.51	7,140.63
RD_RATIO	379	0.09	0.04	0.14	0	0.84
RD_RATIO1	380	0.23	0.03	2.09	0	39.84
RD_RATIO2	381	0.22	0.13	4.91	-32.4	74.18
RD_RATIO3	379	-0.42	0.11	13.3	-256.28	17.81

Table 2. Panel B. CEO Tenure Between Three and Five Years (3<= CEO tenure <5)

	#of Obs	Mean	Median	Std Dev	Min	Max
SALECHG	803	14.07	6.83	48.23	-100.00	808.71
ASSETS	812	5,923.7	1,508.1	17,984	6.27	213,016.00
ASSETCHG	810	14.70	5.68	50.09	-97.48	596.63
OIBD	808	591.63	170.29	1,473.5	-653.00	18,228.00
OIBDCHG	760	16.37	9.09	185.31	-1,661.61	3,619.99
EPS	810	0.80	1.03	3.31	-51.40	25.29
EPSCHG	649	-29.25	6.25	577.62	-10,200	6,020.00
CEO AGE	96	60.48	59.00	6.19	46.00	74.00
CEO TENURE	813	4.06	4.03	0.60	3.00	5.00
R&D EXPENSE	374	205.08	20.63	700.85	0.00	5,152.00

Table 2. Panel B. Cont. SALARY	813	529.47	500.00	289.99	0.00	3,660.51
BONUS	813	451.14	226.62	828.97	0.00	11,861.65
TOTAL_COMPENSATION	813	980.61	721.02	957.69	0.00	12,961.65
TOTAL_COMPENSATION1	803	3,268.5	1,609.8	6,115.5	0.00	116,091.76
TOTAL_COMPENSATION1	813	2,788.2	1,114.3	7,734.8	0.00	150,817.35
LTIP	813	112.97	0.00	612.30	0.00	11,739.33
Number_Option_Grants	813	154.24	50.00	369.74	0.00	4,907.95
Value_Option_Grants	803	1,634.5	408.16	5,268.3	0.00	114,818.6
SHROWN	783	1,022.7	94.00	3,447.9	0.00	34,796.8
SHROWNPC	259	5.19	1.40	9.70	0.002	61.4
SAL_PCT	758	27.07	6.71	133.8	-100	2,072.21
RD_RATIO	374	0.08	0.03	0.13	0	1.09
RD_RATIO1	369	1.00	0.02	12.69	0	237.85
RD_RATIO2	374	20.36	0.18	387.96	-20.15	7,503.05
RD_RATIO3	374	-70.11	0.14	1,362.8	-26,355	19.68

Table 2. Panel C. CEO Tenure Between Five and Ten Years (5<= CEO tenure <10)

	#of Obs	Mean	Median	Std. Dev	Min	Max
SALES	2,266	5,550.69	1,615.5	14,382.1	0.00	174,694.0
SALECHG	2,265	17.45	7.71	63.66	-100.00	1,550.90
ASSETS	2,266	11,667.3	1,962.5	38,603	3.43	485,014.0
ASSETCHG	2,266	21.45	7.15	99.73	-78.17	3,179.63
OIBD	2,221	1,066.23	244.80	3,053.79	-2,424.4	33,997.00
OIBDCHG	2,132	27.32	10.07	458.59	-4,482	19,886.31
EPS	2,260	1.46	1.52	2.55	-32.35	18.17
EPSCHG	1,967	45.21	8.80	1,125.64	-8,520.	42,900.00
CEO AGE	331	60.62	61.00	7.46	31.00	80.00
CEO TENURE	2,266	7.42	7.50	1.44	5.00	9.99
R&D EXPENSE	826	325.42	35.31	1,016.9	0.00	8,900.00
SALARY	2,266	609.70	555.01	312.84	0.00	2,500.00
BONUS	2,266	577.31	324.96	999.59	0.00	15,550.00
TOTAL_COMPENSATION	2,266	1,187.02	888.55	1,181.2	0.00	16,250.00
TOTAL_COMPENSATION1	2,236	3,698.03	1,784.1	7,638.6	0.00	141675.58
TOTAL_COMPENSATION2	2,266	3,626.20	1,425.5	10,147.6	0.00	170383.28
LTIP	2,266	243.05	0.00	1,005.94	-2,360.9	24,137.03
Number_Option_Grants	2,266	136.78	50.00	324.31	0.00	5,907.16
Value_Option_Grants	2,236	1,751.48	417.08	5,674.84	0.00	113,609.8
SHROWN	2,213	625.75	124.17	1,909.72	0.00	33,130.64
SHROWNPC	794	3.49	1.11	6.66	0.003	56.00
SAL_PCT	2,120	11.51	6.25	54.72	-100.00	1,728.58
RD_RATIO	820	0.08	0.03	0.12	0	1.25
RD_RATIO1	824	0.07	0.02	0.16	0	2.75
RD_RATIO2	826	0.24	0.23	2.39	-40.63	14.38
RD_RATIO3	820	0.19	0.17	2.31	-30.21	39.84

Table 2. Panel D. CEO Tenure Greater Than 10 Years (10 <= CEO tenure)

	#of obs.	Mean	Media	Std Dev	Min	Max
SALES	2,462	4,191.3	1,407.1	9,850.0	0.50	165,013.0
SALECHG	2,459	16.57	10.28	40.32	-90.85	841.09
Table 2. Panel D. Cont. ASSETS	2,462	9,215.1	1,559.5	35,258.8	6.13	642,191.0
ASSETCHG	2,459	18.32	9.49	46.49	-66.55	1,112.57
OIBD	2,424	746.75	227.14	1,931.51	-1,714.00	37,966.0
OIBDCHG	2,323	72.07	12.60	2,596.25	-1,736.92	125,060.0

EPS	2,460	1.55	1.47	1.96	-16.28	14.98
EPSCHG	2,195	22.50	11.90	610.33	-13,800	16,433.33
CEO AGE	498	64.41	65.00	7.55	42.00	83.00
CEO TENURE	2,462	17.42	14.68	7.61	10.00	54.62
R&D EXPENSE	1,010	137.47	19.76	364.52	0.00	3,696.00
SALARY	2,462	638.23	584.89	366.17	0.00	4,000.00
BONUS	2,462	620.39	350.00	1,108.84	0.00	15,000.0
TOTAL_COMPENSATION	2,462	1,258.6	935.05	1,309.72	0.00	16,700.0
TOTAL_COMPENSATION1	2,430	4,168.7	1,816.1	15845.09	28.00	655,448
TOTAL_COMPENSATION2	2,462	4,445.5	1,500.5	16710.38	28.00	655,448
LTIP	2,462	187.92	0.00	1200.41		31,325.0
Number_Option_Grants	2,462	147.78	40.00	368.69	0.00	5,943.65
Value_Option_Grants	2,430	1,909.8	358.30	7,162.94	0.00	244,538.7
SHROWN	2,414	3,706.3	427.71	23,986.7	0.00	787,055.6
SHROWNPC	1,379	6.63	2.60	9.13	0.003	64.20
SAL_PCT	2,316	7.16	4.69	37.53	-100.00	1,020.01
RD_RATIO	1,007	0.08	0.02	0.12	0	0.86
RD_RATIO1	1,010	0.14	0.02	0.75	0	12.30
RD_RATIO2	1,010	0.30	0.16	5.40	-67.25	144.08
RD_RATIO3	1,007	0.31	0.13	2.89	-17.05	67.09

Table 3. Comparison of firm and CEO compensation variables by CEO tenure

The table reports results of t-tests of firm and CEO compensation variables by CEO tenure. The first column displays the mean difference of the variables between the CEO tenure of less than three years and the CEO tenure from three to five years. The second column indicates the mean difference of the variables concerning the CEO tenure of less than three years and the CEO tenure between five and ten years. The third column reports the mean difference of the variables relating to the CEO tenure of less than three years and the CEO tenure greater than ten years. The fourth column represents the mean difference of the variables concerning the CEO tenure between three and five years and the CEO tenure from five to ten years. The fifth column displays the mean difference of the variables from the CEO tenure of less than three years and the CEO tenure greater than ten years. The last column reports the mean difference of the variables concerning the CEO tenure between five and ten years and the CEO tenure greater than ten years. t-statistics appear in parentheses.

	3>CEO Tenure vs. 3<= <5 CEO Tenure	3>CEO Tenure vs. 5<= <10 CEO Tenure	3>CEO Tenure vs. 10<CEO Tenure	3<= <5 CEO Tenure vs. 5<= <10 Tenure	3<= <5 CEO Tenure VS. 10< Tenure	5<= <10 CEO Tenure vs. 10<CEO Tenure
SALES	-222.30	-1,322.00*	37.06	-1,100.00*	259.35	1,359.40**
	(-0.40)	(-2.44)	(0.08)	(-2.51)	(0.69)	(3.76)
SALECHG	9.87	6.49	7.37	-3.38	-2.50	0.88
	(-1.68)	(1.12)	(1.30)	(-1.56)	(-1.33)	(0.56)
ASSETS	2,327.30	-3,416.00*	-964.00	-5,744.00**	-3,291.0**	2,452.10*
	(1.43)	(2.00)	(-0.58)	(-5.59)	(-3.46)	(2.27)
Table 3. Cont.						
ASSETCHG	9.30*	2.55	5.68	-6.75*	-3.63	3.13
	(2.05)	(0.55)	(1.33)	(-2.47)	(-1.82)	(1.36)
OIBD	82.60	-392.00**	-72.53	-474.60**	-155.10*	319.47**
	(0.68)	(-3.06)	(-0.62)	(-5.72)	(-2.39)	(4.22)
OIBDCHG	-8.51	-19.46	-64.20	-10.95	-55.70	-44.75
	(-0.89)	(-1.62)	(-1.18)	(-0.91)	(-1.03)	(-0.82)
EPS	-0.91**	-1.58**	-1.67**	-0.66**	-0.75**	-0.09
	(-2.66)	(-4.82)	(-5.12)	(-5.19)	(-6.13)	(-1.33)
EPSCHG	-7.61	-82.07*	-59.36*	-74.46*	-51.75	22.71
	(-0.25)	(-2.49)	(-2.4)	(-2.19)	(-1.92)	(-0.80)

CEO AGE	-1.04	-1.18	-4.97**	-0.14	-3.93**	-3.79**
	(-1.01)	(-1.26)	(-5.44)	(-0.19)	(-5.48)	(-7.11)
R&D EXPENSE	-17.60	-137.90**	50.02	-120.30*	67.61	187.95**
	(-0.34)	(-2.67)	(1.27)	(-2.38)	(1.78)	(5.05)
SALARY	-14.67	-94.90**	-123.40**	-80.23**	-108.80**	-28.53**
	(-0.96)	(-7.27)	(-9.08)	(-6.63)	(-8.66)	(-2.89)
BONUS	33.11	-93.06*	-136.10**	-126.20**	-169.2**	-43.07
	(0.70)	(-2.22)	(-3.04)	(-3.52)	(-4.62)	(-1.4)
TOTAL_COMPENSATION	18.44	-188.00**	-259.60**	-206.40**	-278.00**	-71.60
	(-0.34)	(-3.81)	(-5.13)	(-4.94)	(-6.51)	(-1.98)
TOTAL_COMPENSATION1	1,305**	876.34	405.65	-429.5	-900.2*	-470.7
	(2.59)	(1.82)	(0.73)	(-1.59)	(-2.33)	(-1.31)
TOTAL_COMPENSATION2	-117.8	-955.8**	-1,775**	-838*	-1,657**	-819.3*
	(-0.35)	(-3.33)	(-4.58)	(-2.43)	(-3.83)	(-2.06)
LTIP	-24.06	-154.1**	-99.01**	-130.1**	-74.95*	55.13
	(-0.85)	(-5.49)	(-3.25)	(-4.32)	(-2.32)	(1.72)
Number_Option_Grants	102.15**	119.61**	108.60**	17.46	6.45	-11.00
	(3.45)	(4.36)	(3.93)	(1.19)	(0.43)	(-1.09)
Value_Option_Grants	1,107*	990.01*	831.62	-117.00	-275.40	-158.40
	(2.47)	(2.33)	(1.92)	(-0.53)	(-1.17)	(-0.84)
SHROWN	29.66	426.63**	-2,654.0**	396.97**	-2,684.0**	-3,081.0**
	(0.16)	(2.91)	(-5.22)	(3.06)	(-5.33)	(-6.29)
SHROWNPC	-0.57	1.12**	-2.01**	1.70**	-1.44*	-3.14**
	(-0.71)	(4.38)	(-3.37)	(2.63)	(-2.30)	(-9.21)
SAL_PCT	44.61**	60.18**	64.52**	15.57**	19.91**	4.34**
	(3.07)	(4.38)	(4.71)	(3.11)	(4.05)	(3.06)
RD_RATIO	0.01	0.01	0.01	0.00	-0.003	-0.008
	(1.04)	(1.79)	(0.86)	(0.59)	(-0.42)	(-1.34)
RD_RATIO1	-0.77	0.16	0.09	0.93	0.86	-0.07**
	(-1.14)	(1.54)	(0.88)	(1.41)	(1.30)	(-2.88)
RD_RATIO2	-20.14	-0.01	-0.07	20.12	20.05	-0.06
	(-1.00)	(-0.05)	(-0.26)	(1.00)	(1.00)	(-0.34)
RD_RATIO3	69.69	-0.62	-0.73	-70.31	-70.43	-0.11
	(0.99)	(-0.91)	(-1.07)	(-1.00)	(-1.00)	(-0.92)

Table 4. Comparison of firm and CEO compensation variables by CEO age

The table reports results of t-tests of firm and CEO compensation variables by CEO age. The first column indicates the mean difference of the variables between the CEO age less than 45 years and the CEO age between 45 and 60years. The second column presents the mean difference of the variables between the CEO age less than 45 years and the CEO age over 60 years. The third column reports the mean difference of the variables between the CEO age between 45 and 60 and the CEO age greater than 60 years. LTIP is the amount paid out to the CEO under the company's long term incentive plan. These plans measure company performance over a period of more than one year. t-statistics appear in parentheses.** and * indicate statistical significance at the 1% and 5% tests levels, respectively.

	45>CEO Age vs. 45<= CEO Age <60	45>CEO Age vs. CEO Age <60	45<= CEO Age <60 vs. CEO Age <60
SALES	337.06	-227.3	-564.3*
	(1.76)	(-0.90)	(-2.06)
SALECHG	1.36	4.33**	2.97
	(0.76)	(3.91)	(1.72)
ASSETS	-1,102	-1,227	-124.7
	(-1.45)	(-1.29)	(-0.11)
ASSETCHG	3.21	6.20**	2.98*

	(1.93)	(3.79)	(2.52)
OIBD	11.90	-146.8*	-158.7*
	(0.28)	(-2.37)	(-2.35)
OIBDCHG	19.88	15.89	-3.98
	(1.17)	(0.90)	(-0.64)
EPS	-0.036	-5.82**	-5.78**
	(-0.68)	(-3.01)	(-2.99)
EPSCHG	-34.85	-37.9*	-3.04
	(-1.77)	(-2.18)	(-0.14)
R&D EXPENSE	3.34	35.81*	32.46
	(0.20)	(2.16)	(1.80)
SALARY	1.15	-64.1**	-65.25**
	(0.20)	(-8.82)	(-8.39)
BONUS	-61.8*	-122.3**	-60.49
	(-2.43)	(-4.05)	(-1.97)
TOTAL_COMPENSATION1	-1,244**	-587.6*	656.81*
	(-5.10)	(-2.48)	(2.24)
TOTAL_COMPENSATION2	-414.2	-1,062**	-648*
	(-1.76)	(-4.09)	(-2.11)
LTIP	129.59*	1.10	-33.98
	(2.62)	(0.05)	(-1.67)
Number_Option_Grants	-86.97**	-36.82*	50.15*
	(-6.98)	(-2.49)	(2.76)
Value_Option_Grants	-1,215**	-394.6*	820.89**
	(-5.58)	(-2.03)	(3.07)
SHROWN	-1811*	-1,834**	-23.45
	(-2.95)	(-6.96)	(-0.04)
SHROWNPC	1.12**	-3.17**	-4.29**
	(5.40)	(-10.65)	(-14.05)

Table 5. The Effect of Total Compensation, Total Compensation Change or CEO Tenure on Changes in Earnings per Share

The data are collected for every CEO in ExecuComp for each year 1993-2003.This table presents the results of simple linear univariate regressions of total compensation, total compensation change or tenure on changes in earnings per share. The first column displays the concurrent effect of total compensation, total compensation change or tenure on changes in earnings per share. The second column displays the effect of total compensation, total compensation change or tenure on changes in earnings per share one year later. The third column displays the effect of total compensation, total compensation change or tenure on changes in earnings per share two years later. EPSCHG is the year-to-year percentage change in EPS. Total_Compensation represents CEOs' total compensation comprised of salary and bonus. TCC_PCT is the year-to-year percentage change in total compensation. STAY_YEAR is the CEO's tenure. T-statistics are reported in the parentheses. * and ** denote significance at the 5% and 1% levels, respectively.

Panel A. CEO Tenure Less Than Three Years

	Dependent Variable								
	EPSCHG T0			**EPSCHG T1**			**EPSCHGT2**		
	1	2	3	1	2	3	1	2	3
Observations	329	329	329	329	329	329	329	329	329
R^2	0.006	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.003
Intercept	-64.72	-32.71	-44.54	11.97	11.99	44.36	-7.73	-1.48	27.51
Total_Compensation	0.029			0.001			0.006		
	(1.45)			(0.05)			(0.58)		
TCC_PCT		0.006			0.015			0.009	
		(0.11)			(0.34)			(0.32)	
STAY_YEAR			6.742			-17.51			-15.8
			(0.21)			(-0.65)			(-0.9)

Panel B. CEO Tenure Between Three and Five Years

	Dependent Variable								
	EPSCHG T0			**EPSCHG T1**			**EPSCHGT2**		
	1	2	3	1	2	3	1	2	3
Observations	449	449	449	449	449	449	449	449	449
R^2	0.006	0.002	0.000	0.002	0.000	0.004	0.008	0.000	0.005
Intercept	-99.89	-52.00	-90.47	-25.32	88.99	-771.2	29.94	-41.8	299.7
Total_Compensation	0.049			0.104			-0.068		
	(1.66)			(0.96)			(-1.87)		
TCC_PCT		0.156			-0.206			0.005	
		(0.94)			(-0.3)			(0.02)	
STAY_YEAR			10.37			209.27			-83.5
			(0.23)			(1.26)			(-1.5)

Table5. Panel C. CEO Tenure Between Five and Ten Years

	Dependent Variable								
	EPSCHG T0			**EPSCHG T1**			**EPSCHGT2**		
	1	2	3	1	2	3	1	2	3
Observations	1378	1378	1378	1378	1378	1378	1378	1378	1378
R^2	0.003	0.004	0.000	0.001	0.000	0.000	0.000	0.004	0.001
Intercept	-23.76	30.12	198.4	11.16	18.60	50.76	24.99	11.42	75.96
Total_Compensation	0.062			0.007			-0.005		
	(2.09)*			(1.05)			(-0.52)		
TCC_PCT		1.639			0.109			0.508	
		(2.41)*			(0.69)			(2.4)*	
STAY_YEAR			-19.36			-4.112			-7.7
			(-0.8)			(-0.72)			(-1.0)

Table 5. Panel D. CEO Greater Than Ten Years

	Dependent Variable								
	EPSCHG T0			**EPSCHG T1**			**EPSCHGT2**		
	1	2	3	1	2	3	1	2	3
Observations	1527	1527	1527	1527	1527	1527	1527	1527	1527
R^2	0.002	0.012	0.000	0.003	0.000	0.003	0.000	0.000	0.000
Intercept	-9.68	-3.18	26.63	49.02	-0.23	23.17	41.25	26.44	62.24
Total_Compensation	0.020			-0.037			-0.006		
	(1.66)			(-2.)*			(-0.27)		
TCC_PCT		2.013			0.012			0.667	
		(4.28)**			(0.02)			(0.8)	
STAY_YEAR			-0.543			-1.32			-1.65
			(-0.3)			(-0.5)			(-0.4)

Table 6. The Effect of Total Compensation, Total Compensation Change or CEO Tenure on Changes in Assets

The data are collected for every CEO in ExecuComp for each year 1993-2003. This table presents the result of simple linear univariate regressions of total compensation, total compensation change or tenure on changes in assets. The first column displays the concurrent effect of total compensation, total compensation change or tenure on changes in assets. The second column displays the effect of total compensation, total compensation change or tenure on changes in assets one year later. The third column displays the effect of total compensation, total compensation change or tenure on changes in assets two years later. ASSETCHG is the year-to-year percentage change in assets. Total_Compensation represents CEOs' total compensation comprised of salary and bonus. TCC_PCT is the year-to-year percentage change in total compensation. STAY_YEAR is the CEO's tenure. T-statistics are reported in the parentheses. * and ** denote significance at the 5% and 1% levels, respectively.

Table6. Panel A. CEO Tenure Less Than Three Years

	Dependent Variable								
	ASSETCHG T0			**ASSETCHG T1**			**ASSETCHGT2**		
	1	2	3	1	2	3	1	2	3
Observations	664	664	664	664	664	664	664	664	664
R^2	0.002	0.000	0.001	0.000	0.000	0.000	0.005	0.000	0.000
Intercept	29.41	25.57	18.63	27.52	25.73	25.95	32.87	26.84	23.72
Total_Compensation	-0.004			-0.002			-0.006		
	(-1.01)			(-0.42)			(-1.85)		
TCC_PCT		-0.005			0.001			-0.002	
		(-0.50)			(0.12)			(-0.3)	
STAY_YEAR			3.68			-0.073			1.644
			(0.59)			(-0.01)			(0.3)

Table 6. Panel B. CEO Tenure Between Three and Five Years

	Dependent Variable								
	ASSETCHG T0			**ASSETCHG T1**			**ASSETCHGT2**		
	1	2	3	1	2	3	1	2	3
Observations	752	752	752	752	752	752	752	752	752
R^2	0.002	0.002	0.001	0.002	0.000	0.000	0.001	0.000	0.000
Intercept	12.89	15.13	24.04	17.91	22.88	18.57	19.31	17.31	18.90
Total_Compensation	0.003			0.005			-0.002		
	(1.35)			(1.05)			(-0.87)		
Table 6_ B.cont									
TCC_PCT		0.010			0.001			-0.003	
		(1.07)			(0.03)			(-0.3)	
STAY_YEAR			-2.1			1.07			-0.42
			(-0.67)			(0.14)			(-0.1)

Table 6. Panel C. CEO Tenure Between Five and Ten Years

	Dependent Variable								
	ASSETCHG T0			**ASSETCHG T1**			**ASSETCHGT2**		
	1	2	3	1	2	3	1	2	3
Observations	2116	2116	2116	2116	2116	2116	2116	2116	2116
R^2	0.001	0.003	0.000	0.001	0.000	0.000	0.001	0.000	0.000
Intercept	24.34	20.21	28.10	21.09	19.41	23.76	18.02	16.41	18.62
Total_Compensation	-0.003			-0.001			-0.001		
	(-1.54)			(-1.07)			(-1.42)		
TCC_PCT		0.045			0.004			0.004	
		(2.5)*			(0.31)			(0.42)	
STAY_YEAR			-0.946			-0.576			-0.29
			(-0.65)			(-0.55)			(-0.4)

Table 6. Panel D. CEO Greater Than Ten Years

	Dependent Variable								
	ASSETCHG T0			**ASSETCHG T1**			**ASSETCHGT2**		
	1	2	3	1	2	3	1	2	3
Observations	2309	2309	2309	2309	2309	2309	2309	2309	2309
R^2	0.000	0.005	0.001	0.001	0.000	0.000	0.000	0.000	0.002
Intercept	18.18	17.95	22.44	17.98	16.55	18.68	20.12	19.72	27.49
Total_Compensation	0.000			-0.001			0.000		
	(0.67)			(-1.46)			(-0.06)		
TCC_PCT		0.068			-0.003			0.024	
		(3.48)**			(-0.13)			(0.81)	
STAY_YEAR			-0.208			-0.124			-0.43
			(-1.60)			(-0.89)			(-2.0)*

Table 7. The Effect of Total Compensation, Total Compensation Change on Changes in EPS and Changes in Assets, for the whole sample (without segmenting for tenure)

The data are collected for every CEO in ExecuComp for each year 1993-2003. This table presents the result of simple linear univariate regressions of total compensation, total compensation change on changes in EPS and assets for the whole sample. In Panel A, the first column displays the concurrent effect of total compensation and total compensation change on changes in earnings per share. The second column displays the effect of total compensation and total compensation change on changes in earnings per share one year later. The third column displays the effect of total compensation and total compensation change on changes in earnings per share two years later. In Panel B, the first column displays the concurrent effect of total compensation, total compensation change on changes in assets. The second column displays the effect of total compensation and total compensation change on changes in assets one year later. The third column displays the effect of total compensation and total compensation change on changes in assets two years later. EPSCHG is the year-to-year percentage change in EPS. ASSETCHG is the year-to-year percentage change in assets. Total_Compensation represents CEOs' total compensation comprised of salary and bonus. TCC_PCT is the year-to-year percentage change in total compensation. T-statistics are reported in the parentheses. *, **, and ***denote significance at the 10%, 5% and 1% levels, respectively.

	Dependent Variable					
Panel A	**EPSCHG T0**		**EPSCHG T1**		**EPSCHG T2**	
	1	2	1	2	1	2
Observations	3683	3683	3683	3683	3683	3683
R^2	0.003	0.000	0.000	0.000	0.000	0.000
Intercept	-30.058	16.505	30.885	19.018	24.662	15.055
	(-1.37)	(1.06)	(1.39)	(1.21)	(1.24)	(1.07)
Total_Compensation	0.039		-0.010		-0.007	
	(3.12)***		(-0.76)		(-0.64)	
TCC_PCT		0.127		-0.007		0.036
		(1.27)		(-0.07)		(0.40)

Panel B	**ASSETCHG T0**		**ASSETCHG T1**		**ASSETCHG T2**	
	1	2	1	2	1	2
Observations	5841	5841	5841	5841	5841	5841
R^2	0.000	0.000	0.000	0.000	0.001	0.000
Intercept	20.997	19.762	20.610	19.394	20.665	19.124
	(14.57)***	(18.85)***	(14.24)***	(18.42)***	(16.73)***	(21.29)***
Total_Compensation	-0.001		-0.001		-0.001	
	(-1.07)		(-1.14)		(-1.79)*	
TCC_PCT		0.006		0.003		0.000
		(1.17)		(0.55)		(0.08)