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Pay Distribution in the Top Executive Team

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Abstract

We investigate the distribution of pay in the top executive team in public companies. In particular, we study the CEO's pay slice (CPS), defined as the fraction of the aggregate top-five total compensation paid to the CEO. A firm's CPS might reflect the relative significance of the CEO – in terms of ability, contribution to the firm, or power – relative to other members of the top executive team.

We find that CPS has been going up over the past decade. During this period, CEOs have increased their fraction of both equity-based compensation and non-equity compensation.

The level of CPS is associated with various characteristics of the top team and the firm's governance arrangements. Among other things, CPS is high when the CEO has long tenure; when the CEO chairs the board; when few other executives are members of the board; and when the firm has more entrenching provisions.

High CPS is associated with lower firm value as measured by Tobin's Q. Using a simultaneous equations approach yields findings consistent with the possibility that this negative correlation is at least partly due to high CPS, or the factors that it reflects, bringing about a lower Tobin's Q.

High CPS is also associated with a reduction in the sensitivity of CEO turnover to performance. This is the case especially in firms with high entrenchment levels.

Overall, our results indicate that the distribution of compensation in the top executive team is an aspect of pay arrangements and corporate governance that is worthy of financial economists' attention.

Keywords: Executive compensation, corporate governance, CEOs, options, equity-based compensation, non-equity compensation, Tobin's Q, entrenchment, independent directors, board size, CEO tenure, CEO turnover, pay distribution, and internal pay equity.

JEL Classification: D23, G32, G38, J33, J44, K22, M14.

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I. INTRODUCTION

Although the compensation of executives has been the subject of much research in economics and finance, the distribution of pay in the top executive team has received relatively little attention from financial economists. We seek to help fill this void by investigating in this paper the distribution of pay among executives in the top management team of public companies.

In particular, we study the CEO's pay slice (CPS), which we define as the percentage of aggregate top-five total compensation captured by the CEO. We find that this variable has an interesting and rich set of associations with various firm and CEO characteristics. Further, CPS is negatively correlated with firm value as measured by Tobin's Q, with some evidence of a causal link running from CPS and the factors it reflects to lower Q, and news about increases in CPS is accompanied by negative abnormal returns.

Understanding CPS is necessary for a complete picture of pay arrangements at the top. While much attention has been given to the level of CEO pay, increases in CEO pay level can result from each of two different sources – an increase in the total compensation pie given to the top executive team (even without a change in the CEO's slice), and an increase in the CEO's slice (even without a change in the top team's compensation total).

CPS could also be of interest because it might reflect the relative significance of the CEO in terms of abilities, contribution, or power, and the empirical results we obtain are consistent with this possibility. A greater relative significance of the CEO might come from being a "star CEO" -- the CEO having (or being perceived as having) superior talents or qualifications that enhance the CEO's relative contribution to the firm as well as the value of outside opportunities. A greater relative significance of the CEO might also come from the CEO having relatively more power and influence over the board of directors. Greater relative significance in terms of contribution and power are, of course, not mutually exclusive, and can sometimes reinforce and complement each other. Each one of them, as well as their combined force, can lead to a CEO capturing a larger slice of the total compensation in the top team.

CPS might thus provide a window onto the operation of a firm's top management. A high CPS might reflect a firm having a "dominant player" management style. In contrast, a low CPS might reflect a "team play" management style. Because the difference in the extent to which the top management team has a dominant player is not otherwise readily and precisely observable, a

CPS might provide a useful proxy reflecting differences in key aspects of how firms are managed at the top.

CPS could also be of interest because it reflects the extent to which executives below the CEO face, whether or not by design, "tournament incentives" (Lazear and Rosen (1981)). The tournament literature highlights that differences between pay at one level and the one below can provide powerful incentives to agents at the lower level to be promoted to the higher one. The higher the CPS, the larger this prize from being promoted to a CEO.

There are three parts to our investigation of CPS, with the first part investigating how CPS varies across firms, CEOs, and circumstances as well as over time. We find that CPS has been increasing over the past decade. Thus, to the extent that differences in CPS reflect differences in the relative significance of the CEO in the top management team, this significance has been increasing.

Comparing to other governance arrangements, we find that CPS is higher when shareholder rights are weaker and the firm has more management entrenching provisions, especially when the firm does not have a large block-holder. CPS is also higher when the CEO also chairs the board. CPS decreases with the number of board seats held by other members of the top executive team. In terms of compensation policy, we find that CPS is higher when the total compensation paid to the top team is lower relative to similar companies.

In terms of CEO and other executives' characteristics, we find that CPS is higher when the CEO has longer tenure. CPS decreases as CEO ownership increases within the 5%-25% range, but increases within the 25%-100% range. There is also some evidence that CPS decreases as the share holdings of the other top executives goes up.

We also examine the two components of CPS – the CEO's slice of the top executive team's total equity-based compensation, and the CEO's slice of the total compensation that is not based on equity paid to the team. These two components largely move together, i.e., they are highly correlated. Both have been trending upwards, thus contributing to the upward trend of CPS as a whole. They also correlate similarly with most of the CEO and firm characteristics, which helps interpreting some results.

The second part of our inquiry investigates whether there is any systematic relationship between CPS and the factors it reflects, and firm value as measured by Tobin's Q. As will be explained, theory does not provide us with a clear prediction as to whether CPS and Q will be

systematically correlated and, if so, in what direction; and an empirical examination of the subject can be useful for an understanding of the causes and consequences of high CPS. We find a strong systematic relation between CPS and Q: controlling for the various factors that prior work has shown to be correlated with Q, there is a significant – and economically meaningful – correlation between CPS and Q. This finding rules out the possibility that high CPS or the factors reflecting it operate to increase value as well as the possibility that high CPS is selected by high-Q firms.

Of course, finding a correlation between CPS and Tobin's Q brings up the problem of causation. It might be suggested that the identified correlation reflects the tendency of lower-valued firms to use a high CPS in their compensation practices rather than CPS and the factors it reflects bringing about a reduction in firm value. To explore the causality question, we use a simultaneous equations approach, and this analysis fails to rule out the possibility that high CPS, or the factors that it reflects, bring about a lower Tobin's Q rather than the other way around. Consistent with this finding, we also find that news about increases in CPS is accompanied by negative abnormal returns, especially when the firm has many provisions entrenching management.

The third part of our investigation focuses on the relation between CPS and the sensitivity of CEO turnover to performance. We find that high CPS is associated with a reduction in the extent to which CEO turnover is sensitive to performance. This correlation might result from high CPS being associated with greater CEO power that might enable a CEO to remain in place even when performance is lacking. To the extent that insensitivity of turnover to performance has both ex post and ex ante negative effects, the correlation between high CPS and such insensitivity might contribute to the correlation of high CPS with lower Q. Furthermore, we find that the correlation between high CPS and insensitivity of turnover to performance is driven by firms with high entrenchment levels. With high level of entrenchment, the top executive team might have greater ability to resist outside pressures, and this ability tends to be used to protect a CEO from dismissal in the event of poor performance when CPS is high but not otherwise.

The literature on executive compensation to which we seek to contribute is vast (see Core, Guay, and Larcker (2003) for a review). The main aspects of compensation arrangements to which researchers have paid attention are the level and performance-sensitivity of a given executive's compensation. In particular, the literature has devoted much attention to studying

how the level of CEO pay is correlated with various characteristics of the CEO, the firm, or the circumstances. Among other things, studies examined how CEO pay is correlated protection from takeovers and the strength of shareholder rights (Borokhovich, Brunarski, and Parrino (1997)), the presence of blockholders (e.g., Cyert, Kang, and Kumar (2002)), the size of the board (e.g., Core, Holthausen, and Larcker (1999)), whether directors are busy serving on other boards (Core, Holthausen, and Larcker (1999)), whether the CEO also chairs the board (Cyert, Kang, and Kumar (2002), Conyon and Murphy (2000)), the tenure of the CEO (Ryan and Wiggins (2003)), whether the CEO came from outside the firm (Murphy (2002), and current and past returns (Murphy (1985)).

In contrast, in this paper we examine how various CEO and firm characteristics – including many whose relationship with the level of CEO pay prior work has examined – are correlated with the relationship between the pay of the CEO and the other top team members. Thus, this paper complements the above work by examining the effect of such variables on another significant dimension of pay arrangements. Note that a finding that a particular variable is correlated with higher CEO pay does not imply, of course, that it is also correlated with higher CPS; it might even be that it is associated with a lower CPS if it is associated with even greater increases in other top executives' pay than with increases in CEO pay. For a completing researcher's picture of pay arrangements, it might be worthwhile to attribute changes in CEO pay levels to their potential different sources – an increase in the total compensation pie given to the top executive team, and an increase in the CEO's slice. Our work complements existing work on CEO pay by identifying whether certain variables that have been found to result in higher CEO pay do so, at least in part, through the channel of higher CPS.

We also contribute to the literature over the changes in compensation over time. Various studies have documented that CEO compensation has been increasing over time (see, e.g., Hall and Murphy (2003), Bebchuk and Grinstein (2005), Frydman and Saks (2004)), and there have been various attempts to explain this trend. We find another trend taking place over the past decade – an increase in the CEO's slice of the top team's pay -- and it would be worthwhile for future work to try to explain this trend as well.

Another literature to which we seek to contribute is one that tries to examine how firm value as measured by Tobin's Q is associated with governance arrangements. For example, studies show that Tobin's Q is negatively correlated with the presence of staggered boards

(Bebchuk and Cohen (2005)), the strength of shareholder rights more generally (Gompers, Ishii, and Metrick (2003), Bebchuk, Cohen, and Ferrell (2004), and Cremers and Nair (2005)), and the presence of a large board (Yermack (1996)). We contribute to this literature by identifying yet another aspect of the firm's governance arrangements (beyond those already identified in the literature), that is associated with Tobin's Q.

Similarly, our work relates to the literature on CEO turnover and its sensitivity to performance (see, e.g., Warner, Watts, and Wruck (1988), Barro and Barro (1990), Jenter and Kanaan (2006), Kaplan and Minton (2006)). Among other things, this literature has attempted to identify the circumstances and factors that are associated with greater and lower sensitivity of turnover to performance (see, e.g., Weisbach (1988)). We contribute to this literature by showing that the sensitivity of CEO turnover to performance is negatively correlated with CPS.

Finally, our work is related to two earlier studies that used different measures, based on formal status characteristics, of CEO dominance within the top executive team. Morck, Shleifer, and Vishny (1989), in a study of alternative mechanisms for transfer of corporate control, define CEOs as powerful when no other person holds the title of President or Chairman and no other person co-signs the letter to shareholders in the annual report. More recently, in investigating how the presence of a powerful CEO is correlated with the variability of stock returns, Adams, Almeida, and Ferreira (2005) assume CEOs to be more powerful when they serve as chair of the board, when they are the only insider on the board, and when they have the status of a founder. We put forward in this paper CPS as a measure of CEO dominance that might capture differences not captured by formal status variables. As we shall see, CPS is positively correlated with such variables, but they explain only a small part of the variability in CPS.

Our analysis is organized as follows. Section II describes our data and presents summary statistics. Section III analyzes the relationship between CPS and various aspects of the firm, the CEO, and the environment. Section IV examines changes in CPS over the past decade and during a CEO's service. Section V breaks down compensation into its equity and non-equity components and separately analyzes the CEO's slice of each of these components. Section VI analyzes the relationship between CPS and Tobin's Q, as well as the returns that accompany the release of information about changes in CPS. Section VII examines the relation between CPS and CEO turnover. Finally, Section VIII makes concluding remarks, stressing the significance of CPS, and outlines directions for future work.

II. The Data and Summary Statistics

A. CEO's Pay Slice

In order to study the distribution of pay in the top executive team in public companies, we rely on data from the Compustat ExecuComp database from 1993 – 2004. In particular, we compute the CEO's pay slice (CPS), defined as the fraction of the CEO's total compensation relative to the combined total compensation of the top five executives (including the CEO) in that company, such that the CPS will be in the unit interval.[1] Our main measure is based on the total compensation to each executive, including salary, bonus, other annual pay, the total value of restricted stock granted that year, the Black-Scholes value of stock options granted that year, long-term incentive payouts, and all other total compensation (as reported in ExecuComp item # TDC1).

In addition, we also decompose the compensation of the CEO and other top executives into the part that is equity-based (i.e., from options and restricted stock grants) and the remainder (non-equity-based) component, and compute the CPS for each component separately (CPS-E and CPS-NE, respectively). Specifically, CPS-E is the CEO's pay slice based upon equity-based compensation only, defined as the total value of restricted stock granted and the Black-Scholes value of stock options granted. CPS-NE is based upon the non-equity-based compensation only, defined as the total compensation minus the equity-based compensation.

Univariate statistics for our time period of 1993 – 2004 are shown in Table 1. Using the universe of firms in the ExecuComp database, we find that the CEO's pay slice is, on average, 34.3%. Similar slices are given to the CEO in terms of equity and non-equity-based compensation. Interestingly, we observe an increase in all three CPS measures from 1993 to 2004. CPS increases from 33.2% in 1993 to 36.3% in 2004, an increase of approximately 10%. Of course, this might be not due to an actual time trend, but rather due to the changing characteristics of firms and CEOs in the sample. We will come back to this subject in Section IV, where we report evidence that, after controlling for firm and CEO characteristics, a positive time trend does indeed exist.

[1] Whenever ExecuComp reports more than five executives in a given year, we select the top five executives (in terms of total compensation) only to compute CPS for that year.

B. CEO and Firm Characteristics

A large body of research has investigated the correlation between various firm and CEO characteristics and the pay of CEOs. It is thus natural to examine how these variables are correlated with CPS. We group the variables into CEO characteristics, measures of the shareholder rights/power, and firm characteristics. We first define each of those variables and then show univariate statistics in Table 2, including the average and standard deviations of each variable for the full sample, as well as the two samples resulting from a split at the median CPS each year, and four samples resulting from a split at CPS quartiles each year. We also report the difference-in-mean test statistics of each variable across these samples.

1. CEO Characteristics

The CEO characteristics are based upon ExecuComp data: CEO tenure, CEO age, CEO coming from the outside, CEO as founder, and the percentage of CEO equity ownership. CEO tenure is the difference between the year of the observation and the year in which the executive became CEO. In our panel data sample, average CEO tenure is 6.8 years.[2] When comparing the average tenure between firms with above versus below average CPS, we find no statistically significant difference. However, looking at the quartiles, we find that tenure displays a non-linear relation with CPS. In the regressions, we thus include tenure and tenure squared. Age reflects the CEO's age in each given year, with an average of 54.7 years.

We determine whether the CEO came from outside or inside the company by comparing the date the executive joined the company versus the date the executive became CEO. In cases where the two dates were in the same year, the dummy variable called *CEO from outside* equals to one. On average, 15% of the CEOs joined the company from outside. In the univariate statistics, there is not a significantly higher fraction of CEOs that joined the firm from the outside in the subsample of high or low CPS. However, the quartile analysis suggests that there might be potential non-linearities. The dummy variable called *founder CEO* takes a value of one if the CEO is classified as the founder of the company. We call a CEO the founder if the executive became CEO at least five years before the firm went public. We use the first listing year in CRSP

[2] Kaplan and Minton (2006) show that CEO tenure has decreased over our time sample.

as a proxy for the year in which the firm went public. Thirteen percent of CEO-year observations are classified as founders in our sample. There is a significantly higher fraction of founder CEOs in the subsample with low CPS, and the relation seems to be relatively linear based upon the CPS quartile breakdown.

Finally, the percentage of CEO equity ownership equals the CEO stock ownership relative to total shares outstanding. On average, CEOs own 2.2% of the company's equity. We also compute the other insiders' ownership as the sum of the stocks owned by the other executives as reported in ExecuComp, relative to the total number of shares outstanding. In our sample the other top executive ownership is an average 1.4%. Average CEO ownership is higher in the subsample with below average CPS. However, the relation is non-linear again. We thus follow Morck, Shleifer, and Vishny (1988) in defining piece-wise linear ownership variables in our regression analysis.

2. Shareholder Rights/Power

The second set of variables relates to the power of shareholders, consisting of the entrenchment index (Eindex), a broader governance index (Gindex), institutional block ownership, and the 'abnormal' level of compensation to the top executives relative to the firm's industry and size. Following Bebchuk et al. (2004), we use the entrenchment index denoted by Eindex and consisting of 6 shareholder rights provisions in a firm's charter. Eindex ranges between 0 and 6, where higher values indicate weaker shareholder rights or more entrenched management.[3] The average firm has an Eindex of 2.2. As a robustness test, we have also used the Gompers et al. (2003) governance index (Gindex), consisting of 24 charter provisions, and the results are qualitatively similar.

The variable called *Block* is the fraction of shares owned by institutional blockholders, using the Thompson 13F database. Following Cremers and Nair (2005), blockholders are defined as single institutions owning at least 5% of outstanding shares. We find that block ownership is higher in the subsample of firms with low CPS, but this difference is not statistically significant.

[3] The Eindex is based on data from the Investor Responsibility Research Center (IRRC), which are updated in the years 1990, 1993, 1995, 1998, 2000, 2002, and 2004. For the years where IRRC data is not updated, we use the last value available. For further details, see Bebchuk et al. (2004). Our results are qualitatively similar when we use Gindex rather than Eindex. The results using Gindex are available upon request.

In our sample, we find that in the average firm, blockholders own 9% of the shares outstanding, with on average 79% of firms having an institutional blockholder.

The final measure related to shareholder power is the total amount of compensation paid to the top five executives relative to firms in the same industry and of similar size. To this end, we run an industry fixed-effects regression of the total compensation of the top five executives with year dummies and a size variable (log of equity market capitalization). Industries are defined at the two-digit SIC level, and size is the company's market value of equity. We call the residual of this equation the *Abnormal Total Compensation*. The question is whether the CEO's slice of the pie is larger or smaller if the total pie is bigger.

3. Other Firm Characteristics

We use the Compustat database to compute the return on assets (ROA), leverage, firm size, and high-tech industry dummy. ROA is defined as net profits divided by the book value of assets, leverage is long-term debt divided by book value of assets, and firm size is measured as the logarithm of the book value of assets (*log book value*). All three variables display a significantly higher average for firms with higher CPS. Following Murphy (1999), we define a dummy variable called *high tech* equal to one if the firm is an IT-related industry.[4] The subsample with low CPS has a higher fraction of high-tech firms.

Finally, we use CRSP to compute the annualized stock return for the current and past year. Firms with a higher CPS have a higher average stock return this year as well as last year.

III. POTENTIAL DETERMINANTS OF CPS

This section examines what characteristics of the CEO, the firm, and the circumstances are associated with higher CPS. As explained earlier, the results in the literature concerning how various variables are correlated with the level of CEO compensation do not directly imply any relation between these variables and CPS. The analysis below therefore seeks to provide a novel set of results with respect to the relationship between such variables and CPS.

[4] Specifically, the high-tech dummy equals one if the firm has one of the following four-digit SIC numbers: of 3570, 3571, 3572, 3576, 3577, 3661, 3674, 4812, 4813, 5045, 5961, 7370, 7371, 7372, 7373.

A. Which Firms and CEOs Have High CPS?

Table 3 displays the results of five pooled regressions with CPS as the dependent variable on the various CEO, shareholder power, and firm characteristics as described in section 2, using fixed industry-effects and year dummies. The first three regressions do not require that the CEO was already CEO the previous year and thus have the largest number of observations. The last two regressions incorporate that restriction, because they add variables of the ownership in the beginning of the year as well as the stock market return from the preceding year.

1. CPS and CEO Characteristics

Discussing the results by variable group, we start by considering the CEO characteristics in the first three regressions – the length of tenure, age, whether the CEO came from the outside, and whether the CEO is a founder.[5]

Tenure: Here, we find that CPS is significantly increasing in tenure in the first three regressions, while the effect is strongest in the earlier years as *Tenure squared* has a negative coefficient. There are three explanations, all pushing in the same direction. First, higher tenure might reflect a higher ability/contribution on the part of the CEO – either because of the acquisition of human capital (learning by doing) or because of a selection/survival effect (CEOs who have relatively lower ability tend to depart earlier). Second, the longer the CEO serves, the more power and influence the CEO is likely to have over directors, and the CEO might use this increased power and influence not only to increase the top team's total pie but also to increase his or her own slice of it; that is, there is no reason to expect the CEO to use increases in power and influence to press for higher pay to other top team members as hard as for higher pay to himself or herself.

Our result is consistent with the finding in the literature that long CEO tenure is associated with higher CEO pay (Core, Holthausen, and Larcker (1999) and Cyert, Kang, and Kumar (2002)). It indicates that the result in the literature is at least partly due to an increase in CPS. It would be interesting to examine in subsequent work whether the effect on the CEO pay level is solely due to the increase in CPS. That is, do CEOs use increased power to benefit also

[5] In regressions 4 and 5 we subsequently add the CEO ownership in the piecewise linear specification as in Morck, Shleifer, and Vishny (1988).

other team members and is longer CEO tenure thus associated with higher compensation to the other members of the top team as well?

It is far from clear that this result can be expected under a pure tournament model. Longer tenure might be correlated with higher likelihood of departure. This increased likelihood of the CEO leaving might be sufficient to provide the other executives with sufficient incentives to excel, such that their salaries can be kept relatively low, in turn resulting in a high CPS. To the extent that this is the case, this result indicates that CPS reflects not only tournament model but also the CEO'S relative significance.

Age: We find that CPS is lower for CEOs whose age exceeds 65. This might be due to the fact that their outside opportunities are lower; that their influence is weakening as their retirement is looming; or that their contribution/level of activity is starting to decline. The coefficient of the dummy for young CEOs (below 50) is negative in all regressions but not significant.

CEO Background: We find that CPS is higher for CEOs coming from the outside. This result is consistent with the findings of Murphy (2002) that first-year CEOs get higher pay if they are hired from the outside. Bebchuk and Fried (2003) argue that outsiders are often already CEOs and thus have higher opportunity costs, which requires paying them more. Clearly, as the CEO is staying longer, whether he or she came initially from inside or outside recedes in significance, and consistent with this we find in regression 3 that the interaction of outside with tenure is negative.

Also, the first three regressions indicate that founders have lower CPS. Once ownership is controlled for, however, the evidence for this correlation in the fourth and fifth regressions is mixed.

*CEO Ownership: R*egressions 4 and 5 of Table 3 add ownership variables for both the CEO and other insiders. We find strong evidence for a non-linear relationship between CPS and CEO ownership**:** at low levels of CEO ownership (less than 1% of firms on average), there is no effect. CPS is decreasing in CEO ownership for medium levels of CEO ownership (between 5% and 25% ownership, on average for about 7% of firms), but increasing in CEO ownership for very high levels of CEO ownership (higher than 25% ownership, on average for about 5% of firms).

Thus, the association between ownership and CPS is similar to the association between ownership and Q in the well-known results of Morck, Vishny, and Shleifer (1988). Their interpretation could be applied to the case under consideration if one were to assume that increasing CPS decreases value for public shareholders. Within the range 5%-25%, increased ownership provides incentives to enhance shareholder value. Beyond 25%, under this story, increased ownership makes the CEO entrenched and the board more willing to increase CPS and giving little weight to outside investors' interests.

2. CPS and Shareholder Rights

Next, we consider the power of shareholders as measured by the entrenchment index Eindex, the fraction of outstanding equity owned by institutional blockholders, and the relative total compensation paid to the top executive team (relative to firms of similar size in the same industry).

Table 3 shows clearly that high entrenchment is associated with higher CPS. The coefficient of the entrenchment index is significant and economically meaningful in all regressions. This result might suggest that higher entrenchment is associated with greater dominance of the CEO in the top executive team.

Borokhovich et al. (1997) and Fahlenbrach (2004) find that anti-takeover provisions are correlated with higher CEO pay. Our result indicates that at least one channel through which entrenchment might lead to increased CEO pay is through increasing the CEO's slice. This raises the question, which future research might want to examine, whether weaker shareholder rights also increase total top-five compensation as well as the compensation of members of this team other than the CEO.

We also consider the presence of institutional blockholders, holding at least 5% of outstanding shares. Having a blockholder can lead to more monitoring (Shleifer and Vishny (1986)), and there is much empirical evidence that block ownership can influence governance, particularly executive compensation.[6] We find that institutional block ownership is higher in the subsample of firms with low CPS. However, the difference is not statistically significant, and neither is it in regression 1 when considered in isolation.

[6] See e.g., Cyert, Kang, and Kumar (2002), Core, Holthausen, and Larcker (1999), Hambrick and Finkelstein (1995), Tosi and Gomez-Meija (1989), and Bertrand and Mullainathan (2000, 2001).

However, we find a strong interaction between the Eindex and blockholding, indicating a complementary effect consistent with Cremers and Nair (2005) and Cremers, Nair, and Wei (2006). Specifically, the results in regression 2 indicate that more entrenchment (higher Eindex) is only associated with higher CPS in the presence of a large institutional blockholder.

3. CPS and Total Top-Five Compensation

Abnormal Total Compensation measures the size of the total compensation piece to the top 5 executives that is being sliced. It makes sense to look not on the absolute level of compensation but rather on how large compensation is large relative to similar firms, because of the strong relationship between the level of pay and firm size and industry (see, e.g., Bebchuk and Grinstein (2005)). To this end, Abnormal Total Compensation is computed as the residual of the regression of (the log of) total compensation of the top 5 executives on (the log of) market cap and industry and year fixed effects.

All five regressions indicate that CPS is higher when total compensation is lower (relative to firm characteristics). That is, when the pie is smaller, CEOs receive a bigger slice. It is as if CEOs can afford to be "less generous" toward their team members when the pie to be divided is smaller.

4. CPS and Firms' Financial Characteristics

Lastly, we have financial variables about the firm: ROA, leverage, firm size, the high tech industry dummy, and the return for current and past year.

We find that CPS is higher when leverage is higher. It is unclear how to explain this association. While leverage is viewed as costly to the members of the top executive team, it might be especially costly to the CEO, who might suffer disproportionate loss of reputation in the event of default. Accordingly, when leverage is high, the CEO might need more compensation, and might be more aggressive about securing large compensation while in control.

We find that CPS is higher when ROA, current stock returns, and the stock returns of the prior year, are higher. This could be explained by the CEO's compensation being more sensitive to performance than that of the other members of the team.

B. Firm and CEO Fixed-Effects Regressions

Fixed-effect regressions are displayed in Table 4, which ensure that our results are not driven by some characteristics that have been omitted from our regressions. The CEO fixed-effect regressions go a step further and enable us to obtain results (for variables that can change during the service of a CEO) that are not vulnerable even to omitted CEO variables. In both cases, we run two regressions – one with all our observations, and one with only those CEOs who were in place in the previous year already and for whom we thus have ownership and prior returns data.

The regressions display the robustness of results we obtained earlier. Increases in tenure continue to be associated with higher CPS, with a declining degree as tenure increases. The firm fixed-effect regressions where we have more variation in terms of changes from one age group to another indicate that CPS is lower for CEOs whose age exceeds 65.

Other variables that exhibit significant variation within firm-years and CEO service are the performance metrics – ROA, current year return, and prior year return. The regressions indicate the robustness of the positive correlation between CPS and performance.

The extent to which total top-five compensation is high relative to peers also might change significantly from year to year and thus is another variable on which the fixed effect regressions can shed light. All four regressions confirm that CPS is negatively correlated with lower abnormal top-five compensation.

Finally, the Eindex changes little with a CEO's tenure or for each firm, while there are sufficient changes in institutional blockholdings within firms and even within a CEO's tenure. As a result, the interaction between Eindex and blockholding is still (marginally) significant when using firm (or CEO) fixed effects.

C. Board Characteristics

Table 5 presents the relationship between CPS and the following board characteristics: a dummy of whether the CEO is also the chairman of the board, the number of other top 5 executives on the board, the size of the board, the number of other CEO board seats, and dummies for an independent board, compensation committee, and nominating committee,

whether the CEO is on the nominating committee, and finally whether the board is considered to be 'busy'. Due to data limitations in IRRC, board characteristics are only available from 1996 onwards, with board committee variables only available from 1998.

We run six regressions. Regressions 1 and 2 are pooled regressions, regressions 3 and 4 are fixed firm-effect regressions, and regressions 5 and 6 are CEO fixed-effect regressions. In each pair of regressions, the first regression uses all the observations from 1996 onwards and does not have board committee variables, and the second regression uses the observations from 1998 and includes the committee variables. The results can be summarized as follows.

CEO-Chair: We use data from ExecuComp to determine whether the CEO is also the Chairman of the Board and create a dummy variable (CEOCHAIR) equal to one if the CEO is also Chairman. The coefficient of the dummy indicating that the CEO is also chair is positive and significant in the first two regressions, and positive but not significant in the other four. A positive correlation might reflect the likelihood that a CEO who serves as chair will be a dominant player. The CEO's being a chair might be a reflection of greater ability, or it might provide the CEO with more power and influence over the board, and each factor operates to increase the CEO's dominance.

Our result is consistent with studies indicating that CEO compensation is higher when the CEO is also chair of the board. (Goyal and Park (2002), Cyert, Kang, and Kumar (2002), Conyon and Murphy (2000), and Core, Holthausen, and Larcker (1999)). The results indicate that the higher CEO pay associated with CEO-Chair is at least partly due to higher CPS.

Non-CEO Executives on Board: While the CEO is generally a member of the board, and firms vary only whether the CEO is also chair, there is significant variance among firms in terms of how many other executives serve on the board. Using IRRC data, we construct a variable equal to the number of executives other than the CEO who serve on the board. The number of other executives on the board is determined by matching the names and age of the board members in IRRC to the names of the other top four executives in ExecuComp.

The coefficient of this variable is negative and significant at 99% in all six regressions. This result is consistent with viewing CPS as reflecting the CEO's relative significance in terms of abilities and/or power. The presence of other executives on the board might reflect that their contributions and abilities are also highly appreciated. This presence also means that the CEO is

not the only member of the top executive team that has direct communications channels and board collegiality links with the directors.

Board Size: We also include the board size, using information from IRRC. The coefficient of board size is negative and significant in each of the six regressions. We are not sure how to interpret this result. One possibility is that a larger board size makes it more likely that non-CEO executives will serve on the board and, notwithstanding the control for the number of non-CEO directors, this factor drives the result.

There is evidence in the literature that board size is positively correlated with the level of CEO pay (Core, Holthausen, and Larcker (1999)).[7] Our finding that board size is negatively correlated with CPS indicates that firms with large boards pay their top-five teams so much more that they also pay their CEOs more, notwithstanding their CPS is lower.

Independence: The coefficient on the board having a majority of independent directors is negative but is not significant in all six regressions. Theoretically, we are not sure what relationship to predict between independence and CPS. Although at first glance, board independence weakens the CEO, it does not strengthen the other executives. Independence has to do more with the relative significance of the management team and the board than with the relative significance of members of the top executive team vis-à-vis each other. Furthermore, when the board is not independent, it is likely that a significant number of the top-five executive team will be on the board themselves.

We also do not find evidence of significant association between CPS and the independence of the compensation committee and the nomination committee.

Board Seats in Other Companies: Finally, we use IRRC data to construct two variables about seats on other boards of publicly traded companies that either the CEO or other directors have. At first glance, one might think that if the CEO gives less time to the company because of other occupations, he should be paid less. However, we conjecture that the number of seats on other boards reflects how much of a star status and outside opportunities the CEO has. On average, the CEO has 0.5 other board seats in publicly traded companies. Consistent with our

[7] Yermack (1996) finds that pay-performance sensitivity decreases when the board size increases. Our question is, of course, not whether CEO (performance) pay is higher but rather whether the CEO's slice is higher.

conjecture, the coefficient of the number of board seats of the CEO is positive, though not significant, in all six regressions.

Following Core, Holthausen, and Larcker (1999), and Fich and Shivdasani (2006), we define a busy board dummy equal to one if the average director holds three or more directorships. They find that CEO compensation goes up with the number of outside directors serving on three or more other boards. We find that the coefficient of the busy board dummy is positive but not significant in all six regressions.

Thus, we do not find evidence that the channel through which a busy board leads to an increase in CEO pay is through raising CPS. While a busy board may not be effective in limiting CEO pay, it may be similarly lax with respect to other executives' pay. Thus, it might be that a busy board results in an increase in overall total top-five compensation, an effect that can produce an increase in CEO pay even without raising CPS.

IV. Changes over Time

As seen earlier, average CPS has been trending upwards throughout the 1993-2004 period we examine. However, this summary of statistics reflects a change in the mix of firm and CEO characteristics. It does not necessarily imply that, for firms and CEOs of a given type, pay distribution at the top has been changing.

We explore this issue by adding to our regressions two variables that can capture the time trend. One is the number of years that passed since the beginning of the period of examination. The other is a dummy for whether we are in the second half of the period. For each we run four regressions: with industry and firm-fixed effects, and for each with and without CEO and other insider ownership variables.

The results in Table 6 indicate strong evidence for a time trend in CPS, with any additional year increasing the share to the CEO by an additional 0.2 – 0.4 percentage points. Importantly, this time trend in CPS is observed while controlling for the level of total compensation to the top 5, given that abnormal total compensation, industry dummies, and firm size are always included as well. The trend towards a growing centrality and power of the CEO is also born out by the post-2002 dummy, which is highly significant and economically

meaningful, suggesting that CPS is about 1.3 –1.6 percentage points higher in the second half of our sample.

Khuranah (2002) has argued that during the period under examination, CEOs have become increasingly viewed as stars – or, in his words, as "the corporate savior."[8] Our results indicate that CEO centrality has not only increased in terms of outside perceptions but has also been reflected in increased CPS.

The finding that CPS has been increasing over time raises questions that would be worthwhile examining in future research. First, what explains this trend? Second, what is the relationship, if any, between this trend and the parallel trend toward increasing top-five compensation? These are questions that we believe would be worthwhile for future research to examine.

V. EQUITY VERSUS NON-EQUITY COMPENSATION

Thus far, we have looked at all components of compensation together, using only total comp figures for both the CEO and the other executives. We now turn to separately consider the two components of compensation, namely the part that is equity-based, defined as options and restricted stock, and the non-equity part, the remainder. We denote the CEO's slice of total equity compensation to the top 5 executives by CPS-E, and the CEO's slice of the total non-equity compensation by CPS-NE.

The first question is how CPS-E and CPS-NE are correlated. There are two possible hypotheses. First, if the CEO gets a higher slice of one type of compensation, he or she can be given relatively less of the other type of comp, in which case a negative correlation would be predicted. Alternatively, if the CEO is more significant in terms of ability or influence relative to others, the CEO will get a higher slice of both equity and non-equity comp. In this case, the correlation would be positive.

Table 7 panel A displays the correlation between CPS, CPS-E, and CPS-NE. We find that both components have high correlations with CPS (66% and 74% for CPS-E and CPS-NE,

[8] Malmendier and Tate (2005) try to measure the extent to which CEOs are stars. It would be interesting to examine whether measures of CEO stardom have increased over the period under examination.

respectively), but a much lower though still highly significant and positive correlation with each other, of 22%.

In Panel B of Table 7, we present the results of a regression of CPS on its two components, including industry fixed effects and year dummies. We find that the variance in CPS is not driven primarily by variance in one of the components. Rather, each component contributes substantially to the variance in CPS.

Next, Table 8 presents the regression results relating CPS to the various characteristics of the CEO, the firm, and the environment, but now separately for CPS-E and CPS-NE. This allows a test of whether CPS-E and CPS-NE have a different relationship with any of the characteristics that we have found to have a significant association with CPS as a whole, or whether any of those previously found relationships are driven by only one of the components.

Again starting with the CEO characteristics, we find that the positive relationship between CPS and tenure is driven totally by CPS-NE. The longer the tenure, the more the slice of non-equity compensation taken by the CEO. In contrast, with increased tenure, the CEO's slice of equity comp actually goes down. This might be explained by the idea that it is the stock and now the flow of equity compensation that provide CEOs with the right incentives, and CEOs with longer tenures are already loaded with significant options/shares of the company.

The lower CPS of CEOs older than 65 is driven by both CPS-E and CPS-NE. However, the especially young CEOs, or those below 50 years of age, get systematically lower CPS-NE but not when it comes to equity. This fact might reflect that, if youth is correlated with a longer horizon and (thus) more willingness to take risks, younger CEOs have a relative preference for equity compensation.

The results for the outside CEO dummy are a bit surprising. The larger CPS of outside CEOs appears to be driven by larger CPS-NE. In particular, the ‘CEO from the outside’ dummy has a positive and significant coefficient in the CPS-NE regressions, but using CPS-E the coefficient is negative (though not significant). At first glance, one might have expected that outsiders would receive relatively higher CPS-E to get the right incentives in place, as they presumably are starting with no options or shares. However, we find that the outsiders' larger slice is driven by the non-equity-based compensation.

Turning to the ownership variables, for CPS (see Tables 3 and 4) we observed a lower CPS if either the CEO or the other insiders own more shares, except when either category of

ownership is very large and goes beyond 25% of outstanding shares. Table 8 shows that the same holds for both components of CPS, but also reveals an interesting difference in CEO versus other insiders' ownership. For the majority of firms, falling in the group of 0 – 5% ownership by either CEO or other insiders, we find that the relationship between ownership and CPS-E is much stronger for ownership and CPS-NE when using CEO ownership. For example, the coefficient of 'CEO ownership 0 – 5%' equals -89.5 in regression 1 for CPS-E, but only -8.4 in regression 5 for CPS-NE. However, for ownership by other insiders we find hardly a difference. For example, the coefficient of 'Other insider ownership 0 – 5%' equals -111.2 in regression 1 for CPS-E and -98.7 in regression 5 for CPS-NE.

It is also interesting to note that CEO ownership increases both slices in the range above 25%, but decreases both in the range below 25%.

For shareholder power, we continue to find strong association with entrenchment. Moreover, we find that this association is with both components.

Comparing the impact of the overall compensation level of the top 5 executives (relative to firms of similar size and in the same industry), we find a strong difference across the two components. When the abnormal total compensation is high, CPS-E is higher (e.g., coefficient of 0.704 in regression 1), but CPS-NE is lower (e.g., coefficient of -0.701 in regression 5). While higher abnormal total compensation is likely driven by higher total equity-based compensation, that by itself would not imply that a relatively larger fraction of that would be awarded to CEOs, as Table 8 shows. Rather, this result suggests that when compensation is high, and given that CEO pay is the most salient to investors, higher levels of CEO compensation are easier to justify if they come in the form of equity compensation.

The earlier results about the role of executives on the board hold for both components, with the CEO as the chair increasing both CPS-E and CPS-NE and more other executives on the board decreasing both of them. Finally, the increase of CPS over time is not limited to one of the components, but both CPS-E and CPS-NE have been going up. However, CPS-E ('year' coefficient of 0.345 in regression 2) has gone up faster than CPS, NE ('year' coefficient of 0.147 in regression 6).

VI. CPS AND FIRM VALUE

A. How Should CPS and Firm Value Be Expected to Correlate?

We begin with a brief discussion of whether and how, on theoretical grounds, CPS and firm value should be expected to correlate. Such correlation can be produced both (i) whatever effects CPS or the factors it reflects have on firm value, and (ii) selection effects, namely, the correlation between firms' value and their tendency to set high CPS.

(i) The Effect on Firm Value: Theoretically, a dominant player model could have both advantages and disadvantages over a team play model. On the one hand, a dominant player model could provide clarity, steadiness, and reduction in the cost of decision-making. On the other hand, there is a large body of literature, starting with Shaw (1932),[9] extolling the benefits of group rather than individual decision-making. There is also experimental data showing that groups often outperform individuals in decision-making (see Bainbridge (2002) for a survey). Furthermore, a dominant player model and the high CPS coming with it can lead to resentment on the part of the other members of the top team (Brill (1993) and Cook (1990)).

Similarly, a tournament environment can provide both positive and negative ex ante incentives (Milgrom and Roberts (1992)). On the one hand, a tournament may provide executives other than the CO with incentives to excel to increase their chances of succeeding the CEO. On the other hand, a tournament may also produce deadweight costs by, for example, providing executives vying for the CEO position to be less cooperative with, or even seek to, undermine their rivals.

Furthermore, whatever one's view of the relative merits of dominant player models and tournaments, one size likely does not fit all. A dominant player model might be a better fit for the players and circumstances of one firm than for another, and vice versa for tournament incentives. Some might argue that, in equilibrium, each firm will choose the management model optimal for it. However, others might argue that, because choices are not all made at the IPO stage and are partly made by agents with agency costs, there might be firms with sub-optimal management models; for example, a CEO might have enough power to maintain a dominant model to enjoy its private benefits even if the model is not optimal for shareholders.

[9] See also Miner, (1984), Blinder and Morgan (2000), and Hill (1982).

(ii) Selection Effects: Note that, to begin with, some of the factors correlated with the choice of high CPS, such as high level of entrenchment, are known to be correlated with lower firm value. The question is whether, controlling for such factors, firms' decisions to set a high CPS will be correlated with firm value.

It might be argued that low-value firms will have a greater need for a dominant player that will turn around the firm. However, while the decisiveness and clear leadership of a dominant player model might provide benefits to a low-Q firm that needs a turnaround, they can also be valuable to a high-Q firm that has many growth opportunities. Similarly, while tournament rewards might be useful to incentivize non-CEO executives to help bring about significant change, they can also be helpful in incentivizing them to pursue well the growth opportunities facing a high-Q firm.

A firm's choice of CPS level might also depend on the relative abilities and outside opportunities in the pool of executives available to the firm. While this is likely to be the case, it is far from clear that this consideration is systematically correlated with firm value.

Altogether, the above theoretical discussion makes it clear that theory does not provide us with a clear and unambiguous prediction of how CPS should be expected to correlate with firm value; investigating the issue empirically is useful. Our finding that CPS is negatively correlated with Tobin's Q highlights that the internal relationship within the top executive team is significantly linked to firm value, and provides a basis for further empirical and theoretical work on this issue.

B. The Correlation between CPS and Tobin's Q

In this section, we study empirically the association between CPS and firm value, using Tobin's Q as the measure of firm value. This follows earlier work on the association between corporate arrangements and performance, which has extensively used Tobin's Q as the measure of firm value (Demsetz and Lehn (1985), Morck, Shleifer, and Vishny (1988), Lang and Stulz (1994), Yermack (1996), Gompers, Ishii, and Metrick (2003)). Our definition of Q is that used by Kaplan and Zingales (1997) and subsequently also by Gompers, Ishii, and Metrick (2003).[10]

[10] According to this specification, Q is equal to the market value of assets divided by the book value of assets (Compustat item 6), where the market value of assets is computed as the book value of assets

Specifically, our dependent variable is the industry-adjusted Tobin's Q, using industry-adjustments at the two-digit SIC code.[11]

We use a number of standard controls that have been used in the above literature. These include: the assets of the firm (in log of the book value), the age of the firm (in logs) (see Shin and Stulz (2000)), the ratio of capital expenditures to assets (ROA, Capex/Assets), leverage, the ratio of R&D expenditures to sales (R&D), dummy for missing R&D data, and year fixed effects.

The basic result is given by regressions 1 and 2 in Table 9, indicating that higher CPS has a strong association with lower firm value.[12] Regression 1 uses a contemporaneous association, while regression 2 uses lagged CPS and lagged ownership variables. The economic significance is strong in regression 2: a standard deviation shock in the value of CPS (equal to 11.63%) is associated with a reduction in next year's Tobin's Q of 5.9% (= 11.63% x -0.507).

Regressions 3 (using contemporaneous CPS) and 4 (lagged CPS) show that this result is driven by firms with high entrenchment as measured by the Eindex. We include both CPS and CPS interacted with the Eindex, and only the interaction has a significant (and negative) coefficient. For firms with maximum entrenchment (Eindex value of 6), the association of a standard deviation shock to CPS is particularly strong with a reduction in next year's Tobin's Q of 23% (= 11.63% x 6 x -0.329, see regression 4). Interestingly, using lagged CPS and the interaction of lagged CPS with the Eindex drive out the importance of the Eindex in isolation. This suggests a complementary relationship, as it is only firms with both entrenchment and high CPS that have lower firm values.

(Compustat item 6) plus the market value of common stock (Compustat item 24 * Compustat item 25) less the sum of book value of common stock (Compustat item 60) and balance sheet deferred taxes (Compustat item 74).

[11] Alternative specification of our regressions, with log Q as the dependent variable and SIC codes as industry fixed effects, yield similar results throughout. Also, using the Fama-French classification of industry groups, rather than SIC two-digit codes, yields similar results throughout.

[12] Table 10 presents results for the same regressions as in Table 9 but using Fama-MacBeth-type regressions. The results in Table 9 as discussed in this section generally also hold in Table 10.

C. Exploring Causality

The above finding of negative correlation between CPS and Q enables us to reject theoretically possible relations – that high CPS, or the factors that it might reflect, such as a dominant player model or a tournament environment, reduce Q, or that high-Q firms tend to choose high levels of CPS. The finding, however, can still be explained by either (i) CPS, or the factors it reflects, bring about a reduced Q, or (ii) high-Q firms tend to avoid a high CPS, or both.

To explore the causality issue, we conduct two tests. Our first test is based on including the Tobin's Q prior to the CPS in regressions 5 and 6 of Table 9, both of which keep the interaction between CPS and the Eindex. Therefore, regression 5 effectively considers how changes in firm value are associated with contemporaneous CPS. We find the higher CPS is associated with increases in firm value for firms with low entrenchment, but with decreases in firm value for firms with high entrenchment (Eindex $\geq$ 3). Similarly, regression 6 looks at the relationship between changes in firm value and lagged CPS, where such changes in firm value are calculated from one year before the lagged CPS was observed (or two years before the observed Tobin's Q of the dependent variable). The coefficient of the interaction of CPS with the Eindex in regression 6 is clearly consistent with the result in regression 4 (-0.150 for a two-year change roughly equals a coefficient of -0.329 for annual levels). The statistical significance is weaker at the 10% level, with a t-statistic of 1.81.

Our second test employs a simultaneous equations approach using three-stage least squares regressions, in which both CPS and industry-adjusted Tobin's Q are considered to be endogenous variables. For Tobin's Q, we use the basic regression 1 specification from Table 9 (with lagged ownership), including contemporaneous CPS. For the CPS regression we use regression 1 from Table 3 augmented by the lagged ownership variables and contemporaneous industry-adjusted Tobin's Q. Therefore, the variables assumed to only affect the Tobin's Q are Capex/Assets, R&D and Company Age. Variables assumed to only affect CPS are the CEO characteristics (i.e., founder and outside CEO dummies, CEO age and tenure), the fraction of institutional blockholders, abnormal total compensation, and contemporaneous firm returns.

The results for the simultaneous equations are in Table 11. The coefficient of CPS in the Tobin's Q regression is economically meaningful and strongly statistically significant. The coefficient of -8.372 means that increasing CPS by one standard deviation is associated with a

reduction in firm value of about 1%. However, the coefficient of Tobin's Q in the CPS regression is almost zero and insignificant. Therefore, this fact suggests that high CPS, or the factors that it reflects, bring about a lower Tobin's Q rather than the other way around.

A final way to consider the causality from CPS to/from firm value is to look at an event study. This is done in the next section, where we study abnormal firm returns around news announcements concerning changes in CPS.

D. Event Study

In the preceding subsections, we document that firms with higher CPS are associated with lower firm value. Further, the link between CEO dominance (as reflected in higher CPS) and firm value seems to be causal, such that a higher CPS is associated with subsequent decreases in firm value, rather than decreases in firm values being associated with a subsequent increase in CPS. In this subsection we explore whether news about changes in CPS is associated with abnormal stock returns.

In event study, we use the data on proxy filing dates as collected by Dlugosz, Fahlenbrach, Gompers, and Metrick (2006). They collect those dates for 1,916 companies for the years 1996 – 2001. Using the date of the proxy filing as the event date, we calculate the cumulative abnormal return (CAR) around each event date using the market model. The event window is -10 to +10 days around the event. We use a 21-day window since the proxy date and the filing date are not always the same.

We assign events to groups according to the change in CPS (using total compensation) in percentage points in the event year relative to the previous year.[13] Because the explained part of CPS in Tables 3 – 5 is relatively small, we do not attempt to estimate the 'unexpected' change in CPS.

Table 12 panel A presents the comparison of the average CAR for firms with decreasing versus increasing CPS, as well as the average CAR for the 25% of firms with the most negative changes to CPS versus the 25% of firms with the most negative changes to CPS.

[13] We also weigh the observations by the inverse of the variance of the estimate of the cumulative abnormal return to incorporate estimation risk.

Comparing across groups, the group of firms with 25% of the highest decreases in CPS had a significantly higher CAR than the group of firms with 25% of the highest increases in CPS. The difference in the 21-day event window of 1.2% is economically significant as well. Comparing firms decreasing versus increasing CPS, we again find a positive difference in CAR equal to 0.3%, but splitting the firms at the median in terms of changes in CAR does not give statistical significance.

We find a small but strongly statistically significant correlation of -3.5% between the change in CPS and the CAR (see panel B). As reported in panel C of Table 12, this correlation survives after controlling for differences in firm size and book-to-market characteristics. In particular, the second regression of CAR also includes the interaction of the change in CPS with a dummy indicating whether or not the firm has an Eindex above the sample median. We find that the negative relationship between news about increases in CPS and abnormal returns is completely driven by firms with high entrenchment. This fact is consistent with the previously found result that higher CPS has a more negative association with firm value for entrenched firms.

VII. CEO TURNOVER

We now turn to examining the association of CPS and the sensitivity of CEO turnover to performance. As noted in the introduction, the relation between CEO turnover and performance is a subject that has attracted much attention from financial economists. Performance-sensitive turnover is viewed as potentially providing two types of benefits. First, after the replacement of a poorly performing CEO, a new management might produce better results going forward. Second, ex ante, the threat of being replaced in the event of poor performance might provide a CEO with desirable incentives to perform well.

We investigate the performance sensitivity of forced CEO turnover conditional on CPS. Our sample is based on the data collected by Jenter and Kanaan (2006) for studying the relation between CEO turnover and stock returns. They collect a sample of 1,590 CEO turnovers out of a sample of 2,548 firms in the years between 1993 and 2001, and classify them into forced and non-forced turnovers. From the original 384 forced CEO turnovers in their sample, we find a match in our dataset for 189 events. The main constraint is the availability of the Entrenchment

index, which is based on IRRC data. Secondly, we require data on the CPS where the CEO was there in the year prior to the dismissal. Our final sample consists of 189 forced CEO turnovers between 1993 and 2001 in a sample of 14,191 firm-year observations.

Our basic specification is the following logit regression:

$$\text{Prob(Forced CEO turnover}_{it}) = a + b_1 \times \text{CPS}_{it-1} + b_2 \times \text{return}_{it-1} + b_3 \times \text{return}_{it-1} \times \text{CPS}_{it-1} + e_{it}, \quad (1)$$

where Forced CEO turnover is a dummy equal to one if the CEO in firm I was dismissed in year t, and zero otherwise. Return is the stock return in the year prior to the dismissal. We use the idiosyncratic stock return from a market model in the year prior to the turnover, where the market return is the CRSP value-weighted index.[14] CPS is a dummy variable equal to one if CPS is above the median CPS in a given year.

Table 13 shows results of firm fixed-effect logit regressions. Our variable of interest is a dummy for high CPS and its interaction with the performance measure. In the first column we find a negative and significant coefficient on the high CPS dummy variable, indicating that firms with higher CPS are less likely to have a forced turnover. However, the high CPS firms do not display a significantly different sensitivity to performance.

The finding that high CPS firms have fewer forced CEO turnover is consistent with the view that CPS reflects greater CEO power within the top management team. To the extent that the CEO has more power, then, other things equal, the CEO will be more likely to be able to resist being replaced. However, this finding is also consistent with the view that CPS reflects relative ability and contribution, in which case we should also expect fewer forced turnovers.

To further differentiate between the two interpretations, we run a second regression in which we include also the high Eindex dummy and interaction terms with the performance variables. The result of this regression indicates that the CPS dummy is not significant anymore but that firms that have both high CPS and high Eindex display a significantly lower performance sensitivity as indicated by the positive coefficient on the interaction term between performance, CPS, and Eindex. That is, the association between CPS and lower sensitivity of turnover to performance is driven by firms with high levels of entrenchment.

[14] Our inferences are unaffected by the inclusion of a market or industry return. Results are omitted for brevity.

When the firm has a high level of entrenchment, the top management team is more insulated from pressures of outsiders that make it easier for the team to resist, if it chooses to do so, pressures to replace a poorly performing CEO. For any given level of entrenchment, however, the extent to which the insiders' team will choose to use its power in order to resist such pressures might well depend on the power that the CEO yields within the top management team. To the extent that the CEO's power within the top team is reflected in the level of CPS, firms with a high level of entrenchment will display a lower sensitivity of turnover to performance only when the high entrenchment level is also accompanied by a high level of CPS.

Our finding that CPS is related to a lower sensitivity of CEO turnover to performance in cases where the firm is more entrenched is worth relating back to our earlier finding that exactly this subset of firms displays a lower valuation as well. If lower sensitivity of turnover to performance has negative ex ante and ex post effects, as is often assumed, it can contribute to a lower valuation.

VIII. CONCLUSION

In this paper, we investigate the distribution of pay among top executives, focusing on the CEO's pay slice. We find that CPS has a rich and interesting set of relationships with various aspects of the CEO, the firm, and the environment. In addition, we find that CPS is negatively correlated with Tobin's Q, and we provide evidence consistent with the possibility that high CPS or the factors underlying it bring about a lower Tobin's Q. Furthermore, CPS is negatively correlated with the sensitivity of CEO turnover to performance.

Beyond our particular findings, our general conclusion is that CPS should be a variable that financial economists pay attention to in their future work. For one thing, work finding that a particular variable affects the level of CEO pay should investigate whether this effect comes through an effect on the total compensation paid to the top executive team or an effect on CPS. Furthermore, work should take CPS as another aspect of the firm that is worth using both as a control and as a subject itself.

As to the latter, our analysis leaves some questions that future work might consider exploring. Why has CPS increased over the past decade and should it be expected to continue increasing? How is CPS correlated with aspects of firm behavior and performance other than

CEO turnover and Tobin's Q? We hope that future work will further investigate the distribution of pay in the top executive team and its relationship with firm governance and performance.

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TABLE 1: UNIVARIATE STATISTICS OF CPS

The table displays average CPS per year and for the full sample (Obs. gives the number of firms each year), and using three different definitions of CPS. CPS Total Compensation is the ratio of CEO total compensation to the sum of all top five executives' total compensation. Total compensation is the 'TDC1' data item from ExecuComp containing salary, bonus, other annual compensation, the total value of restricted stock granted, the Black-Scholes value of stock options granted, long-term incentive payouts, and all other total incentive payouts. If more than five executives are reported for a given year, CPS is based on those five executives with the highest total compensation. CPS from Equity-based compensation uses only the sum of the values of restricted stocks granted and the Black-Scholes value of the options granted. CPS from Non-equity based compensation (NEBC) is total compensation minus equity-based compensation. CPS is expressed as a percentage. Stdev is the standard deviation based on the full sample.

Sample	*CPS Total Compensation*	*CPS Equity-based*	*CPS Non-equity based*	*Obs.*
1993	33.20	32.59	33.03	824
1994	33.65	33.01	33.12	930
1995	33.78	32.78	33.32	991
1996	33.95	32.88	33.47	979
1997	33.20	31.63	33.28	912
1998	33.31	32.44	32.80	1244
1999	33.43	33.69	32.53	1164
2000	33.90	33.76	32.94	1150
2001	34.43	35.14	32.56	1076
2002	35.24	35.92	33.13	1271
2003	36.14	36.03	34.19	1247
2004	36.34	36.79	34.50	1266
All	34.31	34.07	33.26	13054
Stdev	11.63	19.44	10.37	

TABLE 2: SAMPLE STATISTICS

The table displays univariate statistics for the different variables. The first three columns contain the average, standard deviations (sd) and number of observations (N), respectively, using the full sample. The fourth and fifth columns report the average values for the samples split at the median CPS, within column six, the p-values of tests for the equality of the two sample averages. Columns seven to ten show averages for the quartiles of CPS starting with the lowest CPS quartile. The last column reports the p-value of the test of equality of the means between the lowest and highest quartile. CPS is the ratio of CEO total compensation to the sum of all top executives' total compensation and expressed as percentage (see further the description of Table 1). Tenure is the CEO tenure from ExecuComp. Age is the age of the CEO in a given year. 'CEO from outside' is a dummy equal to one if the CEO has joined the company from outside the firm (determined by comparing the date the CEO joined the company with the date that the CEO took office given in ExecuComp). 'Founder CEO' is a dummy equal to 1 if the current CEO has been the CEO of the firm 5 years prior to its going public (where the date of going public is assumed to be the first date with CRSP returns). 'CEO ownership' is the fractional equity ownership of the CEO. 'Other top exec ownership' is the fractional ownership of the other, non-CEO, top five executives. E-index is the entrenchment index. Gindex is the GIM index. Blockowners is the fraction of the shares outstanding owned by institutional blockholders, each owning at least 5% of outstanding equity. 'Abnormal compensation' is the residual of the following industry and year fixed effects regression: log (total compensation to the top five executives) = constant and log (book value of assets), with year and industry fixed effects. ROA is the return on asset computed as net income divided by book value of assets, curtailed at the one and 99 percentiles. Leverage is the ratio of book value of long-term debt to assets. Size is measured as the log of the book value of assets. 'High tech industry dummy' is equal to 1 if the firm operates in an industry with four-digit SIC code of 3570, 3571, 3572, 3576, 3577, 3661, 3674, 4812, 4813, 5045, 5961, 7370, 7371, 7372, or 7373. 'Firm return t (t-1)' is the stock return from t-1 to t (t-2 to t-1). 'Ind-adj TQ' is the two-digit SIC industry-adjusted Tobin's Q, which is defined as the market value of equity plus the book value of assets minus the book value of equity, all divided by the book value of assets. CEOCHAIR is a dummy equal to 1 if the CEO also chairs the board. 'Other top exec on board' is the number of non-CEO executives that are also among the highest five ranked executives reported in ExecuComp. The matching between ExecuComp and IRRC is done by last and first name and age. Boardsize is the number of directors from IRRC, available from 1996-2004. Independent board is a dummy equal to 1 if the board has 50% or more independent directors (i.e., non-employee and non-affiliated). 'Indep compensation (nominating) committee' are dummy variables equal to 1 if the compensation (nominating) committee is composed of a majority of independent directors. Committee information is available for 1998-2004. 'CEO is nominating' is a dummy with value equal to 1 if the CEO is on the nominating committee. 'Other Bd seats CEO' is the number of board seats the CEO has in other publicly traded companies in ExecuComp. 'Busy Board' is a dummy equal to 1 if the board members hold three or more board seats on average.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Mean			*Mean LOW*	*Mean HIGH*		*Mean*	*Mean*	*Mean*	*Mean*	
Variable	*ALL*	*sd*	*N*	*CPS*	*CPS*	*p-value*	*LOW*	*2-nd LOW*	*2-nd HIGH*	*HIGH*	*p-value*
Tenure	6.823	7.111	12,311	6.769	6.874	0.41	7.188	6.371	6.495	7.265	0.69
Age	54.731	7.228	6,234	54.723	54.739	0.93	54.822	54.634	54.558	54.924	0.71
CEO from outside	0.150	0.357	13,089	0.154	0.147	0.31	0.168	0.140	0.132	0.164	0.67
Founder CEO	0.129	0.335	13,094	0.142	0.117	0.00	0.147	0.137	0.116	0.118	0.00
CEO ownership	0.022	0.053	12,867	0.026	0.018	0.00	0.030	0.022	0.016	0.020	0.00
Other top exec ownership	0.014	0.038	12,867	0.020	0.009	0.00	0.025	0.017	0.010	0.007	0.00
Eindex	2.234	1.286	13,094	2.130	2.332	0.00	2.067	2.190	2.375	2.288	0.00
Gindex	9.405	2.672	13,094	9.232	9.566	0.00	9.106	9.351	9.685	9.443	0.00
Blockholders	9.086	8.191	13,094	9.150	9.025	0.38	9.228	9.075	9.109	8.940	0.16
Abnormal total compensation	-0.014	0.718	13,037	0.071	-0.094	0.00	0.207	-0.058	-0.143	-0.044	0.00
ROA	0.034	0.094	13,052	0.029	0.039	0.00	0.023	0.034	0.037	0.041	0.00
Leverage	0.196	0.165	13,025	0.187	0.204	0.00	0.181	0.193	0.208	0.201	0.00
Log book value	7.691	1.678	13,055	7.643	7.736	0.00	7.626	7.659	7.693	7.780	0.00
High Tech industry	0.113	0.317	13,094	0.140	0.088	0.00	0.171	0.111	0.081	0.096	0.00
Firm Return, t	0.162	0.427	13,091	0.149	0.174	0.00	0.141	0.156	0.172	0.177	0.00
Firm Return, t-1	0.166	0.428	13,090	0.158	0.173	0.04	0.155	0.161	0.165	0.182	0.01
Ind-adj TQ	0.365	1.312	12,066	0.389	0.341	0.04	0.445	0.336	0.330	0.353	0.01
CEOCHAIR	0.725	0.447	9,537	0.693	0.754	0.00	0.697	0.690	0.735	0.773	0.00
Other top exec on board	0.553	0.846	10,346	0.647	0.465	0.00	0.661	0.634	0.504	0.426	0.00
Boardsize	9.781	2.996	9,537	9.734	9.825	0.14	9.679	9.792	9.875	9.768	0.31
Independent board	0.841	0.366	9,537	0.812	0.867	0.00	0.789	0.835	0.869	0.864	0.00
Indep nom committee	0.916	0.277	5,987	0.903	0.928	0.00	0.900	0.906	0.930	0.927	0.01
Indep comp committee	0.968	0.177	7,725	0.963	0.972	0.03	0.956	0.970	0.976	0.967	0.07
CEO is nominating	0.091	0.288	9,537	0.088	0.095	0.22	0.086	0.089	0.087	0.103	0.04
Numb other bd seats CEO	0.534	0.909	9,537	0.510	0.555	0.00	0.494	0.526	0.512	0.599	0.00
Busy board	0.059	0.236	9,537	0.058	0.061	0.55	0.055	0.060	0.049	0.073	0.01

TABLE 3: CPS REGRESSIONS

The dependent variable is CPS, the ratio of CEO total compensation to the sum of all top executives' total compensation (in percentages). CEO fractional ownership is the fraction of CEO equity ownership relative to total insider ownership. CEO equity ownership 0-5% is equal to CEO equity ownership if it is less than 5%, else, it is set to 5%. CEO equity ownership 5-25% is equal to CEO equity ownership minus 5% if CEO equity ownership is bigger than 5% but less then 25%. If CEO equity ownership is less than 5%, CEO equity ownership 5-25% is set to zero. If it is more than 25%, CEO equity ownership 5-25% is set to 20%. CEO equity ownership >25% is equal to CEO equity ownership minus 25% if CEO equity ownership is bigger than 25%, else it is zero. The variable 'Other insider equity ownership' is defined analogously using all non-CEO insider ownership. Equity ownership is measured at the beginning of the year, reducing the number of observations from 12,197 to 8,716. E-index is the entrenchment index. 'Fraction Blockowners' is the fraction of the shares outstanding owned by institutional blockholders. Instead of Eindex, we also use '6-Eindex' and define a dummy 'high 6-Eindex' equal to 1 if '6-Eindex' is above its sample median. This variable is also interacted with 'Fraction Blockowners'. 'Eindex prior CEO' is the Eindex of the company in the year prior to this CEO taking office. This reduces the sample to 6,118 observations. See Table 2 for descriptions of all other variables. The regressions are industry fixed effects regressions. $, *, ** indicates significance at 10%, 5%, and 1% level, respectively. Absolute values of t-statistics are in parentheses. Year dummies and a constant are included but omitted to save space.

Dependent Variable: CPS, Industry fixed effects regressions

	(1)	(2)	(3)	(4)	(5)
Tenure	0.137	0.140	0.101	0.076	0.847
	(3.80)**	(3.86)**	(5.20)**	(1.69)	(5.43)**
Tenure2	-0.003	-0.003		0.001	-0.064
	(2.62)**	(2.68)**		(0.48)	(3.57)**
CEO age<50	-0.195	-0.181	-0.270	-0.146	-0.584
	(0.54)	(0.50)	(0.75)	(0.35)	(1.32)
CEO age >65	-2.887	-2.904	-2.873	-2.615	-4.557
	(4.23)**	(4.26)**	(4.26)**	(3.49)**	(3.72)**
CEO age missing	-0.867	-0.865	-0.931	-1.377	-1.511
	(3.18)**	(3.18)**	(3.42)**	(4.36)**	(4.22)**
CEO from outside	1.008	0.994	2.327	0.124	2.153
	(3.39)**	(3.34)**	(5.69)**	(0.36)	(4.95)**
CEO from outside * tenure			-0.158		
			(4.90)**		
Founder CEO	-1.096	-1.106	-0.927	-0.689	1.730
	(3.22)**	(3.25)**	(2.71)**	(1.83)$	(2.42)*
CEO ownership 0-5%				-14.310	-6.221
				(1.21)	(0.32)
CEO ownership 5-25%				-22.974	-28.365
				(3.84)**	(2.39)*
CEO ownership >25%				108.607	86.079
				(4.87)**	(2.15)*
Other insider ownership 0-5%			-111.224	-148.307	
				(9.30)**	(9.37)**
Other insider ownership 5-25%			-2.097	20.534	
				(0.28)	(1.93)$
Other insider ownership >25%			24.834	-22.848	
				(0.89)	(0.53)
Eindex	0.408		0.404	0.360	
	(4.87)**		(4.83)**	(3.67)**	
Eindex prior CEO					0.357
					(3.18)**
Fraction Blockholders	-0.002	0.112	-0.002	-0.018	-0.038
	(0.12)	(2.51)*	(0.10)	(1.04)	(1.87)$
6-Eindex		-0.167			
		(1.38)			
6-Eindex * Fraction Blockholders		-0.027			
		(2.72)**			
Abnormal total compensation	-1.522	-1.519	-1.519	-0.423	-1.674
	(10.42)**	(10.40)**	(10.42)**	(2.31)*	(7.88)**
ROA	8.258	8.264	8.626	8.856	5.640
	(7.05)**	(7.06)**	(7.37)**	(6.09)**	(3.35)**
Leverage	2.233	2.218	2.235	1.859	2.048
	(3.04)**	(3.02)**	(3.04)**	(2.16)*	(2.04)*
Log book value	0.099	0.098	0.094	0.024	-0.131
	(1.26)	(1.25)	(1.20)	(0.25)	(1.20)
High tech	-0.450	-0.454	-0.313	-1.134	0.242
	(0.98)	(0.99)	(0.68)	(2.10)*	(0.38)
Firm return t	0.798	0.794	0.801	0.895	0.571
	(3.11)**	(3.10)**	(3.13)**	(2.97)**	(1.54)
Firm return t-1				0.917	0.742
				(3.00)**	(2.03)*
Observations	12,197	12,197	12,197	8,716	6,118
R-squared	0.03	0.03	0.03	0.05	0.08

TABLE 4: FIRM AND CEO FIXED EFFECTS REGRESSIONS

The dependent variable is CPS total compensation (in percentages). Regressions (1) and (3) are firm fixed effects regressions, (3) and (4) use CEO fixed effects. The high-tech dummy drops out, and other variables are indicated by NA when they drop out due to the fixed effect. Regressions are like column (1) and (4) of Table 3. See Tables 2 and 3 for descriptions of the variables. Year dummies and a constant are included but omitted to save space. $, *, ** indicates significance at 10%, 5%, and 1% level, respectively.

Dependent Variable: CPS	*Firm fixed effects*		*CEO fixed effects*	
	(1)	(2)	(3)	(4)
Tenure	0.206	0.104	0.930	0.721
	(3.90)**	(1.46)	(3.38)**	(1.90)$
Tenure2	-0.010	-0.007	-0.021	-0.020
	(5.21)**	(2.99)**	(6.80)**	(5.08)**
CEO age<50	-0.548	-0.561	-0.202	0.032
	(1.17)	(0.98)	(0.33)	(0.04)
CEO age >65	-2.484	-1.775	-0.253	-0.212
	(2.85)**	(1.76)$	(0.26)	(0.20)
CEO age missing	-1.805	-2.369	NA	NA
	(4.12)**	(4.27)**		
CEO from outside	2.573	0.943	NA	NA
	(5.21)**	(1.50)		
Founder CEO	0.728	2.227	NA	NA
	(1.10)	(2.70)**		
CEO ownership 0-5%		-51.544		-53.884
		(2.54)*		(1.64)$
CEO ownership 5-25%		24.502		18.574
		(2.45)*		(1.31)
CEO ownership >25%		45.307		-27.375
		(1.24)		(0.67)
Other insider ownership 0-5%		-52.969		-47.811
		(3.61)**		(3.02)**
Other insider ownership 5-25%		-2.010		-0.696
		(0.23)		(0.07)
Other insider ownership >25%		-12.975		-26.887
		(0.38)		(0.78)
6-Eindex	0.237	0.657	0.398	0.515
	(0.98)	(2.32)*	(1.43)	(1.55)
Fraction Blockholders	0.068	0.167	0.037	0.123
	(1.22)	(2.64)**	(0.62)	(1.79)$
6-Eindex * Fraction	-0.027	-0.047	-0.016	-0.030
Blockholders	(2.03)*	(3.08)**	(1.09)	(1.81)$
Abnormal total compensation	-1.969	-1.061	-2.477	-1.359
	(10.97)**	(4.65)**	(13.26)**	(5.59)**
ROA	8.842	9.772	11.901	11.562
	(6.03)**	(5.19)**	(7.45)**	(5.60)**
Leverage	-0.154	-0.162	-0.626	-1.319
	(0.13)	(0.12)	(0.48)	(0.84)
Log book value	-0.843	-0.838	-1.157	-1.392
	(2.73)**	(2.27)*	(3.12)**	(3.03)**
Firm return t	0.947	1.268	1.050	1.334
	(3.98)**	(4.40)**	(4.44)**	(4.54)**
Firm return t-1		1.376		1.319
		(4.75)**		(4.49)**
Observations	12,197	8,716	12,197	8,716
Number of firm fixed effects	2,059	1,918		
Number of CEO fixed effects			3,284	2,713
R-squared	0.04	0.05	0.04	0.03

TABLE 5: BOARD CHARACTERISTICS AND CPS

Regressions (1) and (2) use industry fixed effects, (3) and (4) use firm fixed-effects, and (5) and (6) use CEO fixed effects. The dependent variable, CPS, is the ratio of CEO total compensation to the sum of all top five executives' total compensation. The sample is limited to 1996-2004 due to IRRC data limitations. Board committee variables are only available for 1998-2004. We create a dummy variable equal to one if the committee value is missing. The description of the variables is contained in Tables 2 and 3. *, ** indicates significance at 5%, and 1% level, respectively. Absolute values of t-statistics are in parentheses. Year dummies and a constant are included. To save space, only board variables are reported.

Dependent Variable: CPS	*Industry*	*Industry*	*Firm*	*Firm*	*CEO*	*CEO*
	(1)	(2)	(3)	(4)	(5)	(6)
CeoChair dum	1.117	1.079	-0.214	-0.206	-0.563	-0.557
	(3.19)**	(3.08)**	(0.45)	(0.44)	(1.02)	(1.01)
Numb of other top5 exec	-1.361	-1.327	-1.330	-1.316	-0.943	-0.925
directors	(7.44)**	(7.24)**	(5.38)**	(5.32)**	(3.43)**	(3.37)**
Board size	-0.693	-0.768	-0.633	-0.611	-0.745	-0.710
	(3.32)**	(3.65)**	(2.20)*	(2.12)*	(2.45)*	(2.33)*
Boardsize2	0.017	0.019	0.011	0.010	0.017	0.016
	(1.97)*	(2.23)*	(1.07)	(1.00)	(1.66)	(1.57)
Independent Board dum	-0.237	-0.598	-0.541	-0.704	-0.188	-0.325
	(0.57)	(1.36)	(1.01)	(1.29)	(0.33)	(0.56)
Indep compensation com		1.162		0.629		0.599
		(1.29)		(0.60)		(0.56)
Indep nominating com		0.586		0.080		-0.143
		(0.85)		(0.11)		(0.18)
Indep compensation com		-5.226		-5.214		-6.458
missing dum		(2.91)**		(2.25)*		(2.75)**
Indep nominating com		-0.033		-0.316		-0.014
missing dum		(0.04)		(0.36)		(0.02)
CEO is nominating dum		0.334		-0.236		-0.421
		(0.62)		(0.39)		(0.65)
Other Bd seats CEO	0.198	0.187	0.241	0.224	0.122	0.111
	(1.14)	(1.08)	(1.07)	(1.00)	(0.47)	(0.43)
Busy Board dum	1.018	0.976	0.875	0.847	0.757	0.779
	(1.59)	(1.53)	(1.19)	(1.15)	(0.95)	(0.97)
Observations	6,683	6,683	6,683	6,683	6,683	6,683
Number of sic2	63	63				
Number of firm fixed effects			1,755	1,755		
Number of CEO fixed effects					2,303	2,303
R-squared	0.07	0.07	0.06	0.06	0.03	0.04

TABLE 6: TIME TREND OF CPS

The dependent variable is CPS. Regressions 1, 2, 5, and 6 include industry fixed effect. Regressions 3, 4, 7, and 8 include firm fixed effect. 'Year' is the year of the observation as a continuous variable and 'Year>=2000' is dummy equal to one if the observation is in the year 2000 or later. To save space, only the 'Year' and the 'Year>=2000' variables are reported, each for two specifications: (1) corresponding to column 1 of Table 3, and (2) to column 4 (that includes many CEO and firm characteristics). ** indicates significance at 1% level.

Dependent Variable: CPS

Fixed Effects:	*Industry*		*Firm*		*Industry*		*Firm*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Year	0.211	0.277	0.372	0.424				
	(5.49)**	(5.99)**	(6.91)**	(6.54)**				
Year>=2000 dum					1.298	1.472	1.448	1.593
					(5.29)**	(5.21)**	(5.15)**	(4.87)**
Observations	12,197	8,716	12,197	8,716	12,197	8,716	12,197	8,716
Number of ind f. ef.	65	65			65	65		
Number of firm fixed effects			2,059	1,918			2,059	1,918
R-squared	0.03	0.05	0.04	0.05	0.03	0.05	0.04	0.04

TABLE 7: TOTAL COMPENSATION, EQUITY AND NON-EQUITY-BASED COMPENSATION

CPS is the ratio of CEO to the sum of all top executives' compensation. 'CPS total comp' is based on total compensation as measured by data item TDC1 from ExecuComp containing salary, bonus, other annual compensation, total value of restricted stock granted, Black-Scholes value of stock options granted, long-term incentive payouts, and all other total incentive compensation. Equity-based CPS is based only on restricted shares granted and the Black-Scholes value of options granted. Non-Equity-based CPS is computed using total compensation minus equity-based compensation. Panel A contains a correlation table between the variables. Panel B reports coefficients from an industry fixed effects regression with year dummies (year dummies are omitted for brevity). ** indicates significance at 10%, 5%, and 1% level, respectively.

Panel A: Correlations

	CPS total comp	CPS Equity-based comp
CPS Equity based comp	0.7432	
CPS Non-equity based comp	0.6660	0.2168

(all correlation coefficients are significant at the 0.1% level)

Panel B: Regression Result

	Dependent Variable: CPS total comp
Independent Variables:	
CPS equity based comp	0.382
	(186.52)**
CPS non-equity based comp	0.611
	(156.88)**
Observations	16,905
R-squared	0.82

TABLE 8: DETERMINANTS OF EQUITY AND NON-EQUITY CPS

Equity-based CPS is based on restricted shares granted and the Black-Scholes value of options granted. Non-Equity-based compensation is computed as total compensation minus equity-based compensation. All regressions include industry fixed effects. Column 1 is based on Table 3, column 4. Column 2 is based on Table 7, column 2 (time trend). Columns 3 and 4 are based on Table 5, columns 1 and 2. Equivalently for columns 5-8. See Tables 2 and 3 for variable descriptions. Year dummies are omitted for brevity. $, *, ** indicates significance at 10%, 5%, and 1% level, respectively.

Dependent Variable:	**Equity-based CPS (1-4)**				**Non-Equity-based CPS (5-8)**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Tenure	-0.139	-0.142	-0.144	-0.155	0.156	0.158	0.117	0.116
	(1.70)$	(1.74)$	(1.49)	(1.61)	(3.89)**	(3.95)**	(2.48)*	(2.45)*
Tenure2	0.002	0.002	0.002	0.003	0.000	0.000	0.002	0.002
	(0.80)	(0.83)	(0.66)	(0.90)	(0.28)	(0.22)	(1.14)	(1.28)
CEO age<50	0.164	0.162	1.138	1.187	-1.159	-1.166	-0.930	-0.903
	(0.22)	(0.22)	(1.40)	(1.47)	(3.11)**	(3.14)**	(2.30)*	(2.23)*
CEO age >65	-5.412	-5.431	-5.538	-5.341	-1.582	-1.559	-1.457	-1.375
	(3.91)**	(3.93)**	(3.82)**	(3.68)**	(2.40)*	(2.36)*	(2.09)*	(1.97)*
CEO age missing	-4.146	-4.235	-4.245	-4.339	0.134	0.095	0.327	0.311
	(7.43)**	(7.65)**	(7.01)**	(7.17)**	(0.48)	(0.34)	(1.07)	(1.02)
CEO from outside	-0.874	-0.890	-1.063	-1.014	0.649	0.650	0.324	0.329
	(1.45)	(1.48)	(1.58)	(1.50)	(2.17)*	(2.17)*	(0.96)	(0.98)
Founder CEO	0.210	0.227	0.955	0.952	-1.128	-1.118	-1.008	-1.065
	(0.31)	(0.34)	(1.22)	(1.21)	(3.39)**	(3.37)**	(2.59)**	(2.73)**
CEO ownership 0-5%	-89.519	-90.174	-77.771	-72.107	-8.365	-8.942	-25.948	-24.609
	(4.15)**	(4.19)**	(3.16)**	(2.92)**	(0.80)	(0.86)	(2.16)*	(2.04)*
CEO ownership 5-25%	-27.410	-27.400	-26.309	-30.388	-18.324	-18.242	-11.981	-12.839
	(2.43)*	(2.43)*	(2.03)*	(2.34)*	(3.47)**	(3.46)**	(1.97)*	(2.11)*
CEO ownership >25%	114.875	114.337	85.849	113.933	53.567	53.119	39.573	55.273
	(2.63)**	(2.62)**	(1.74)$	(2.29)*	(2.72)**	(2.70)**	(1.76)$	(2.40)*
Other insider ownership 0-5%	-111.227	-110.584	-94.062	-91.466	-98.688	-98.698	-72.307	-72.050
	(5.05)**	(5.02)**	(3.74)**	(3.64)**	(9.35)**	(9.36)**	(5.94)**	(5.92)**
Other insider ownership 5-25%	-19.731	-19.872	-29.752	-28.998	0.345	0.330	5.671	6.070
	(1.42)	(1.43)	(1.90)$	(1.85)$	(0.05)	(0.05)	(0.76)	(0.82)
Other insider ownership >25%	21.319	21.608	25.645	19.112	7.823	7.815	-17.657	-20.595
	(0.40)	(0.41)	(0.45)	(0.33)	(0.32)	(0.32)	(0.67)	(0.78)
Eindex	0.570	0.579	0.484	0.426	0.382	0.389	0.463	0.452
	(3.25)**	(3.31)**	(2.40)*	(2.11)*	(4.43)**	(4.51)**	(4.59)**	(4.46)**
Fraction Blockholders	-0.023	-0.027	-0.019	-0.017	-0.013	-0.011	-0.012	-0.014
	(0.72)	(0.93)	(0.51)	(0.45)	(0.83)	(0.76)	(0.65)	(0.74)
Abnormal total compensation	0.704	0.734	1.087	1.021	-0.701	-0.690	-0.486	-0.534
	(2.04)*	(2.14)*	(2.79)**	(2.62)**	(4.34)**	(4.29)**	(2.64)**	(2.89)**

CeoChair dum			1.531	1.463			1.291	1.291
			(2.48)*	(2.37)*			(4.21)**	(4.21)**
Numb of other top5 exec directors			-1.390	-1.316			-1.567	-1.538
			(4.35)**	(4.10)**			(9.80)**	(9.59)**
Board size			-0.297	-0.410			-0.558	-0.590
			(0.83)	(1.13)			(3.06)**	(3.21)**
Boardsize2			0.010	0.014			0.016	0.017
			(0.70)	(0.94)			(2.13)*	(2.26)*
Independent Board dum			0.555	-0.239			-0.687	-0.773
			(0.76)	(0.31)			(1.89)$	(2.01)*
Indep compensation com				1.551				0.041
				(0.96)				(0.05)
Indep nominating com				2.113				0.074
				(1.75)$				(0.12)
Indep compensation com missing dum				-10.229				-4.394
				(2.80)**				(2.79)**
Indep nominating com missing dum				0.581				-0.155
				(0.43)				(0.23)
CEO is nominating				0.753				-0.483
				(0.81)				(1.02)
Other Bd seats CEO			0.001	-0.032			0.242	0.242
			(0.00)	(0.11)			(1.60)	(1.60)
Busy Board dum			-0.523	-0.636			1.154	1.146
			(0.47)	(0.58)			(2.06)*	(2.05)*
ROA	10.050	9.715	7.827	8.091	6.879	6.879	8.342	8.461
	(3.86)**	(3.76)**	(2.60)**	(2.69)**	(5.37)**	(5.40)**	(5.56)**	(5.63)**
Leverage	4.521	4.437	5.388	5.101	0.740	0.603	0.641	0.470
	(2.88)**	(2.85)**	(3.03)**	(2.86)**	(0.98)	(0.80)	(0.73)	(0.53)
Log book value	0.179	0.175	0.244	0.196	-0.159	-0.154	-0.017	-0.031
	(1.05)	(1.03)	(1.08)	(0.87)	(1.89)$	(1.84)$	(0.16)	(0.27)
High tech	-0.933	-0.916	-1.851	-1.834	-2.313	-2.313	-2.762	-2.780
	(0.98)	(0.96)	(1.69)$	(1.68)$	(4.87)**	(4.87)**	(5.04)**	(5.07)**
Firm return t	0.735	0.509	0.616	0.657	1.174	1.186	1.226	1.230
	(1.37)	(0.99)	(1.03)	(1.10)	(4.42)**	(4.68)**	(4.10)**	(4.11)**
Firm return t-1	0.363	0.329	0.658	0.681	0.861	0.815	0.541	0.546
	(0.67)	(0.63)	(1.08)	(1.12)	(3.19)**	(3.16)**	(1.77)$	(1.79)$
Year		0.345				0.147		
		(4.16)**				(3.61)**		
Observations	7,868	7,868	6,118	6,118	8,716	8,716	6,683	6,683
Number of industry fixed. eff.	65	65	63	63	65	65	63	63
R-squared	0.06	0.06	0.07	0.07	0.05	0.05	0.07	0.07

TABLE 9: RELATION BETWEEN TOBIN'S Q AND CPS

This table presents year fixed effects regressions where the dependent variable is the two-digit SIC industry-adjusted Tobin's Q. Tobin's Q is defined as the market value of equity plus the book value of assets minus the book value of equity, all divided by the book value of assets. CPS is the ratio of CEO total compensation to the sum of all top executives' total compensation, and is expressed as decimals here. Total compensation is data item TDC1 from ExecuComp. Company age is computed as the current year minus the year in which the company was first listed on CRSP. Leverage is the long-term debt to assets. Capex/Assets is the ratio of capital expenditures to assets. R&D is the ratio of R&D to sales. If R&D is missing, it is set to zero and the dummy variable R&D missing is set to one. See Tables 2 and 3 for descriptions of all other variables. Regression (1) is a contemporaneous specification, (2) uses lagged CPS and lagged ownership variables, (3) is like (1) but interacts CPS with Eindex, (4) is like (2) but interacts lagged CPS with Eindex, and finally (5)-(6) are like (3)-(4) but include one or two year lagged industry adjusted Tobin's Q. $, *, ** indicates significance at 10%, 5%, and 1% level, respectively.

	Dependent Variable: Industry-adjusted Tobin's Q					
Year fixed effects						
	(1)	(2)	(3)	(4)	(5)	(6)
CPS total compensation, t	-0.299		-0.015		0.287	
	(3.62)**		(0.08)		(2.10)*	
CPS total compensation, t-1		-0.507		0.046		-0.078
		(5.14)**		(0.21)		(0.38)
Eindex	-0.101	-0.098	-0.067	0.008	0.019	0.007
	(13.65)**	(11.24)**	(2.47)*	(0.24)	(0.93)	(0.23)
Eindex * CPS, t			-0.130		-0.119	
			(1.76)$		(2.14)*	
Eindex * CPS, t-1				-0.329		-0.150
				(3.58)**		(1.81)$
CEO equity ownership 0-5%	0.116		0.033		-0.972	
	(0.14)		(0.03)		(1.26)	
CEO equity ownership 5-25%	0.182		0.520		0.478	
	(0.43)		(1.02)		(1.24)	
CEO equity ownership >25%	-5.809		-6.794		-2.731	
	(3.48)**		(3.36)**		(1.77)$	
Other insider equity	-3.065		-3.603		-1.607	
ownership 0-5%	(3.34)**		(3.24)**		(1.92)$	
Other insider equity	1.678		1.685		0.934	
ownership 5-25%	(3.15)**		(2.61)**		(1.93)$	
Other insider equity	-9.517		-9.866		-4.080	
ownership >25%	(4.41)**		(3.77)**		(2.10)*	
CEO ownership 0-5%, t-1		0.524		0.314		-1.064
		(0.54)		(0.26)		(0.96)
CEO ownership 5-25%, t-1		-0.343		-0.009		0.164
		(0.74)		(0.02)		(0.30)
CEO ownership >25%, t-1		-4.513		-5.265		-3.044

		(2.47)*		(2.32)*		(1.43)
Other insider		-2.497		-3.564		-2.482
ownership 0-5%, t-1		(2.35)*		(2.70)**		(2.03)*
Other insider		1.340		1.465		1.314
ownership 5-25%, t-1		(2.19)*		(1.93)$		(1.87)$
Other insider		-7.796		-8.249		-4.848
ownership >25%, t-1		(3.26)**		(2.78)**		(1.80)$
ROA	3.796	4.179	4.079	4.555	1.537	3.024
	(37.26)**	(33.17)**	(33.08)**	(29.12)**	(16.03)**	(20.57)**
Capex/assets	0.004	0.005	0.003	0.005	-0.000	0.003
	(0.85)	(0.98)	(0.62)	(0.68)	(0.05)	(0.57)
Leverage	-0.718	-0.715	-0.689	-0.692	-0.196	-0.392
	(12.21)**	(10.23)**	(9.67)**	(7.98)**	(3.66)**	(4.82)**
Log book value	-0.047	-0.039	-0.052	-0.044	-0.027	-0.021
	(7.10)**	(4.96)**	(6.38)**	(4.49)**	(4.44)**	(2.32)*
R&D	0.027	0.017	0.039	0.029	0.034	0.027
	(11.25)**	(7.12)**	(13.68)**	(9.81)**	(13.78)**	(10.51)**
R&D missing dum	-0.185	-0.186	-0.218	-0.223	-0.042	-0.097
	(9.58)**	(8.21)**	(9.33)**	(7.93)**	(2.38)*	(3.70)**
Company age	-0.003	-0.003	-0.004	-0.004	-0.000	-0.001
	(5.93)**	(5.45)**	(6.06)**	(5.46)**	(0.33)	(1.33)
Ind-adj TQ, t-1					0.658	
					(103.07)**	
Ind-adj TQ, t-2						0.448
						(52.23)**
Constant	1.233	1.223	1.239	1.148	0.273	0.505
	(20.25)**	(16.83)**	(13.95)**	(10.49)**	(4.05)**	(4.92)**
Observations	11,845	8,606	11,845	8,606	10,687	7,392
Number of fiscal year fixed effects	12	12	12	12	12	11
R-squared	0.17	0.18	0.15	0.15	0.57	0.38

TABLE 10
RELATION BETWEEN TOBIN'S Q AND CPS – FAMA-MACBETH-TYPE REGRESSIONS

This table presents results for the same regressions as in Table 9 but using Fama-MacBeth-type regressions. Reported are the average coefficients of the annual regressions. Underneath are the absolute values of the t-statistics computed using the standard deviation of the time series of the annual coefficients. **, *, $ indicate significance at the 1%, 5%, 10% level, respectively.

Dependent Variable:	Industry-adjusted Tobin's Q					
	(1)	(2)	(3)	(4)	(5)	(6)
CPS total comp	-0.275		0.101		0.214	
	(2.47)*		(0.28)		(1.54)	
CPS total comp, t-1		-0.411		0.279		0.146
		(4.00)**		(0.64)		(0.51)
Eindex	-0.093	-0.084	-0.008	0.025	0.008	0.028
	(9.54)**	(6.47)**	(0.23)	(0.51)	(0.37)	(0.80)
Eindex * CPS			-0.248		-0.195	
			(1.69)$		(1.64)$	
Eindex * CPS, t-1				-0.413		-0.212
				(2.23)**		(1.69)$
Ind-adj TQ, t-1					0.772	
					(12.96)**	
Ind-adj TQ, t-2						0.580
						(10.37)**
Log book value	-0.038	-0.028	-0.036	-0.031	-0.014	-0.005
	(4.32)**	(2.72)**	(2.43)**	(2.20)**	(1.40)	(0.39)
CEO equity ownership 0-5%	0.734		0.700		-1.271	
	(1.51)		(0.47)		(1.03)	
CEO equity ownership 5-25%	0.151		0.336		0.342	
	(0.35)		(0.50)		(0.77)	
CEO equity ownership >25%	-5.633		-7.481		-1.142	
	(3.50)**		(3.63)**		(0.91)	
Other insider ownership 0-5%	-2.597		-3.542		-0.951	
	(2.19)*		(3.05)**		(0.93)	
Other insider ownership 5-25%	1.395		1.158		0.574	
	(1.87)$		(1.87)$		(1.36)	
Other insider ownership >25%	-8.568		-7.567		-1.218	
	(5.39)**		(3.12)**		(0.62)	

CEO ownership 0-5%, t-1		1.722		1.618		-1.066
		(1.47)		(1.08)		(0.81)
CEO ownership 5-25%, t-1		-0.156		0.151		0.437
		(0.26)		(0.25)		(0.70)
CEO ownership >25%, t-1		-4.470		-4.848		-1.725
		(2.69)**		(2.38)**		(1.34)
Other insider ownership 0-5%		-1.156		-2.073		-0.651
		(0.83)		(1.35)		(0.68)
Other insider ownership 5-25%		0.703		0.905		0.830
		(0.79)		(0.90)		(1.36)
Other insider ownership >25%		-6.369		-6.400		-1.420
		(3.82)**		(2.99)**		(0.60)
ROA	4.636	5.184	5.740	5.590	1.182	2.826
	(14.77)**	(15.32)**	(12.70)**	(13.70)**	(3.43)**	(9.01)**
Capex/assets	0.041	0.041	0.032	0.043	-0.007	0.039
	(1.56)	(0.89)	(0.68)	(0.89)	(0.33)	(0.75)
Leverage	-0.621	-0.569	-0.543	-0.566	-0.133	-0.302
	(6.42)**	(4.16)**	(2.81)**	(3.03)**	(1.12)	(1.68)$
R&D	0.303	0.452	0.506	0.492	0.098	0.587
	(3.29)**	(4.66)**	(4.74)**	(4.51)**	(2.02)*	(1.72)$
R&D missing dum	-0.147	-0.135	-0.168	-0.162	-0.027	-0.047
	(3.33)**	(2.93)**	(2.88)**	(2.73)**	(1.31)	(0.91)
Company age	-0.003	-0.002	-0.003	-0.003	0.000	0.000
	(4.51)**	(2.21)*	(2.94)**	(2.12)*	(0.01)	(0.10)

TABLE 11: SYSTEM OF EQUATIONS

CPS total compensation and industry-adjusted Tobin's Q are both considered endogenous variables. All other variables are exogenous. We use the basic specification from Table 9 column (1), for the industry-adjusted Tobin's Q. However, we use ownership from t-1. For the CPS regression we use the first specification in Table 3 augmented by the ownership variables, measured at t-1, and the industry-adjusted Tobin's Q. CPS is expressed as decimal. Year dummies are omitted for brevity. $, *, ** indicates significance at 10%, 5%, and 1% level, respectively.

	(1)	(2)
Dependent Variables:	***Ind-adj Tobin's Q***	***CPS total comp***
CPS total comp	-8.372	
	(7.74)**	
Ind-adj Tobin's Q		0.009
		(1.00)
Eindex	-0.096	0.004
	(7.53)**	(2.94)**
Log book value	-0.067	-0.000
	(6.14)**	(0.36)
CEO ownership 0-5%	2.726	0.220
	(1.87)$	(2.07)*
CEO ownership 5-25%	-1.855	-0.371
	(2.22)*	(6.47)**
CEO ownership >25%	2.543	0.701
	(0.77)	(3.08)**
Other insider ownership 0-5%	-18.210	-1.481
	(7.38)**	(11.60)**
Other insider ownership 5-25%	3.306	0.029
	(3.46)**	(0.40)
Other insider ownership >25%	-8.422	0.311
	(2.18)*	(1.08)
ROA	4.839	0.078
	(25.28)**	(2.47)*
Capex/assets	-0.003	
	(0.31)	
Leverage	-0.378	0.021
	(3.66)**	(2.60)**
R&D	0.033	
	(7.15)**	
R&D missing dum	-0.228	
	(7.86)**	
Company age	-0.003	
	(4.67)**	
Founder CEO		-0.002
		(0.58)
CEO from outside		0.001
		(0.51)
Tenure		-0.000
		(0.41)
Tenure2		0.000
		(1.46)
CEO age<50		-0.005
		(1.54)
CEO age >65		-0.018
		(3.06)**
CEO age missing		-0.001
		(0.24)
Fraction Blockholders		0.000

		(3.14)**
Abnormal total compensation		-0.029
		(7.15)**
Firm return t		-0.024
		(4.27)**
High tech		-0.031
		(7.17)**
Observations	10337	10337

Three-stage least-squares regression

Equation	Obs	Parms	RMSE	"R-sq"	chi2	P
Ind-adj TQ	10,335	26	1.55	0.281	1347.31	0.0000
CPS total comp	10,335	33	11.2	0.040	1264.19	0.0000

TABLE 12: EVENT STUDY

We use the date of the proxy filing as the event date, where the proxy dates are from Dlugosz et al. (2006), who collect proxy dates in the years 1996-2001 for 1,916 companies. We find 4,062 firm-years with available data to compute the change in CPS from year t-1 to year t and with sufficient data available on CRSP to compute abnormal returns. We calculate the cumulative abnormal return (CAR) around the event using the market model. The event window is -10 to +10 days around the event, using a 21-days window since the proxy date and the filing date are not always the same. We weigh the observations by the inverse of the variance of the estimate of the cumulative abnormal return. CPS is based on total compensation and is expressed in percentage. Panel A presents mean comparisons between samples that increase (top quartile) or decrease (lowest quartile) their CPS from one year to the next. Panel B reports the correlation coefficient between CPS and CAR, with the p-value in brackets. Panel C reports a weighted least squares regression where the dependent variable is CAR. The independent variables are the change in CPS from year t-1 to year t, firm size measured as the log of the book value of assets and the book-to-market ratio, both measured at t. Observations are weighed by the inverse of the variance of the estimate of the cumulative abnormal return. $, *, ** indicates significance at 10%, 5%, and 1% level, respectively. The regression in panel C also reports the absolute value of t-statistics in parentheses.

Panel A: Mean comparisons

		Average CAR	Number of observations
For Firms increasing CPS		0.699%**	2062
For Firms decreasing CPS		1.028%**	2000
Difference (decrease-increase):	0.329%		
Top quartile change in CPS		0.531%	1015
Lowest quartile change in CPS	1.691%**	1015	
Difference (lowest-top):		1.160%**	

Panel B: Correlation coefficient

Correlation between the change in CPS and CAR (p-value): -0.035 (0.02)

Panel C: Regression Analysis

Dependent Variable	CAR[-10,+10] in %	
Independent Variables:		
Change in CPS (t-1, t)	-0.0328	-0.0044
	(2.03)*	(0.21)
Change in CPS		-0.0525
* Dum(Eindex>median)		(1.86)*
Dum(Eindex>median)		-0.3907
		(1.24)
Firm Size	-0.1299	-0.1014
	(1.07)	(0.89)
Book-to-Market	0.1448	0.1514
	(1.61)	(2.02)**
Constant	1.610	1.357
	(1.79)$	(1.56)
R-squared	0.002	0.003
Observations	4062	3763

TABLE 13
PERFORMANCE SENSITIVITY OF CEO TURNOVER

The sample consists of firm year observations between 1993 and 2002 for firms listed on Execucomp. Forced turnover is identified using data from Jenter and Kanaan (2006). There are 189 forced turnovers in our sample. The regression is an industry fixed effect logit regression where the dependent variable is one if the firm had a forced turnover in that year and zero otherwise. High CPS dummy is equal to one if the CPS of the firm is above the median of the firms in a particular year and zero otherwise. CPS is measured in the year prior to the dismissal. Firm specific return, t-1 is the residual return from a market model regression using return data in the prior year. High Eindex is equal to one if the firm has an Entrenchment index above the median of the firms in that year. Underneath the coefficients, we report t-statistics in brackets. *,**, ***, indicate significance at the 10%, 5%, and 1% level, respectively.

Dependent Variable:	Forced Turnover Dummy	
	(1)	(2)
High CPS dummy	-0.278	0.019
	(1.99)**	(0.11)
Firm specific return, t-1	-1.187	-0.437
	(7.63)***	(1.01)
Firm specific return, t-1	-0.206	-1.460
* High CPS dum	(0.83)	(2.52)**
High Eindex dum		0.293
		(1.53)
Firm specific return, t-1		-1.480
* High Eindex dum		(2.99)***
Firm specific return, t-1		2.302
* High CPS * High Eindex		(3.48)***
Year 1993	3.093	2.914
	(2.97)***	(2.76)***
Year 1994	3.601	3.488
	(3.54)***	(3.39)***
Year 1995	3.155	2.910
	(3.09)***	(2.80)***
Year 1996	3.734	3.596
	(3.68)***	(3.51)***
Year 1997	3.650	3.510
	(3.60)***	(3.42)***
Year 1998	3.388	3.212
	(3.34)***	(3.15)***
Year 1999	3.825	3.812
	(3.79)***	(3.76)***
Year 2000	3.219	3.181
	(3.15)***	(3.09)***
Year 2001	1.836	1.575
	(1.67)*	(1.36)
Observations	14191	14191