

Managerial Incentives and Voluntary Turnover

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Abstract

We study the issue to managerial retention by examining the relation between managerial incentives and voluntary turnover. Our analysis uses a unique dataset which comprises of over 3,000 managerial turnovers about a third of which are voluntary. We find that firms that have a higher inequality in their compensation schemes are more likely to experience higher resignations. We also find that managers take into account their compensation relative to their peers within the firm as well as those in the market, in their resignation decisions. The likelihood of resignations is also affected by the mix of short-term and long-term compensation, equity ownership in the firm, and the overall level of compensation inequality among top executives.

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I. Introduction

In an article published in the *Wall Street Journal*, the CEO of *Biomet Inc.* contends that the main reason why his firm has been able to retain almost all of its top executives for over twenty years is the narrow pay differentials among the firm's top management team. This feature of *Biomet Inc.* is especially noteworthy because *Biomet's* performance during this period has been consistently above average. The importance of managerial talent retention is evident from a recent global survey of over 800 Chief Executive Officers (CEOs) conducted by The Conference Board, which documents that managerial talent retention is rated as one of the top ten challenges faced by CEOs. Retaining managerial talent is documented as the top challenge for Asian CEO's and ranked 6th and 7th among European and U.S. CEOs, respectively. Voluntary departures of senior executives are generally costly for firms (e.g., Fredericksen and Takats (2007)). The departure is especially significant if the executive is difficult to replace with a manager of like or superior abilities. Further, as Lazear (1999) questions, "Do firms keep their best workers or do they lose them to the competition?" relates to whether firms can retain high-quality managers. In this article, we examine managerial talent retention, by investigating the effect of managerial compensation related incentives, both equity- and promotion-based, on *voluntary* managerial turnover.

We manually identify all non-CEO turnovers in all the non-financial and non-utility S&P 500 firms over the period 1993-2004 and classify them as either voluntary or non-voluntary. We identify 2,956 executive turnovers, of which 1,007 (34%) are voluntary resignations. We analyze managerial turnover at both the firm level and at the individual manager level. In our firm level analysis, we explain the proportion of top-level executives who voluntarily leave the firm. Since

senior managers are few in number, the proportion of departures takes a few discrete values. Therefore, we analyze the proportion of managerial departures using the Fractional Logit model introduced in Papke and Wooldridge (1996, 2008).¹ Our analysis of the turnover decision at the individual manager level examines the likelihood of voluntary resignations of individual managers using a Logit model. Further, our analyses take into account the possible endogeneity of managerial compensation structures and managerial turnover.

First, we find that firms that provide higher equity-based incentives are likely to experience a lower proportion of voluntary resignations. Likewise, managers with higher equity-based compensation are less likely to resign. Second, firms with higher inequality in their top-management compensation are associated with a higher proportion of resignations. This finding is consistent with the notion of inequity aversion which suggests that agents take into account not only the magnitude of their own compensations, but also their compensation relative to their peers (e.g. Fehr and Schmidt (1999)) and is perhaps best illustrated by the *Biomet* example described earlier. We note that higher compensation inequalities are more likely in firms with greater promotion- or tournament incentives. Finally, we find that managers with the highest relative compensation within their firms are most likely to resign. If higher relative compensation is a measure of ability, this result suggests that the external labor market for “more able” managers is more favorable. In unreported results for a sub-sample of managers we find that nearly 50% of these departing managers join as the CEO of a new firm. Further, these departing managers also join firms with a significantly lower pay inequality on average, which offers additional support for our reported findings. Our results are by and large robust to corrections for endogeneity between all measures of incentives and turnovers.

¹ As a robustness check we use several alternate measures for voluntary resignations at the firm level and find similar results.

Incentives provided to managers are in general meant to induce higher effort levels leading to better performance. However, as noted by Prendergast (2001) and Lazear (1999, 2005), another important yet relatively unexplored aspect of the role of incentives is to allocate and retain talent. While the effort-enhancing role of incentives has been examined empirically, the effectiveness of different incentives mechanisms as a means of retaining managerial talent remains largely unexplored by the finance literature. Consider for instance, a typical executive who faces two forms of incentive schemes, output- and promotion-based. Since CEOs are already at the top of the corporate hierarchy, they do not have promotion-based incentives and their main incentives stem from output-based compensation and/or ownership in firm-specific equity. Unlike the CEO, executives with the rank of vice president as well as other top executives in the firm (hereafter referred to collectively as VPs) compete with each other for promotion to CEO in a rank order tournament (e.g. Lazear and Rosen (1981)).² In other words, the typical incentive scheme for a VP includes both promotion-based incentives and output-based incentives. Our study contributes to the literature by addressing the dual nature of incentive schemes for VPs and its relation to their decision to resign from the firm. Specifically, we examine both promotion- and output-based VP incentives and the likelihood of VP resignations at the firm level and at the individual VP-level.

Output-based incentives are comprised largely of compensation contingent on the value of the firm's equity and serves to align managers' interests with those of shareholders (e.g., Jensen and Murphy (1990), Holmstrom (1973)). Equity-based compensation affects firm stockholders and managers in several ways. Equity-based compensation can aid in the retention of high-quality employees (e.g., Ittner, Lambert, and Larcker (2003)). Oyer and Schaeffer (2003,

² In a typical rank-order tournament, the best relative performer is promoted to the next level in the hierarchy, while the others are passed over.

2005) argue that equity-based compensation can serve as a signal to the market on the quality of the manager since it increases the volatility of managers' payoff; higher quality managers are more likely to signal their quality by accepting a higher proportion of equity (or more volatility) in their compensation. However, since a significant component of managers' equity ownership may be forfeitable on departure, Balsam and Miharjo (2007) argue that prospective employers may not be willing (or unable) to compensate departing managers for this loss. Viewed as a whole, the above arguments suggest that equity-based compensation can act as a constraint for managers' ability to voluntarily leave a firm. We therefore expect higher levels of equity ownership to decrease the likelihood of managerial resignations.

While the expected relation between output-based incentives and managerial turnover is relatively straightforward, the effect of tournament incentives on managerial turnover is more subtle, as noted by Lazear (2001). Tournament incentives, in general, are created by pay differentials between any two levels in a firm's hierarchy and offer lower level employees an estimate of their potential increase in compensation on promotion. For instance, the compensation differential (or pay gap) between the CEO and the VPs create promotion-based incentives for VPs. Lazear and Rosen (1981) argue that these compensation differentials in a firm create competition among employees at a given level leading to higher effort, and therefore higher output. Creating competition among managers through tournament incentives brings into play several aspects of their compensation such as (i) their current compensation relative to other VPs in the firm (ii) current compensation relative to other VPs in the industry/market, (iii) pay gap in relation to the firm's CEO, and (iv) pay gap with respect to the pay-gap in other firms in the industry/market. We explore the relation between each of these aspects of tournament

incentives and their effect on managerial resignations. We include total tournament incentives as well as the split between short-term and long-term tournament incentives in our analyses.

Our firm-level analysis is aimed at capturing the relation between average incentives in firms and total turnover in firms. These tests implicitly assume the existence of a representative VP in the firm. Our analysis at the individual VP level enables us to potentially allow for any heterogeneity in VPs' incentives even within the firm and does not require the assumption made in the firm level analysis. Further, while the firm level analysis addresses the relation between incentives and "how many" VPs are likely to leave, the individual level analysis sheds light on the relation between incentives and "who" is more likely to resign. At the firm level, we find that higher pay disparity in total and long-term compensation among managers in a firm, leads to higher resignations. Thus, firms where tournament incentives result in larger pay inequalities are less likely to retain their non-CEO executives. The result is consistent with the idea of inequity aversion which suggests that economic agents take into account not only their own compensations, but their compensation relative to their peers (e.g. Fehr and Schmidt (1999)). To further explore this idea, we use two additional measures; (i) the compensation rank of firm VPs (or the representative VP) in firms of similar size, and (ii) the rank of the pay gap in the firm relative to other firms of similar size. We find that the average number of resignations in a firm is negatively related to the firm VPs' compensation rank (total and long-term); higher compensation ranks are associated with lower likelihood of turnovers. In other words if the firm underpays its managers on average, they are more likely to leave.

We also find that firms with higher pay gaps relative to their peer firms are more likely to experience a higher proportion of voluntary turnovers. This raises an interesting question. If higher pay gaps represent higher prizes on promotion, why would the firm expect higher

turnovers? Two possible explanations come to mind. First, higher gaps are associated with higher inequality among firm VPs and the higher turnover is possibly due to inequity aversion. Second, higher gaps indicate the presence of firms with lower gaps or CEOs in similar firms with a lower compensation than their own CEO. In these specifications we control for the compensation rank relative to their peer firms and therefore higher gaps on account of being underpaid is not an issue. Thus it is likely that the higher turnover in these firms is on account of firm VPs moving to equivalent or better outside opportunities.

Our analyses at the individual VP level are by and large consistent with the firm-level analyses but offer some additional insights. First, we find that the higher paid VPs in a firm are more likely to resign. Recall that in the firm-level analysis we implicitly assume that all VPs in a firm are identical. If the compensation rank of a manager in her own firm is an indication of her ability then this result is consistent with the notion that there is an external market for a good manager which allows her to move to better positions in other firms, rather than wait for a promotion in her current firm. Once we account for a VP's relative compensation rank within the firm, the effect of her compensation relative to peers in other firms does not affect her decision to resign in a significant manner. Thus, while managers take into account the compensation of other managers in their own firm, they appear to assign a lower weight to the compensation of their peers in other firms. Further, a VP with the relatively highest compensation gap with the CEO is also more likely to resign. This is consistent with our earlier finding that larger tournament incentives are associated with an increased likelihood of resignations.

Finally, at the firm level as well as at the individual VP level analyses, we find that higher firm-specific equity ownership decreases the likelihood of resignation, consistent with the

idea that equity compensation constrains managers from leaving a firm. Taken together, our results appear to support the view that the mix of incentive schemes does play a role in the retention and sorting of top executives. We contribute to the literature in several ways. At a general level, we address the link between incentives and resignations. This issue addresses an important but relatively less explored aspect of managerial incentives, namely talent retention (how many managers leave the firm) and sorting (who leaves a firm). Specifically, our emphasis on the relation between tournament or promotion-based incentives and resignations offers insights into the incentive related characteristics of tournament participants. We also add to the body of work on the determinants of managerial turnover, specifically on voluntary resignations. Our focus on executives other than the CEO underscores the importance of top management teams, rather than the CEO. The remainder of the study is organized as follows. Section II develops the hypotheses. Section III contains a description of our sample. Section IV contains a discussion of the results at the firm and VP level. We discuss endogeneity corrections and robustness of our results in Section V, followed by concluding remarks in the Section VI.

II. Background and Development of Hypotheses

Consider for instance the premise that many boards of directors face a budget constraint in the amount of incremental executive compensation they are permitted to award in a given year. The board must decide how to allocate this compensation among the CEO and the various VPs. The incremental compensation paid to the CEO and VPs can alter existing tournament incentives and change the CEO-VP compensation differential. Thus, firm VPs could move up or down in the market compensation and/or pay gap hierarchy. Any alteration in the CEO-VP compensation gap has implications for the VPs' *expected future* compensation. If VPs maximize

the present value of (the sum) their *current* and *expected future* compensation, then any increase in either component, holding the other fixed will result in a higher sum for the two components which should lead to an increase in their likelihood of remaining with the firm. Thus, for a given pay gap, a VP is more likely to resign if their compensation relative to other VPs (either in the firm or in the market) falls. Similarly, holding VPs' current compensation constant, an increase in their expected future compensation (via an increase in the CEO-VP pay gap) will increase their likelihood of continuing with the firm.³ Note that if all VPs in the sample receive a pay raise such that their relative ranks in the compensation *and* pay-gap hierarchies remains the same, we would not expect any change in their resignation decision.

Implicit in the above arguments is the assumption that VPs within a firm are of equal ability and therefore equally likely to be promoted. Thus, any analysis at the firm-level assumes homogeneity among VPs' ability or the existence of a representative VP in every firm. Unlike the firm-level analysis which aggregates individual VPs' incentives, an examination of individual VPs enables us to potentially allow for any heterogeneity in VP ability even within firms. Since the market has limited information regarding the individual executives' effort (or ability), one source for a credible signal of their ability is their compensation rank within the firm, which is public information (e.g. Lazear (1989)). Thus, the highest paid managers in the firm will be considered of superior ability compared to their lower-ranked peers.

The superior managers are more likely to have better outside opportunities and a higher likelihood of being promoted in their own firm. Their decision to remain with the firm (or leave) will then be the result of a tradeoff between their prospects outside their firm vis-à-vis the possibility of an internal promotion to CEO. On the other hand, the least paid managers face a

³ Note that in order to hold VPs current compensation constant, an increase in pay gap must be via an increase in the CEO's compensation.

similar choice; they may choose to move to a firm with a higher current compensation but with a lower tournament incentive in terms of the CEO-VP pay gap. They may also consider moving to a firm where they are ranked higher in the firm's compensation hierarchy, thereby increasing their probability of promotion in the new firm.

While VPs' resignation decisions take into account their current and expected future compensation, there may be other considerations. We briefly review the extent literature on this subject, in which managers are analogous to "agents" acting on behalf of the stockholders. Demougin and Fluet (2003) (among others) argue that agents can be influenced by their *payoff relative to other agents* in a comparable group.⁴ This idea of including the payoff of other agents is especially appealing in the context of a "rank order" tournament where agents compete for the sole prize, the CEO's position. Thus, in a competition for the CEO's position, agents expend effort that is a strategic response to the actions of other agents.

The literature also suggests that managers consider their peer's compensation rank relative to their own when deciding on their strategic response. For example, Fehr and Schmidt (1999) argue that agents suffer a disutility as the distribution of compensation in their firm departs from an egalitarian distribution. They define two sources of dissatisfaction from inequality; *envy* (when they earn less than the others) and *empathy* (when they earn more). In their model, if the wage spread is too high, an agent may choose not to participate in a tournament or may require higher compensation for her disutility from losing the promotion. Thus a very high wage spread may prompt the agent to pursue an external tournament by joining another firm with a lower wage spread. Finally, as Lazear and Rosen (1981) note, while tournaments induce higher effort through competition among participants they could also lead to

⁴ Despite being underpaid, envy creates incentives as long as the agent is willing to participate in the tournament and the agent's expected future compensation offsets a current lower compensation. The extent of the disutility depends on whether the employees are advantaged or disadvantaged by the compensation inequality.

uncooperative behavior. This may encourage some employees to indulge in actions that could be sabotage or disrupt the effort of more productive employees (e.g., Milgrom and Roberts (1990)). These factors can also influence managers' decision to leave a firm.

The theme in this literature as Fehr and Schmidt (1999) emphasize, need not be considered as a departure from the traditional view of rational behavior. Bolton and Ockenfels (2000) further assert that *own relative payoff*, a measure of how much a person's own pecuniary payoff compares with that of others motivates people. Thus, an executive's utility may be influenced by how much their competitors are paid, not just within their firm, but within their industry. This utility function may also differ among agents. For instance, it is possible that all agents take into account how much their peers are paid, but each agent may assign a different weight to this component in their utility function. At the very least these theories on inequity aversion offer us a more comprehensive view on the relation between compensation inequalities arising from tournament incentives and the likelihood of turnover and taken together, suggest that the likelihood of resignation is higher as the compensation inequality among managers increases.

III Data Sources, Sample Selection and Methodology

Our initial sample contains all executives in the set of S&P 500 firms with the exception of financial services and regulated utility firms in the ExecuComp database. We limit our analysis to these firms due to the high cost of collecting detailed information on the departure of nearly 3,000 VPs (e.g., Fee and Hadlock (2003)), which is our main variable of interest. Our sample period is from 1993 to 2004 and consists of 3,919 firm-year (21,404 VP-year) observations.

A. Identifying Voluntary Resignations and other Executive characteristics

First, for each firm in the sample, we define the CEO as the person who is identified as the Chief Executive Officer of the firm in ExecuComp (CEOANN = CEO), and classify all other executives as VPs. We then use several sources to identify CEO- and VP- related variables including the age of the CEO and VPs, number and designation of VPs, and voluntary resignations of VPs. ExecuComp provides data on CEO and VP age, and the date of joining and leaving a firm (if applicable) for VPs, for a relatively small fraction of executives. We obtain information on missing CEO and VP age, from other sources which include firm *Proxy Statements*, the *International Directory of Company Histories*, *Marquis Who's Who Publication*, *Forbes Surveys*, *Newswires from the Lexis-Nexis database*, and the *Standard and Poor's Register of Corporations, Directors, and Executives*.

Our first objective is to identify for each VP-year in our sample, whether the VP left the firm (*VP Turnover* = 1) or stayed with the firm (*VP Turnover* = 0). Conditional on there being a turnover, we also classify whether the VP voluntarily resigned (*Resign* = 1) or left for other reasons (*Resign* = 0). Toward this end, we begin with all the data available in ExecuComp. We first verify if a VP is reported with the same firm in the year following the sample year. If she does, the VP-year is not classified as a turnover. If the VP does not appear with the firm in the subsequent year, but appears as an executive in another firm, we classify the VP-year as a turnover. If the VP however, appears neither with the firm nor with another firm, it is likely that she may have either stayed with the firm but the firm's proxy statement does not contain details of her compensation in the subsequent year, or she left the firm.⁵ For these VPs, we use all the sources outlined previously and in some instances the firm's website and other news articles to

⁵ Note that firms are required to disclose the compensation details only for the top 5 highest paid executives in any year.

manually identify if the executive remained with the firm or left. Once all the turnovers have been identified, we classify all VP turnovers into one of eight reasons namely; (i) *Resign*, (ii) *Retirement*, (iii) *Forced*, (iv) *Merger*, (v) *Other Goals*, (vi) *Deceased*, (vii) *Planned*, and (viii) *Unknown*. These reasons for departure are based on similar studies such as Fee and Hadlock (2003).

Recall that we conduct our analyses using a panel dataset at the firm-year level as well as at the VP-year level. For the firm-level analyses, we use three measures of voluntarily resignations; (i) *Mean Resign* which is the fraction of VPs in a firm-year who left voluntarily, (ii) *NResign*, the number of VPs who left voluntarily, and (iii) *DResign*, a dummy variable equal to one if the firm-year had at least one resignation, and zero otherwise. For the VP-level analyses, we use *Resign* as defined earlier, i.e. *Resign* is equal to 1 if the VP voluntarily left the firm and zero otherwise. Panel D in Table 1 contains summary statistics for VP turnover data. The total number of voluntary resignations is 1,007 which accounts for about 34% of the of 2,956 VP turnovers.

B. Measures of Incentives

We construct our main explanatory variables in keeping with the idea that an executive's incentives affect their probability of voluntarily leaving the firm. An executive's total compensation is the sum of (i) short-term compensation in the form of salary, bonus, and other fixed annual payments, and (ii) long-term compensation in the form of stock and option grants, and other long-term incentive payouts. For each firm-year we define *Median VP ST Comp*, *Median VP LT Comp* and *Median VP Total Comp* as the median values of VPs' short-term compensation, long-term compensation and total compensation, respectively. Hereafter, we refer to *Median VP Comp* as a general term to represent *ST*, *LT*, and *Total Comp*. Panel A in Table 1

presents summary statistics for the CEO's compensation and Panel B for the median VP in the firm. The mean CEO in our sample is paid \$7.45 million which is considerably higher than the average VP who is paid just over \$ 2.0 million. The distribution of both CEO as well as VP compensation is skewed for all three measures of compensation with mean values exceeding median values by about 65% for the CEO and 22% for VPs. The inter quartile range for CEOs' total compensation is about \$6.6 million and \$1.50 million for VPs.

In addition to annual compensation, many executives also have ownership in their firm's equity in the form of stocks and options. We follow the extant literature (e.g., Aggarwal and Samwick (2003)) and define Alignment as the sum of stock and option sensitivities to a \$100 change in shareholders' wealth, where; $CEO\ Alignment = (\text{Number of shares held by the CEO} + \text{delta of options} * \text{number of options held by CEO}) / \text{total number of shares outstanding}$.⁶ For VPs, we compute the alignment variable described above for each VP in the firm and define *Median VP Alignment* as the median value of the alignment variable for all VPs in a particular firm-year. The mean (median) value for CEO alignment is \$2.23 (\$0.67) per \$100 of shareholders' equity, while the corresponding value for VPs is considerably lower at \$0.14 (0.09). We use these compensation and alignment measures to construct our main explanatory variables.

Our first hypothesis pertains to the relation between relative current compensation and resignations. At the firm-level we measure current compensation of the firm's VPs relative to

⁶ We use the percentage of stock ownership at the beginning of the year for each executive to obtain the stock-based sensitivity of an executive's equity portfolio. For option holdings, we use the number of options held by the manager at the beginning of the year, which represents option grants made in prior years. Following Murphy (1999), we determine an average exercise price for all previously granted options based on their year-end intrinsic value. Further, we treat all options held at the beginning of the year as a single grant with a five-year time to maturity. We obtain the risk-free rate using data from the five-year treasury bills constant maturity series available from the Federal Reserve Bank's official website, and dividend yield on the stock from ExecuComp and estimate stock return volatility as the annualized standard deviation of 60 monthly total stock returns to shareholders prior to the sample year. We drop observations with less than 12 usable monthly returns. Using the above information, we compute the average delta of prior option grants using the modified Black-Scholes formula.

other VPs in firms belonging to the same size quartile.⁷ First, we rank *Median VP Comp* for all firms in the same size quartile for each year. We then compute the percentile rank or the Cumulative Density Function (*CDF Total Comp*), which is bounded between zero and one. Thus, *CDF Total Comp* provides us with a measure of VPs' current compensation relative to VPs outside the firm; a value greater (lower) than 0.5 indicates that firm VPs are on average overpaid (underpaid) relative to the average. For our analysis at the VP level we construct a variable *CDF Total*, which is the percentile rank of a VP's compensation within her firm, for a given year. Again, a value for *CDF Total* greater (less) than 0.5 indicates that the VP earns more (less) than the median VP in the firm. The highest paid VP in a firm will have a value for *CDT Total* equal to one. We compute similar measures, *CDF Short-term* and *CDF Long-term*, which are based on their short-term and long-term compensations respectively.

In our analysis of the relation between resignations and tournament incentives as measured by the CEO–VP pay gap, the CEO-VP compensation gap is our measure of tournament incentives (e.g., Bognanno (2001) and Kale, Reis, and Venkateswaran (2008)). We first compute three versions of this gap; *Total Gap* based on total compensation, *ST Gap* based only on short-term compensation, and *LT Gap* based only on long-term compensation. Specifically, $Total\ Gap = Total\ CEO\ Comp - Median\ VP\ Total\ Comp$. We compute *ST Gap* and *LT Gap* in an analogous manner. As with compensation, we rank the compensation gaps for each year within each size quartile and obtain the percentile ranks for all three measures of gap, *CDF Gap*. The mean (median) value for the gap in long-term compensation is considerably higher at \$4.16 (\$1.85) million compared with the gap in short-term compensation which has a mean

⁷ Since our attention is limited to S&P 500 firms, we do not consider benchmarking to an industry, and instead treat all firms in our sample as if they belong to one industry, namely the S&P 500.

(median) value of \$1.23 (\$0.92) million.⁸ The average CEO-VP gap in total compensation is \$5.39 million.

Tournament incentives in a firm are created by introducing inequality in compensation between employees (e.g., Lazear (1999)). While pay gaps represent one aspect of tournament incentives, the inequality is captured by the *Gini Coefficient* which we compute for all three of our compensation measures, for each firm-year.⁹ The *Gini Coefficient* is bounded between zero and one and higher values correspond to greater inequalities. The *Gini Coefficient* is scale invariant and therefore can be used to compare pay inequalities across firms. However, one limitation of this variable is that it does not capture the value of the tournament prize. Like the median pay-gap, the *Gini Coefficient* is a firm-level variable. The mean (median) value of the *Gini Coefficient Total Comp* is 0.35 (0.34), in our sample. The inequality in long-term compensation among the firm's executives is higher (*Gini Coefficient LT Comp*=0.45) than the inequality in short-term compensation (*Gini Coefficient ST Comp* = 0.25). Our last measure of managerial incentives includes *CEO Alignment*, and *Median VP Alignment*, as defined earlier.

C. Other Variables

We include several control variables in our analyses, to account for differences in firm, industry, CEO, and VP characteristics. *CEO Age* is the age of the CEO as of the sample year. The median CEO in our sample is 56 years old and has been the CEO of the firm for five years. While the CEO's age is available for all CEOs in our sample, information on VP age is missing for about 25% of the VPs in our sample, despite using all the sources outlined previously. In these cases, we replace the VP's age with the median age of other VPs in the sample for that year. The average value for *Median VP age* is 52 years. We also designate a dummy variable

⁸ These figures are based on the *Median Gaps*, i.e. the gap between the CEO's and the median VP's compensation. The figures are roughly similar for the gaps between the CEO and individual VPs' compensation.

⁹ See, for example, Kale, Reis, and Venkateswaran (2008) for details on the construction of the *Gini Coefficient*.

Chair, which is equal to 1 if the CEO also holds the position of Chair of the board, and zero otherwise. *CEO Turnover* is equal to 1 if the firm has a new CEO in the sample year, and zero otherwise.

We define *Succession Plan* at the firm level, as a dummy variable that equals one if either of the following two conditions is satisfied: (i) the firm has a VP whose title is either President or Chief Operating Officer and who is not the Chair, (ii) the difference in short-term compensation between the CEO and the next-highest paid VP is less than 10% and the compensation of the highest paid VP is at least 20% greater than the second highest paid VP.¹⁰ At the VP level analysis, since the unit of observation is VP-year, we construct a measure VP Succession, based on the firm-level *Succession Plan* variable. *VP Succession* is a discrete variable that can potentially take three values; one if the VP is the designated successor, two if the VP is in a firm with no succession plan, and three if the VP is *not* the designated successor in a firm that has a succession plan as defined above. The idea behind the construction of this variable is to capture a VP's resignation probability in a monotonic order. Thus, the likelihood of VP resignation is the least for a successor and the most for a non-successor in a firm that has a successor.

We construct other firm and industry level controls which include the lagged value for return on assets (*Lagged ROA*) defined as the ratio of the firm's net income to total assets for the year prior to the sample year and *Firm Size* which is the natural log of the firm's assets. *Stk. Return Volatility* is the variance of the firm's monthly stock returns over the 60-month period prior to the sample year. We follow Parrino (1997) to construct the variable *Industry Homogeneity*, to measure the similarity between firms within an industry after isolating market

¹⁰ This is a modified version of the variable in Naveen (2006), who does not impose any restriction on the difference in compensation between the highest and the next highest paid VP. Our results remain unchanged when we use either or both conditions to define succession plan.

effects.¹¹ Finally, we control for competition among firms in an industry and define *Concentration* which is the sales-based herfindahl index for each 4-digit SIC industry. The variable *Number of VPs* is a count of all non-CEO executives for each firm-year in the sample. Summary statistics for all the variables are reported in Panel B of Table 2.

Panel A of Table 2 contains pairwise correlations for all our incentive measures. All the tournament related variables i.e. the three measures of *Gini Coefficient* and the CDF of pay gaps are positively correlated with each other. This is to be expected since higher pay gaps are more likely to cause greater inequalities in compensation. The CEO and VP alignment measures are also positively related to each other.

IV. Discussion of Results

Firm-level Analysis

We begin with a discussion of our results at the firm-level. Due to the nature of our dependent variable in these tests, we consider several different specifications. Broadly the specification we use is as follows;

$$\begin{aligned} Resign_{it} = & \beta_0 + \beta_1 Relative\ Compensation + \beta_2 Tournament + \beta_3 CEO\ Alignment \\ & + \beta_4 Median\ VP\ Alignment + \beta_5 CEO\ Turnover + \beta_6 Succession\ Plan + \beta_7 Log\ (CEO\ Age) \\ & + \beta_8 Log\ (Median\ VP\ Age) + \beta_9 Chair + \beta_{10} Lagged\ ROA + \beta_{11} Firm\ Size + \beta_{12} Stk.\ Ret.\ Volatility \\ & + \beta_{13} Industry\ Homogeneity + \beta_{14} Concentration + year\ dummies + firm\ effects + \varepsilon_{it} \end{aligned}$$

As discussed in the previous section, we use three variants of the dependent variable for the firm-level regressions. In Models 1 and 2 of Table 3 with *DResign* as the dependent variable, we use the fixed-effects *Logit* and fixed-effects *Probit* models respectively. In model 3, we use a *Poisson* regression, since the dependent variable is a count of the number of the resignations,

¹¹ First, we assign firms in the CRSP monthly returns file to their respective 4-digit historical SIC industry code (obtained from Compustat data item 324 or DNUM if data 324 is missing) and then regress each firm's prior 60 monthly returns on an equally weighted monthly industry index and the market return. For each firm, we then compute the partial correlation coefficient between the firm's returns and the industry index while holding market returns constant. *Industry Homogeneity* is the average partial correlation coefficient for all firms within an industry. We use a 5-year rolling estimation period for each year in the sample.

NResign. Both *DResign* and *NResign* have limitations. While *DResign* treats all firms with one or more resignations as the same, *NResign* may be biased because it is dependent on the numbers of executives reported in ExecuComp. The number of VPs in any firm-year in our sample ranges from two to 12, and about 71% of the observed values are between five and seven. To mitigate this bias we use the number of resignations as a proportion of the number of VPs in the firm (*Mean Resign*) and use a *Fractional Logit* model and report results from this specification in column 4 of the table. Papke and Wooldridge (1996) show that when the response variable is a fraction, linear models such as OLS can never guarantee the predicted values to lie in the unit interval (0,1). The common practice when the response variable is a fraction is to transform the dependent variable using a log odds transformation where the dependent variable, y , is transformed to $\log(y/(1-y))$. However, this transformation is ad hoc and does not allow extreme values of zero and one. We use the *Fractional Logit* model, following Papke and Wooldridge (1996,2007) who show that the model is appropriate when the response variable is a set of discrete fractions between zero and one.¹² In addition to being fully robust and efficient the fractional logit model allows for the estimation even in the presence of extreme values. In subsequent analyses, we focus on the *Fractional Logit* model. The standard errors in all our analyses are robust to corrections for heteroskedasticity and bootstrapped using 100 replications.¹³

In Table 3 we present results from the four specifications discussed above using the *Gini Coefficient (Total)* as a measure of tournament incentives. Consistent with inequity aversion, firms with a higher inequality in their top management compensation are also associated with higher voluntary departures. The result is statistically significant at the one percent level in all

¹² See Loudermilk (2007) for another application of the Fractional Logit model to firm dividend payouts.

¹³ Papke and Wooldridge (2008) note that bootstrapping standard errors in binary and fractional response models is appropriate.

four models. As predicted by our hypothesis, we also find that higher *VP Alignment* is associated with a lower likelihood of resignations. The negative coefficient in each of the four specifications is statistically significant at the one percent level. This is consistent with the argument that a higher level of ownership in firm-specific equity “ties” the manager to a firm, which is usually an intended purpose of equity grants to managers. To further test this hypothesis, we re-examine the same specifications as in Table 3 but replace *Gini Coefficient (Total)* with *Gini Coefficient (ST)* and *Gini Coefficient (LT)* and report the results in Table 4. Consistent with our conjecture, the inequity aversion result stems largely from inequality in long-term compensation as is evident from the statistically significant positive sign on *Gini Coefficient (LT)*. The substance of the results from Tables 3 and 4 indicate that firms that have a higher level of inequality in long-term compensation have higher levels of resignations and those with higher levels of ownership in firm-specific equity lead to lower resignations.

We also find that firms with older VPs are less likely to experience a high voluntary turnover among VPs, although the result is statistically significant in only two out of the four specifications. Not surprisingly, we also find that larger firms and firms with better prior performance are associated with lower levels of resignations, while riskier firms are associated with higher resignations. The negative coefficient on *Industry homogeneity* indicates that industries with higher commonality among their firms are associated with lower levels of resignations, which is inconsistent with Parrino (1997) who finds that CEO turnover is more likely in homogeneous industries.

Next, we examine the relation between relative current payment, tournament, and alignment incentives on resignations and present results in Table 5. As in Table 4, the dependent variable is *Dresign* in Models 1 and 2, *NResign* in Model 3 and *Mean Resign* in Model 4. Recall

that relative current payment is measured using the normalized rank of the median VP's compensation in a firm. First, we find that lower relative payment leads to higher resignations. The negative coefficient associated with *CDF Total Comp* is statistically significant at the five percent level of significance or better in all four specifications. This result is consistent with our hypothesis that firm VPs who are underpaid relative to their peers are on average more likely to leave.

Further, controlling for relative payment, higher relative CEO-VP pay gaps lead to higher levels of resignations. Recall that we have two competing hypotheses regarding the predicted relation of tournament incentives with resignations; the expected future compensation hypothesis which predicts a negative relation and the inequity aversion hypothesis which predicts a positive relation. Thus, the positive and statistically significant coefficients on the variable *CDF Total Gap* is consistent with the inequity aversion hypothesis and offers additional support for our earlier result where we find a positive relation between compensation inequality (measured using the *Gini Coefficient*) and likelihood of resignations. However, since pay gaps represent the size of the tournament prize, this finding suggests that higher prizes on promotion induce more resignations, is inconsistent with the expected future compensation hypothesis. A limitation of the firm level analysis is that it aggregates the incentive structure of individual VPs (and resignations) and does not explain, "who is more likely to leave". Instead, the focus here is on the relation between average incentives and resignations. We rely on the VP-level analysis to address this issue further.

We also find that higher levels of VP alignment lead to lower resignations, consistent with our hypothesis and earlier findings. Firms with a succession plan are more likely to experience greater resignations. We explore this result further in the VP level analysis using *VP*

Succession. Firms with older VPs are less likely to experience a greater proportion of resignations as evidenced by the negative and statistically significant sign on *Log (Median VP Age)* in the fractional logit model. One possible explanation here is that older VPs are more risk averse and less likely to leave their current employer. We find that better performing firms (based on prior year ROA) are associated with lower resignations and riskier firms with more resignations. We also find that managers in more homogeneous industries are less likely to resign, which appears counter intuitive. Finally, we find that managers are by and large more likely to depart voluntarily from firms in competitive industries.

In Table 6 we replace the relative total compensation and gap with relative short-term and long-term compensation and gap, respectively. Our findings suggest that lower relative payment (or relative underpayment) in short-term or long-term compensation leads to higher levels of resignations. However, the statistical significance and the magnitudes of the estimates suggest that managers on average are more sensitive to underpayment in short-term than in their long-term compensation. This result is interesting in light of the fact that median short-term compensation (\$0.622 million) is nearly the same as long-term compensation (\$0.699 million) (See Table 1). One possible explanation is that managers care more about cash compensation than they do about riskier long-term compensation, which is largely in the form of stock and option grants.

The relation between short-term and long-term pay-gaps and resignations is generally consistent with the results discussed earlier with respect to total gaps. Thus, the coefficient estimates on both measures on the pay-gap are positive, but statistically significant at conventional levels in two out of the four models in the case of short-term gap and in three instances for long term gap. Further, in almost all models, the magnitude of the coefficient

estimate is greater for long-term than short-term gap. Thus, in the case of tournament incentives managers appear to place a higher weight on the long-term component rather than the short-term component. At the very least, these findings highlight the importance of separating the two components in any analysis of managerial incentives.

VP-level Analysis

We now discuss our results at the individual executives. Our dataset in these analyses consists of 21,511 VP-year observations. The dependent variable in all these tests is *Resign*, which is equal to 1 if the VP resigned from the firm during the year and zero otherwise. Table 7 presents results on the relation between total incentives and *Resign*. In these regressions, we include an additional variable, *CDF Total* which is the normalized rank of the VP's compensation relative to other executives in the firm. Thus, a value of one (zero) indicates that the VP is the highest (lowest) paid VP in the firm. The first model in the table reports results with *CDF Total Comp* (compensation relative to an external benchmark) and *CDF Total Gap*. In the next model, we replace *CDF Total Comp* with *CDF Total* (relative internal compensation). The last model uses all three measures of compensation and tournament incentives. All models account for managerial alignment. The results from Table 7 offer several interesting findings.

First, the coefficient estimates on *CDF Total Comp* in Model 1 and *CDF Total* in Model 2 are positive and statistically significant. This indicates that that VPs who are overpaid, relative to the either the external market or with respect to their peers in the firm, are more likely to resign. However, in Model 3, the coefficient estimate on *CDF Total Comp* while positive is not statistically significant, but *CDF Total* continues to remain positive and significant. This allows us to conclude, albeit with some caution, that internal compensation hierarchy matters more than one's position with respect to the external market. This finding is consistent with our hypothesis

that compensation serves as a signal of one's ability and the external market rewards superior ability with lucrative external offers. Thus, while these VPs may be "overpaid" in their own firm, they prefer to move to another firm that offers them better prospects.¹⁴ The estimate on *CDF Total Gap* is positive and statistically significant in two out of the three specifications. This suggests that holding a VP's external and internal compensation rank constant, she is more likely to resign as her compensation gap with respect to the CEO increases. The likely explanation here, as in the firm level analysis, is also one of inequity aversion; managers prefer to be in a firm that offers a more "equitable" compensation scheme among its management team. The explanation is consistent with Lazear (1999), and Milgrom and Roberts (1990) who contend that while tournaments offer incentives to exert a higher effort, they may also induce uncooperative behavior. Note that, our results also suggest that the more "able" managers are the ones who are more likely to leave.

We also find that older VPs are less likely to resign; the coefficient estimates on *Log (VP age)* is negative in all models in Table 7. There is a higher likelihood of a VP's resignation in any year when there is a CEO turnover which is consistent with management moving as a team.. The positive and statistically significant coefficient of *VP Succession* is consistent with the likelihood of resignation being positively related to an increased probability of winning the promotion tournament for the CEO's position. Thus, designated successors (*VP Succession* = 1) are least likely to leave and non-successors in a firm with a designated successor (*VP Succession* = 3) are most likely to leave. VPs in high performing firms are less likely to resign, while those in riskier firms are more likely to depart. Finally, VPs in more homogeneous and more competitive industries (less concentrated) are less likely to voluntarily leave.

¹⁴ Preliminary unreported findings indicate that about a third of the VPs who resign join other Public firms as the CEO.

We re-examine the results in Table 7, by replacing all the total incentive measures with their components; short-term and long-term incentives and present our findings in Table 8. The results are by and large similar to those documented in Table 7, with one notable exception. After controlling for the level of external and internal relative payment, neither relative short-term nor relative long-term gaps appear to be related to *Resign*. Managers take into account their relative position within the firm in short-term, more than their long-term compensation, as evidenced by the higher magnitude of the coefficient estimate on *CDF ST. VP Alignment* continues to be negative and statistically significant in all six specifications. The results for the other variables are generally consistent with those documented earlier in Table 7.

In sum, the VP level analyses offers the following insights; (i) Managers are more likely to resign as their compensation hierarchy within the firm increases, suggesting that the more able managers are more likely to leave, possibly due to better outside opportunities, (ii) Managers' probability to resign depends more on their compensation hierarchy within the firm than in the market, and (iii) higher relative compensation gaps with the CEO increases resignation probabilities. Further, in all these specifications, higher equity-based incentives for VPs lead to lower levels of resignations, which is consistent with the findings of Balsam and Miharjo (2007). VPs are also more likely to resign when their CEO is more aligned with the firm's shareholders; the coefficient estimate on *CEO Alignment* in all three specifications in Table 7 is positive and statistically significant.

V. Endogeneity Corrections and other Robustness Tests

It is possible that our model specifications do not take into account the effect of a missing time-varying omitted variable which affects compensation as well as the propensity to resign. For instance, managerial ability is unknown but changes over time. As the Board learns about

changes in managerial ability, it changes their compensation. On the other hand as managerial ability increases it could also lead to improved prospects for finding better outside employment opportunities which potentially affect their resignation probability. To account for the endogeneity resulting from such variation we use a two-stage analysis. For the firm-level analysis, we use a two-stage methodology and replicate all our results with *Mean Resign* as the dependent variable. The methodology is based on Papke and Wooldridge (2008) and uses OLS estimations in the first stage and a *Fractional Probit* model in the second stage. We present the results in Tables 9. All standard errors are heteroskedasticity robust and computed using 100 bootstrapped replications.

The first two columns in Table 9 presents results with Gini Coefficient (Total) and Gini Coefficient (ST) and Gini Coefficient (LT) as the measures of tournament incentives, respectively. In the next two column we use the external and internal relative pay gaps using total and short-term, long-term compensation respectively. The results from these analyses support all our earlier results and are stronger in some instances. Thus, higher inequality in total and long-term compensation appears to increase the likelihood of mean resignations. Consistent with this, relative total gap as well as relative long-term gap are positive and significant. Once we account for endogeneity corrections, underpayment relative to peers does not appear to influence resignations. The rest of the factors are by and large consistent with earlier results.

Table 10 presents the results from a similar analysis using VP level data. In these we report only two specifications, since the gini coefficient as a measure of tournaments is not used at the individual level. As with the firm level results, we find that higher total and long-term relative pay-gaps increase the likelihood of resignations. Relative compensation does not appear to influence resignations even at the individual level, after accounting for Endogeneity

corrections. The additional variable, relative compensation with respect to other firm VPs is however positive and significant indicating that higher paid managers within a firm are more likely to leave, consistent with our earlier findings. Thus if higher compensation signals higher ability, then these managers are possibly more likely for better prospects.

In addition to endogeneity corrections, we conduct several other robustness tests. First, we replace the CDF of the pay gap with the dollar value of the difference in the pay gap between the firm's pay gap and the median pay gap in all firms in the same size quartile. Thus, the relative pay gap in this case is a dollar amount where the median firm in the same size quartile has a value equal to zero. All our results are qualitatively similar at the firm level as well as at the VP level. Second, in our fixed effects regressions at the firm level, we use industry effects instead of firm fixed effects and find that our results are robust to this correction as well.

Finally, we use the actual compensation less the benchmark compensation instead of relative compensation measures. These results are also generally consistent with the earlier findings.

VI. Conclusion

While prior research has documented the effort enhancing role of incentives, an important aspect of managerial incentives, their effect on managerial sorting has received scant attention. Oftentimes practitioners and the popular press weigh in on the importance of managerial talent retention. Our study adopts a novel analysis of the market for managerial talent, by examining the effect of their incentives on voluntary managerial turnover. Our analyses is based on a unique dataset that comprises details on the turnover of approximately

3,000 executives other than the CEO in S&P 500 firms, a third of whom voluntarily resigned from their firms.

At the firm-level, we find that firms that have a higher inequality in their managerial compensation are more likely to experience a higher percentage of resignations. Resignations at the firm level are more sensitive to inequality in long-term rather than short-term compensation. Firms whose managers are underpaid relative to peer firms are also more likely to experience a higher proportion of resignations. Controlling for the level of compensation relative to their peers, firms that have a higher promotion incentive (as measured by the gap between the CEO and the median VP's compensation) are also more likely to experience higher resignations.

At the VP-level, we find that managers who are highly paid relative to their peers in the same firm are more likely to resign possibly suggesting that higher ability leads to better employment prospects outside the firm. Further, in almost all our analyses (firm and executive level) managers who have a higher equity ownership in the firm are less likely to resign. Taken together these results suggest that ownership, or accumulated long-term compensation may constrain managers from resigning. Finally, we find that designated successors, managers in well performing firms, older managers, or those in homogeneous and more competitive industries, are less likely to resign. Managerial resignation is more likely in years where the firm has a change of CEO.

Our study has several important implications. As noted by prior studies, managerial turnover is costly for firms, especially if the manager is productive and leaves voluntarily. Providing long-term incentive based compensation aligns managerial incentives and precludes managers from resigning but is costly for shareholders. Promotion based incentives on the other hand provide incentives for effort enhancement by creating competition among peers. Our

analysis provides a framework for understanding “how many” and “who” leaves a firm voluntarily. Firms can use some of our findings to design executive compensation policies keeping in view the benefits of value maximization as well as the cost of losing valuable managerial talent. Our study serves as an initial step in the design of tournament incentives as a means of retaining managerial talent.

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Appendix: Data Sources and Definitions

This Appendix defines the variables used in the study. The data items taken from *Compustat* are denoted as Data #. All returns data are from the Center for Research in Security Prices (*CRSP*). The Compensation related variables are from *ExecuComp*. Other data sources include *Proxy statements*, *the International Directory of Company Histories*, *Marquis Who's Who publication*, *Forbes Surveys*, and the *Standard and Poor's Register of Corporations, Directors, and Executives*.

Variable	Source	Definition
Compensation and Alignment		
Short-term compensation (ST Comp)	ExecuComp	Salary + Bonus + Other annual payments
Long-term compensation (LT Comp)	ExecuComp	Restricted stock grants + Options granted + Long-term incentive payouts + Total other annual payments
Total Compensation (Total Comp)	ExecuComp	Short-term compensation + Long-term compensation
CDF Total Comp. (ST, LT) (External Relative Compensation)	ExecuComp	(Rank of Median VP in firm's Total Comp. (by year and size quartile) minus 1) / (Number of firms minus 1)
CEO Alignment (per \$100)	ExecuComp	(Shares owned at the beginning of the year + Average delta of prior option grants * # of options) / Number of shares outstanding *100.
VP Alignment (per \$100 of SH equity)	ExecuComp	(Shares owned at the beginning of the year + Average delta of prior option grants * # of options) / Number of shares outstanding *100 (median Value for all VPs in a firm-year)
Tournament Variables		
Total Gap	ExecuComp	CEO's Total comp – Median VP's Total comp
Short-term gap (ST Gap)	ExecuComp	CEO's ST Comp – Median VP's ST Comp
Long-term gap (LT Gap)	ExecuComp	CEO's LT Comp – Median VP's LT Comp
Gini Coefficient (Total Comp) (ST, LT)	ExecuComp	$1 + \frac{1}{n} - \frac{2}{n^2} (y_1 + 2y_2 + \dots + ny_n)$ <p>where y_i is the Total Comp (ST Comp., LT Comp) of all managers in decreasing order of amount</p>
CDF Total Gap (ST, LT) (Relative Gap)	ExecuComp	(Rank of firm's Total Gap (by year and size quartile) minus 1) / (Number of firms minus 1)
CDF Total (ST, LT) (Internal Relative Compensation)	ExecuComp	(Rank of VP's compensation among firm's VPs (by year) minus 1) / (Number of VPs in firm minus 1)
Other Variables		
Lagged Return on Assets (ROA)	ExecuComp	Prior year ROA
Industry Homogeneity	CRSP	Mean Partial correlation between firm's returns and an equally weighted industry index, for all firms in the same 2-digit SIC industry code, holding market return constant (see Parrino (1997)). Estimated based on 60 monthly returns prior to sample year
Chair	ExecuComp	Dummy = 1 if CEO is also Chair, 0 otherwise
Succession Plan	ExecuComp	Dummy = 1 if any VP is either President or COO but not Chair, or (CEO's ST Comp is at most 10% more than highest paid VP and highest paid VP's ST Comp is at least 20% more than next highest paid VP), 0 otherwise
VP Succession	ExecuComp	Value=1 if VP is successor, 2 if firm does not have a <i>Succession Plan</i> , and 3 if VP is non successor in a firm with <i>Succession Plan</i>
No. of VPs	ExecuComp	Number of VPs in a firm-year as reported in ExecuComp
CEO Age / VP Age	ExecuComp, Proxies, Other	Age of CEO in sample year / Age of VP in sample year
No. of Segments	Compustat Segment data	Number of business segments in which firm operates
Firm Size	COMPUSTAT	Log (Sales)
Stk. Return Volatility	CRSP	Variance of 60 monthly returns preceding sample year
Concentration	Compustat	Herfindahl Index computed using all firms in the same 2-digit SIC.

Table 1: Summary Statistics for Compensation, Incentives, and Turnover

Panels A and B in the table presents summary statistics for compensation of the Chief Executive Officer (CEO) and VPs in the firm-year as listed by ExecuComp. The sample period is from 1993 through 2004 and contains 3,919 firm-year (21,511 VP-year) observations. *Short-term compensation* is the sum of salary, bonus, and other annual payments in any given year. *Long-term compensation* is the sum of restricted stock grants, option grants, long-term incentive payouts and all other total payments made during the year. *Total compensation* is the sum of *Short-term Compensation* and *Long-term Compensation*. *CEO (VP) Alignment* represents the sum of stock and option sensitivity of the CEO's (VP's) equity portfolio. Panel C presents tournament incentives. *Total Gap*, *ST Gap*, and *LT Gap* are the difference between the CEO's *Short-term compensation*, *Long-term compensation*, *Total compensation*, and the Median VP's *Short-term*, *Long-term*, and *Total compensation*, respectively. *Gini Coefficient* is computed as $1 + \frac{1}{n} - \frac{2}{n^2 y} (y_1 + 2y_2 + \dots + ny_n)$ where n is the number of executives including the CEO and

$y_1, y_2 \dots y_n$ represent the compensation paid to each of the n executives, in decreasing order of size. Panel D presents reasons for VP turnover. All variables are winsorized at the 1 and 99 percentile levels.

Compensation, Incentives, and Turnover	Mean	Median	Lower Quartile	Upper Quartile
<i>Panel A: CEO Compensation and Alignment</i>				
Short-term compensation (\$ 000)	1,962.01	1,581.10	1,000.00	2,445.85
Long-term compensation (\$ 000)	5,447.04	2,674.58	883.82	6,454.42
Total compensation (\$ 000)	7,447.44	4,573.41	2,270.24	8,863.62
CEO Alignment (\$ per \$100 of SH wealth)	2.23	0.67	0.28	1.76
<i>Panel B: Median VP Compensation and Alignment</i>				
Short-term compensation (\$ 000)	725.70	622.4	448.49	887.31
Long-term compensation (\$ 000)	1,244.73	699.89	273.90	1,507.99
Total compensation (\$ 000)	2,014.94	1,410.50	837.05	2,382.01
VP Alignment (\$ per \$100 of SH wealth)	0.14	0.09	0.04	0.17
<i>Panel C: Tournament Incentives</i>				
Total Gap based on Median VP Comp (\$ 000)	5,394.55	2,953.71	1,256.46	6,301.28
ST Gap based on Median VP Comp (\$ 000)	1,226.68	924.75	516.82	1,563.82
LT Gap based on Median VP Comp (\$ 000)	4,159.12	1,848.43	456.86	4,700.63
Gini Coefficient of Total Comp.	0.35	0.34	0.26	0.42
<i>Panel D: CEO and VP Turnover (VP level data)</i>				
	<i>Number</i>	<i>Mean</i>	<i>% of VP Turnover</i>	
CEO Turnover	432	0.110		
<i>Mean Resignations at firm level (per firm year)</i>	<i>3,916</i>	<i>0.042</i>		
VP Turnover	2,956	0.136	100.00%	
<i>Resignation</i>	<i>1,007</i>	<i>0.046</i>	<i>34.07%</i>	
<i>Retirement</i>	<i>1,162</i>	<i>0.053</i>	<i>39.31%</i>	
<i>Forced</i>	<i>112</i>	<i>0.005</i>	<i>3.79%</i>	
<i>Merger/Acquisition</i>	<i>121</i>	<i>0.006</i>	<i>4.09%</i>	
<i>Pursue Other goals</i>	<i>34</i>	<i>0.002</i>	<i>1.15%</i>	
<i>Deceased</i>	<i>28</i>	<i>0.001</i>	<i>0.95%</i>	
<i>Planned</i>	<i>8</i>	<i>0.000</i>	<i>0.27%</i>	
<i>Unknown</i>	<i>484</i>	<i>0.022</i>	<i>16.37%</i>	

Table 2: Summary Statistics for Controls and Spearman's Rank Correlations

Panel A presents summary statistics on all variables. Panel B in the table presents the Spearman's rank correlation matrix for the alignment and tournament variables. The sample period is from 1993 through 2004 and contains 3,919 firm-year observations. *CEO Age* is the age of the CEO as of the sample year. The following dummy variables are set equal to 1 if the respective condition holds and 0 otherwise. *Chair* is 1 if the CEO also holds the position of Chairperson. *Succession Plan* and *VP Succession* are as defined in the *Appendix A*. *ROA* is the ratio of Net income to Total assets. *Firm Size* is Log (Sales). *Stk. Return Volatility* is the variance of 60 monthly returns prior to the sample year. *Industry Homogeneity* is the average partial correlation coefficient of all firms in the same 2-digit SIC code with the industry return, holding market return constant. Concentration is the Herfindahl index in the firm's 2-digit SIC industry. *Gini Total (ST, LT) Coefficient* is computed as $1 + \frac{1}{n} - \frac{2}{n^2 y} (y_1 + 2y_2 + \dots + ny_n)$ where n is the number of executives including the CEO and y_1, y_2, \dots, y_n represent the total (ST, LT) compensation paid to each of the n executives, in decreasing order of size. *CDF Total (ST, LT) Gap* is the CDF of Total (ST, LT) gap, in the same size quartile and year. *CDF Total (ST, LT) Comp.* is the CDF of the median VP's total (ST, LT) compensation in the same size quartile and year. *CEO (VP) Alignment* represents the sum of stock and option sensitivity of the CEO's (VP's) equity portfolio. All variables are winsorized at the 1 and 99 percentile levels.

Panel A	Mean	Median	Lower Quartile	Upper Quartile
CEO Age	55.38	56	51	60
MD VP Age	51.76	52	50.5	53
Chair	0.78	1	1	1
Succession Plan	0.54	1	0	1
VP Succession	2.37	2	2	3
Lag ROA	6.47	6.40	3.08	10.01
Industry Homogeneity	0.21	0.18	0.13	0.27
Concentration	0.67	0.65	0.39	1
Stk. Ret. Volatility	0.014	0.009	0.005	0.016
Firm Size (\$ billion)	8.39	8.41	7.48	9.23
Number of VPs	5.51	5	5	6

Panel B: Table of Correlations

Incentive Measure	Gini (Total)	Gini (ST)	Gini (LT)	CDF Total Gap	CDF ST Gap	CDF LT Gap	CDF Total Comp.	CDF ST Comp.	CDF LT Comp.	CEO Alignment	Median VP Alignment
Gini (Total)	1										
Gini (ST)	0.499	1									
Gini (LT)	0.7527	0.257	1								
CDF Total Gap	0.5681	0.3644	0.2516	1							
CDF ST Gap	0.2403	0.6037	0.0701	0.512	1						
CDF LT Gap	0.5465	0.2218	0.2567	0.9397	0.2980	1					
CDF Total Comp.	-0.0116	0	-0.2672	0.4382	0.2461	0.4181	1				
CDF ST Comp.	-0.1378	0.0011	-0.1657	0.2366	0.4271	0.1484	0.5937	1			
CDF LT Comp.	0.0236	0.0043	-0.3001	0.4404	0.1609	0.4511	0.9152	0.3405	1		
CEO Alignment	-0.0345	-0.0097	0.0339	-0.1337	-0.0978	-0.1343	0.0250	0.0347	-0.0058	1	
Median VP Align.	-0.1548	-0.1316	-0.1613	-0.0381	-0.0759	-0.0150	0.1712	0.1095	0.1421	0.1414	1

Table 3: Managerial Incentives (Total Gini) and Voluntary Turnover: Firm-Level Regressions

The table presents tests of four models for the effect of total tournament incentives on resignations. The sample period is from 1993 through 2004. *Mean Resignation* is the average of the number of voluntary VP departures in a year for a given firm. *CEO Age* is the age of the CEO as of the sample year. The following dummy variables are set equal to 1 if the respective condition holds and 0 otherwise. *Chair* is 1 if the CEO also holds the position of Chairperson. *Succession Plan* and *VP Succession* are as defined in the *Appendix*. *ROA* is the ratio of Net income to Total assets. *Firm Size* is Log (Sales). *Stk. Return Volatility* is the variance of 60 monthly returns prior to the sample year. *Industry Homogeneity* is the average partial correlation coefficient of all firms in the same 2-digit SIC code with the industry return, holding market return constant. Concentration is the Herfindahl index in the firm's 2-digit SIC industry. *Gini Total Coefficient* is computed as $\frac{1}{1 + \frac{1}{n-1} \sum_{i=1}^n y_i^2}$ where y_1, y_2, \dots, y_n represent the total compensation paid to each of the n executives, in decreasing order of size. *CDF Total Gap* is the CDF of Total gap, in the same size quartile and year. *CDF Total Comp.* is the CDF of the median VP's total compensation in the same size quartile and year. *CEO (VP) Alignment* represents the sum of stock and option sensitivity of the CEO's (VP's) equity portfolio. All variables are winsorized at the 1 and 99 percentile levels. All standard errors are computed using 100 bootstrapped replications. *t*-values are in parentheses. All specifications have firm and year fixed-effects. The symbols ***, **, and * denote significance at the 1%, 5%, and 10% respectively.

<i>COEFFICIENT</i>	<i>FE LOGIT</i>	<i>FE PROBIT</i>	<i>FE POISSON</i>	<i>FE FRACTIONAL LOGIT</i>
<i>Dependent Variable</i>	<i>Resign (1/0) (DResign)</i>	<i>Resign (1/0) (DResign)</i>	<i>Num. of Resignations (NResign)</i>	<i>Mean Resignations (Mean Resign)</i>
Constant		5.967*** (3.19)		2.514 (1.05)
Gini Coeff. (Total)	2.645*** (6.39)	1.831*** (8.07)	1.731*** (4.98)	1.813*** (5.40)
CEO Alignment	0.010 (0.63)	0.008 (1.12)	0.009 (0.63)	0.011 (1.28)
Median VP Alignment	-2.943*** (-4.96)	-1.444*** (-6.59)	-2.502*** (-5.36)	-1.860*** (-5.19)
CEO Turnover	0.163 (0.99)	0.121 (1.47)	0.153 (1.33)	0.206** (2.14)
Succession Plan	0.160 (1.31)	0.072 (1.37)	0.120 (1.35)	0.018 (0.27)
Log (CEO Age)	-0.276 (-0.50)	-0.450* (-1.84)	-0.368 (-0.86)	-0.773*** (-2.68)
Log (Median VP Age)	0.540 (0.43)	-1.241** (-2.52)	0.619 (0.78)	-1.281** (-2.27)
Chair	0.101 (0.86)	0.064 (0.98)	0.033 (0.29)	0.099 (1.15)
ROA	-0.019** (-2.40)	-0.010** (-2.53)	-0.018** (-2.52)	-0.014*** (-2.76)
Size	-0.164 (-1.03)	-0.059** (-2.30)	-0.169 (-1.60)	-0.096** (-2.50)
Stk. Ret. Volatility	8.076* (1.82)	6.666*** (3.18)	3.789 (1.07)	5.580*** (2.95)
Industry Homogeneity	-0.945 (-1.23)	-0.767*** (-3.52)	-0.934 (-1.56)	-1.283*** (-4.38)
Concentration	1.790 (1.40)	0.993** (2.39)	1.081 (1.13)	1.131** (2.34)
Observations	3,288	3,919	3,288	3,919
Number of firms	303	367	303	367

Table 4: Managerial Incentives (ST, LT Gini) and Voluntary Turnover: Firm-Level Regressions

The table presents tests of four models for the effect of ST and LT tournament incentives on resignations. The sample period is from 1993 through 2004. *Mean Resignation* is the average of the number of voluntary VP departures in a year for a given firm. *CEO Age* is the age of the CEO as of the sample year. The following dummy variables are set equal to 1 if the respective condition holds and 0 otherwise. *Chair* is 1 if the CEO also holds the position of Chairperson. *Succession Plan* and *VP Succession* are as defined in the *Appendix*. *ROA* is the ratio of Net income to Total assets. *Firm Size* is Log (Sales). *Stk. Return Volatility* is the variance of 60 monthly returns prior to the sample year. *Industry Homogeneity* is the average partial correlation coefficient of all firms in the same 2-digit SIC code with the industry return, holding market return constant. *Concentration* is the Herfindahl index in the firm's 2-digit SIC industry. *Gini (ST, LT) Coefficient* is computed as $\frac{1}{1 + \frac{1}{2} \frac{y_1 + 2y_2 + \dots + ny_n}{n}}$ where n is the number of executives including the CEO and y_1, y_2, \dots, y_n represent the ST, LT compensation paid to each of the n executives, in decreasing order of size. *CDF ST (LT) Gap* is the CDF of ST (LT) gap, in the same size quartile and year. *CDF ST(LT)Comp.* is the CDF of the median VP's total (ST, LT) compensation in the same size quartile and year. *CEO (VP) Alignment* represents the sum of stock and option sensitivity of the CEO's (VP's) equity portfolio. All variables are winsorized at the 1 and 99 percentile levels. All standard errors are computed using 100 bootstrapped replications. *t*-values are in parentheses. All specifications have firm and year fixed-effects. The symbols ***, **, and * denote significance at the 1%, 5%, and 10% respectively.

<i>COEFFICIENT</i>	<i>FE LOGIT</i>	<i>FE PROBIT</i>	<i>FE POISSON</i>	<i>FE FRACTIONAL LOGIT</i>
<i>Dependent Variable</i>	<i>Resign (1/0)</i> <i>(DResign)</i>	<i>Resign (1/0)</i> <i>(DResign)</i>	<i>Num. of Resignations</i> <i>(NResign)</i>	<i>Mean Resignations</i> <i>(Mean Resign)</i>
Constant		5.917*** (3.20)		3.046 (1.34)
Gini Coeff. (ST)	0.226 (0.34)	0.507 (1.58)	-0.248 (-0.49)	0.103 (0.28)
Gini Coeff. (LT)	2.122*** (7.45)	1.281*** (7.47)	1.624*** (5.64)	1.286*** (5.25)
CEO Alignment	0.011 (0.68)	0.005 (0.61)	0.011 (0.72)	0.009 (1.15)
Median VP Alignment	-2.816*** (-5.06)	-1.362*** (-5.86)	-2.436*** (-6.72)	-1.785*** (-4.95)
CEO Turnover	0.148 (0.96)	0.124 (1.52)	0.147 (1.11)	0.220* (1.91)
Succession Plan	0.160 (1.57)	0.070 (1.64)	0.123 (1.32)	0.017 (0.22)
Log (CEO Age)	-0.384 (-0.74)	-0.453** (-2.00)	-0.472 (-1.16)	-0.760** (-2.23)
Log (Median VP Age)	0.402 (0.31)	-1.285*** (-2.80)	0.466 (0.51)	-1.465*** (-2.59)
Chair	0.103 (0.75)	0.080 (1.16)	0.048 (0.39)	0.125 (1.29)
ROA	-0.019** (-2.09)	-0.010*** (-2.70)	-0.018*** (-2.94)	-0.015*** (-3.05)
Size	-0.097 (-0.61)	-0.048** (-2.12)	-0.117 (-1.22)	-0.085** (-2.04)
Stk. Ret. Volatility	8.045 (1.55)	7.704*** (4.21)	3.525 (1.15)	6.176*** (3.30)
Industry Homogeneity	-0.892 (-1.14)	-0.742*** (-3.03)	-0.866 (-1.49)	-1.269*** (-4.01)
Concentration	1.602 (1.35)	0.792** (2.05)	0.887 (0.84)	0.940* (1.87)
Observations	3,288	3,919	3,288	3,919
Number of firms	303	367	303	367

Table 5: Managerial Incentives (Total Gap) and Voluntary Turnover: Firm-Level Regressions

The table presents tests of relative payment and tournament incentives on voluntary executive turnover. The sample period is from 1993 through 2004. *CDF Total Gap* is the CDF of Total gap, in the same size quartile and year. *CDF Total Comp.* is the CDF of the median VP's total compensation in the same size quartile and year. *Mean Resignation* is the average of the number of voluntary VP departures in a year for a given firm. *CEO (Median VP) Alignment* represents the stock price sensitivity of the CEO's (Median VP's) stock and option portfolio. *CEO Age* is the age of the CEO as of the sample year. The following dummy variables are set equal to 1 if the respective condition holds and 0 otherwise. *Chair* is 1 if the CEO also holds the position of Chairperson. *Succession Plan* and *VP Succession* are as defined in the *Appendix*. *ROA* is the ratio of Net income to Total assets. *Firm Size* is Log (Sales). *Stk. Return Volatility* is the variance of 60 monthly returns prior to the sample year. *Industry Homogeneity* is the average partial correlation coefficient of all firms in the same 2-digit SIC code with the industry return, holding market return constant. Concentration is the Herfindahl index in the firm's 2-digit SIC industry. All variables are winsorized at the 1 and 99 percentile levels. All standard errors are computed using 100 bootstrapped replications. *t*-values are in parentheses. All specifications have firm and year fixed-effects. The symbols ***, **, and * denote significance at the 1%, 5%, and 10% respectively.

<i>COEFFICIENT</i>	<i>FE LOGIT</i>	<i>FE PROBIT</i>	<i>FE POISSON</i>	<i>FE FRACTIONAL LOGIT</i>
<i>Dependent Variable</i>	<i>Resign (1/0) (DResign)</i>	<i>Resign (1/0) (DResign)</i>	<i>Num. of Resignations (NResign)</i>	<i>Mean Resignations (Mean Resign)</i>
Constant		6.849*** (3.69)		3.820 (1.60)
CDF Total Gap	0.394* (1.83)	0.392*** (3.89)	0.252 (1.62)	0.408*** (2.87)
CDF Total Comp.	-0.745*** (-4.10)	-0.336*** (-3.49)	-0.573*** (-4.27)	-0.356** (-2.48)
CEO Alignment	0.011 (0.69)	0.011 (1.39)	0.009 (0.72)	0.017** (1.98)
Median VP Alignment	-2.954*** (-4.74)	-1.498*** (-6.50)	-2.514*** (-5.62)	-1.940*** (-5.55)
CEO Turnover	0.217* (1.71)	0.158* (1.96)	0.203* (1.71)	0.234** (2.25)
Succession Plan	0.214* (1.89)	0.113** (2.34)	0.159* (1.71)	0.057 (0.80)
Log (CEO Age)	-0.261 (-0.53)	-0.462** (-2.21)	-0.385 (-0.92)	-0.815*** (-2.85)
Log (Median VP Age)	0.381 (0.28)	-1.360*** (-2.94)	0.510 (0.53)	-1.450** (-2.56)
Chair	0.105 (0.71)	0.064 (0.96)	0.055 (0.44)	0.097 (0.93)
ROA	-0.018* (-1.95)	-0.011*** (-2.98)	-0.017*** (-2.72)	-0.017*** (-3.40)
Size	-0.099 (-0.66)	-0.040 (-1.46)	-0.128 (-1.11)	-0.085** (-2.02)
Stk. Ret. Volatility	7.378 (1.48)	8.844*** (5.09)	3.409 (1.01)	6.639*** (2.96)
Industry Homogeneity	-0.869 (-1.14)	-0.834*** (-3.71)	-0.856 (-1.56)	-1.409*** (-4.84)
Concentration	1.885 (1.56)	0.876** (2.29)	1.198 (1.30)	1.001* (1.86)
Observations	3,288	3,919	3,288	3,919
Number of firms	303	367	303	367

Table 6: Managerial Incentives (ST, LT Gap) and Voluntary Turnover: Firm-Level Regressions

The table presents tests of underpayment and tournament incentives on voluntary executive turnover. The sample period is from 1993 through 2004. *Mean Resignation* is the average of the number of voluntary VP departures in a year for a given firm. *CDF (ST and LT) Gap* is the CDF of ST and LT gap, in the same size quartile and year. *CDF (ST and LT) Comp.* is the CDF of the median VP's ST and LT compensation in the same size quartile and year. *CEO (Median VP) Alignment* represents the stock price sensitivity of the CEO's (Median VP's) stock and option portfolio. *CEO Age* is the age of the CEO as of the sample year. The following dummy variables are set equal to 1 if the respective condition holds and 0 otherwise. *Chair* is 1 if the CEO also holds the position of Chairperson. *Succession Plan* and *VP Succession* are as defined in the *Appendix*. *ROA* is the ratio of Net income to Total assets. *Firm Size* is Log (Sales). *Stk. Return Volatility* is the variance of 60 monthly returns prior to the sample year. *Industry Homogeneity* is the average partial correlation coefficient of all firms in the same 2-digit SIC code with the industry return, holding market return constant. Concentration is the Herfindahl index in the firm's 2-digit SIC industry. All variables are winsorized at the 1 and 99 percentile levels. All standard errors are computed using 100 bootstrapped replications. *t*-values are in parentheses. All specifications have firm and year fixed-effects. The symbols ***, **, and * denote significance at the 1%, 5%, and 10% respectively.

<i>COEFFICIENT</i>	<i>FE LOGIT</i>	<i>FE PROBIT</i>	<i>FE POISSON</i>	<i>FE FRACTIONAL LOGIT</i>
<i>Dependent Variable</i>	<i>Resign (1/0) (DResign)</i>	<i>Resign (1/0) (DResign)</i>	<i>Num. of Resignations (NResign)</i>	<i>Mean Resignations (Mean Resign)</i>
Constant		6.386*** (3.71)		3.542 (1.43)
CDF ST Gap	0.411* (1.85)	0.247** (2.50)	0.163 (1.12)	0.075 (0.50)
CDF LT Gap	0.312 (1.58)	0.306*** (2.91)	0.242* (1.79)	0.405*** (2.75)
CDF ST Comp.	-1.005*** (-3.82)	-0.414*** (-3.77)	-0.801*** (-4.56)	-0.521*** (-2.96)
CDF LT Comp.	-0.412* (-1.91)	-0.168 (-1.50)	-0.279* (-1.94)	-0.105 (-0.69)
CEO Alignment	0.012 (0.70)	0.012* (1.67)	0.010 (0.70)	0.018** (2.10)
Median VP Alignment	-2.780*** (-4.46)	-1.452*** (-5.55)	-2.413*** (-5.62)	-1.919*** (-5.56)
CEO Turnover	0.247 (1.46)	0.171** (2.07)	0.220* (1.73)	0.223** (2.04)
Succession Plan	0.230* (1.93)	0.118** (2.40)	0.172* (1.75)	0.054 (0.77)
Log (CEO Age)	-0.271 (-0.48)	-0.453** (-2.32)	-0.350 (-0.80)	-0.765*** (-2.60)
Log (Median VP Age)	0.556 (0.46)	-1.256*** (-3.01)	0.642 (0.68)	-1.424** (-2.37)
Chair	0.120 (0.98)	0.064 (0.88)	0.064 (0.58)	0.096 (0.91)
ROA	-0.015* (-1.85)	-0.010** (-2.33)	-0.014** (-2.29)	-0.015*** (-3.11)
Size	-0.084 (-0.54)	-0.035 (-1.20)	-0.126 (-1.08)	-0.079* (-1.83)
Stk. Ret. Volatility	7.892* (1.82)	8.681*** (4.93)	3.736 (1.41)	6.114*** (2.65)
Industry Homogeneity	-0.893 (-1.15)	-0.873*** (-3.89)	-0.867 (-1.53)	-1.442*** (-4.24)
Concentration	2.119* (1.67)	0.980** (2.28)	1.393 (1.50)	1.182** (2.07)
No. of Observations (Firms)	3,288 (303)	3,919 (367)	3,288 (303)	3,919 (367)

Table 7: VP level Turnover Regressions: Total Incentives

The table presents tests of relative payment and tournament incentives on voluntary executive turnover. The sample period is from 1993 through 2004. The dependent variable, *Resign* is 1 when the VP voluntarily leaves the firm, and 0 otherwise. *CDF Total Gap* is the CDF of *Total gap*, in the same size quartile and year. *CDF Total Comp.* is the CDF of the VP's Total compensation in the same size quartile and year. *CDF Tot* is the of the VP's Total compensation in the firm with respect to other VPs. *CDF CEO (VP) Alignment* represents the stock price sensitivity of the CEO's (VP's) stock and option portfolio. *Turnover* is 1 if the firm hired a new CEO in any sample year. *VP Succession* is 1 if the VP is the designated successor, is 2 if the VP is in a firm with no succession plan, is 3 if VP is a non successor in a firm with a succession plan. *CEO (VP) Age* is the age of the CEO (VP) as of the sample year. *ROA* is the ratio of Net income to Total assets. *Size* is Log (Sales). *Stk. Return Volatility* is the variance of 60 monthly returns prior to the sample year. *Industry Homogeneity* is the average partial correlation coefficient of all firms in the same 2-digit SIC code with the industry return, holding market return constant. *Concentration* is the sales-based herfindahl index in the industry. All variables are winsorized at the 1 and 99 percentile levels. All standard errors are computed using 100 bootstrapped replications. *t*-values are in parentheses. All specifications have year dummies. The symbols ***, **, and * denote significance at the 1%, 5%, and 10% respectively.

<i>COEFFICIENT</i>	<i>LOGIT</i>	<i>LOGIT</i>	<i>LOGIT</i>
Constant	3.208** (2.33)	2.766** (2.01)	2.815** (2.04)
CDF Total Gap	-0.004 (-0.037)	0.352*** (3.03)	0.319*** (2.61)
CDF Total Comp.	0.835*** (6.99)		0.129 (0.82)
CDF Tot		1.302*** (9.84)	1.212*** (7.09)
CEO Alignment	0.016** (2.43)	0.020*** (2.94)	0.019*** (2.88)
VP Alignment	-0.513*** (-4.58)	-0.566*** (-4.84)	-0.577*** (-4.86)
CEO Turnover	0.261*** (2.66)	0.253** (2.57)	0.253** (2.56)
VP Succession	0.119** (2.24)	0.203*** (3.72)	0.203*** (3.73)
Log (CEO Age)	-0.947*** (-3.99)	-0.959*** (-4.01)	-0.957*** (-4.00)
Log (VP Age)	-0.603** (-2.15)	-0.687** (-2.45)	-0.695** (-2.47)
Chair	0.046 (0.53)	0.039 (0.46)	0.037 (0.43)
ROA	-0.019*** (-4.74)	-0.019*** (-4.51)	-0.019*** (-4.56)
Size	-0.058* (-1.94)	-0.046 (-1.54)	-0.049 (-1.63)
Stk. Ret. Volatility	7.505*** (4.22)	8.028*** (4.54)	7.928*** (4.47)
Industry Homogeneity	-1.542*** (-5.15)	-1.615*** (-5.40)	-1.598*** (-5.34)
Concentration	1.289** (2.39)	1.227** (2.25)	1.241** (2.28)
Observations	21,511	21,511	21,511

Table 8: VP level Turnover Regressions: ST, LT Incentives

The table presents tests of relative payment and tournament incentives on voluntary executive turnover. The dependent variable, *Resign* is 1 when the VP voluntarily leaves the firm and 0 otherwise. *CDF (ST, LT) Gap* is the CDF of *(ST, LT) gap*, in the same size quartile and year. *CDF (ST, LT) Comp.* is the CDF of the VP's *(ST, LT)* compensation in the same size quartile and year. *CDF ST (LT)* is the of the VP's short-term (long-term) compensation in the firm with respect to other VPs. *CEO (VP) Alignment* represents the stock price sensitivity of the CEO's (VP's) stock and option portfolio. *Turnover* is 1 if the firm hired a new CEO in any sample year. *VP Succession* is 1 if the VP is the designated successor, is 2 if the VP is in a firm with no succession plan, is 3 if VP is a non successor in a firm with a succession plan. *CEO (VP) Age* is the age of the CEO (VP) as of the sample year. *ROA* is the ratio of Net income to Total assets. *Size* is Log (Sales). *Stk. Return Volatility* is the variance of 60 monthly returns prior to the sample year. *Industry Homogeneity* is the average partial correlation coefficient of all firms in the same 2-digit SIC code with the industry return, holding market return constant. *Concentration* is the sales-based herfindahl index in the industry. All variables are winsorized at the 1 and 99 percentile levels. All standard errors are computed using 100 bootstrapped replications. *t*-values are in parentheses. All specifications have year dummies. The symbols ***, **, and * denote significance at the 1%, 5%, and 10% respectively.

<i>COEFFICIENT</i>	<i>LOGIT</i>	<i>LOGIT</i>	<i>LOGIT</i>
Constant	2.893** (2.09)	3.131** (2.27)	2.540* (1.83)
CDF ST Gap	-0.223* (-1.75)	0.041 (0.32)	0.221 (1.63)
CDF LT Gap	0.080 (0.67)	0.277** (2.28)	0.169 (1.34)
CDF ST Comp.	-0.018 (-0.13)		-0.748*** (-4.77)
CDF LT Comp.	0.806*** (6.32)		0.560*** (3.57)
CDF ST		1.155*** (7.42)	1.550*** (8.66)
CDF LT		0.387*** (2.62)	0.069 (0.39)
CEO Alignment	0.017** (2.50)	0.019*** (2.89)	0.021*** (3.15)
VP Alignment	-0.502*** (-4.45)	-0.610*** (-5.06)	-0.596*** (-4.86)
CEO Turnover	0.248** (2.51)	0.255** (2.57)	0.274*** (2.76)
VP Succession	0.107** (1.99)	0.232*** (4.23)	0.217*** (3.93)
Log (CEO Age)	-0.903*** (-3.78)	-0.955*** (-3.97)	-0.916*** (-3.79)
Log (VP Age)	-0.556** (-1.97)	-0.832*** (-2.95)	-0.732*** (-2.59)
Chair	0.062 (0.72)	0.035 (0.41)	0.027 (0.32)
ROA	-0.017*** (-4.14)	-0.018*** (-4.34)	-0.016*** (-3.72)
Size	-0.051* (-1.72)	-0.047 (-1.57)	-0.037 (-1.24)
Stk. Ret. Volatility	7.245*** (4.03)	8.064*** (4.54)	7.245*** (4.01)
Industry Homogeneity	-1.571*** (-5.23)	-1.628*** (-5.44)	-1.703*** (-5.65)
Concentration	1.377** (2.54)	1.237** (2.27)	1.433*** (2.61)
Observations	21,511	21,511	21,511

Table 9: Managerial Incentives and Voluntary Turnover: Firm Level 2SPLS Regressions

The table presents tests of relative payment and tournament incentives on voluntary executive turnover using a 2-stage Probit Least squares approach. The sample period is from 1993 through 2004. The dependent variable *Mean Resign* is the average of the number of voluntary VP departures in a year for a given firm. *Gini Coefficient Total (ST and LT)* is computed as

$$1 + \frac{1}{n} - \frac{2}{n^2} (y_1 + 2y_2 + \dots + ny_n)$$

where n is the number of executives including the CEO and y_1, y_2, \dots, y_n represent the total

compensation paid to each of the n executives, in decreasing order of size. *CDF Total Gap (ST, LT)* is the CDF of Total (ST, LT) gap, in the same size quartile and year. *CDF Total Comp.* is the CDF of the median VP's total (ST, LT) compensation in the same size quartile and year. *CEO (Median VP) Alignment* represents the stock price sensitivity of the CEO's (Median VP's) stock and option portfolio. *CEO Turnover* is 1 if the firm hired a new CEO in any sample year. *Succession Plan* is 1 if the firm has a succession plan. *CEO (VP) Age* is the age of the CEO (Median VP) as of the sample year. *Chair* is 1 if the CEO also holds the position of Chairperson. *CEO Experience* is the number of years the CEO has held position as CEO in the firm. *ROA* is the ratio of Net income to Total assets. *Size* is Log (Sales). *Stk. Return Volatility* is the variance of 60 monthly returns prior to the sample year. *Industry Homogeneity* is the average partial correlation coefficient of all firms in the same 2-digit SIC code with the industry return, holding market return constant. *Concentration* is the sales-based herfindahl index in the industry. All variables are winsorized at the 1 and 99 percentile levels. All standard errors are computed using 100 bootstrapped replications. t -values are in parentheses. All specifications have firm and year fixed-effects. The symbols ***, **, and * denote significance at the 1%, 5%, and 10% respectively.

<i>COEFFICIENT</i>	<i>FE FRACTIONAL PROBIT</i>	<i>FE FRACTIONAL PROBIT</i>	<i>FE FRACTIONAL PROBIT</i>	<i>FE FRACTIONAL PROBIT</i>
<i>Dependent Variable</i>	<i>Mean Resign</i>	<i>Mean Resign</i>	<i>Mean Resign</i>	<i>Mean Resign</i>
Gini Coeff. (Total)	1.253*** (5.67)			
Gini Coeff. (ST)		0.498* (1.89)		
Gini Coeff. (LT)		0.536*** (3.49)		
CDF Total Gap			0.461*** (3.31)	
CDF ST Gap				0.028 (0.22)
CDF LT Gap				0.406** (2.56)
CDF Total Comp.			-0.159 (-1.22)	
CDF ST Comp.				-0.115 (-0.84)
CDF LT Comp.				-0.115 (-0.66)
CEO Alignment	0.007* (1.77)	0.007 (1.47)	0.014*** (2.78)	0.014*** (2.69)
Median VP Alignment	-0.681*** (-4.04)	-0.692*** (-4.05)	-0.821*** (-4.20)	-0.821*** (-4.24)
CEO Turnover	0.079 (1.34)	0.092 (1.56)	0.108** (2.18)	0.104** (2.01)
Succession Plan	0.029 (0.91)	0.034 (1.06)	0.068* (1.93)	0.060* (1.71)
Log (CEO Age)	-0.389*** (-2.83)	-0.414*** (-2.95)	-0.313** (-2.53)	-0.275** (-2.12)
Log (Median VP Age)	-0.680** (-2.57)	-0.732*** (-2.78)	-0.914*** (-3.26)	-0.956*** (-3.19)

Table 9: Managerial Incentives and Voluntary Turnover: Firm Level 2SPLS Regressions (Contd.)

<i>COEFFICIENT</i>	<i>FE FRACTIONAL PROBIT</i>	<i>FE FRACTIONAL PROBIT</i>	<i>FE FRACTIONAL PROBIT</i>	<i>FE FRACTIONAL PROBIT</i>
<i>Dependent Variable</i>	<i>Mean Resign</i>	<i>Mean Resign</i>	<i>Mean Resign</i>	<i>Mean Resign</i>
Chair	0.046 (0.94)	0.053 (1.08)	0.016 (0.37)	0.026 (0.58)
ROA	-0.008*** (-2.77)	-0.008*** (-2.78)	-0.009*** (-3.89)	-0.008*** (-3.32)
Size	-0.043*** (-2.58)	-0.039** (-2.21)	-0.048** (-2.14)	-0.047** (-2.09)
Stk. Ret. Volatility	2.999*** (2.97)	3.751*** (3.66)	3.744*** (3.63)	3.622*** (3.33)
Industry Homogeneity	-0.617*** (-4.99)	-0.633*** (-5.07)	-0.646*** (-4.01)	-0.646*** (-3.87)
Concentration	0.545** (2.33)	0.450* (1.86)	0.525** (2.49)	0.557** (2.54)
Constant	2.606** (2.31)	2.916*** (2.61)	3.545*** (3.11)	3.586*** (3.00)
No. of Observations (Firms)	3,919 (367)	3,919 (367)	3,573(367)	3,573(367)

Table 10: Managerial Incentives and Voluntary Turnover: VP Level 2SPLS Regressions

The table presents tests of relative payment and tournament incentives on voluntary executive turnover using a 2-stage Probit Least Squares approach. The sample period is from 1993 through 2004. The dependent variable, *Resign* is 1 when the VP voluntarily leaves the firm, and 0 otherwise. *CDF Total Gap (ST, LT)* is the CDF of *Total gap (ST Gap and LT Gap)*, in the same size quartile and year. *CDF Total (ST, LT) Comp.* is the CDF of the VP's Total (ST, LT) compensation in the same size quartile and year. *CEO (VP) Alignment* represents the stock price sensitivity of the CEO's (VP's) stock and option portfolio. *Turnover* is 1 if the firm hired a new CEO in any sample year. *VP Succession* is 1 if the VP is the designated successor, is 2 if the VP is in a firm with no succession plan, is 3 if VP is a non successor in a firm with a succession plan. *CEO (VP) Age* is the age of the CEO (VP) as of the sample year. *ROA* is the ratio of Net income to Total assets. *Size* is Log (Sales). *Stk. Return Volatility* is the variance of 60 monthly returns prior to the sample year. *Industry Homogeneity* is the average partial correlation coefficient of all firms in the same 2-digit SIC code with the industry return, holding market return constant. *Concentration* is the sales-based herfindahl index in the industry. All variables are winsorized at the 1 and 99 percentile levels. All standard errors are computed using 100 bootstrapped replications. *t*-values are in parentheses. All specifications have year dummies. The symbols ***, **, and * denote significance at the 1%, 5%, and 10% respectively.

<i>COEFFICIENT</i>	<i>PROBIT</i>	<i>PROBIT</i>
<i>Dependent Variable</i>	<i>Resign</i>	<i>Resign</i>
CDF Total Gap	0.495** (2.15)	
CDF ST Gap		-0.096 (-0.60)
CDF LT Gap		0.659** (2.18)
CDF Total Comp.	-0.215 (-0.97)	
CDF ST Comp.		-0.083 (-0.39)
CDF LT Comp.		-0.258 (-0.90)
CDF Tot	1.107*** (4.22)	
CDF ST		0.702* (1.74)
CDF LT		0.400 (0.78)
CEO Alignment	0.026** (2.31)	0.026** (2.29)
VP Alignment	-0.111** (-2.00)	-0.113** (-2.09)
CEO Turnover	0.128** (2.19)	0.105* (1.78)
VP Succession	0.221*** (6.79)	0.209*** (6.31)
Log (CEO Age)	-0.446*** (-3.01)	-0.382** (-2.38)
Log (VP Age)	-0.666*** (-4.45)	-0.731*** (-4.93)
Chair	-0.199* (-1.86)	-0.194* (-1.79)
ROA	-0.010*** (-3.53)	-0.009*** (-3.03)

Table 10: Managerial Incentives and Voluntary Turnover: VP Level 2SPLS Regressions (Contd.)

<i>COEFFICIENT</i>		<i>PROBIT</i>	<i>PROBIT</i>
<i>Dependent Variable</i>		<i>Resign</i>	<i>Resign</i>
Size	-0.048 (-1.56)		-0.049* (-1.69)
Stk. Ret. Volatility	3.431** (2.40)		2.994** (2.08)
Industry Homogeneity	-0.684*** (-4.12)		-0.654*** (-3.92)
Concentration	0.717*** (2.93)		0.763*** (3.01)
Constant	2.283** (2.35)		2.335** (2.34)
No.of Observations	16,430		16,430