

## Executive Officer Turnover

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### Abstract

This study examines non-CEO executive officer turnover in S&P 1500 companies during 2005 to 2011. I find that non-CEO executive turnover is sensitive to firm performance, consistent with the notion that CEOs replace their direct reports in response to poor firm performance. CEOs have higher chance of keep their jobs and lower turnover-performance sensitivity after making managerial changes. Managerial turnover is not an isolated action. It occurs at the same time with other retrenching corporate events, such as downsize, lay-off and spin-off. My results suggest that boards infer CEO quality from how they manage the executive teams and incorporate such information in deciding CEO retention.

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*Keywords:* Executive turnover; CEO turnover; CEO quality

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# 1. Introduction

There is considerable evidence that boards use firm performance to evaluate their CEOs, but we know little about what else the board considers when deciding on CEO retention. Cornelli et al. (2013) suggest that soft information plays a larger role in this than performance metrics. In this study, I propose that one source of soft information is how a CEO manages the top management team.

Managing the executive team is an important part of CEO functions. CEOs are highly dependent on their executives for information and exert influence through delegation. Porter and Nohria (2010) report that CEOs spend 58% of their time with their direct reports. Given the importance of the top management teams, it is natural to expect boards to carefully consider how CEOs manage them. For instance one leadership consulting firm interviewed 1,087 directors from 286 organizations that fired their CEOs and found 27% of CEOs lose their positions because of tolerating low performers.<sup>2</sup>

In this study, I examine one particular talent management decision made by CEOs - the executive retention decision. A CEO may replace executives when the firm is underperforming, and the reasons are twofold. First, the CEO weeds out incompetent executives. Second, the CEO attempts to improve performance by shifting strategies which may lead to changes in required skill set in the executive team. Fee and Hadlock (2004) report that 8.21% of departing executives, mostly non-CEOs, leave when the assets they are managing are sold or spunoff.

Firing a direct report can be costly for the CEO. The social connection between the CEO and the executive may result in a personal cost (Landier et al., 2009). The CEO may prefer a “quiet life” and limit the effort to make changes (Bertrand and Schoar, 2003). The CEO can be over-confident and slow to alter his own strategic decisions (Malmendier and Tate, 2005). In addition, a retention decision can backfire. For example, in 2015 Ellen Pao stepped down as Reddit’s CEO after users’ loud protest of the company’s abrupt dismissal of Victoria Taylor, the company’s director of talent.

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<sup>2</sup><http://www.forbes.com/sites/markmurphy/2015/07/16/leadership-styles-are-often-why-ceos-get-fired>

To study executive retention decisions, I use executive data collected from S&P 1500 company annual reports (Form 10-K) or proxy statements (Form DEF 14A) between 2005 and 2011.<sup>3</sup> Companies disclose names, ages and experiences of all executive officers to comply with Item 401 of Regulation S-K, which defines an executive officer as “the president, any vice president in charge of a principal business unit, division or function (such as sales, administration or finance), any other officer who performs a policy making function”.<sup>4</sup>

My dataset has three benefits over ExecuComp, the commonly used dataset for studying executives. First, it is larger. The average number of non-director executives in my sample is 7.01, more than 70% higher than the average in ExecuComp (4.11). Second, it identifies turnovers more accurately. ExecuComp includes five executives who are the most highly compensated, and a change in the rank of compensation may be classified as a turnover despite that the executive holds the same position. The average turnover rate of non-director executives is 16.2% in ExecuComp, whereas the turnover rate is 13.6% for the most highly compensated non-director executives in my sample.<sup>5</sup> Third, the representativeness of highly compensated executives is arbitrary. For a small firm, five executives may represent most, if not all, of the managers in the executive suite. For a large firm, however, they may only represent half of the team.

I document a negative relation between stock return and subsequent executive turnover, consistent with the notion that CEOs facing poor performance dismiss executive officers. My result differs from prior studies on management turnover in two ways. Prior literature focuses on CEO turnover. I study non-CEO executives who are not inside directors (hereafter termed executive), whose retention decisions are CEOs’ responsibility, and I infer CEO behaviors. Furthermore, Fee and Hadlock (2004) find that executives are punished for poor performance, but the executives leaving with outgoing CEOs drive the

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<sup>3</sup>If a company was dropped from or added to the S&P 1500 index during the sample period, I collected all available information from 2005 to 2011.

<sup>4</sup>Item 5.02 on Form 8-K discloses the departures of certain officers. But the definition of “certain officer” on Form 8-K is slightly different from the definition of “executive officer” on Form 10-K or Form DEF 14A. One advantage of using executive officers listed on Form 10-K and Form DEF 14A is that I can observe not only departed executives but also retained executives.

<sup>5</sup>The average executive turnover rate is 15.6% in my sample. It’s higher than the sample matched with ExecuComp because the junior managers have higher turnover rate.

results. My hypothesis, however, predicts high executive turnover-performance sensitivity despite CEO retention. In a multivariate setting, I use two methods to disentangle the effect from CEO dismissals: including a dummy variable indicating the year when a CEO is replaced or excluding observations within three years around a CEO turnover event. I find that the stock return still predicts executive turnover after controlling for CEO turnover. In a non-CEO turnover year, an executive of the firm that stock return is in the bottom decile is 3.6% more likely to leave compared with an executive in the firm that stock return is in the top decile. Given the average executive turnover rate, 15.6%, the high turnover probability is economically meaningful. Consistent with Fee and Hadlock (2004), I also find that the executives are more likely to depart when a CEO leaves. In addition, I document that high executive turnover in CEO turnover year is mostly observed in the poorly performing firms. In well performing firms, the executive turnover rate does not alleviate if the CEO fails to retain the position.

The executive dismissal is a salient corporate event, and I expect that a board considers such information when evaluating the CEO. If the change in management team is desirable, the board may award increased job security to the CEO. Consistent with this notion, I find that executive turnover is associated with higher CEO retention and lower CEO turnover-performance sensitivity in the following year.

I also document that the executive replacement is not an isolated event. The firms with executive turnover undergo retrenching events, such as downsize or lay-off. They are also more likely to make strategic or structural changes that have no clear implication on firm size, such as considering alternative strategies. However, the association between the executive replacement and the expansion events is not significant, sometimes significantly negative.

Next, I examine what motivates CEOs to make changes in their executive teams. My focus is in two areas, corporate governance and CEO dismissal risk. The effect of governance on CEO behavior is partially through the threat of dismissal. So these two factors are not mutually exclusive. I find that executive turnover-performance sensitivity is higher when a CEO is under sticker monitoring or with less job security.

Consistent with the notion that boards award CEOs' attempt to improve performance by making changes in their executive teams, I find suggestive evidence that increases in executive turnover is associated with improvement in operating performance, measured by ROA, in two years after the turnovers. But it also suggests that a board may retain the CEO because of performance improvement rather than the revelation of CEO quality through his actions. To address this possibility, I examine the relationship between executive turnover and subsequent CEO turnover-performance sensitivity again, adding controls for future operating performance and find similar results.

There are other explanations for CEOs firing executives. They may serve as scapegoats or their dismissals are window dressing. I find no evidence to suggest that on average this explains executive departures in bad years. If a CEO scapegoats executives, the CEO is less likely to secure his job in the following year. On the other hand, someone can argue that the board may be fooled by CEO's scapegoating or window dressing behavior. But the concurrence of executive turnover and other retrenching corporate events shows that the CEO not only fires executives but also initiates a set of changes in strategies and structures. It suggests that executive dismissals are less likely to be window-dressing. Furthermore, this argument is not consistent with the results of improved ROA.

Dismissal is not the only explanation of why executives leave underperforming firms. The executive may seek external opportunity and leave voluntarily. However, the labor market concerns may discourage executives to leave an underperforming firm. Fama (1980) suggests that the labor market uses firm performance to infer individual ability. Dou (2015) reports that the labor market punishes directors who abandon firms before bad events revealed, and Fee and Hadlock (2004) document that the labor market believes that firms tend to weed out low-quality managers through the turnover process. Consistent with these studies, I find suggestive evidence that executives leaving poorly performing firms have worse labor market outcome than these who leave well performing firms. Though these two groups have a similar chance of finding a job within my sample firms in two years since the departures, these who leave poorly performing firms are more likely to move to smaller firms. Smaller firms usually are less prestigious and pay less than the

bigger firms. The adverse labor market outcome may deter executives from abandoning the sinking boat.

Besides the labor market concerns, the voluntary departure hypothesis is not consistent with my finding that CEOs secure their jobs by making the changes, as well as the improved performance after executive turnovers. If CEOs cannot keep the talents when the firms need them most, they are likely to be punished for poor leadership rather than awarded with job security. The firms are likely to suffer from losing talents and thus have worse performance. In addition, this hypothesis is not supported by my finding that CEOs under stricter monitoring and with less job security are more likely to fire their executives for bad performance. If on average the departure is voluntary, I should find that corporate governance and CEO job security has no material effect on executive turnover-performance sensitivity.

My study builds on Cornelli et al. (2013) who find that soft information plays an important role in explaining CEO retention. It suggests one source of soft information is how CEOs manage their direct reports. It adds to the studies documenting that salient corporate events could be used to draw inference about CEO ability (Jacobsen, 2014).

The results also provide insights on how CEOs respond to poor performance. Firms can respond to under-performance by replacing managers. With a few exceptions, the studies on management replacement focus on CEO replacement, in some cases replacement of chairperson and president. For example, Gilson (1989) and Warner et al. (1988) define management as CEO, president, and chairperson. Denis and Kruse (2000) define management as CEO as well as president if CEO is not identified. The senior, but not the most senior, management turnover has received little attention. By studying non-CEO executive turnovers, I draw an inference to CEO ability, whereas CEO turnover reflects the board's decisions. The evidence suggests that CEOs replace executives in response to poor performance. Executive dismissal is not an isolated event. CEOs take retrenchment actions concurrently, such as discontinuing business unit, laying off workforce and seeking to sell assets. The results are consistent with John et al. (1992).

The results indicate a healthy internal discipline within the senior management teams.

They are not consistent with Fee and Hadlock (2004) who find that the primary manner through which firm performance affects the non-CEO executive turnover is via the relation between firm performance and the CEO's job security. They suggest that executives have strong incentives to take actions that enhance the CEO's job security. My sample has more companies, more executives per company and longer period than Fee and Hadlock (2004), and the larger sample size may explain the inconsistent results. In addition, different sample period may be another reason. Fee and Hadlock (2004)'s sample period expands from 1993 to 1998, and mine is from 2005 to 2011. In recent years the CEO dismissal risk increases (Kaplan and Minton, 2012), and the lower job security may force a CEO to react to under-performance more aggressively. It is important to understand non-CEO executives' incentives. With the increasing board independence, a board relies more heavily on the non-CEO executives, who mostly likely are non-directors, for firm specific information. If the management team colludes, the executives will be reluctant to provide honest unfavorable information about the company and the CEO.

Finally, my results show that the CEOs who actively make changes reduce their dismissal risk, weakening CEO turnover-performance sensitivity. It adds to recent studies, such as Fisman et al. (2014); Bushman et al. (2010), that explain weak CEO turnover-performance sensitivity with non-agency-cost reasons.

## 2. Data

My sample consists of companies that are S&P 1500 constituents between January 1, 2005, and December 31, 2011. I choose 2005 as the starting point to avoid the shock of the passage of Sarbanes-Oxley Act and changes in stock exchange rules related to board composition. These changes may have affected the non-director senior management team. For instance, a company may have replaced an inside director with an independent director to increase the board independence, resulting in an increase in the non-director senior management team size. I choose 2011 as the ending point because the latest available data were for 2011 fiscal year when I gathered the data. I collect board data from BoardEx, firm financial statement figures from Compustat/CRSP merged database, monthly common stock price information from CRSP, institutional investor ownership from Thomson Reuters, anti-takeover protections and CEO ownership from RiskMetrics, CEO compensation from ExecuComp and corporate events from Capital IQ key developments. I hand-collect executive data from either annual reports (Form 10-K) or proxy statements (Form DEF14A).<sup>6</sup> 2140 companies are S&P 1500 constituents in the sample period, of which BoardEx covers 2137 firms. The number of firm-year observations in original BoardEx dataset is 14,477, and the number decreases to 13,898 after merging with Compustat/CRSP dataset.<sup>7</sup> After merging with the hand-collected executive dataset, my final sample includes 13,146 firm-year observations. Table 1 reports the changes in sample size in the sample construction process. Appendix B lists the variable definitions.

A major part of my data is hand-collected from SEC filings. Regulation S-K Item 401 requires a company to list the names, ages, and experiences of all executive officers of the registrant and all persons chosen to become executive officers. I use a Ruby script to extract relevant information from SEC filings automatically. I discuss the extraction process in details in Appendix A.

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<sup>6</sup>I collect executive data on 2004 filings so that I can identify the executive turnover in 2005.

<sup>7</sup>435 out of 549 unmatched firm-year observations are because BoardEx reports director data at the month when the security of a firm was delisted, whereas Compustat/CRSP may not have financial information for the year when the security was delisted.



My dataset has three benefits compared with the commonly used senior manager dataset ExecuComp. It is larger than ExecuComp. The average number of non-director executives in my sample and ExecuComp is 7.01 and 4.11 respectively. Besides, it identifies turnover event more accurately. ExecuComp contains top five highly paid executives. A change in the rank of compensation may result in an executive dropping out of the dataset, an event classified as turnover, despite that the executive holds the same position. The average turnover rate of non-director executives is 16.2% in ExecuComp, whereas the turnover rate is 13.6% for the five most highly compensated executives in my sample.<sup>8</sup> Last, the representativeness of highly compensated executives is arbitrary. For a small firm, five executives may represent most, if not all, of the managers in the executive suite. For a large company, however, they may only represent half of the team.

However, there are two potential problems with my dataset. First, some companies change the definition of the executive officer over years. For example, Werner Enterprises reported twenty executives on the Form DEF14A filed on March 9, 2005, including ten vice presidents. In the next year, it excluded vice presidents in its executive list on the Form DEF14A filed on April 4, 2006. The inconsistency in reporting inflates the number of executive turnover events. To reduce the impact of such incidents, I winsorize the number of departing executives and the ratio of departing executives at the 1% level.<sup>9</sup> Second, there may be data extraction errors. The extracted data may be incorrect when a company's file is not in the standard format. I can reasonably assume that the format selection, especially the underlying HTML structure, is not correlated with the variables of interests. Therefore the incorrect extractions may result in regression attenuation.

Table 2 reports the summary statistics at the company and individual levels. On average, executives are 51 years old, younger than the average of CEOs at 55.4 years old. 11.7% executives are female, a ratio that is higher than the percentage of female CEOs at 3.0%. The average CEO turnover rate is 9.6%, comparable to prior studies. For example, the average CEO turnover rate is 10.25% in Jenter and Kanaan (2015), who study CEO

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<sup>8</sup>The average executive turnover rate is 15.6% in my sample. It's higher than the sample matched with ExecuComp because junior executives have a higher turnover rate.

<sup>9</sup>The results are robust if I do not winsorize the two variables.

turnovers in S&P 1500 companies from 1993 to 2009. The slightly lower CEO turnover rate may be because I exclude interim CEOs from my CEO sample.

### 3. Results

#### 3.1. *Executive turnovers*

This section investigates the relationship between firm performance and subsequent executive turnover. The literature has documented that firms can respond to poor performance by replacing managers or changing strategies and structures (John et al., 1992; Wruck, 1990). But the prior studies on management turnover mostly focus on CEO turnover, which is boards' responsibility. I study the manager turnover that CEOs are responsible for, non-CEO executive turnover, and infer CEO behaviour from their decisions on executive retention. I hypothesize that CEOs dismiss their direct reports when firms underperform.

The motivation for this hypothesis is as follows. Attempting to improve performance, CEOs may replace incompetent executives or tailor executive skill set to the adjusted strategies and structures. For example, Fee and Hadlock (2004) report that 8.21% of departing executives leave when the assets they are managing are sold or spunoff. There are several reasons to believe that not all CEOs will be responsive to underperformance to the same extent. CEOs may prefer "quiet life" and limit their efforts to make changes (Bertrand and Mullainathan, 2003); CEOs may value their relationship with their subordinates and are reluctant to fire them (Landier et al., 2009); overconfident CEOs may overestimate their investment projects (Malmendier and Tate, 2005) and their personnel decisions, and thus slow to initiate corrections. An executive retention decision can backfire. For instance, in 2015 Ellen Pao stepped down as Reddit's CEO after users protest of the company's abrupt dismissal of its director of talent, Victoria Taylor.

Table 3 reports the results of the linear probability model estimates of the effect of firm performance on subsequent executive turnovers. The dependent variable, executive (CEO) turnover, is an indicator variable that equals to one when an executive (CEO)

departs in the following year, and the value is missing when a company exists from the sample in the next year. I use market adjusted stock return decile to measure firm performance. My variable definitions imply a lag of one year between turnover event and performance, and departures due to delisting or takeover are excluded.

For non-CEO executive turnover, the closet paper is Fee and Hadlock (2004), who use 443 large firms from 1993 through 1998 and find that executives are punished for poor performance. But they find that the executives leaving with the dismissed CEOs drive the results. Because my prediction is that an incumbent CEO fires executives in response to poor performance, it is important to ensure that executive turnover-performance sensitivity does not only reflect that some executives leave with outgoing CEOs. I use two methods to separate the effect due to executives leaving with outgoing CEOs: including a dummy variable indicating that the CEO is dismissed or excluding observations near a CEO turnover event (CEO turnover year, one year before and one year afterwards).

Other control variables include age, gender, total assets and stock return volatility. I use firm fixed effect to control for time-invariant firm characteristics that may be correlated to both performance and executive turnover such as corporate culture. I also include year fixed effect to take into account cross-sectional shocks. In all of the regressions with firm fixed effect, standard errors are adjusted to allow for arbitrary within firm correlations in the error term.

In columns (1), I replicate the well-documented negative relationship between firm performance and subsequent CEO turnover. In columns (2), I regress executive turnover on stock return and find that stock return and executive turnover probability are negatively correlation. Executives who work for the firms in the bottom decile are 3.6% more likely to depart than these who work for the firms in the top decile. The executive turnover-performance sensitivity is at less magnitude comparing with the CEO turnover-performance sensitivity. The relative smaller magnitude is consistent with Holmstrom (1979) and reflects that firm performance is more informative to CEO performance than executives who may be only responsible for the performance of one business unit or one function.

Because I am interested in executives fired by an incumbent CEO, I need to disentangle the effect from the executives leaving with an outgoing CEO. In column (3), I add an indicator variable for CEO turnover year; in column (4), I exclude the observations in the CEO turnover year, one year ahead and one year afterwards. The negative correlation between executive turnover and firm performance remains statistically significant, and the economic magnitude is slightly reduced (from -0.004 to -0.003). These results are not consistent with Fee and Hadlock (2004), who find the sensitivity weakens dramatically, in some cases becomes insignificant, after controlling for CEO turnovers. My sample has more companies, more executives per company and longer period, and the larger sample size may explain the inconsistent results. In addition, different sample period may be another reason. Fee and Hadlock (2004) study management turnovers from 1993 to 1998, and my sample period is from 2005 to 2011. Kaplan and Minton (2012) examine CEO turnovers in the period from 1992 to 2005 and find CEO turnover increases in the more recent period since 1998. It suggests that CEO jobs are less secure in recent years. CEOs with less job security may react to poor performance more aggressively, increasing the probability of replacing their subordinates. The coefficients of CEO turnover year dummies are positive, suggesting that the executive is 5% more likely to leave the company in the year when a CEO leaves. The coefficients of age are positive, implying that older an executive becomes, more likely he will leave the firm. These results conform to the conventional views.

Then I employ a different identification strategy to address the bias introduced by omitting the measure of executive competency. I expect that executive competency has a positive effect on the firm performance and a negative effect on the dismissal probability, and thus omitting it results in a downward bias. In column (5), I add person-firm fixed effect, capturing the personal characteristics that are constant over time such as competency. Standard errors are clustered at person-firm level. As expected, the economic magnitude of performance measures is reduced after correcting the downward bias (from 0.004 to 0.002), but they remain statistically significant at 1% level. Because gender does not vary over time at a personal level, the female indicator variables are omitted.

Variable age measures an individual's age at the date of reporting. Though the standard reporting interval is one year, some reporting intervals deviate from the norm. Thus, the coefficients of age are significantly reduced, but they are not completely captured by the person-firm fixed effect.

### 3.2. *CEO turnover*

In this subsection, I ask whether CEOs reduce the dismissal risk by actively managing the executive team. My main hypothesis, CEOs attempt to improve performance through firing executives, predicts that CEOs who make the changes should have lower dismissal risk than CEOs who have similarly poor performance but take no actions. A leadership consulting firm interviewed 1,087 directors from 286 organizations that fired their CEOs and found 27% of CEOs are fired because of tolerating low performers. On the other hand, executive turnover may indicate leadership problem, and CEOs can be punished for losing talents.

Table 4 reports the results of the linear probability model estimates of the effect of executive replacement on subsequent CEO turnover. The dependent variable is the CEO turnover dummy indicating that the CEO leaves the position in the year following executive departures. I control for the stock return in the current year and the preceding year. In column (1), the main variable of interest is the executive turnover ratio, measuring the number of replaced executives over the total number of executives. I find that the executive turnover ratio is significantly negatively correlated with CEO turnover. Replacing one executive in a top management team at the average size (the average number of executives: 8) implies a 0.6% decrease in the probability of CEO turnover. Given the CEOs in the bottom performance decile is 3.6% more likely to leave than the CEOs in the top performance decile, the decrease in turnover probability is moderate.

Then, I examine how executive turnover affects CEO turnover-performance sensitivity. The main variable of interest is the interaction term between executive turnover ratio and the stock performance in the year preceding the executive turnover event. Column (2) shows that it is positive and significant at 10%. The result suggests that the executive

turnover reduces the likelihood of the CEO being punished for poor performance in the following year. Since a firm publicly announces executive turnover, if an executive departure is viewed as value enhancing, the contemporaneous stock return should capture this. Therefore, the result suggests that the board not only considers the executive dismissal as value increasing, but also is able to infer extra information from this publicly disclosed event. It is possible that the board knows the context and the reasons for the dismissal, whereas the market has no access to such information. But the public announcement can explain the weak significance of this interaction term in the regression.

In column (3), I add the interaction term between the executive turnover and the contemporaneous performance as a robustness check. Because I hypothesize that CEOs fire executives in response to poor performance, my main variable of interest is still the interaction term between the executive turnover and the lagged performance. The result is similar to column (2).

Besides the interaction term, it is interesting to observe the changes in the lagged stock performance. In column (1), it is negative but insignificant. It is consistent with CEO turnover studies that find the earlier the performance, less predicting power it has on CEO turnover. In column (2), it is significant at 5% and the economic magnitude increases from 0.002 to 0.004. The change in the coefficient of the lagged performance suggests that taking into account the CEO's reaction to poor performance strengthens the significant of the performance variable because of the effect of poor performance on CEO turnover probability is different between CEOs who react and CEOs who take no action.

In sum, I interpret the results to provide evidence that the underperforming CEOs are more likely to be punished if they do not actively manage executives.

### *3.3. Other corporate events*

While the executive turnover-performance sensitivity results in the previous subsection provide evidence that CEOs fire the executives in response to poor performance, the dismissed executives may be scapegoats. Khanna and Poulsen (1995) study a sample of firms

that file for bankruptcy and find when managers are blamed for financial distress, they are serving as scapegoats. The negative correlation between the executive replacement and subsequent CEO turnover probability or CEO turnover to performance sensitivity suggests that boards reward CEOs for their scapegoating behaviour. To examine this possibility, I ask if the CEO make other strategic and structural changes when firing the executives. If the CEO not only makes personnel changes but also makes changes in strategies and structures, it is less likely that executive replacements are merely window-dressing.

Following Denis and Kruse (2000) I examine restructuring events such as downsize, layoff, seeking to sell assets and spin-off.<sup>10</sup> Furthermore, I include reorganization and considering alternative strategies, events that not necessarily lead to decreases in firm size. Last, I also examine seeking to buy assets, acquisition (acquiror) and expansion events. Such events are opposite to the events studied in Denis and Kruse (2000) and usually lead to increases in firm size.

Corporate event data are from Capital IQ key developments database, which provides structured summaries of material news and events that may affect the market value of securities. I use the event type variable in Capital IQ dataset, to identify most events in interest. For example, reorganization events are the events which event type ID is 32 in Capital IQ. The event dummy equals to one if a firm has at least one news related to such event in a fiscal year. The only event that is not identified by Capital IQ event type is the layoff. A layoff is an event of which the news headline contains “cut” (or its synonyms) and “jobs” (or its synonyms). Appendix B lists the variable definitions.

Table 2 reports the summary statistics of the corporate events. 20.9% of firms report discontinuing unit or downsizing in a year, 5.8% announce layoff, and 33.7% announce intentions to buy assets. Table 5 presents the results of the linear probability models. I find a positive correlation between the number of departing executives and the event leading to a decrease in firm size. For instance, the point estimates imply that one more

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<sup>10</sup>Denis and Kruse (2000) study divestitures, spin-offs, plant closings, liquidations, employee layoff and cost-cutting programs. In my sample, the event type “seek sell” includes divestitures; the event type “downsize” includes plant closings.

departing executive is associated with 28.1% higher chance of cutting in the workforce and 23.4% higher chance of downsizing. For the events that indicate changes but not necessarily result in decreases in the firm size, i.e., reorganization and considering alternative strategies, the correlations are significantly positive too. On the other hand, the relationship between the number of departing executives and the likelihood of an expansion event is negative or not statistically different from zero. One more departing executive is associated with 6.2% less likelihood of seeking to buy assets. The results are robust if I employ the ratio of the number of departing executives over the total team size to measure executive replacements.

In summary, when facing adverse profitability CEOs replace executives, cut jobs and reduce the firm size by selling assets or discontinuing some business units. Meanwhile, they are less likely to engage in expansions. Firing executives is not an isolated event, and it is accompanied by certain important corporate changes, suggesting the CEO's genuine efforts to revive the business.

### *3.4. What motivates the changes?*

In this subsection, I investigate what motives CEOs to make changes when facing poor firm performance. In the previous subsections, I document that executive turnover rate escalates when a firm under-performs. However, it is also likely that the executives seek external opportunities, and the departures are voluntary. Studying the factors that motivate CEOs to make changes sheds light on this possibility of this alternative explanation. If most of the executives leave voluntarily, the factors influencing CEOs will have less predicting power on executive departures. In contrast, if on average the executives leave as a result of the CEO's disciplinary actions, I expect that the factors that increase CEOs accountability can predicting high executive turnover performance sensitivity.

In particular, I hypothesize that CEOs under extensive monitoring are more likely to make changes. I use four channels that have been shown to affect the corporate governance in the literature, i.e., the anti-takeover index (e-index), the board independence, the CEO ownership and the institutional investor ownership (Bebchuk et al., 2009; Weisbach, 1988;



Denis et al., 1997; Shleifer and Vishny, 1997; Chakraborty et al., 2009). Because managing executives is the CEO's responsibility, though stricter board monitor also implies that the board can replace the executives, the replacement is done through the CEO. My purpose is not to disentangle whether the pressure for replacement is from the board or from the CEO, but to differentiate the departures are driven by the CEOs, or the boards, and the executive themselves. Further more, I also expect that CEO compensation is positively correlated to the executive turnover performance sensitivity. Recent studies, for example ?Bushman et al. (2010), show that CEO turnover risk is significantly positively associated with compensation.

Table 6 presents the results of the linear probability model estimates of the effect of the CEO job security on the executive turnover-performance sensitivity. The dependant variable is the dummy variable indicating an executive departure. The main variables of interest are the interaction terms between stock return decile and each proxy for corporate governance or CEO total compensation. The model specification is the same as the baseline regression. The coefficients of the interaction terms all have expected sign and are statistically significant in 3 out of 5 regressions. The results show that firms with stricter corporate governance or higher CEO total compensation experience higher executive turnover to performance sensitivity. They are consistent with the notion that CEOs in such firms have lower job security, thus response to poor performance more actively by replacing executives. Because I include CEO turnover as a control variable in this set of regressions, the positive association between the CEO job security and the executive job security is not just driven by the situation when a CEO and his subordinates leave together.

In summary, though the results are not statistically significant in all tests, they show supporting evidence that CEOs experiencing stricter monitoring and having higher compensation are more likely to hold their direct report accountable for firm performance. They are consistent with the hypothesis that CEOs instigate the changes in their executive teams.

### 3.5. *Firm performance*

In this section, I ask whether the executive departure is associated with the performance improvement. An executive departure could have both positive and negative effects on firm performance. If the CEO weed out the low quality executive, it is value-enhancing. DENIS and DENIS (1995) find that firm performance improves after forced CEO turnover. However, if the executive serves as a scapegoat or leaves voluntarily, it may not be associated or even negatively associated with future performance.

Table 7 reports the results of the ordinary least squares estimates of the effect of executive departure on changes in operating performance, ROA. The dependant variable measures changes in operating performance rather than the level of performance, because it is likely that underperforming firms still have suboptimal performance immediately after their CEOs made changes to boost performance. Studying changes in performance is commonly used in other CEO turnover studies. For example, DENIS and DENIS (1995) study changes in ROA after forced CEO turnovers. The changes in ROA are measured by the ROA in one(two) year after the executive departures minus the ROA in one year before the departures. I control for stock returns because poor performance, measured by stock return, triggers executive departures and stock performance is correlated with operational performance. Not controlling any performance leads to omitted variable bias.

In column (1), the dependent variable measures the change in ROA one year after executive departures. The coefficient is positive but insignificant. In column (2), the dependent variable measures the change in ROA two years after executive departures. The coefficient is positive and significant at 5% level. Given that I document the positive association of executive departures and retrenchment activities, which reduce firm assets, and the value of total assets is the denominator of ROA, this result is not surprising. In column (3) and (4), I add the corporate event indicators. The results are similar to the first two columns. Because I also control for the level of total assets, the mechanical relationship between decreases in total assets and increases in ROA does not seem to fully drive the results.

The results also suggest that a board may retain the CEO because of the performance

improvement rather than the revelation of CEO quality through his actions. To test this possibility, I run the CEO turnover regressions again adding controls for future operational performance. Table 8 shows that the results in Table 4 hold after including future operational returns.

In sum, the results provide suggestive evidence that executive departures are associated with performance improvement. But the improved performance can not fully explain the increases in CEO job security. My interpretation is that the executive retention decisions reveal CEO quality and boards take into account this information when evaluating the CEOs.

### *3.6. Labor market outcome*

In this subsection, I further address the possibility that executives may leave voluntarily when a firm performs poorly. I examine the labor market outcome of the departing executives. If the labor market uses firm performance to infer individual ability, as suggested by Fama (1980), it discourages executives to leave in an underperforming year. Prior literature is generally consistent with this view. For example, Fee and Hadlock (2004) study the labor market outcome of departing non-CEO executives and find that the labor market believes that firms tend to weed out low-quality managers through the turnover process. Dou (2015) examines the directorship changes for the directors who leave firms before negative events revealed and document that the labor market punishes the directors who abandon the firm when the firm requires them most.

Table ?? reports the labor market outcome of departing executives. The first column shows the likelihood of a departing executive finding new jobs. I search the new jobs in my sample, i.e., in S&P 1500 companies' c-suite. I exclude independent or gray directorship in these firms and limit my search to full-time jobs only. In addition, I limit my search to two years after a departure. If an executive takes more than two years to find the new job, I do not code him as finding a job. I use total assets to measure firm size. Because the number of observations are small, to avoid the impact of outliers, I winsorize the firm

size at 1%.<sup>11</sup>

On average 4.9% of executives who leave firms in the bottom two performance deciles find new jobs in one year, whereas 4.6% of executives who leave firms in the top two performance deciles join new employers in two years. Then I report the differences in the firm size between the new employers and the old employers. Using firm size as a proxy for compensation and prestige, I consider that executives who move to a smaller firms have adverse labor market outcome than these who move to bigger firms. On average, the total assets of the new firms are USD 4.2 billion less than the total assets of the old firms for those departing poorly performing firms, whereas for these departing well performing firms, the difference is USD 2.6 billion, suggesting a career advance for these executives. Then I report the percentage of executives who moved to smaller firms. 60.6% executives who leave poorly performing firms move to smaller firms, and 50.0% of executives who leave well performing firms find jobs in smaller firms.

Then I report the percentage of executives whose new employers are smaller than the prior employers. I use the firm size to proxy for job quality, assuming that working for a bigger firm is more desirable. 58.4% of executives who leave firms in the bottom performance quartile move to smaller firms, and 50.0% of executives who leave firms in the top performance quartile move to smaller firms.

Overall, the analysis in this subsection show suggestive evidence that executives who leave underperforming firms have adverse career outcomes. The result is consistent with prior studies on executive and director labor market outcomes. Further more, the effect of executive replacements on CEO job security does not support the notion that on average executives leave underperforming firms to seek external opportunities. If most executive departures are voluntary, I expect that CEOs face lower job security for losing talents. The evidence I have presented appear to be largely inconsistent with the notion that most executives leave voluntarily.

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<sup>11</sup>The results are similar if I do not winsorize the firm size.

### 3.7. *Executive team size*

This section examines whether executive departures have long lasting effect on the executive team size. My goal is to further understand why executives leave. If on average CEOs replace low quality executives with competent ones, or executives leave voluntarily, I expect that the effect of executive departure on team size is temporary. However, if CEOs dismiss executives due to changes in strategies, such as discontinuing a business unit or divestiture, I expect that the positions are removed, and therefore the executive team size decreases in the long run.

I present the ordinary least squares estimates of the effect of executive departure on the executive team size in Table 10. The dependent variable, team size, is the total number of executives when the annual report or proxy statement is filed, usually shortly after the fiscal year end. The main variable of interest is the executive departure ratio, measuring the percentage of departing executives during the year. In column 1, the coefficient of the executive turnover ratio is significantly negative, suggesting that higher turnover rate is associated with smaller team size. In column (2), I add the executive departure rate in the year before, and it is negative too. In column (3), I add the executive departure rate in two years before, and the coefficient is still negative. Not surprisingly, the earlier an executive leaves, less effect it has on the team size. The results show evidence that on average an executive departure is associated with smaller team size in two years after the departure. Two years are a reasonable time frame for the CEO to find an replacement. So my interpretation is that some executives are dismissed as part of the CEO's retrenchment efforts. Consistent with my previous results, these results do not support the notion that the executives depart voluntarily.

## 4. **Conclusion**

The literature has well documented that firms replace management in response to performance shocks. However, prior studies usually focus on CEOs, of whom the retention decisions are responsibilities of the boards of directors. In this study, I focus on non-CEO

executive retention decisions in difficult time and infer CEO behaviors.

I find that CEOs actively manage their executive teams in response to the poor firm performance. And the management replacement is accompanied by certain restructure events, such as laying off and selling assets. CEOs are rewarded with job security by replacing executives. I also find that executive departures are less likely to be voluntary because factors reducing CEO job security also reducing executive job security, suggesting the CEOs instigate the changes, and the labor market punishes executives leaving in bad years. Overall, this paper suggests that boards can learn CEO quality from their executive retention decisions.

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## Appendix A

In this Appendix, I document how I collected executive data from SEC filings.

Item 401(b) of Regulation S-K requires the companies to list the names and ages of all executive officers of the registrant and all persons chosen to become executive officers, who are current officers rather than officers who held the position in the last fiscal year.<sup>12</sup>

The first step is to download relevant Form 10-K and Form DEF14A files from SEC Edgar website. I start with the SEC indices files, containing the link to every file submitted to SEC. Then I use a Ruby script to download all Form 10-K or Form DEF14A filed between 2004 and 2012 by the companies in my dataset.

The second step is to extract executive information from the downloaded files. A company shall disclose its executive officers under an appropriate caption in any of the three places: Form 10-K Item 10, Form 10-K Item 1 or Form DEF14A. The common captions include “Executive Officers of the Registrant/Company” and “Directors and Executive Officers of [Company Name]”. I then use a Ruby script to extract an executive’s name, age, gender and experience from the relevant tables or paragraphs under such captions. The script checks Form 10-K first because majority companies disclose executive officer information in Form 10-K, and it only checks Form DEF14A if no information in Form 10-K is found. My script has extracted 95% officers information for all firm-year observations in the sample. Two reasons contribute to the failure of extraction: (1) a form is in a format that my script can not automatically parse; (2) a company didn’t file Form 10-K and Form DEF14A in a particular year.

Because not all companies disclose the gender of an officer, I use the below procedure to decide an executive officer’s gender. If the title is “Mr/Messrs” or “he” is used in the text describing work experience, the executive officer is deemed to be male; if the title is “Mrs/Miss/Ms” or “she” is used in the text describing work experience, the executive officer is deemed to be female. For the rest of the sample, I use the first name to decide an executive officer’s gender based on U.S. Census Bureau data. I code gender as missing value if a first name is unisex.

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<sup>12</sup>Regulation S-K, May 17, 2013, accessed 3 September 2013, ([www.sec.gov](http://www.sec.gov))

The hand-collected data has a few problems. The first problem is that extraction is not 100% accurate. The extracted data may be incorrect when a company's file is not in the standard format.

The second problem is inconsistent disclosure. Some companies change their definition of Executive Officer over years. For example, Werner Enterprises reports twenty executive officers in Form DEF14A filed on March 9, 2005 , including ten vice presidents. However, in the next year it only has ten executive officers on Form DEF14A filed on April 4, 2006, not including any vice president. The inconsistency in reporting leads to inaccurate turnover identification.

For both problems discussed above, I cannot identify any reason indicating such errors or changes are systematic. They are linked to individual firm's decision on form format, as well as individual firm's decision of defining executive officers. Such measurement errors bring attenuation bias and work again me to find any significant results.

## Appendix B: Variable definitions

Variable	Definition	Source
<i>Individual characteristics</i>		
CEO	Dummy variable: 1 if an individual holds a CEO position on a continuous basis. 0 otherwise. Interim CEOs are excluded	BoardEx
Executive	Dummy variable: 1 if an individual is disclosed as an executive officer in the Annual Report or Proxy Statement and is not a CEO or an inside director. 0 otherwise.	SEC filings Form 10K or Form DEF14A
CEO tenure (0-5)	Dummy variable: 1 if CEO tenure is equal to or shorter than 5 years. 0 otherwise.	BoardEx
CEO tenure (6-10)	Dummy variable: 1 if CEO tenure is between 6 years (inclusive) and 10 years (inclusive). 0 otherwise.	BoardEx
Age	Age	BoardEx and SEC filings
Female	Dummy variable: 1 if an individual is a female. 0 otherwise.	BoardEx and SEC filings
<i>Firm characteristics</i>		
Total Asset	Total assets (million \$)	Compustat
Volatility	Annualized standard deviation of the stock return calculated based on 12 monthly stock returns before the fiscal year end.	CRSP
Stock return	The buy and hold stock return over 12 months before the fiscal year end minus CRSP value weighted market return in the same period.	CRSP
ROA	Operating income before depreciation scaled by total assets (oibdp/at)	Compustat
CEO turnover	Dummy variable: 1 if a CEO no longer holds the CEO position in the following year. 0 otherwise	BoardEx
Executive turnover	Dummy variable: 1 if an executive is no longer the executive officer in the following year. 0 otherwise.	SEC filings
New Appointment	Dummy variable: 1 if an individual becomes the executive officer. 0 otherwise.	SEC filings
No. of executives	The number of executives	SEC filings
No. of departing executives	The number of departing executives	SEC filings
E-index	Anti-takeover index	RiskMetrics
Board independence	The percentage of independent director on the board.	BoardEx
CEO ownership	Dummy variable: 1 if CEO own more than 5\% of shares. 0 otherwise.	RiskMetrics
CEO compensation	CEO total compensation	ExecuComp
Institutional ownership	The total value of stocks owned by institutional investors (billion\$)	Thomson Reuters

## Appendix B: Variable definitions (Continue)

Variable	Definition	Source
Corp gov index	First component in PCA of E-index, board independence, CEO ownership, CEO compensation, institutional ownership	RiskMetrics, BoardEx, ExecuComp, Thomson Reuters
Downsize	Dummy variable: 1 if the firm discontinues operations or downsizes in a year. 0 otherwise.	Capital IQ Key Development (keydeventypeid 21)
Restructure	Dummy variable: 1 if the firm reorganizes its business in a year. 0 otherwise.	Capital IQ Key Development (keydeventypeid 32)
Expansion	Dummy variable: 1 if the firm expands its business in a year. 0 otherwise.	Capital IQ Key Development (keydeventypeid 31)
Seek sell	Dummy variable: 1 if the firm seeks to sell or divest in a year. 0 otherwise.	Capital IQ Key Development (keydeventypeid 1)
M & A Acquiror	Dummy variable: 1 if the firm is the acquirer of a completed M & A transaction in a year. 0 otherwise.	Capital IQ Key Development (keydeventypeid 81 & keydevtoobjectrole-typeid 3)
M & A Target	Dummy variable: 1 if the firm is the target of a completed M & A transaction in a year. 0 otherwise.	Capital IQ Key Development (keydeventypeid 81 & keydevtoobjectrole-typeid 4)
Alternative strategy	Dummy variable: 1 if the firm considers multiple strategic alternatives in a year. 0 otherwise.	Capital IQ Key Development (keydeventypeid 63)
layoff	Dummy variable: 1 if the firm reduces its workforce in a year, identified by searching key words "cut/reduce/layoff/axe/eliminate" and "jobs/workforce/workers/employees" in the news headline. 0 otherwise.	Capital IQ Key Development (news headline)

Table 1: Changes in sample size

My sample includes all firms that are constituents of S&P 1500 index during January 1, 2005 to December 31, 2011. If a company is dropped from or added to the S&P 1500 index during the sample period, I collect all available information from 2005 to 2011.

	No. of firms	No. of firm-year obs
S&P 1500 constituents from 2005 to 2011	2140	
S&P 1500 constituents & BoardEx	2137	14,477
S&P 1500 constituents & BoardEx & Compustat/CRSP Mergered File	2061	13,898
S&P 1500 constituents & BoardEx & Compustat/CRSP Mergered File & executive officers	2007	13,146

Table 2: Summary statistics

My sample includes all firms that are constituents of S&P 1500 index during January 1, 2005 and December 31, 2011. Executives are the individuals disclosed as executive officers in the Annual Report or Proxy Statement, excluding CEOs and inside directors. CEOs are the individual who hold CEO positions on a continuous basis and interim CEOs are not included.

	n	Mean	Std.	Q1	Median	Q3
<b><i>Firm characteristics</i></b>						
Total assets (million\$)	13146	16548.973	97623.422	674.572	1988.802	6791.300
ROA	12933	0.143	0.121	0.072	0.130	0.198
Stock return	12786	0.064	0.605	-0.185	0.002	0.211
Volatility	12584	0.910	1.184	0.411	0.632	1.015
No. of executives	13146	7.009	3.752	4	6	9
No. of departing executives	11014	1.013	1.338	0	1	1
Executive turnover ratio	11014	0.135	0.165	0	0.100	0.222
CEO Turnover	12839	0.096	0.295	0	0	0
Anti-takeover index (e-index)	10869	2.953	1.372	2	3	4
Board independence ratio	13146	0.786	0.113	0.714	0.800	0.875
CEO ownership above 5%	13146	0.135	0.341	0	0	0
CEO compensation (billion)	11576	0.005	0.008	0.002	0.003	0.007
Institutional ownership (billion)	12925	0.146	0.390	0.023	0.047	0.114
<b><i>Corporate events</i></b>						
Downsize	13,133	0.209	0.407	0	0	0
Layoff	13,133	0.058	0.233	0	0	0
Spin-off	13,133	0.012	0.107	0	0	0
Sell sell	13,133	0.082	0.275	0	0	0
Reorganization	13,133	0.090	0.287	0	0	0
Alter strategy	13,133	0.037	0.189	0	0	0
Seek buy	13,133	0.339	0.473	0	0	1
M&A Acquiror	13,133	0.418	0.493	0	0	1
Expansion	13,133	0.409	0.492	0	0	1
<b><i>Executive characteristics</i></b>						
Age	87525	50.813	6.912	46	51	56
Female	87381	0.117	0.322	0	0	0
Departure	79152	0.156	0.363	0	0	0
New Appointment	78372	0.158	0.365	0	0	0

Table 3: Linear probability models of CEO and executive turnovers

My sample includes all firms that are constituents of S&P 1500 index during January 1, 2005 and December 31, 2011. Executives are the individuals disclosed as executive officers in the Annual Report or Proxy Statement, excluding CEOs and inside directors. CEOs are the individual who hold CEO positions on a continuous basis and interim CEOs are not included. Stock return is the buy and hold return over 12 months before the fiscal year end minus CRSP value weighted market return in the same period. Volatility is the annualized standard deviation of the stock return calculated based on 12 monthly stock returns before the fiscal year end. All other definitions are given in Appendix 2. The dependent variable is CEO turnover in column (1); it is executive turnover in other columns. In column (4) observations within 3 years around CEO turnover events (t-1,t+1) are removed. In column (5), executive-firm and year fixed effect are used, and standard errors are clustered at executive-firm level. In all other columns, firm and year fixed effect are used. t-statistics, reported in the parentheses, are calculated with standard errors clustered at firm level. \*, \*\* and \*\*\* denote significant at the 10%, 5% and 1% level, respectively.

<i>Dependent variable</i>	CEO turnover / Executive turnover						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Stock return decile	-0.006*** (4.855)	-0.004*** (5.449)	-0.004*** (4.834)	-0.003*** (3.304)	-0.002*** (4.004)	-0.003*** (2.675)	-0.003*** (3.450)
Total Assets	0.002 (0.187)	0.018** (2.060)	0.014 (1.581)	0.017 (1.642)	-0.036*** (4.309)	0.013 (0.937)	0.014 (1.542)
Volatility	-0.004 (1.134)	-0.001 (0.485)	-0.001 (0.759)	-0.002 (0.646)	-0.001 (0.836)	-0.003 (0.857)	-0.001 (0.761)
Age	0.015*** (11.331)	0.006*** (24.476)	0.006*** (24.167)	0.006*** (19.965)	0.003 (1.163)	0.007*** (18.289)	0.006*** (24.169)
Female	-0.077 (1.576)	0.008* (1.769)	0.009* (1.952)	0.003 (0.613)		0.002 (0.331)	0.009* (1.945)
CEO tenure (0-5)	-0.217*** (12.254)						
CEO tenure (6-10)	-0.091*** (6.189)						
CEO turnover			0.049*** (6.573)		0.033*** (5.225)	0.043*** (3.949)	0.093*** (5.644)
Stock return decile * CEO turnover							-0.009*** (3.189)
Constant	-0.583*** (4.610)	-0.289*** (3.880)	-0.266*** (3.469)	-0.276*** (3.121)	0.465*** (2.878)	-0.269** (2.317)	-0.268*** (3.507)
Observations	12,244	68,336	66,950	49,634	66,950	32,970	66,950
Adjusted R-squared	0.104	0.065	0.065	0.066	0.338	0.084	0.065
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes		Yes	Yes
Person-firm FE					Yes		



Table 4: Linear probability models of CEO turnovers

My sample includes all firms that are constituents of S&P 1500 index during January 1, 2005 and December 31, 2011. EO are non-CEO executive officers who are not inside directors. CEOs are the individual who hold CEO positions on a continuous basis and interim CEOs are not included. Stock return is the buy and hold return over 12 months before the fiscal year end minus CRSP value weighted market return in the same period. Volatility is the annualized standard deviation of the stock return calculated based on 12 monthly stock returns before the fiscal year end. All other definitions are given in Appendix 2. In all regressions, firm and year fixed effect are used. t-statistics, reported in the parentheses, are calculated with standard errors clustered at firm level. \*, \*\* and \*\*\* denote significant at the 10%, 5% and 1% level, respectively.

<i>Dependent variable</i>	CEO turnover (t +1)		
	(1)	(2)	(3)
Stock return decile (t)	-0.005*** (3.854)	-0.005*** (3.900)	-0.004** (2.445)
Stock return decile (t-1)	-0.002 (1.573)	-0.004** (2.521)	-0.004** (2.501)
% departing EO (t)	-0.049** (2.142)	-0.117*** (2.660)	-0.075 (1.245)
% departing EO (t) * Stock return decile (t-1)		0.013* (1.921)	0.014* (1.941)
% departing EO (t) * Stock return decile (t)			-0.008 (1.156)
Total Assets	-0.008 (0.546)	-0.007 (0.530)	-0.007 (0.525)
Volatility(12m)	-0.003 (0.850)	-0.003 (0.932)	-0.003 (0.935)
Age	0.015*** (9.250)	0.015*** (9.243)	0.015*** (9.233)
Female	-0.127** (2.246)	-0.125** (2.207)	-0.125** (2.222)
CEO tenure (0-5)	-0.241*** (11.405)	-0.242*** (11.418)	-0.242*** (11.420)
CEO tenure (6-10)	-0.104*** (6.145)	-0.105*** (6.173)	-0.105*** (6.181)
Constant	-0.474*** (3.136)	-0.465*** (3.080)	-0.471*** (3.116)
Observations	10,385	10,385	10,385
Adjusted R-squared	0.108	0.108	0.108
Year Fixed Effect	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes

Table 5: Ordinary least squares models of the number of departing executives

My sample includes all firms that are constituents of S&P 1500 index during January 1, 2005 and December 31, 2011. Executives are non-CEO executive officers who are not inside directors. CEOs are the individual who hold CEO positions on a continuous basis and interim CEOs are not included. The change dummy equals to one if news of the particular corporate event is reported in a year. Stock return is the buy and hold return over 12 months before the fiscal year end minus CRSP value weighted market return in the same period. Volatility is the annualized standard deviation of the stock return calculated based on 12 monthly stock returns before the fiscal year end. All other definitions are given in Appendix 2. In all regressions, firm and year fixed effect are used. t-statistics, reported in the parentheses, are calculated with standard errors clustered at firm level. \*, \*\* and \*\*\* denote significant at the 10%, 5% and 1% level, respectively.

<i>Dependent variable</i>	No. of departing executives								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Events	Downsize	Layoff	Spinoff	Seek sell	Reorganization	Change strategy	Seek buy	M&A acquirer	Expansion
Change event	0.029*** (4.838)	0.038*** (4.050)	0.091*** (3.070)	0.033*** (3.981)	0.023*** (2.896)	0.028** (2.351)	-0.010** (2.126)	-0.003 (0.718)	0.002 (0.465)
Stock return decile	-0.003*** (4.628)	-0.003*** (4.727)	-0.003*** (4.886)	-0.003*** (4.840)	-0.003*** (4.748)	-0.003*** (4.811)	-0.003*** (4.806)	-0.003*** (4.840)	-0.003*** (4.823)
Total assets (ln)	-0.010 (1.154)	-0.009 (1.079)	-0.008 (0.898)	-0.010 (1.230)	-0.009 (1.112)	-0.009 (1.098)	-0.008 (0.977)	-0.009 (0.989)	-0.009 (1.085)
Volatility	-0.004* (1.885)	-0.004* (1.946)	-0.004* (1.861)	-0.004** (1.963)	-0.004* (1.937)	-0.004* (1.945)	-0.005** (2.006)	-0.005** (2.004)	-0.004** (1.978)
Constant	0.217*** (3.181)	0.217*** (3.168)	0.205*** (3.007)	0.227*** (3.310)	0.219*** (3.190)	0.219*** (3.192)	0.217*** (3.153)	0.215*** (3.111)	0.219*** (3.180)
Observations	10,695	10,695	10,695	10,695	10,695	10,695	10,695	10,695	10,695
Adjusted R-squared	0.109	0.108	0.108	0.108	0.107	0.107	0.106	0.106	0.106
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6: Linear probability models of executive turnovers

My sample includes all firms that are constituents of S&P 1500 index during January 1, 2005 and December 31, 2011. Executives are non-CEO executive officers who are not inside directors. CEOs are the individual who hold CEO positions on a continuous basis and interim CEOs are not included. Stock return is the buy and hold return over 12 months before the fiscal year end minus CRSP value weighted market return in the same period. Volatility is the annualized standard deviation of the stock return calculated based on 12 monthly stock returns before the fiscal year end. In all regressions, firm and year fixed effect are used. All other definitions are given in Appendix 2. t-statistics, reported in the parentheses, are calculated with standard errors clustered at firm level. \*, \*\* and \*\*\* denote significant at the 10%, 5% and 1% level, respectively.

<i>Dependent variable</i>	Executive turnover				
	(1)	(2)	(3)	(4)	(5)
Var	E index	Independence	CEO ownership	CEO compensation	Institutional ownership
Stock return decile	-0.007*** (3.502)	0.007 (1.345)	-0.004*** (4.968)	0.010 (1.562)	-0.003*** (4.095)
Var	-0.004 (0.879)	0.024 (0.428)	-0.014 (0.857)	-0.001 (0.124)	0.039** (1.965)
Var * Stock return decile	0.001 (1.582)	-0.014** (2.072)	0.003 (1.059)	-0.002** (2.060)	-0.003** (2.094)
Total assets (ln)	0.011 (0.967)	0.015* (1.650)	0.014 (1.573)	0.022** (2.183)	0.012 (1.363)
Volatility	-0.002 (0.695)	-0.002 (0.775)	-0.001 (0.741)	-0.002 (1.184)	-0.002 (0.832)
Age	0.006*** (22.498)	0.006*** (24.169)	0.006*** (24.168)	0.006*** (23.618)	0.006*** (24.247)
Female	0.010* (1.919)	0.009* (1.942)	0.009* (1.952)	0.008 (1.573)	0.009* (1.887)
CEO turnover	0.044*** (5.692)	0.049*** (6.609)	0.049*** (6.575)	0.052*** (6.603)	0.049*** (6.595)
Constant	-0.226** (2.364)	-0.289*** (3.229)	-0.265*** (3.424)	-0.329*** (3.382)	-0.258*** (3.369)
Observations	57,640	66,950	66,950	61,151	66,775
Adjusted R-squared	0.067	0.065	0.065	0.068	0.065
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes

Table 7: Ordinary least squares models of changes in operation performance

My sample includes all firms that are constituents of S&P 1500 index during January 1, 2005 and December 31, 2011. In column (1) and (3), the change in ROA is ROA in  $t+1$  minus ROA in  $t-1$ , where  $t$  is the year when executive turnover occurs. In column (2) and (4), the change in ROA is ROA in  $t+2$  minus ROA in  $t-1$ , where  $t$  is the year when executive turnover occurs. Executives are non-CEO executive officers who are not inside directors. Stock return is the buy and hold return over 12 months before the fiscal year end minus CRSP value weighted market return in the same period. Volatility is the annualized standard deviation of the stock return calculated based on 12 monthly stock returns before the fiscal year end. In all regressions, firm and year fixed effect are used. All other definitions are given in Appendix 2.  $t$ -statistics, reported in the parentheses, are calculated with standard errors clustered at firm level. \*, \*\* and \*\*\* denote significant at the 10%, 5% and 1% level, respectively.

Dependent variable	Change in ROA			
	(1)	(2)	(3)	(4)
% of EO departed (t)	0.007 (0.802)	0.017** (2.024)	0.007 (0.807)	0.016* (1.889)
Stock return decile (t)	0.008*** (16.822)	0.005*** (8.171)	0.008*** (16.877)	0.005*** (8.285)
Stock return decile (t-1)	0.001 (1.032)	-0.001** (2.300)	0.001 (1.176)	-0.001** (2.128)
Total Assets	-0.093*** (10.917)	-0.098*** (9.244)	-0.093*** (10.849)	-0.098*** (9.135)
Volatility(12m)	0.004 (1.447)	0.001 (0.399)	0.004 (1.397)	0.001 (0.317)
CEO turnover (t)	0.004 (0.990)	0.006 (1.381)	0.003 (0.913)	0.006 (1.308)
Downsize			-0.001 (0.307)	0.001 (0.361)
Layoff			-0.006 (1.152)	-0.006 (1.149)
Spin-off			-0.016 (0.789)	-0.017 (1.558)
Sell sell			0.011** (2.363)	0.011** (2.042)
Reorganization			-0.002 (0.433)	-0.005 (1.090)
Alter strategy			0.010 (1.464)	0.016** (2.108)
Seek buy			-0.003 (1.296)	-0.009*** (3.083)
M&A Acquiror			-0.001 (0.511)	-0.001 (0.414)
Expansion			-0.004 (1.360)	-0.009*** (2.591)
Constant	0.691*** (10.294)	0.775*** (9.084)	0.695*** (10.316)	0.776*** (9.088)
Observations	10,333	8,578	10,324	8,571
Adjusted R-squared	0.182	0.259	0.183	0.262
Year Fixed Effect	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes

Table 8: Linear probability models of CEO turnovers

My sample includes all firms that are constituents of S&P 1500 index during January 1, 2005 and December 31, 2011. EO are non-CEO executive officers who are not inside directors. CEOs are the individual who hold CEO positions on a continuous basis and interim CEOs are not included. Stock return is the buy and hold return over 12 months before the fiscal year end minus CRSP value weighted market return in the same period. ROA is the operating income before depreciation scaled by total assets. Volatility is the annualized standard deviation of the stock return calculated based on 12 monthly stock returns before the fiscal year end. All other definitions are given in Appendix 2. In all regressions, firm and year fixed effect are used. t-statistics, reported in the parentheses, are calculated with standard errors clustered at firm level. \*, \*\* and \*\*\* denote significant at the 10%, 5% and 1% level, respectively.

<i>Dependent variable</i>	CEO turnover (t +1)		
	(1)	(2)	(3)
Stock return decile (t)	-0.004*** (2.933)	-0.005*** (3.161)	-0.005*** (3.200)
Stock return decile (t-1)	-0.002 (1.565)	-0.003 (1.632)	-0.003* (1.659)
% departing EO (t)	-0.120*** (2.730)	-0.111** (2.015)	-0.113** (2.061)
% departing EO (t) * Stock return decile (t-1)	0.013* (1.866)	0.016* (1.805)	0.016* (1.823)
Total assets (ln)	-0.014 (0.984)	-0.015 (0.704)	-0.015 (0.719)
Volatility	-0.003 (0.793)	0.001 (0.082)	0.001 (0.082)
Age	0.015*** (9.675)	0.016*** (8.608)	0.016*** (8.622)
Female	-0.134** (2.393)	-0.125* (1.960)	-0.125* (1.947)
CEO tenure (0-5)	-0.233*** (11.020)	-0.223*** (8.928)	-0.224*** (8.924)
CEO tenure (6-10)	-0.101*** (5.863)	-0.088*** (4.318)	-0.089*** (4.322)
ROA(t)	-0.101 (1.630)	-0.070 (0.935)	-0.066 (0.871)
ROA(t+1)	-0.158*** (2.689)	-0.163** (2.138)	-0.166** (2.167)
Constant	-0.417*** (2.697)	-0.282 (1.291)	-0.281 (1.283)
Corporate governance	No	Yes	Yes
Corporate events	No	No	Yes
Observations	10,114	8,062	8,060
Adjusted R-squared	0.119	0.114	0.114
Year Fixed Effect	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes

Table 9: Summary statistics of labor market outcome of departing executives. Executives are non-CEO executives who are not inside directors. The indicator variable, find a job, equals to one if an executive find a full time position with my sample firms in two years since the departure. Firm size is the value of total assets and is winsorized at 1%.

	Executives			
	Worst performing firms		Best performing firms	
	N	Mean	N	Mean
Prob(find a job)	2793	4.9%	1943	4.6%
$firmsize_{new} < firmsize_{old}$	137	-4245	90	2591
Prob( $firmsize_{new} < firmsize_{old}$ )	137	60.6%	90	50.0%

Table 10: Ordinary least squares models of executive team size

My sample includes all firms that are constituents of S&P 1500 index during January 1, 2005 and December 31, 2011. Executives are non-CEO executive officers who are not inside directors. Executive team size is the total number of executives when the annual report or proxy statement is filed. In all regressions, firm and year fixed effect are used. All other definitions are given in Appendix 2. t-statistics, reported in the parentheses, are calculated with standard errors clustered at firm level. \*, \*\* and \*\*\* denote significant at the 10%, 5% and 1% level, respectively.

<i>Dependent variable</i>	Executive team size(t)					
	(1)	(2)	(3)	(4)	(5)	(6)
% of EO departed (t)	-2.003*** (13.892)	-2.097*** (12.648)	-2.515*** (12.090)			
% of EO departed (t-1)		-1.154*** (8.462)	-1.367*** (7.636)			
% of EO departed (t-2)			-1.019*** (7.304)			
Stock return decile (t)	-0.013** (2.013)	-0.007 (1.150)	-0.007 (1.070)	-0.011* (1.686)	-0.005 (0.909)	-0.007 (1.100)
Total Assets	0.620*** (5.720)	0.552*** (4.701)	0.390*** (2.787)	0.651*** (5.891)	0.610*** (5.101)	0.474*** (3.346)
Volatility(12m)	-0.017 (1.201)	-0.012 (0.961)	-0.004 (0.373)	-0.014 (0.958)	-0.009 (0.759)	-0.001 (0.129)
No. of EO departed (t)				-0.206*** (8.353)	-0.227*** (7.719)	-0.328*** (9.117)
No. of EO departed (t-1)					-0.147*** (6.464)	-0.170*** (5.594)
No. of EO departed (t-2)						-0.128*** (5.632)
Constant	2.275*** (2.624)	2.940*** (3.136)	4.463*** (3.976)	1.952** (2.204)	2.409** (2.518)	3.748*** (3.281)
Observations	10,704	8,890	7,078	10,704	8,890	7,078
Adjusted R-squared	0.808	0.850	0.872	0.806	0.850	0.875
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effect	Yes	Yes	Yes	Yes	Yes	Yes