

Governance and CEO turnover: Do something or do the right thing?

Ray Fisman Rakesh Khurana Matthew Rhodes-Kropf*

First Draft: July 2004
This Draft: August 12, 2004

Abstract

We study the effect of entrenchment on the causes and consequences of CEO dismissal. We begin with the conventional ‘costly firing’ model of managerial entrenchment, where an entrenched CEO is dismissed only if the subsequent gains from doing so are very large. This model yields a number of intuitive predictions: (a) post-firing firm performance improvements are greater for entrenched CEOs (b) entrenched CEOs are fired less frequently (c) market reaction is more positive to the firing of entrenched CEOs (d) the pre-firing decline in firm performance is greater for entrenched CEOs (e) following poor firm performance, firms controlled by entrenched CEOs see little improvement, relative to firms controlled by less entrenched CEOs. We test these predictions using data on dismissals of CEOs of large U.S. corporations from 1980-1996. While we report results that are strongly consistent with predictions (a) – (c), the data do not support predictions (d) and (e). We suggest an alternative model, built on the premise that shareholders may misattribute poor performance to the CEO rather than circumstance. In this model, an entrenched board may protect ‘good’ CEOs from dismissal. We suggest that this model is more broadly consistent with the reported findings and consistent with insights about performance attribution from social psychology.

*Fisman: 823 Uris Hall, Columbia University, New York NY 10027. Phone: (212) 854-9157. Email: rf250@columbia.edu. Khurana: Harvard University, Harvard University, Morgan Hall 329, Boston, Massachusetts 02163 Phone: 617-495-4137. Email: rkhurana@hbs.edu. Rhodes-Kropf: 803 Uris Hall, Columbia University, New York NY 10027. Phone: (212) 854-7480. Email: mr554@columbia.edu., respectively. We thank Bruce Greenwald, Steve Kaplan, Bengt Holmstrom, and Tano Santos for useful discussions. We thank participants at ... workshops for insightful comments. All errors are our own.

Governance and CEO turnover: Do something or do the right thing?

Abstract:

We study the effect of entrenchment on the causes and consequences of CEO dismissal. We begin with the conventional ‘costly firing’ model of managerial entrenchment, where an entrenched CEO is dismissed only if the subsequent gains from doing so are very large. This model yields a number of intuitive predictions: (a) post-firing firm performance improvements are greater for entrenched CEOs (b) entrenched CEOs are fired less frequently (c) market reaction is more positive to the firing of entrenched CEOs (d) the pre-firing decline in firm performance is greater for entrenched CEOs (e) following poor firm performance, firms controlled by entrenched CEOs see little improvement, relative to firms controlled by less entrenched CEOs. We test these predictions using data on dismissals of CEOs of large U.S. corporations from 1980-1996. While we report results that are strongly consistent with predictions (a) – (c), the data do not support predictions (d) and (e). We suggest an alternative model, built on the premise that shareholders may misattribute poor performance to the CEO rather than circumstance. In this model, an entrenched board may protect ‘good’ CEOs from dismissal. We suggest that this model is more broadly consistent with the reported findings and consistent with insights about performance attribution from social psychology.

The removal of poorly performing managers is a crucial mechanism by which owners maximize firm performance. In large, modern, publicly traded corporations, while shareholders are the owners, they largely delegate the choice of management, and the decision to fire managers, to a board of directors. In an idealized view of the process, the board is a perfect agent, acting in the best interests of shareholders to remove management whenever it is profitable to do so. When the board fails to perform this function, shareholders often have little recourse – board members, and by extension, the firm’s management are then buffered from the effects of firm performance and thereby insulated from the preferences of distressed shareholders. The ‘entrenchment’ of board and management lies at the foundation of contemporary academic work on governance across a range of disciplines, and it is generally portrayed as the principal barrier to the dismissal of bad CEOs.

This view of corporate governance is built on the idea that the board has interests that diverge from those of the shareholders; this protection from shareholder action allows them to better pursue self-serving goals. There are reasons to expect the opposite, however. In particular, coincident with the recent uproar over accountability to shareholder, the idea that shareholders may not always promote decisions that maximize firm value has recently been resurrected. Because of the changing nature of ownership and control, the owners of corporations and the horizon of their interests has changed. Today, significant classes of shareholders have been criticized as being overly focused on short-run stock price at the expense of long-term corporate performance, and over-reacting to short-run performance changes. To the extent that this accurately characterizes investor behavior, the impact of insulating the board from shareholders’ demands is ambiguous.

In this paper we study the effects of entrenchment on the causes and effects of CEO firings, taking the standard entrenchment model as our point of departure. Our model of entrenchment provides a number of predictions that we test using data on CEO firings during 1980-96. Several of our results are consistent with the ‘standard’ model of entrenchment: (1) CEO firing is less common in firms with entrenched boards and management; (2) post-firing operating performance improves more in firms with entrenched boards and management; and (3) The market responds more favorably to announcements of the firing of CEOs in high entrenchment firms. However, we also report a pair of findings that are at odds with the dominant tone of academic research on entrenchment. First, we do not find that entrenched managers see a greater decline in performance before firing takes place. More strikingly, the traditional view of entrenchment view predicts that following poor performance, high entrenchment firms should be more likely to continue performing poorly than low entrenchment firms. We present results suggesting the opposite effect.

Based on these empirical findings, we suggest an alternative model of entrenchment, where

shareholders may misattribute bad performance to the CEO rather than underlying problems in the company. This ‘fundamental misattribution’ causes pressure on the board to dismiss a CEO, whether or not the problems are of her making. Only a board that is insulated to some degree from shareholder demands can resist this immediate pressure. We present a model built on these primitives of fundamental misattribution and shareholder agitation that is more consistent with our overall empirical findings.

There are far too many studies examining the causes and effects of forced CEO turnover for us to adequately summarize here (see Brickley, 2003, for a summary). Suffice it to say that this body of research generally finds that negative performance predicts forced turnover, which is certainly consistent with both of the models described above. On the other hand, the evidence on the performance effects of forced CEO departure, based primarily on event studies, is more mixed (see Huson et al., 2001), but tends to lean in favor of a positive announcement effect. Similarly, there is a vast and growing literature on the performance effects of managerial entrenchment (see, for example, Gompers et al., 2003; Cremers and Nair, 2004; Bebchuk and Cohen, 2004). While the context of CEO turnover seems a natural place to look at the performance effects of entrenchment, we are, to our knowledge, the first to systematically examine how the causes and effects of CEO firing are affected by entrenchment status.

The rest of this paper is structured as follows: In Section I, we compare the notions of board and CEO entrenchment, and the implications for corporate governance. Section II provides a traditional ‘costly firing’ model of entrenchment; Section III describes the data. Our results are presented in Section IV, and in Section V we revisit the model of entrenchment to describe a model that is more consistent with the data. Section VI concludes.

I Governance Background

In this section, we motivate the two conceptions of entrenchment that are the focus of our analyses: The traditional ‘costly firing’ view of entrenchment, and an alternative ‘decision-making’ perspective built on recent criticisms of shareholder behavior.

Costly-Firing view

The traditional entrenchment perspective emerged from Berle and Means’ (1932) observation about the separation of ownership and control that characterized large American business, where entrenchment primarily takes the form of capturing the board. Hypotheses deduced from this perspective have focused on the role of the board of directors in monitoring and disciplining management based on their intermediary role between owners and management. Within this perspective, entrenchment takes the form of emergent and relatively institutionalized set of structures and policies that insulate the CEO from shareholder pressures. Entrenchment is thus

an obstacle to shareholders' ability to exert their preferences and judgments about a CEO's performance.

Decision-making view

It certainly may be the case that boards may sometimes insulate poorly performing CEOs for too long, and when they do react, they send off the fired CEO with a hefty severance package. However, while entrenched boards may be slow in taking action, this buffering may actually be useful in allowing the board to thoughtfully deliberate on the appropriate course of action. In many cases, past poor performance may not be in control of the CEO, but rather the result of firm-specific shocks.

This begs the question of why investors would misdiagnose the problem, and as a result agitate for pulling the trigger quickly on management. Our explanation is built on the well-accepted idea of the Fundamental Attribution Error (Ross, 1977), which refers to the fact that when individuals observe an outcome, they are more likely to attribute it to the person or persons involved (dispositional factors), rather than surrounding circumstances (situational factors). Hence, there is a psychological predisposition to blame the person rather than the underlying circumstances that may actually be the source of the problem, i.e., shoot the messenger. This tendency has only been reinforced by recent trends in corporate America. In the last two decades, corporate CEOs have become increasingly more visible to investors, and since the 1980s, the business press has lionized such outsized personalities as Lee Iacocca, Rupert Murdoch, and John Reed.¹ CEOs such as Steve Jobs, Lou Gerstner, and Michael Eisner have become bigger than their companies in the public's mind. Not only has the CEO become the public face of the company but in some cases he (and it is almost always a "he") is now regarded as its actual embodiment.²

There are thus strong social, cultural, and psychological forces that lead investors to believe in a cause-and-effect relationship between the CEO and corporate performance. Such forces can strongly influence investors when they call for the firing of a CEO to deal with what they believe to be the root cause of poor company performance.

Under this model of investor behavior, board entrenchment may be beneficial to the long-term performance of the company since it allows the board to deliberate on the actual causes of poor firm performance, i.e., whether performance declines are attributable to the CEO or to exogenous factors. Consequently, board entrenchment may allow the board to dismiss the

¹See Khurana (2002) for further details on the increasing prominence of CEOs in U.S. corporations.

²One particularly compelling example of this involves a statement by the chairman of Time Warner Trade Publishing, Larry Kirshbaum, after the company had won the right to publish Jack Welch's memoirs: "We're thrilled to be publishing Mr. Welch, whose book is destined to be a classic about business management. The book will go beyond the boundaries of two covers and reach out and grab the world and shake it up just as Jack Welch took GE and completely reinvented it."

CEO only if it will lead to performance improvements, rather than reacting to the immediate demands of shareholders.

Board versus CEO Entrenchment

That the board is so often instrumental in protecting the CEO makes clear the difficulty in trying to separate board and managerial entrenchment. Indeed, there is evidence that board entrenchment and managerial entrenchment are co-evolving, interdependent processes. This interdependence is implied in much of the corporate governance research. In a survey of the impact of board composition on firm outcomes, Bhagat and Black (1999) conclude that independent directors are more often “lapdogs rather than watchdogs.” For example, the outside and supposedly independent directors appointed by Disney’s Michael Eisner appear to have strengthened his control over the company rather than weakened it. Research examining the factors influencing the structure of boards, e.g., percent outsiders, argues that managers strongly influence the nomination and election process of directors (Lorsch and Maciver, 1989; Khurana, 2002). This observation is important for both the theoretical and empirical results that follow, since it implies that there is no meaningful distinction between board and managerial entrenchment since they are part-and-parcel of the same process. If this were not the case, then an improved model of governance might involve insulating board members, but emphatically not the entrenchment of management.

II A Standard Model of Entrenchment

There are two firms in the model each with its own level of governance. We will refer to the firm with poor governance as having a high level of entrenchment and the other firm as having a low level of entrenchment. Below we will define precisely what we mean by high or low entrenchment. There are also two periods with a decision by the board to retain or fire the CEO at the end of the first period. Both firms are assumed to begin life at the start of period 1 with a CEO in place. The CEO of each firm has unknown quality q drawn from the distribution $F_q(q)$ with mean \bar{q} . If the CEO is retained into the second period the quality of the CEO will persist across both periods. However, as we will explore in a moment, the board has the option to fire the CEO and receive a new draw of CEO quality for the second period. We will consider the possible costs of this decision and the effects of entrenchment in a moment.

The performance of the firm in period 1 is a function of the CEO quality plus other unknown firm characteristics ϕ , drawn from the distribution $F_\phi(\phi)$ with mean $\bar{\phi}$. The firm specific characteristics will persist across both periods and will not change with the transition of the CEO. The performance of the firm also depends on a random shock, η which will be drawn iid each period with mean zero.

A firm's profit depends on the CEO quality, firm characteristics and the random shock, and is represented by $\pi^i(q_j, \phi, \eta_j)$, where the superscript $i \in \{H, L\}$ represent a firm's entrenchment level, high or low. The subscript j denotes first or second period, $j \in \{1, 2\}$; ϕ has no subscript because the firm characteristics are the same in both periods, i.e. only drawn once. The distributions of q , ϕ , and η are not conditional on i or j , and therefore, ex ante, ignoring any decision to fire, the firms are in expectation identical to each other and across time. For simplicity we will assume that the profit function is such that $\pi^i(q_j, \phi, \eta_j) = q_j + \phi + \eta_j$. This assumption is not critical for our results but simplifies exposition and intuition.³ We will also assume that the discount rate, $r = 0$. We will refer to \hat{q}_j , $\hat{\phi}$, and $\hat{\eta}_j$ as the realizations of each variable and sometimes add a superscript for either the high or low entrenchment firm.

All players (and the econometrician) observe $\pi^i(\hat{q}_j, \hat{\phi}, \hat{\eta}_j)$ at the end of each period. The shareholders know more about the firm and observe \hat{q}_j , $\hat{\phi}$ and $\hat{\eta}_j$. Thus, the shareholders can correctly decompose performance into a CEO effect, a firm effect, and a random shock. The board of directors also observes each part of performance separately.⁴

At the end of period 1 the board makes a decision, d_b , whether to retain the current CEO or to attempt to fire her. Let $d_b \in \{0, 1\}$ and take a value of 0 if they decide to retain the CEO and 1 if the board decides to fire the CEO. If the board decides that the CEO should be fired there is a probability α this is successfully accomplished.

The board wants to maximize second period profits. However, if the board tries to fire the CEO they face a cost $C \geq 0$. Therefore, the board makes their decision, $d_b \in \{0, 1\}$, to maximize their utility⁵

$$U_b(d_b) = E[\pi_2 \mid d_b, \hat{q}_1, \hat{\phi}] - C d_b. \quad (1)$$

The board's utility is higher if the firm does better in the second period but if $C > 0$ they still may not wish to fire the CEO.

The board's utility function implies that the board attempts to fire the CEO if the quality of the current CEO, \hat{q}_1 , is less than the expected quality of the future CEO minus the cost of firing.

$$U_b(\text{retain}) = \hat{q}_1 < \bar{q}\alpha + \hat{q}_1(1 - \alpha) - C = U_b(\text{fire}). \quad (2)$$

Thus, if $C > 0$ then the board is less likely to fire a bad CEO than would be dictated by

³If π were concave in q then boards would not fire some CEOs suspected of being below average because the expectation of second period profit with a random CEO, $E[\pi_2(q, \phi, \eta)]$, is strictly less than the expectation of second period profit with an average CEO in place $E[\pi_2(\bar{q}, \phi, \eta)]$. Therefore a CEO with quality slightly less than average quality would also be preferred to a random draw. If π were convex in q then boards would fire even above average CEOs. We abstract from this generalization as it is not central to our point.

⁴The assumption of perfect information is not necessary as all results hold if CEO and firm quality are observed with noise. Similarly, board risk aversion does not affect the results.

⁵This linear specification simplifies the results but is not essential. All that is needed is that the board's utility increase with firm performance, decreases if they attempt to fire the CEO.

firm profit maximization, and will therefore fire less often than requested by the shareholders. Furthermore, it is clear that as the probability of success decreases (α decreases) the board is less likely to attempt to fire the CEO.

In what follows, we will also want to consider the market reaction to the firing of the CEO. To do so we must define the market price before the board's decision is made, p_{Bd} , and the market price after the CEO is successfully fired, p_F , and the market price if the CEO is retained, p_R . Therefore the market reaction to firing is $p_F - p_{Bd}$, and the market reaction to retaining the CEO is $p_R - p_{Bd}$. Thus, we will refer to the market reaction as positive if the stock price rises.

The market value of the firm conditional on the CEO's retention is just

$$p_R = E[\pi_2 \mid \text{retained}, \hat{q}_1, \hat{\phi}] = \hat{q}_1 + \hat{\phi}. \quad (3)$$

All firms are priced rationally conditional on shareholder information. The price after the CEO is fired is

$$p_F = E[\pi_2 \mid \text{fired}, \hat{q}_1, \hat{\phi}] = \bar{q} + \hat{\phi}. \quad (4)$$

The market price before the decision is made is a weighted average of the price conditional on firing and the price conditional on not firing, where the weights are the market's perceived probabilities of firing and not firing. The CEO is fired if $d_b = 1$ and the firing is successful. The CEO is retained if $d_b = 0$ or $d_b = 1$ but the attempted firing fails. Therefore,

$$p_{Bd} = p_R \{1 - \text{Prob}[d_b = 1 \mid \hat{q}_1]\} + [(1 - \alpha)p_R + \alpha p_F] \text{Prob}[d_b = 1 \mid \hat{q}_1], \quad (5)$$

where

$$\text{Prob}[d_b = 1 \mid \hat{q}_1] = \begin{cases} 1 & \text{if } \hat{q}_1 < \bar{q} - \frac{C}{\alpha}, \\ 0 & \text{otherwise.} \end{cases} \quad (6)$$

Thus, the market reaction to a firing is,

$$p_F - p_{Bd} = p_F - (1 - \alpha)p_R - \alpha p_F = (1 - \alpha)(\bar{q} - \hat{q}_1). \quad (7)$$

The market reaction to firing the CEO will therefore be positive. Furthermore, the expected or average market reaction to a firing is

$$E_{q_1}[p_F - p_{Bd} \mid \text{fired}] = (1 - \alpha)(\bar{q} - E[q_1 \mid q_1 < \bar{q} - \frac{C}{\alpha}]). \quad (8)$$

Thus, increasing C increases the market reaction because this decreases the expectation of q_1 conditional on firing. Therefore, when C is larger the market reaction is more positive.

A. The results of the standard model

The standard presumption is that entrenchment is about the cost of firing the CEO, where it is more costly to fire the CEO of an entrenched firm. This may be incorporated into our model by assuming that C^i is larger for the entrenched firm, $C^H > C^L$.⁶

Proposition 1 *If it is more costly for the board to fire a highly entrenched CEO, $C^H > C^L$, then:*

a) *The expected improvement in CEO quality after the CEO is fired is greater if the CEO is highly entrenched,*

$$E[q_2^H - q_1^H \mid \text{fired}] > E[q_2^L - q_1^L \mid \text{fired}]. \quad (9)$$

b) *The probability of firing a CEO is lower if the CEO is highly entrenched,*

$$E[d_b^H] < E[d_b^L]. \quad (10)$$

c) *The expected market reaction to firing the CEO is greater if the CEO is highly entrenched,*

$$E[p_F^H - p_{Bd}^H] > E[p_F^L - p_{Bd}^L]. \quad (11)$$

d) *The expected performance in period 1 conditional on firing the CEO is worse if the CEO is highly entrenched,*

$$E[\pi_1^H \mid \text{fired}] < E[\pi_1^L \mid \text{fired}]. \quad (12)$$

e) *The expected performance in period 2 of those firms where the CEO is retained is worse if the CEO is highly entrenched,*

$$E[\pi_2^H \mid \text{retained}] < E[\pi_2^L \mid \text{retained}]. \quad (13)$$

Proof. See appendix. ■

Each of these results is the intuitive outcome of a costly firing model of entrenchment. Since it is more costly to fire a highly entrenched CEO, such a CEO must be worse in order to get fired. Therefore, the improvement in CEO quality that comes from firing a highly entrenched CEO is greater than the benefit from firing a less entrenched CEO (part a). However, the probability that the CEO is fired is lower (part b). Therefore, it is intuitive that the market reaction to firing will be greater for entrenched CEOs (part c). Furthermore, since it is more costly to fire a highly entrenched CEO, performance must be worse in the first period to induce

⁶Alternatively, we could assume that the probability of successfully firing the CEO was a function of entrenchment, $\alpha^H < \alpha^L$. The effects are identical to the cost model. Including both changes only magnifies the results of the current model.

firing. Therefore, we expect that first period performance conditional on seeing that the CEO is fired will be lower in highly entrenched firms (part d).

It is interesting also to examine those firms that do not fire their CEOs. Since it is costly to fire the CEO, the board does not fire some bad CEOs. Therefore, the pool of firms where the CEO is not fired includes good CEOs and some bad ones. A more entrenched firm will have a higher fraction of bad CEOs in the non-fired pool. Therefore, period two performance of firms where the CEO is NOT fired should be lower for highly entrenched firms.

Examining the firms where the CEO is retained is the only way to be sure that entrenchment is preserving the jobs of bad CEOs that deserve to be fired. If entrenchment protects some CEOs who deserved to be fired then these firms will not do well in the future. If, however, entrenchment protects CEOs who do not deserve to be fired from agitating shareholders then the protected CEOs will do better in the future. We will see that this idea will be important for distinguishing the classic notion of entrenchment from an alternative theory, which we will develop in section V. First, we examine whether the data are consistent with the predictions of the standard costly firing model of entrenchment outlined above.

III Data

The sample of firms consists of publicly traded Fortune 500 companies for 1980 plus the 100 largest commercial banks, 100 largest financial service firms, 100 largest retail firms, and 50 largest transportation firms from that year. Each of these firms is followed until 1996, to match our data on forced dismissals. While the selection of large corporations limits the generalizability of our results, we decided on these firms because they are widely followed in the business media, which in turn offers more complete information on company events than is available for smaller firms.

The key variable for what follows is *Forced*, an indicator variable that denotes a company-year observation where the CEO was fired. We begin by identifying all CEO turnover during 1980-96, based on changes in the name of the firm's listed CEO in annual proxy material and checked against the listed CEO in Fortune magazine's annual listing of the Fortune 500. For our analyses we must distinguish between natural and forced turnover. We take as our basic sample of forced turnover all departures in which a CEO departs prior to the age of 61 and does not leave for an equivalent position at another firm. We chose the age of 61 because many CEO employment contracts are three-year contracts and most CEOs retire upon reaching their 65th birthday.⁷

This preliminary sample of forced departures was then checked against details of each depart-

⁷We also substituted the ages of 62, 60 and 59 and found no significant differences for our results.

ture in the Wall Street Journal and the New York Times, to uncover ‘natural’ CEO departures due to death or illness. These articles were also used to determine the precise date that the departure was announced for our event study. Our turnover data was then separately given to a researcher at an executive search firm who coded the data for forced and natural turnovers based on internal data. Both codings were consistent (with the exception of 1 person who left because of an undisclosed illness).⁸

Further data on CEO and board characteristics were taken from Forbes’ annual *Executive Survey*, Dun and Bradstreet’s *Reference Book of Corporate Management*, Standard and Poor’s *Register of Corporations*, and firm proxy statements (10Q and 10K).

Our measure of extent of entrenchment (Entrenchment) is taken directly from Gompers et al. (2003). This measure is in turn derived from 24 components of entrenchment recorded by the Investor Responsibility Research Center for 1990, 1993, 1995, and 1998. We use the 1990 values for all years 1980-1989; we believe this to be appropriate given that these values are very slow-moving. For the missing years in the 1990s, we take the value from the closest year that the data exist.

Our primary outcome measure of firm performance is operating returns, defined as change in operating profits divided by the sum of current assets and property, plant, and equipment ($\Delta Op_Returns$), taken from COMPUSTAT. In looking at the effect of departure on performance, we consider two-year changes in operating returns following forced departure, denoted by $\Delta_{t+2}Op_Returns$. Lagged operating returns are similarly denoted by $\Delta_{t-i}Op_Returns$, where i is the length of the lag. We also extracted total assets (*Assets*), as a covariate.

Finally, the price data for our event study are effectively derived from CRSP; since we used the EVENTUS program on the CRSP server to run our analyses, these data were never actually extracted.

The data definitions and sources are summarized in Table 1, and summary statistics for our sample of firm-year observations appear in Table 2.

IV Results

A. Baseline results

We begin by reporting a set of baseline results on the causes and effects of firing, without considering the mediating effect of entrenchment. To evaluate the effect of firing on performance,

⁸We have identified two potential sources of ambiguity: First, six observations in our sample, where the CEO left to take public office, were coded as forced; second, executives at JC Penney and IBM traditionally retire at age 60; this affects a further two observations. We repeated our analyses, reclassifying these eight observations as non-forced turnovers, and found our results unchanged (though slightly stronger); we report results based on the original classifications to be consistent with earlier work; see, for example, Warner et al. (1988).

we consider:

$$\Delta_{t+2}Op_Returns_{fy} = \alpha_f + \alpha_y + \beta * Forced_{fy} + \varepsilon_{fy} \quad (14)$$

For firm f in year y ; α_f and α_y are firm and year fixed effects, and ε_{fy} is the error term. We will allow for within-firm autocorrelation, with standard errors clustered at the firm level. These results, reported in column (1) of Table 3, show a positive but insignificant effect of forced turnover on the change in operating returns.

We may also consider a more forward-looking measure of the performance effects of firing by looking at the effect on stock price. In Table 4, we look at the announcement effects of firing. Neither the standard 10 day $(-5, +5)$ window, reported in column (1), nor an extended 20 day $(-10, +10)$ window shows significant abnormal returns around the time of firing.

In looking at the causes of forced turnover, we replicate earlier work (see Brickley (2003)), by examining the impact of lagged changes in performance on forced turnover, using a random effects conditional logit model:

$$p(Forced_{fy} = 1) = \Lambda(\alpha_y + \beta_1 \Delta_{t-1}Op_Returns_{fy} + \beta_2 \Delta_{t-2}Op_Returns_{fy} + \eta_f + \varepsilon_{fy}) \quad (15)$$

where Λ is the logistic function, and η_f is a firm-specific random effect. The results, reported in column (1) of Table 5, show a significant negative effect of performance on probability of forced turnover. The magnitude of the coefficient, -6 , implies that for a one standard deviation decline in performance, as measured by $\Delta_{t-1}Op_Returns_{fy}$, the probability of firing is increased by about 0.3 percentage points, or about 15 percent of the average of *Forced*. Since the lagged performance variables have long tails, we repeat the regressions, trimming the top and bottom 1 percent of observations. This increases the point estimate on the one-year lagged change, and the two-year lagged change is now significant at the 10 percent level.

Since CEO dismissal is an outcome that we expect only in response to declines in performance, we repeat specification (2), allowing for a slope change at $\Delta_{t-1}Op_Returns_{fy}$ equal to zero. We find that CEO dismissal is indeed only sensitive to negative performance declines, as demonstrated by the results in columns (3) and (4) of Table 5.

B. Entrenchment and the Effects of Firing

We now consider the basic predictions of the standard entrenchment model of Section II. The empirical predictions below are associated with the following similarly ordered predictions:

1. Operating Performance improves more in response to the firing of entrenched CEOs.
2. Entrenchment is negatively correlated with probability of firing.
3. Entrenchment is positively correlated with the market response to announcement of firing.

4. Entrenchment is negatively correlated with performance prior to firing, i.e., the firing of entrenched CEOs is preceded by greater performance declines in more entrenched firms.
5. Following poor performance that ‘could have’ led to firing but did not, further performance declines are more likely among entrenched managers.

Before looking at regression analyses, we look at the basic patterns presented in the data in Figure 1. In this figure, the sample is limited to the firm-year observations where a firing took place, with the sample split at the median value of entrenchment. The picture shows a clear bifurcation of operating performance after a firing takes place, with improvement in the high entrenchment sample and stagnant performance in the low entrenchment sample. It is also interesting to note that a lesser decline seems to precede firings for high entrenchment firms, which runs counter to prediction (4).

The regression equivalent of Figure 1 is presented in Table 3 column (3), where we allow post-firing performance to differ by firms with differing values of entrenchment. The interaction term is significant at the 5 percent level and its magnitude, 0.005, implies that an increase in entrenchment from the 25th to the 75th percentile (6 to 13) results in an improvement in post-firing change in operating performance of 3.5 percentage points. When outliers are removed from the sample, the point estimate is unchanged.

Natural turnover provides an interesting ‘control’ for forced turnover. In this case, seen in Table 3, columns (5) and (6), the point estimates are very close to zero, and non-significant.

In considering the probability of firing (prediction (2)), we consider a modified specification of equation (15) above. Since there is very little within-firm variation in entrenchment, we cannot include firm effects. Instead, we consider the following model:

$$p(\text{Forced}_{fy} = 1) = \Lambda(\alpha_y + \beta * \text{Entrenchment}_{fy} + \eta_{if} + \varepsilon_{fy}) \quad (16)$$

In this case, i indexes industry, and η_{if} is an industry-year effect. In Table 6 columns (1) and (2), we show the correlation between entrenchment and probability of firing. While the point estimate is negative, in neither case is it significant. We note, however, that earlier work discussed in Brickley (2003) survey article emphasizes the importance of tenure in predicting forced turnover. In fact, many of the mechanisms described in Section 2 allow *any* CEO to become entrenched over time, independent of corporate statutes. In Figure 2, we show the frequency distribution of tenure at time of forced dismissal, with the sample split into high and low entrenchment firms. The patterns are broadly consistent with a differential rate of firing in cases of early tenure. In Table 6, column (3), we see the regression equivalent of Figure 2, where the interaction term $\log(\text{tenure}) * \text{entrenchment}$ is added to the model.⁹ The

⁹Virtually identical results are obtained with fixed effects models; they are omitted here in the interests of space.

coefficient on the direct entrenchment term implies a very large effect of entrenchment for new CEOs – for a new CEO at a firm with median characteristics, it implies that moving from the 25th to 75th percentile of entrenchment reduces the probability of firing from 4.6 percent to 1.7 percent. Finally, columns (4) and (5) show the results with the sample split by length of tenure – we observe the negative correlation between entrenchment and probability of firing only for relatively short-tenured CEOs, with the coefficient actually switching sign (though not significant) for long-tenured CEOs. Once again, this set of results is consistent with the costly firing model of the preceding section.

As a measure of investor response to firing, we look in Table 4 at the effect of entrenchment on announcement returns. In columns (2) and (4) of Table 4(a), we find that cumulative abnormal returns are greater in entrenched firms for the announcement of firing for both a 10 and 20 day event window. This is significant at the 10 percent level. When the dependent variable is the sign of abnormal returns (Table 4(b)), the significance is at the 1 percent level (similarly, if outlying observations are removed, the coefficient on entrenchment is significant at the 1 percent level in Table 4(a)). The magnitude of the coefficients in Table 4(a) imply that increasing entrenchment from the 25th to 75th percentile increases abnormal returns surrounding the announcement date of firing by about 4 percent. Thus, we also find strong and consistent support for (3).

Our prediction regarding pre-firing performance involves some complications. Prior studies have looked at the differing sensitivity of firing to performance in firms with differing board characteristics. However, as Matsusaka (2001) points out, this is theoretically problematic. This is illustrated in Figure 3, where we provide a stylized relation between probability of firing and entrenchment. For extremely poor performance, essentially all CEOs will be dismissed. Similarly, for extremely strong performance, no CEOs will be dismissed. Hence, the average sensitivity to performance is identical for the two groups, and sorting out precisely where the slope is greater or lesser is a difficult exercise that is highly sensitive to functional form. However, as the picture makes clear, average performance prior to dismissal should be lower for high entrenchment firms, since these CEOs are more difficult to dislodge. This suggests a comparison of levels of pre-dismissal performance, conditional on firing:

$$\Delta_{t-1}Op>Returns_{fy} = \alpha_y + \alpha_i + \beta * Entrenchment_{iy} + \varepsilon_{iy} \quad (17)$$

where the sample is limited to firm-year observations where firing occurred. When the sample is simply split into high and low entrenchment, pre-dismissal change in operating returns are the opposite of those predicted by the model, -0.008 and -0.020 respectively. When we consider the regression equivalent, given by equation (17), the point estimate on Entrenchment is -0.004 , but with a standard error of 0.021 . Hence, we find no evidence that larger declines precede

dismissals of entrenched managers.

Finally, we consider whether entrenched CEOs have lower performance following episodes where, based on observable firm performance, the CEO ‘should have’ been fired. To implement this test, we use an approach similar to that of Danzon et al. (2004), where we use a first stage regression of equation (15) to determine the ‘propensity for firing’ of a CEO based on past poor performance. We then use this predicted firing variable to see whether performance improvements are particularly weak in firms that should have fired entrenched CEOs, but could not. Empirically, we look at:

$$\Delta_{t+2}Op>Returns_{fy} = \alpha_f + \alpha_y + \beta_1 * Forced_Predicted_{fy} + \beta_2 * Entrenchment_{iy} \quad (18) \\ + \beta_3 * Forced_Predicted_{fy} * Entrenchment_{iy} + \varepsilon_{iy}$$

where the sample is limited to firm-year observations where no firing occurred in the year preceding, or two years following year y (this is to prevent the pre- or post-returns from being contaminated by returns surrounding a separate firing), and *Forced_Predicted* is the predicted probability of forced departure generated by equation (15). The standard entrenchment model predicts $\beta_3 < 0$, i.e., performance is lower in firms where an entrenched CEO should have been fired (i.e., high value of predicted forced departure), but was not. The results in Table 7 show the opposite: the coefficient on the interaction term is positive and significant, even more so when outlying observations are removed.

In summary, we find a number of striking patterns in the data relating to performance, forced departure, and entrenchment. Several of these are consistent with a costly firing model of entrenchment, but there are potentially some sharp inconsistencies with this standard model. We therefore proceed in the next section to propose an alternative theory that may better account for the full set of observed results.

V A Model of Shareholder Agitation

In the preceding section, we found a number of results that are consistent with the standard notion of entrenchment. However, several results seem at odds with the traditional model, and may suggest another way of thinking about the role of entrenchment in the decision to fire a CEO. Most intriguingly we found that firms with poor performance that do not fire their CEOs subsequently perform better if they are highly entrenched. This suggests that it is the entrenched firms that are better able to protect a CEO when poor performance is not the CEO’s fault. But what do we mean by protect? And from whom? Based on casual descriptions in the media, and building on foundational work in psychology, we suggest a model in which shareholders

overreact to poor performance by attributing it entirely to the CEO's shortcomings. That is, shareholders suffer from the fundamental attribution error, an idea that is a basic tenet of social psychology. Under this assumption, if the CEO is not entrenched then the board acquiesces to the agitating shareholders and fires the CEO. However, if the CEO is entrenched then the board is able to protect him, if the board chooses to do so. Of course, the board faces a cost of going against the shareholders (e.g., risk of dismissal), and therefore the board is willing to protect the CEO only if the poor performance truly is not his fault.

The basic characteristics and setup of this model are the same as the traditional model above. To this we add shareholders who make an attribution error and we add a cost of going against the wishes of the shareholders. We also reduce the distributions of q , η and ϕ to three equally probable states, good, bad and average. This simplification is not necessary, but drastically eases understanding and improves intuition. Since we only wish to show that it is possible for a model of agitating shareholders to generate the data the necessary conditions are of little interest.¹⁰ We will assume that the variance of the noise is greater than the variance of the CEO's impact; that is, there is more about the firm that the CEO cannot affect than that which he can effect.¹¹

The shareholders, however, attribute the performance effects of both CEO quality as well as noise to the CEO. Thus, the shareholders' attribution error is that they attribute all of $\hat{q}_1 + \hat{\eta}_1$ to the CEO. Let $\hat{q}_s \equiv \hat{q}_1 + \hat{\eta}_1$ represent the average shareholder's beliefs about CEO quality conditional on period one performance. This belief is correct on average since the expectation of $\hat{\eta}_1 = 0$. However, conditional on bad performance this will excessively attribute this performance to the CEO (since conditional on bad performance $E[\hat{\eta}_1] < 0$), and vice versa for good performance. We will assume, however, that the marginal shareholder is a rational arbitrageur. Thus, the attribution error will not affect prices, but only the level of average shareholder agitation.

At the end of period 1 the shareholders decide whether to agitate for the board to fire the CEO. We will call the average shareholder's decision to agitate, d_s , where $d_s = 1$ if the shareholders want the CEO fired and $d_s = 0$ if they want the CEO retained. Shareholders wish to maximize second period profits. However, as noted, shareholders on average make an attribution error. Thus, shareholders want the CEO fired if

$$E[q_2 | \textit{retained}] = \hat{q}_s < \bar{q} = E[q_2 | \textit{fired}]. \quad (19)$$

¹⁰Contact Matt Rhodes-Kropf mr554@columbia.edu if you are interested in the general model.

¹¹We are not suggesting a random person put in charge of a firm could not really screw it up. Rather, within the set of people who *would* get hired, the variance in quality is low relative to the variance of other factors that influence firm performance.

The board of each firm receives the average shareholder recommendation and makes a decision, d_b , whether to retain the current CEO or to attempt to fire her. However, the board now faces two costs. First, as before, if the board tries to fire the CEO they face a cost $C \geq 0$. Second, if the board goes against the shareholders' recommendation they face a cost $S \geq 0$. The board pays this additional cost if they retain a CEO the shareholders are agitating against, or if they attempt to fire a CEO the shareholders like.¹²

Therefore, the board makes their decision, $d_b \in \{0, 1\}$, to maximize:¹³

$$U_b(d_b) = E[\pi_2 \mid d_b, \hat{q}_1, \hat{\phi}] - S|d_b - d_s| - Cd_b. \quad (20)$$

The board's utility is higher if the firm does better in the second period but since $S > 0$ the board does not wish to go against the shareholders' recommendation and since $C > 0$ they do not wish to fire the CEO.

The board's utility function implies that conditional on the shareholder's recommendation, the board attempts to fire the CEO if

$$U_b(\text{retain}) = \hat{q}_1 - Sd_s < \bar{q}\alpha + \hat{q}_1(1 - \alpha) - S(1 - d_s) - C = U_b(\text{fire}). \quad (21)$$

Thus, if $S > 0$ then the board may fire a good CEO if the shareholders wish to fire him. If $C > 0$ then the board is less likely to fire a bad CEO than they should be and will fire less often than requested by the shareholders. Thus, we will see that the cost of going against shareholders has both a positive and negative effect. Shareholder agitation may get a bad but entrenched CEO fired. At the same time shareholder agitation may get a good but unlucky CEO fired.

We also wish to examine market reactions in this alternative theory. The market prices if the CEO is retained, p_R , or fired, p_F , are the same as in the standard model (Equations (3) and (4)) because we have assumed that the marginal shareholder is rational and makes no attribution error. The price before the board's decision, p_{Bd} , is also, as before, a weighted average of the price conditional on firing and the price conditional on not firing, where the weights are the market's perceived probabilities of firing and not firing. However, the probability that the board decides to attempt to fire the CEO is now conditional on both true CEO quality and the

¹²If the board only pays the cost of going against shareholders if the CEO is successfully fired (rather than paid when attempted) the results are not qualitatively changed.

¹³This linear specification simplifies the results but is not essential. All that is needed is that the board's utility increase with firm performance, decreases if they go against the shareholders and decreases if they fire the CEO.

noise the shareholders attribute to the CEO.

$$\text{Prob}[d_b = 1 \mid \hat{q}_1, \hat{\eta}_1] = \begin{cases} 1 & \text{if } \hat{q}_1 < \bar{q} + \frac{S-C}{\alpha} \text{ and } \hat{q}_1 + \hat{\eta}_1 < \bar{q}, \\ 1 & \text{if } \hat{q}_1 < \bar{q} - \frac{S+C}{\alpha} \text{ and } \hat{q}_1 + \hat{\eta}_1 \geq \bar{q}, \\ 0 & \text{if } \hat{q}_1 \geq \bar{q} + \frac{S-C}{\alpha} \text{ and } \hat{q}_1 + \hat{\eta}_1 < \bar{q}, \\ 0 & \text{if } \hat{q}_1 \geq \bar{q} - \frac{S+C}{\alpha} \text{ and } \hat{q}_1 + \hat{\eta}_1 \geq \bar{q}. \end{cases} \quad (22)$$

The dual inequalities correspond to the decisions of both the board and the shareholders. If the shareholders agitate against the CEO, $\hat{q}_1 + \hat{\eta}_1 < \bar{q}$, then it becomes harder for the board to retain the CEO.

The market reaction to firing the CEO is still $(1 - \alpha)(\bar{q} - \hat{q}_1)$, and the expected or average market reaction to a firing is

$$E_{q_1}[p_F - p_{Bd} \mid \text{fired}] = (1 - \alpha)(\bar{q} - E[q_1 \mid \text{fired}]), \quad (23)$$

The expected quality of a fired CEO is affected by the noise because it changes the costs of firing a CEO. If the noise is negative it reduces the cost of firing the CEO and if the noise is positive it raises the cost of firing.

A. The results of the shareholder agitation model.

The standard presumption is that entrenchment is about the cost of firing the CEO. We modeled this above by assuming that $C^H > C^L$. Now we instead assume that $C^H = C^L = 0$ and that entrenchment is about the costs of defying shareholders. In a highly entrenched firm it is less costly for the board to ignore shareholder wishes. Therefore, we assume that $S^H < S^L$. Thus, we suggest C represents how protected the CEO is from the actions of the board, and S represents how protected the board is from the actions of the shareholders. An entrenched board faces a low cost of ignoring shareholders, while an entrenched CEO makes the board pay a high cost to fire him.

For simplicity we will assume that $q \in \{-q', 0, q'\}$ and $\eta \in \{-\eta', 0, \eta'\}$. Furthermore we assume that $S^L > \eta' > q' > S^H \geq 0$. This will maximize the impact of the shareholder agitation and emphasize the intuitions derived from the model.

We will see that this model produces many of the same predictions as the standard model. However, there will be a few key different predictions, and the intuition is entirely distinct, since it will now derive from the board's ability to resist the shareholder demands.

Proposition 2 *If it is less costly for the highly entrenched board to defy shareholders and $S^L > \eta' > q' > S^H \geq 0$, then:*

a) *The expected improvement in CEO quality after the CEO is fired is greater if the board is highly entrenched,*

$$E[q_2^H - q_1^H \mid \text{fired}] > E[q_2^L - q_1^L \mid \text{fired}]. \quad (24)$$

b) *The probability of firing a CEO is lower if the board is highly entrenched,*

$$E[d_b^H] < E[d_b^L]. \quad (25)$$

c) *The expected market reaction to firing the CEO is greater if the board is highly entrenched,*

$$E[p_F^H - p_{Bd}^H] > E[p_F^L - p_{Bd}^L]. \quad (26)$$

d) *The expected performance in period 1 conditional on firing the CEO is higher if the board is highly entrenched,*

$$E[\pi_1^H \mid \text{fired}] > E[\pi_1^L \mid \text{fired}]. \quad (27)$$

e) *The expected performance in period 2 of those firms where the CEO is retained is higher if the board is highly entrenched,*

$$E[\pi_2^H \mid \text{retained}] > E[\pi_2^L \mid \text{retained}]. \quad (28)$$

Proof. See appendix. ■

The first three predictions of the board entrenchment model are the same as the classic notion of CEO entrenchment. However, the intuition behind the results is quite different. CEO quality improves more after an entrenched board fires the CEO because the entrenched board finds it easier to protect the CEO, but is more likely to do so if the CEO's quality is higher. If the board is not entrenched they fire any CEO that has bad performance regardless of whether it is his fault. Therefore, the board that is not entrenched will often see little performance improvement after firing. However, the entrenched board will not protect a bad CEO, so that when an entrenched board does fire the CEO we should expect a large quality improvement (part a). Thus, the highly entrenched boards are less likely to fire because they protect more CEOs than the less entrenched boards (part b). We emphasize here that this result stems directly from the fact that firm performance is determined more by circumstances beyond the control of the CEO (i.e., high variance of noise relative to CEO quality). We will turn in a moment to the fundamental question of how we can empirically distinguish whether entrenched boards are protecting bad CEOs who should go or good CEOs who should not.

The market reactions in the board entrenchment model are also the same as the standard CEO entrenchment model. Since entrenched boards protect the better CEOs the improvement

from firing the CEO is greater than a less entrenched board that fires any CEO regardless of fault. Since the less entrenched board fires anyone the market reaction is lower (part c).

Predictions d and e will help us to distinguish the relative importance of the two ideas of entrenchment. In a standard CEO entrenchment model the performance in the first period is lower if the CEO is entrenched but fired because the CEO must be worse to get fired. However, in a model where the board is entrenched against agitating shareholders, performance in period 1 conditional on firing the CEO is in expectation higher for the highly entrenched firms. This is because firing depends on both the CEO quality and the noise. A large cost of defying shareholders, S , makes the firing decision more dependent on the noise. Therefore, a large S decreases the expectation of the noise (i.e., the noise is more negative conditional on firing). However, a large S also causes the board to fire better CEO's. Thus, the skill of the CEO conditional on firing is larger if S is larger. Since the noise has more impact on performance, the expectation of profits in the first period conditional on firing are higher if the board is highly entrenched (part d).

The prediction of performance in the second period conditional on retaining the CEO (part e) is in opposition to the standard model. In the standard CEO entrenchment model, highly entrenched but bad CEOs are not fired and thus future performance lags. In the shareholder agitation model highly entrenched boards are better able to protect good CEOs. Thus, those CEOs that are retained are not the duds, but rather the CEOs that had bad luck in the first period. Meanwhile, the boards that are not entrenched fire any CEO with bad performance and thus get an average CEO next period. Therefore, the entrenched boards that do not allow the good CEOs to be fired by agitating shareholders get better future performance (part e).

The central idea of this paper is most easily seen by looking at Figure 4, which shows a three by three matrix of possible realizations of q and η and each type of firm's firing decision. ϕ is ignored since it does not affect the firing decision and is therefore equal to $\bar{\phi}$ in expectation for all realization of q and η . Inside each square of the matrix is the decision by each type of firm to fire or retain the CEO. The dashed oval surrounds the states where the highly entrenched firm fires $H = \text{fire}$. In the other states $H = \text{retain}$. The shaded regions are states where the less entrenched firm fires, $L = \text{fire}$. In the other states $L = \text{retain}$. We can see easily from this matrix the impact of shareholder agitation. In the upper right corner we see that because things overall are going well ($\hat{q}_1 + \hat{\eta}_1 > 0$) the shareholders do not want the CEO fired even though he should be. Thus, the less entrenched board bows to shareholders demands and retains a bad CEO. In the left middle and lower left box overall performance is poor ($\hat{q}_1 + \hat{\eta}_1 < 0$) so the shareholders agitate. The less entrenched board again caves in to the shareholders and fires the CEO even though the poor performance is not his fault. Thus, the improvement in CEO quality that comes from firing the CEO is lower for the less entrenched firm because the board

sometimes fires good CEOs (part a). This is the same qualitative prediction as the standard model but for very different reasons. It is more interesting to look at the group of CEOs who are retained, where the models make different predictions. The less entrenched firm retains some bad CEOs who got lucky. Thus, the future performance of this group is reduced by these bad performers. However, the entrenched boards ignore the shareholders and fire only bad CEOs. Thus, the future performance of the firms where the CEO is retained is better for the entrenched firms! This is the opposite prediction of a standard model of entrenchment.

As we already saw in Table 7, this is more consistent with the patterns we observe in the data: when an entrenched firm does not fire a CEO who had bad performance they are protecting a good CEO because future performance is relatively good. By contrast, since low entrenchment firms protect random CEOs (possibly liked by shareholders), future performance may or may not be good. Our fundamental point is that if the board protects some CEOs who deserved to be fired but had some good luck then these firms will not improve. If the board protects good CEOs who had bad luck then these firms will improve. The data seem more consistent with the idea that the entrenched boards are protecting good CEOs where the firm underperformed for reasons beyond his control. We suggest this as a plausible explanation that is consistent with the observed patterns in the data; while there may be other explanations, we primarily wish to emphasize that this finding is difficult to square this finding with a standard model.

We want to emphasize the this does not mean that entrenchment is necessarily good for the firm overall. For example, more entrenched boards and CEOs may obtain more perks, and higher compensation. We are focused here on the role of entrenchment on the firing process, and argue that when it comes to this decision, entrenched boards may perform better.

Finally, it is informative to briefly consider the model with $C > q'$ and compare it to the results above with $C = 0 < q'$. When there is a cost to firing that is relatively large then shareholder agitation is unambiguously good for the shareholders: In this case the entrenched board finds it too costly to fire even the worst CEOs. However, the less entrenched board gets a boost from the shareholders when performance is bad. Therefore, the less entrenched board still fires the lowest quality CEOs. This is presumably the idea that shareholders have in mind when they agitate rather than let the board make its own decision. However, it looks from the data like the cost of firing the CEO is not that large relative to the cost of going against shareholders, so that on average shareholder agitation gets good CEOs fired and protects bad CEOs.

VI Conclusion

In this paper, we analyzed the role of entrenchment on performance surrounding CEO dismissal. Overall, we find that the traditional ‘costly firing’ model of CEO entrenchment is not entirely

consistent with the patterns that we observe in the data. An alternative model, built on the idea that shareholders may incorrectly attribute poor performance to the CEO (rather than exogenous factors, such as the firm's overall circumstances) may be more consistent with the data. In this model, the focus is on the entrenchment of the board, rather than the CEO. We argue that a board that is buffered from shareholder agitation can act based on the true underlying causes of firm underperformance, and will only dismiss the CEO when circumstance truly warrants it.

We emphasize that this does not imply that entrenchment overall is necessarily a good thing. Rather, in the case of CEO dismissals, it may be beneficial. This is consistent with a wide variety of evidence, some systematic and some anecdotal, that shareholders may focus excessively on short-term profitability and thus negatively impact long-term performance (for example, Shiller, 2000). In other words, if investors have imperfect information about a company's quality of managers, they may rely on short-term earnings or stock movements as the best available signal of the firm's future prospects. In low-entrenchment boards, directors may also overemphasize short-term actions, either to please short-term shareholders or simply to give the impression that they are concerned with the firm's poor performance. Moreover, the historical buffering of corporate boards from direct shareholder pressure may reflect in part this concern with directors focused on short-term actions. This suggests a broader set of issues surrounding the choice of entrenchment statutes – these statutes are a choice, at least to some degree. While these statutes may be slow to change, at the time of founding a forward-looking investor may wish to put in place governance mechanisms that will serve the firm well, given the circumstances it is likely to face. That is, we may begin to consider the endogeneity of governance. This is a very broad agenda that we intend to pursue in further research.

References

- Bebchuk, Lucian, and Alma Cohen. "The Costs of Entrenched Boards." *Harvard Olin Discussion Paper No. 478* (2004).
- Berle, Alfred, and Gardiner C. Means. *The Modern Corporation and Private Property*. Macmillan (1932).
- Bhagat, Sanjai, and Bernard S. Black. "The Uncertain Relationship Between Board Composition and Firm Performance." *Business Lawyer* 54 (1999), pp. 921–963.
- Brickley, James A. "Empirical Research on CEO Turnover and Firm-Performance: A Discussion." *Journal of Accounting and Economics* 36 (2003), pp. 227–233.
- Cremers, Martijn, and Vinay Nair. "Governance Mechanisms and Equity Prices." *Journal of Finance* forthcoming (2004).
- Danzon, Patricia, Andrew Epstein, and Sean Nicholson. "Mergers and Acquisitions in the Pharmaceutical and Biotech Industries." *NBER working paper 10536* (2004).
- Gompers, Paul A., Andrew Metrick, and Joy L. Ishii. "Corporate Governance and Equity Prices." *Quarterly Journal of Economics* 118 (2003), pp. 107–55.
- Huson, Mark R., Robert Parrino, and Laura T. Starks. "Internal Monitoring Mechanisms and CEO Turnover: A Long-Term Perspective." *Journal of Finance* 56 (2001), pp. 2265–97.
- Khurana, Rakesh. *Searching for a Corporate Savior: The Irrational Quest for Charismatic CEOs*. Princeton University Press (2002).
- Lorsch, Jay W., and Elizabeth Maciver. *Pawns or Potentates: The Reality of America's Corporate Boards*. Harvard Business School Press (1989).
- Matsusaka, John. "Problems with a Methodology Used to Test the Responsiveness of Policy to Public Opinion in Initiative States." *Journal of Politics* 63 (2001), pp. 1250–56.
- Ross, Lee. *The intuitive psychologist and his shortcomings*, volume 10 of *Advances in experimental social psychology*. New York: Academic (1977).
- Shiller, Robert. *Irrational Exuberance*. Princeton University Press (2000).
- Warner, Jerold B., Ron Watts, and Karen Wruck. "Stock Prices, Event Prediction and Event Studies: An Examination of Top Management Changes." *Journal of Financial Economics* 20 (1988), pp. 461–492.

Appendix

Proof of Proposition 1:

a) To prove that $E[q_2^H - q_1^H \mid \text{fired}] > E[q_2^L - q_1^L \mid \text{fired}]$ note that

$$E[q_2 - q_1 \mid \text{fired}] = \bar{q} - E[q_1 \mid \text{fired}] = \bar{q} - E[q_1 \mid q_1 < \bar{q} - \frac{C}{\alpha}]. \quad (\text{A1})$$

Since

$$E[q_1 \mid q_1 < \bar{q} - \frac{C^H}{\alpha}] < E[q_1 \mid q_1 < \bar{q} - \frac{C^L}{\alpha}] \forall C^H > C^L, \quad (\text{A2})$$

the expected improvement in CEO quality is greater after firing an entrenched CEO.

b) To show $E[d_b^H] < E[d_b^L]$ note that $E[d_b] = \text{Prob}[d_b = 1] = \text{Prob}[q_1 < \bar{q} - \frac{C}{\alpha}] = F_q(\bar{q} - \frac{C}{\alpha})$.

Since

$$F_q(\bar{q} - \frac{C^H}{\alpha}) < F_q(\bar{q} - \frac{C^L}{\alpha}) \forall C^H > C^L, \quad (\text{A3})$$

the probability a CEO is fired is greater if the CEO is less entrenched.

c) The expected or average market reaction to firing the CEO is

$$E[p_F - p_{Bd}] = (1 - \alpha)(\bar{q} - E[q_1 \mid q_1 < \bar{q} - \frac{C}{\alpha}]). \quad (\text{A4})$$

Since

$$E[q_1 \mid q_1 < \bar{q} - \frac{C^H}{\alpha}] < E[q_1 \mid q_1 < \bar{q} - \frac{C^L}{\alpha}] \forall C^H > C^L, \quad (\text{A5})$$

the market reaction is greater for more entrenched firms.

d) This is a direct consequence of equation (A5).

e) To show $E[\pi_2^H \mid \text{retained}] < E[\pi_2^L \mid \text{retained}]$ note that $E[\pi_2 \mid \text{retained}] =$

$$E[q_1 \mid q_1 \geq \bar{q} - \frac{C}{\alpha}] \frac{(1 - F_q(\bar{q} - \frac{C}{\alpha}))}{1 - \alpha F_q(\bar{q} - \frac{C}{\alpha})} + E[q_1 \mid q_1 < \bar{q} - \frac{C}{\alpha}] \frac{(1 - \alpha) F_q(\bar{q} - \frac{C}{\alpha})}{1 - \alpha F_q(\bar{q} - \frac{C}{\alpha})}. \quad (\text{A6})$$

This can be written as $E[\pi_2 \mid \text{retained}] =$

$$\frac{E[q_1]}{1 - \alpha F_q(\bar{q} - \frac{C}{\alpha})} - E[q_1 \mid q_1 < \bar{q} - \frac{C}{\alpha}] \frac{\alpha F_q(\bar{q} - \frac{C}{\alpha})}{1 - \alpha F_q(\bar{q} - \frac{C}{\alpha})}. \quad (\text{A7})$$

We know

$$E[q_1 \mid q_1 < \bar{q} - \frac{C^H}{\alpha}] < E[q_1 \mid q_1 < \bar{q} - \frac{C^L}{\alpha}] \forall C^H > C^L, \quad (\text{A8})$$

and

$$F_q(\bar{q} - \frac{C^H}{\alpha}) < F_q(\bar{q} - \frac{C^L}{\alpha}) \forall C^H > C^L. \quad (\text{A9})$$

QED.

Proof of Proposition 2:

a) To prove that $E[q_2^H - q_1^H \mid fired] > E[q_2^L - q_1^L \mid fired]$ note that

$$E[q_2 - q_1 \mid fired] = \bar{q} - E[q_1 \mid fired]. \quad (A10)$$

Therefore, we need to show that $E[q_1^H \mid fired] < E[q_1^L \mid fired]$.

The CEO is fired if 1) $\hat{q}_1 < \bar{q} + \frac{S}{\alpha}$ and $\hat{q}_1 + \hat{\eta}_1 < \bar{q}$ or if 2) $\hat{q}_1 < \bar{q} - \frac{S}{\alpha}$ and $\hat{q}_1 + \hat{\eta}_1 \geq \bar{q}$, and the firing is successful (prob α). Conditional on a fired CEO, we know that either 1 or 2 is true, and they are mutually exclusive. If $S = 0$ (the highly entrenched firm) the firing condition reduce to $\hat{q}_1 < \bar{q}$. Therefore, the board attempts to fire the CEO 1/3 of the time and $E[q_1^H \mid fired] = -q'$. If $S > \eta'$ (less entrenched firm) then the firing conditions reduce to $\hat{q}_1 + \hat{\eta}_1 < \bar{q}$. Therefore, the board attempts to fire the CEO if $\hat{\eta}_1 = -\eta'$ or if $\hat{\eta}_1 = 0$ and $\hat{q}_1 = -q'$, which occurs 4/9 of the time. The expectation of CEO quality conditional of firing is

$$E[q_1^L \mid fired] = \frac{-q' - q' + 0 + q}{4} = -\frac{q'}{4}. \quad (A11)$$

Therefore, $E[q_1^H \mid fired] = -q' < -\frac{q'}{4} = E[q_1^L \mid fired]$.

b) To show $E[d_b^H] < E[d_b^L]$ note that $E[d_b] = P(fire) = P[d_b = 1] = P[\hat{q}_1 < \bar{q} + \frac{S}{\alpha} \text{ and } \hat{q}_1 + \hat{\eta}_1 < \bar{q}]$ or $P[\hat{q}_1 < \bar{q} - \frac{S}{\alpha} \text{ and } \hat{q}_1 + \hat{\eta}_1 \geq \bar{q}]$. This probability was shown in part a to be 4/9 for the less entrenched firms and 1/3 for the highly entrenched firms. Since $4/9 > 1/3$ the less entrenched firms fire more frequently.

c) The expected or average market reaction to firing the CEO is

$$E[p_F - p_{Bd}] = (1 - \alpha)(\bar{q} - E[q_1 \mid fired]). \quad (A12)$$

Since the proof of part a showed that $E[q_1^H \mid fired] < E[q_1^L \mid fired]$ a firm with a larger S (less entrenched board) has a lower market reaction. Q.E.D.

d) Note that

$$E[\pi_1 \mid fired] = E[q_1 \mid fired] + E[\eta_1 \mid fired] + E[\phi \mid fired]. \quad (A13)$$

Part A showed that $E[q_1^H \mid fired] = -q' < -\frac{q'}{4} = E[q_1^L \mid fired]$. We also know that

$$E[\phi \mid fired] = \bar{\phi}, \quad (A14)$$

because the firm fixed component does not affect the firing decision. So, $\frac{\partial}{\partial S} E[\phi \mid fired] = 0$.

Finally, we know the CEO is fired if 1) $\hat{q}_1 < \bar{q} + \frac{S}{\alpha}$ and $\hat{q}_1 + \hat{\eta}_1 < \bar{q}$ or if 2) $\hat{q}_1 < \bar{q} - \frac{S}{\alpha}$ and $\hat{q}_1 + \hat{\eta}_1 \geq \bar{q}$, and the firing is successful (prob α). Conditional on a fired CEO, we know that either 1 or 2 is true, and they are mutually exclusive. If $S = 0$ (the highly entrenched firm) the

firing condition reduces to $\widehat{q}_1 < \bar{q}$. Therefore, $E[\eta_1^H | \text{fired}] = 0$. If $S > \eta'$ (less entrenched firm) then the firing conditions reduce to $\widehat{q}_1 + \widehat{\eta}_1 < \bar{q}$. Therefore, the board attempts to fire the CEO if $\widehat{\eta}_1 = -\eta'$ or if $\widehat{\eta}_1 = 0$ and $\widehat{q}_1 = -q'$. The expectation of noise conditional of firing is

$$E[\eta_1^L | \text{fired}] = \frac{-\eta' - \eta' - \eta' + 0}{4} = -\frac{3\eta'}{4}. \quad (\text{A15})$$

Therefore, $E[\eta_1^H | \text{fired}] = 0 > -3\eta'/4 = E[\eta_1^L | \text{fired}]$. However,

$$E[q_1^H | \text{fired}] + E[\eta_1^H | \text{fired}] + \bar{\phi} = -q' + 0 + \bar{\phi} > -\frac{q'}{4} - \frac{3\eta'}{4} + \bar{\phi} = E[q_1^L | \text{fired}] + E[\eta_1^L | \text{fired}] + \bar{\phi}. \quad (\text{A16})$$

We can see this is true because it reduces to

$$-\frac{3q'}{4} > -\frac{3\eta'}{4}, \quad (\text{A17})$$

or just $q' < \eta'$ which is true by assumption.

e) To show $E[\pi_2^H | \text{retained}] > E[\pi_2^L | \text{retained}]$ note that

$$E[\pi_2 | \text{retained}] = E[q_1 | \text{retained}] + E[\eta_2 | \text{retained}] + E[\phi | \text{retained}]. \quad (\text{A18})$$

The expectation of the noise and firm affect are $E[\eta_2 | \text{retained}] = 0$ and $E[\phi | \text{retained}] = \bar{\phi}$. The CEO is retained if 1) $\widehat{q}_1 \geq \bar{q} + \frac{S}{\alpha}$ and $\widehat{q}_1 + \widehat{\eta}_1 < \bar{q}$ or if 2) $\widehat{q}_1 \geq \bar{q} - \frac{S}{\alpha}$ and $\widehat{q}_1 + \widehat{\eta}_1 \geq \bar{q}$. Remember that $q_1 = q_2$ if the CEO is retained. We know that either 1 or 2 is true, and they are mutually exclusive. If $S = 0$ (the highly entrenched firm) the retain conditions reduce to $\widehat{q}_1 \geq \bar{q}$, which occurs 2/3 of the time. Therefore,

$$E[q_1^H | d_b = 0] = \frac{q' + q' + q' + 0 + 0 + 0}{6} = \frac{q'}{2}. \quad (\text{A19})$$

If $S > \eta'$ (less entrenched firm) then the retain conditions reduce to $\widehat{q}_1 + \widehat{\eta}_1 \geq \bar{q}$. Therefore, the board retains the CEO if $\widehat{\eta}_1 = \eta'$ or if $\widehat{\eta}_1 = 0$ and $\widehat{q}_1 = 0$ or $\widehat{q}_1 = q'$. Thus,

$$E[q_1^L | d_b = 0] = \frac{-q' + 0 + q' + 0 + q'}{5} = \frac{q'}{5}. \quad (\text{A20})$$

Since there is some probability that a CEO is retained even though the board tried to fire him, the expected quality of a retained CEO is

$$E[q_1 | \text{retained}] = \frac{E[q_1 | d_B = 0]P[d_B = 0] + E[q_1 | d_B = 1]P[d_B = 1](1 - \alpha)}{P[d_B = 0] + P[d_B = 1](1 - \alpha)}. \quad (\text{A21})$$

Bayes rule allows this to be rewritten

$$E[q_1 \mid \textit{retained}] = \frac{E[q_2] - \alpha E[q_1 \mid d_B = 1]P[d_B = 1]}{1 - \alpha P[d_B = 1]}. \quad (\text{A22})$$

Therefore,

$$E[q_1^H \mid \textit{retained}] = \frac{\alpha q' \frac{1}{3}}{1 - \alpha \frac{1}{3}}. \quad (\text{A23})$$

$$E[q_1^L \mid \textit{retained}] = \frac{\alpha q' \frac{1}{9}}{1 - \alpha \frac{4}{9}}. \quad (\text{A24})$$

Thus,

$$\frac{\alpha q' \frac{1}{3}}{1 - \alpha \frac{1}{3}} > \frac{\alpha q' \frac{1}{9}}{1 - \alpha \frac{4}{9}} \quad (\text{A25})$$

since $\alpha < 1$. therefore, $E[\pi_2^H \mid \textit{retained}] > E[\pi_2^L \mid \textit{retained}]$.

Figure 1

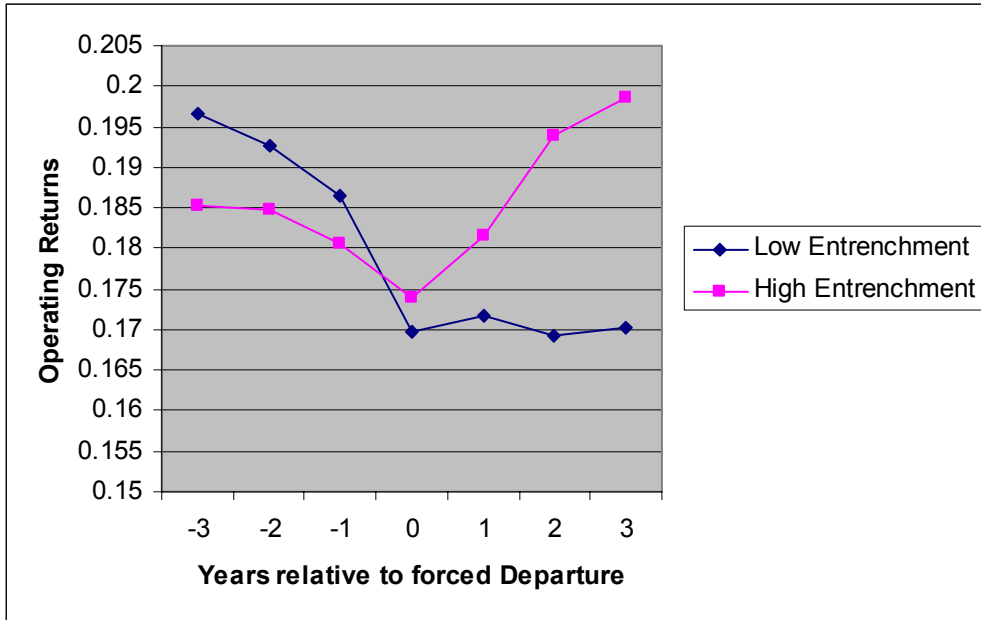


Figure 2

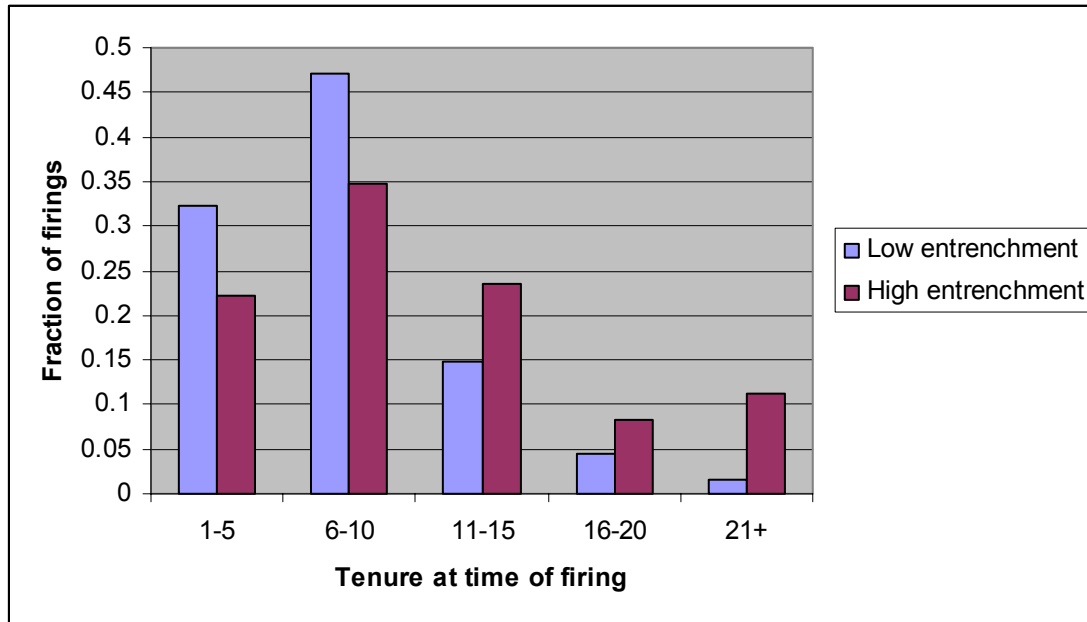


Figure 3

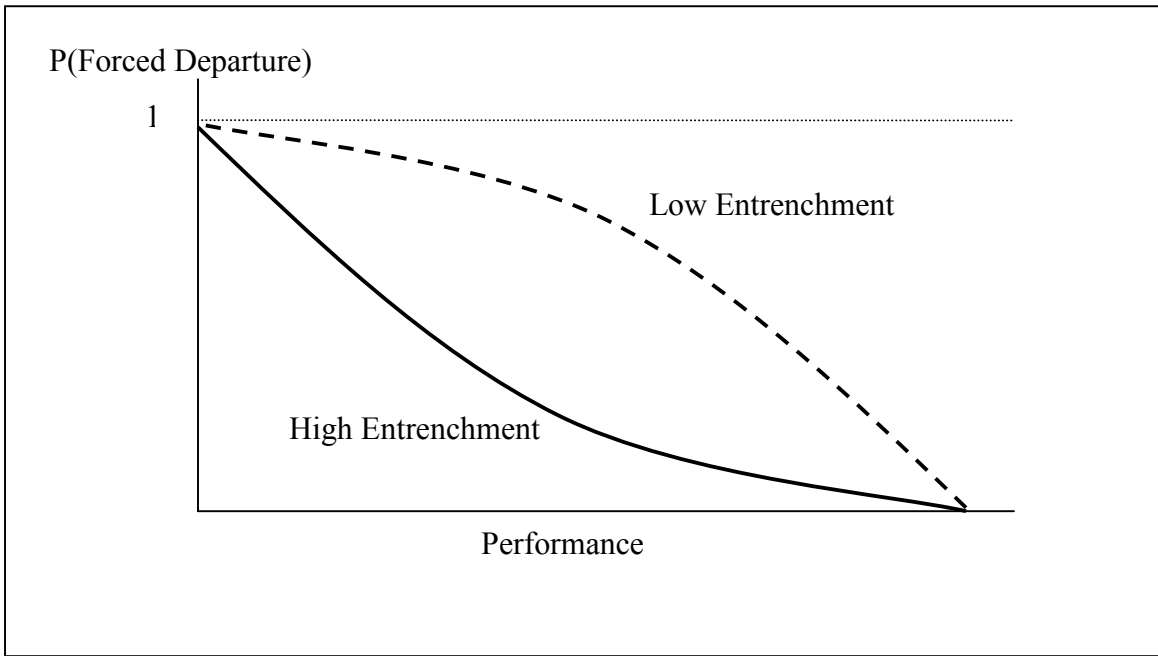


Figure 4

		Noise η		
		-2	0	2
CEO quality q	-1	L = fire H = fire	L = fire H = fire	L = retain H = fire
	0	L = fire H = retain	L = retain H = retain	L = retain H = retain
	1	L = fire H = retain	L = retain H = retain	L = retain H = retain

This matrix represents the possible state space for q and η . The shaded regions are the states where the less entrenched firms fire the CEO. The dashed oval surrounds the states where the entrenched firms fire the CEO.

Table I. List of variable abbreviations, definitions and sources.

Abbreviation	Description
Entrenchment	Count of the number of 24 anti-shareholder provisions in the firm. From Gompers et al (2003)
Forced	Dummy Variable indicating whether the CEO was forced out in a given year. See text for sources.
Non-forced	Dummy Variable indicating whether the CEO left in a given year, but was not forced out. See text for sources.
Assets	Total firm assets. From COMPUSTAT
Tenure	Years that CEO has held this position. See text for sources.
Δ Op_returns	Change in operating returns, where operating returns are defined as operating profits divided by the sum of current assets and property, plant and equipment. From COMPUSTAT.

Table 2 - Summary Statistics

	Full Sample			Entrenchment<10			Entrenchment≥10		
	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs
Entrenchment	9.67	2.81	6143						
Forced	0.02	0.15	6143	0.02	0.15	2865	0.02	0.15	3278
Non-forced	0.06	0.24	6143	0.06	0.23	2865	0.06	0.24	3278
Assets	4669.28	8957.28	6143	5424.60	11517.86	2865	4009.14	5788.09	3278
Tenure	9.65	8.73	6143	10.58	9.58	2865	8.84	7.83	3278
Δ Op_returns	0.00	0.06	6143	0.00	0.08	2865	0.00	0.04	3278

Forced=1 Subsample

	Full Sample			Entrenchment<10			Entrenchment≥10		
	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs
Entrenchment	9.56	2.74	140						
Year	1989.32	4.68	140	1989.57	4.53	68	1989.08	4.83	72
Assets	5203.63	9600.47	140	5461.18	12369.44	68	4960.40	5994.72	72
Tenure	7.46	5.87	140	6.00	4.73	68	8.83	6.52	72
Δ Op_returns	0.01	0.06	140	0.00	0.07	68	0.01	0.06	72

Notes: See Table 1 for variable definitions

Table 3 - Effect of Turnover on Operating Performance

Dependent Variable: Cumulative 2 yr performance, forward lag								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Forced	0.007 (0.010)	0.003 (0.007)	-0.041* (0.025)	-0.040** (0.018)				
Nonforced					0.001 (0.003)	0.003 (0.003)	0.005 (0.011)	0.008 (0.010)
Entrenchment			0.006 (0.006)	0.002 (0.002)			0.006 (0.006)	0.002 (0.002)
Forced* Entrenchment			0.005** (0.002)	0.005*** (0.002)				
Nonforced* Entrenchment							-0.000 (0.001)	-0.001 (0.001)
Outliers Removed?	No	Yes	No	Yes	No	Yes	No	Yes
Observations	6143	6019	6143	6019	6143	6019	6143	6019
R-squared	0.11	0.13	0.12	0.13	0.11	0.13	0.12	0.13

All models include firm and year dummies. Standard errors appear in parentheses, allowing for firm-level clustering. Significance levels ***, ** and * correspond to 1%, 5% and 10% respectively. See text or Table 1 for variable definitions.

Table 4 - Announcement Effects of Forced Turnovers

(A) Dependent Variable: Cumulative Abnormal Returns

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Entrenchment		0.576*		0.657*		0.288		0.288
		(0.342)		(0.392)		(0.335)		(0.269)
Constant	0.926	-4.512	-0.128	-6.337	-1.171	-3.893	-1.571*	-4.299
	(1.035)	(3.687)	(1.268)	(4.106)	(0.977)	(3.643)	(0.828)	(2.849)
Window	[-5,+5]	[-5,+5]	[-10,+10]	[-10,+10]	[-30,-10]	[-30,-10]	[+10,+30]	[+10,+30]
Observations	180	180	180	180	180	180	179	179
R-squared	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.01

(B) Dependent Variable: Sign of Cumulative Abnormal Returns

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Entrenchment		0.081***		0.075***		0.045*		0.016
		(0.025)		(0.026)		(0.027)		(0.027)
Constant	0.056	-0.706***	0.000	-0.712***	-0.133*	-0.560**	-0.017	-0.172
	(0.077)	(0.255)	(0.080)	(0.258)	(0.079)	(0.256)	(0.076)	(0.263)
Window	[-5,+5]	[-5,+5]	[-10,+10]	[-10,+10]	[-30,-10]	[-30,-10]	[+10,+30]	[+10,+30]
Observations	180	180	180	180	180	180	179	179
R-squared	0.00	0.05	0.00	0.05	0.00	0.02	0.00	0.00

Table 5 - Effect of Lagged Performance on Probability of Forced Turnover

Dependent Variable: Forced				
	(1)	(2)	(3)	(4)
$\Delta Op_perf(t-1)$	-6.395*** (1.605)	-8.207*** (2.202)		
$\Delta Op_perf(t-2)$	-2.469 (1.551)	-4.305* (2.252)		
$\Delta Op_perf(t-1)_neg$			-8.336*** (1.813)	-15.651*** (2.764)
$\Delta Op_perf(t-1)_pos$			0.464 (3.054)	5.429 (3.879)
Outliers Removed	No	Yes	No	Yes
Observations	6143	5920	6143	6019

All models include firm and year dummies. Standard errors appear in parentheses, allowing for firm-level clustering. Significance levels ***, ** and * correspond to 1%, 5% and 10% respectively. See text or Table 1 for variable definitions.

Table 6 - Effect of Entrenchment on Probability of Forced Turnover

Dependent Variable: Forced					
	(1)	(2)	(3)	(4)	(5)
Entrenchment	-0.0263 (0.0320)	-0.0437 (0.0325)	-0.1488** (0.0631)	0.0488 (0.0535)	-0.0796** (0.0396)
log(Tenure)			-0.8051** (0.3154)		
log(Tenure)* Entrenchment			0.0717** (0.0322)		
Industry Year Effects	Yes	Yes	Yes	Yes	Yes
Model	RE	FE	RE	RE	RE
Sample	Full	Full	Full	Tenure \geq 8	Tenure<8
Observations	6095	5583	6095	2843	3252

All models include firm and year dummies. Standard errors appear in parentheses, allowing for firm-level clustering. Significance levels ***, ** and * correspond to 1%, 5% and 10% respectively. See text or Table 1 for variable definitions.

Table 7: Effect of Predicted Turnover on Performance, Sample of Retained CEOs

Dependent Variable: Cumulative 2 yr performance, forward lag

	(1)	(2)
Entrenchment	0.0038 (0.0068)	-0.0001 (0.0017)
Pred_Firing	0.3505 (0.8125)	0.7095** (0.2931)
Entrenchment *Pred_Firing	0.0929** (0.0412)	0.0584*** (0.0220)
Predictive Model	Random Effects	
Outliers Removed	No	Yes
Observations	5532	5434
R-squared	0.14	0.17

All models include firm and year dummies. Standard errors appear in parentheses, allowing for firm-level clustering. Significance levels ***, ** and * correspond to 1%, 5% and 10% respectively. See text or Table 1 for variable definitions.