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**GOVERNANCE AND CEO
TURNOVER: DO
SOMETHING OR DO THE
RIGHT THING?**

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

Abstract

Shareholder delegation of the power to fire the CEO to the board of directors is central to corporate governance. While the board ideally acts as desired by shareholders, board entrenchment may insulate a poorly performing manager from shareholders agitating for her removal. The conventional ‘costly firing’ model of managerial entrenchment views this protection from shareholders as purely negative. Yet recent anecdotal evidence on managerial turnover suggests an alternative view of entrenchment: If shareholders misattribute poor performance to the CEO rather than to circumstance, then insulating management from the whims of shareholders may lead to better firing decisions. We propose that entrenchment has an inherent trade-off. We present a model that directly incorporates both sides of this trade-off, and generates a set of empirical predictions that we explore using recently collected data on governance statutes and on the dismissals of CEOs of large U.S. corporations. Our results demonstrate that governance is a very important mediating factor in the relationship between performance and firing. Furthermore, we find support for the ‘misguided shareholder’ view of entrenchment. Fundamentally this paper explores whether, in caving in to shareholder demands, boards act in the best interests of shareholders or simply respond to their whims: Do they do just do something, or do they do the right thing?

The removal of poorly performing managers is a crucial mechanism by which owners maximize firm performance. In large, modern, publicly traded corporations, shareholders 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. However, when this ideal is not met shareholders often have little recourse – board members and by extension, the firm’s management, are buffered from the effects of firm performance and insulated from the preferences of distressed shareholders. This ‘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.¹

The complete absence of entrenchment is unambiguously beneficial if it is indeed the case that shareholders always behave optimally in the sense of agitating for CEO dismissal when they believe it is warranted, and letting the board make its decision independently when it is apparent that they are better positioned to make this decision. However, if shareholders make systematic ‘mistakes’ in the decision to agitate for dismissal, entrenchment may have its benefits. In particular, the recent uproar over accountability to shareholders has raised the possibility that shareholders may agitate for CEO dismissal in response to short-run performance changes, even when these changes are beyond the CEO’s control. For example, a recent report on CEO turnover by the consulting firm, Booz, Allen, and Hamilton states that “In the U.S., investors apparently want CEOs to share the pain of poor returns. Although this reaction is not surprising, it is irrational... This conclusion is one of several this year that raise uncomfortable questions about the relationship between boards and management, for it indicates that directors are highly responsive to shareholder pressure about share prices, *even if management is not solely responsible for the performance.*”² This performance misattribution may allow poorly performing CEOs with good luck to retain their positions, while forcing out unlucky high-quality CEOs.

The preceding paragraph suggests a trade-off in the effects of entrenchment on the quality of board decision-making. Very low entrenchment adds noise to the firing decision of the CEO as board members are forced to respond to misguided shareholder agitation, while very high entrenchment removes noise but may eliminate firing altogether. We examine the CEO firing decision with this trade-off in mind.

We present a model that directly incorporates both sides of this trade-off, and generates a set of empirical predictions that we explore using a recently collected data on governance

¹See, for example, Hermalin and Weisbach (1998) for a recent model in this spirit.

²[http : //www.boozallen.de/content/downloads/5h_c eo2004.pdf](http://www.boozallen.de/content/downloads/5h_c eo2004.pdf)

statutes (from Gompers et al., 2003) and data on CEO firings during 1980-96. Interestingly, the two contrasting views on entrenchment generate a number of overlapping predictions, namely: (1) post-firing firm performance improvements are greater for entrenched CEOs (2) entrenched CEOs are fired less frequently (3) market reaction is more positive for the firing of entrenched CEOs. We find strong support in the data for each of these predictions. We also consider two situations where the views make contrasting predictions: (1) the relationship between governance and pre-firing returns of dismissed CEOs, and (2) the subsequent performance of retained CEOs where there had recently been poor corporate performance. The results of these further tests lean in favor of the ‘misguided shareholder’ view.

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. Weisbach (1988) looks at how performance sensitivity of firing differs according to the fraction of outsiders on the board, but does not consider subsequent performance that might be interpreted as the quality of the decision to fire. The evidence on the performance effects of forced CEO departure, based primarily on event studies, is more mixed (see Huson et al., 2001), but leans in favor of a positive announcement effect. Our results will suggest that governance is a very important mediating factor in this relation. 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). We examine one of the central decision of board through which entrenchment affects performance. Our work is also related conceptually to Brandenburger and Polak (1996), who present a theory of managerial decision making in which managers take incorrect actions to maximize the market’s perception of their firm’s value. This is similar in spirit to the decisions made by our board members who face a cost of disagreeing with shareholders.

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. We wish to highlight the ways in which our work differs from the literature cited above. First, we emphasize the trade-off associated with governance choices. While earlier work has considered shareholder goals that deviate from profit maximization, we do not know of other work that formally relates this to the choice of corporate governance. Second, we provide an empirical framework for evaluating the decision-making effect of entrenchment. While some earlier work, most notably Weisbach (1988) does examine how the performance-turnover link is mediated by entrenchment, we are unaware of other work that provides a way of studying the quality of the overall decision

of a board, based on both the decision to fire, as well as subsequent performance post-firing. Finally, we acknowledge that there is a growing literature that studies the relationship between entrenchment and performance, most prominently Gompers et al. (2003). In our paper, we hope to shift the focus of the entrenchment-performance discussion toward the decisions, such as CEO dismissal, that are directly tied to the actions of the board.

The rest of this paper is structured as follows: In Section I, we compare the ideas of board and CEO entrenchment, and the implications for corporate governance. Section II provides our theoretical framework, emphasizing the trade-off inherent in the choice of entrenchment; Section III describes the data. Our results are presented in Section IV, and Section V concludes.

I Governance Background

In this section, we motivate the two conceptions of entrenchment that are the focus of our analysis, and illustrates the basic governance trade-off: The traditional ‘costly firing’ view, and the ‘misguided shareholder’ perspective.

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 an 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 CEOs performance.

Misguided Shareholder View

It certainly may be the case that boards insulate poorly performing CEOs for too long from shareholders who see a clear need for the CEO to go. However, this buffering may also allow the board to thoughtfully deliberate on the appropriate course of action and make better decisions.³ Often past poor performance may not be in control of the CEO, but

³Our misattribution example is one of many models where shareholders agitate for decisions that deviate from long-run profit maximization that have appeared recently in the corporate finance literature. For example, Bolton et al. (2003) suggest that regulation may be needed to protect future shareholders from the present bad choices of the current shareholders. We suggest the firm itself may use entrenchment for this same effect. The assumptions of our model are 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).

rather the result of firm-specific shocks, as suggested by the discussion in the introduction. If shareholders agitate for CEO dismissal as a result of poor firm performance that is outside of her control then entrenchment may allow the board to avert costly mistakes.^{4,5}

Why would investors misdiagnose the problem, and agitate for pulling the trigger on management? Our explanation is built on the well-accepted concept of Fundamental Attribution Error (Ross, 1977), which posits 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 becoming 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.⁶ 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 is now regarded as its actual embodiment.⁷

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 view 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

⁴It is useful to consider what we mean by shareholder agitation. Most obviously, shareholders may dump their stock to put pressure on management to bring about changes. Very often, however, larger shareholders that exercise the most influence may exercise the voice rather than exit option in agitating for change. Some institution shareholders may be precluded from shedding stocks, and any large blockholder may have trouble unloading its holdings without driving the stock price down excessively. Rather than simply selling shares of firms that are not performing up to expectations, institutional investors instead demand greater accountability of the board and, in turn, greater accountability of the CEO. See Light et al. (2000) for a description of Calpers' role in shareholder agitation.

⁵An example from Citibank serves as a useful illustration. In early 1990, Citicorp's board faced increasing calls from stock holders to remove John Reed as the bank's chief executive. Some speculated that former chairman Walter Wriston would be brought back to run the bank. However, Citi's board resisted the pressure. They understood that many of the problems plaguing Citi had very little to do with Reed. Citi's problems were heavily concentrated: domestic real estate, a currency crisis in Brazil, an economic recession in the United States, and highly leveraged transactions. A significant portion of the leveraged deals—16 percent—were in the highly volatile sectors of media and entertainment. Moreover, in its commercial real estate lending business, nearly 43 percent of its loans were now nonperforming. A core part of the resistance against firing Reed came from its board whose time horizon transcended Citibank's troubles. One board member explained that the bank prided itself on building an institution "that would survive in the new world and be pre-eminent over time. It will go up and down and have problems."

⁶See Khurana (2002) for further details on the increasing prominence of CEOs in U.S. corporations.

⁷One particularly compelling example 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."

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 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 argues that managers strongly influence the nomination and election process of directors (Lorsch and Maciver, 1989). 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 Model of Entrenchment

There are two firms in the model each with its own level of governance. We will refer to the more entrenched firm as having a high level of entrenchment and the other firm as having a low level of entrenchment. The precise definition of high versus low entrenchment is given below. 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, 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 shortly.

The performance of the firm in period 1 is a function of 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.

For simplicity we reduce the distributions of q , η and ϕ to discrete distributions with limited states. This simplification is not necessary, but drastically eases understanding and improves intuition.⁸ We assume the CEO can be average or a little above or below average or significantly above or below average, with average q normalized to zero, $q \in \{-q'', -q', \bar{q}, q', q''\}$, where $q'' > q'$. This will show the importance of firms' differential firing ability. We assume there is also random noise, $\eta \in \{-\eta', \eta'\}$ and noise related to the firm but unrelated to the CEO, $\phi \in \{-\phi', \phi'\}$. To ensure the noise has an effect we assume $q'' > \eta' > q'$.

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.⁹ 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 board of directors observes each part of performance separately, and correctly decomposes performance into $\hat{q}_j, \hat{\phi}$ and $\hat{\eta}_j$.¹⁰ Shareholders also attribute performance to a CEO effect, a firm effect, and randomness. In the standard model we assume that the shareholders correctly attribute only \hat{q}_j of the firm's performance to the CEO. However, we also consider the alternative idea that shareholders attribute the performance effects of both CEO quality as well as noise to the CEO. Thus, the shareholders potentially make an attribution error in that they attribute all of $\hat{q}_1 + \hat{\eta}_1$ to the CEO. Let \hat{q}_s represent the average shareholder's beliefs about CEO quality conditional on period one performance. If shareholders make no attribution error $\hat{q}_s = \hat{q}_1$ and if they make an attribution error $\hat{q}_s = \hat{q}_1 + \hat{\eta}_1$. This belief is correct on average since the expectation of $\hat{\eta}_1 = 0$. However, conditional on bad performance this will excessively attribute performance to the CEO (since conditional on bad performance

⁸Contact Matt Rhodes-Kropf mr554@columbia.edu if you are interested in the general model with continuous distributions.

⁹If 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 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.

¹⁰The assumption of perfect information is not necessary as all results hold if CEO and firm quality are observed with noise. Similarly, all results hold if the board is risk averse.

$E[\widehat{\eta}_1] < 0$), and vice versa for good performance.

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 may make an attribution error. Thus, shareholders want the CEO fired if

$$E[q_2 \mid \textit{retained}] = \widehat{q}_s < \bar{q} = E[q_2 \mid \textit{fired}]. \quad (1)$$

At the end of period 1 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. 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 that this is successfully accomplished.

The board wants to maximize second period profits, but is subject to two costs. First, 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 that the shareholders wish to retain.¹¹ Thus, 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.

The board makes their decision, $d_b \in \{0, 1\}$, to maximize:¹²

$$U_b(d_b) = E[\pi_2 \mid d_b, \widehat{q}_1, \widehat{\phi}] - S |d_b - d_s| - C d_b. \quad (2)$$

The board's utility is higher if the firm does better in the second period, but if $S > 0$ the board does not wish to go against the shareholders' recommendation, and if $C > 0$ they 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, \widehat{q}_1 , is less than the expected quality of the future CEO minus the cost of firing (C) and accounting for the cost of going against shareholders (S). Conditional on

¹¹If 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.

¹²This linear specification simplifies the results but is not essential. All that is needed is that board member utility increases with firm performance, decreases if they go against the shareholders and decreases if they fire the CEO.

the shareholder's recommendation, the board attempts to fire the CEO if

$$\begin{aligned} U_b(\text{retain}) &< U_b(\text{fire}), \\ \widehat{q}_1 - Sd_s &< \bar{q}\alpha + \widehat{q}_1(1 - \alpha) - S(1 - d_s) - C. \end{aligned} \quad (3)$$

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 and will fire less often than requested by the shareholders. Thus, the cost of going against shareholders has both a positive and negative effect. Shareholder agitation may get a low quality but entrenched CEO fired, though it may also get a good but unlucky CEO fired.

In what follows, we will also wish 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 $p_R - p_{Bd}$. We will refer to the market reaction as positive if the stock price rises. We will assume that the marginal shareholder is a rational arbitrageur (we emphasize that this assumption is necessary only for our results on share price response). Thus, the attribution error will not affect prices, but only the level of average shareholder agitation.

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

$$p_R = E[\pi_2 \mid \text{retained}, \widehat{q}_1, \widehat{\phi}] = \widehat{q}_1 + \widehat{\phi}. \quad (4)$$

All firms are priced rationally conditional on shareholder information (owing to a rational arbitrageur). The price after the CEO is fired is

$$p_F = E[\pi_2 \mid \text{fired}, \widehat{q}_1, \widehat{\phi}] = \bar{q} + \widehat{\phi}. \quad (5)$$

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,

$$p_{Bd} = p_R(1 - \text{Prob}[d_b = 1 \mid \widehat{q}_1]) + ((1 - \alpha)p_R + \alpha p_F)\text{Prob}[d_b = 1 \mid \widehat{q}_1], \quad (6)$$

where the probability that the board decides to attempt to fire the CEO may be conditional

on both true CEO quality and the noise the shareholders attribute to the CEO.

$$\text{Prob}[d_b = 1 \mid \hat{q}_1, \hat{q}_s] = \begin{cases} 1 & \text{if } \hat{q}_1 < \bar{q} + \frac{S-C}{\alpha} \text{ and } \hat{q}_s < \bar{q}, \\ 1 & \text{if } \hat{q}_1 < \bar{q} - \frac{S+C}{\alpha} \text{ and } \hat{q}_s \geq \bar{q}, \\ 0 & \text{if } \hat{q}_1 \geq \bar{q} + \frac{S-C}{\alpha} \text{ and } \hat{q}_s < \bar{q}, \\ 0 & \text{if } \hat{q}_1 \geq \bar{q} - \frac{S+C}{\alpha} \text{ and } \hat{q}_s \geq \bar{q}. \end{cases} \quad (7)$$

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

Thus, the market reaction to a firing is,

$$p_F - p_{Bd} = p_F - (1 - \alpha)p_R - \alpha p_F = (1 - \alpha)(\bar{q} - \hat{q}_1). \quad (8)$$

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

$$E_{q_1}[p_F - p_{Bd} \mid \text{fired}] = (1 - \alpha)(\bar{q} - E[q_1 \mid \text{fired}]), \quad (9)$$

A. The results of the standard ‘costly firing’ view

The standard presumption is that entrenchment raises the cost of firing the CEO. This may be incorporated into our model by assuming that C^i is larger for the entrenched firm, $C^H > C^L$.¹³ Initially we will ignore the effects of shareholder agitation (assume $S^H = S^L = 0$) in order to focus on the effects of the standard notion of entrenchment. To ensure that C has a differential effect we further assume that $q'' > \frac{C^H}{\alpha} > q' > \frac{C^L}{\alpha}$.

Proposition 1 *If it is more costly for the board to fire a highly entrenched CEO, $C^H > C^L$, and $q'' > \frac{C^H}{\alpha} > q' > \frac{C^L}{\alpha}$, then:*

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

$$E[q_2^H - q_1^H \mid \text{fired}] > E[q_2^L - q_1^L \mid \text{fired}]. \quad (10)$$

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

$$E[d_b^H] < E[d_b^L]. \quad (11)$$

c) *The expected market reaction to firing the CEO is greater if the CEO is highly en-*

¹³Alternatively, 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.

trenched,

$$E[p_F^H - p_{Bad}^H] > E[p_F^L - p_{Bad}^L]. \quad (12)$$

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

$$E[\pi_1^H | fired] < E[\pi_1^L | fired]. \quad (13)$$

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

$$E[\pi_2^H | retained] < E[\pi_2^L | retained]. \quad (14)$$

Proof. See appendix. ■

Each of these results is the intuitive outcome of a costly firing model of entrenchment, illustrated in figure 1. 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 relatively large (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 firing. Therefore, we expect that first period performance conditional subsequent firing will be lower in entrenched firms (part d).

It is also instructive to examine those firms that do not fire their CEOs. Due to the cost of firing, the board does not fire some bad CEOs. Hence the pool of firms where the CEO is retained includes CEOs with a range of quality, with a more entrenched firm retaining more bad CEOs. 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 should be fired since, if entrenchment protects CEOs who deserved to be fired then these firms will perform poorly in the future. If, however, entrenchment protects CEOs that do not deserve to be fired from agitating shareholders then 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 alternative theories.

Shareholder agitation with no attribution error

The remedy suggested to the above problem is to make the board more accountable to the shareholders. Bebchuk and Fried (2004), for example, advocate for shareholders to have

a greater ability to nominate and remove directors. In the context of our model this can be included by increasing the cost to the board of going against shareholders (larger S). If we assume that shareholders accurately assess the quality of the CEO and make no attribution error then increasing the power of the shareholders unambiguously improves performance.

If $\hat{q}_s = \hat{q}_1$, then for some $S < \infty$ boards will attempt to fire all below average CEOs, $E[d_b | \hat{q}_1 < \bar{q}] = 1$.

Proof. See appendix. ■

Next, we consider how this changes if shareholders agitate for CEO dismissal on the basis of erroneous beliefs.

B. The results of the shareholder agitation model with misattribution.

If shareholders agitate for the removal of a CEO when poor performance is not her fault, board entrenchment may allow firms to protect a good but unlucky CEO. 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 (and conversely attributed strong performance to the CEO's talent). 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 agitating shareholders and fires the CEO if the firm underperforms. The board is able to protect CEO if they choose to do so, but face a cost of going against the shareholders (e.g., risk of dismissal).

We now focus on the effect of shareholder agitation under the assumption that shareholders attribute overall firm performance to the CEO, even though a large component of this is beyond his control. To distill this affect we initially assume that $C^H = C^L = 0$ so that entrenchment is entirely about the cost of defying shareholders. In a highly entrenched firm it is less costly for the board to ignore shareholder wishes, i.e., $S^H < S^L$.

To maximize the impact of shareholder agitation and emphasize the intuitions derived from the model we will assume that $5q' > q'' > S^L > \eta' > q' > S^H \geq 0$.¹⁴ We will see that this model produces many of the same predictions as the standard model. However, there will be two key predictions that differ, and the intuition is entirely distinct, since it will now derive from the board's ability to resist the shareholder demands rather than the ability of the CEO to resist the board's demands.

¹⁴Since our results come from mistakes on the q' quality CEOs and not on the CEOs of quality q'' , q' must be large relative to q'' to have an effect. Therefore, the first inequality prevents the discrete modelling of q from having perverse effects, where the 5 arises from the assumption of 5 possible states for q .

Proposition 2 *If it is less costly for the highly entrenched board to defy shareholders and $5q' > q'' > S^L > \eta' > q' > S^H \geq 0$, and shareholders make an attribution error, $\hat{q}_s = \hat{q}_1 + \hat{\eta}_1$ then:*

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

$$E[q_2^H - q_1^H \mid \text{fired}] > E[q_2^L - q_1^L \mid \text{fired}]. \quad (15)$$

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

$$E[d_b^H] < E[d_b^L]. \quad (16)$$

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

$$E[p_F^H - p_{Bd}^H] > E[p_F^L - p_{Bd}^L]. \quad (17)$$

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

$$E[\pi_1^H \mid \text{fired}] > E[\pi_1^L \mid \text{fired}]. \quad (18)$$

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

$$E[\pi_2^H \mid \text{retained}] > E[\pi_2^L \mid \text{retained}]. \quad (19)$$

Proof. See appendix. ■

The first three predictions of the shareholder agitation model are the same as under the traditional view 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 a good CEO, and is more likely to do so if the CEO's quality is higher. If the board is not entrenched the CEO is fired for underperformance regardless of whether it is his fault, due to shareholder agitation. Therefore, the board that is not entrenched will often see relatively little performance improvement after firing (part a). Thus, highly entrenched boards are also less likely to fire because they protect more good CEOs than less entrenched boards (part b).

Market reactions in the board entrenchment model are also the same as in the standard CEO entrenchment model, but again with different intuition. Since entrenched boards protect better CEOs the improvement from firing the CEO is greater than a less entrenched board

that fires any CEO regardless of fault (part c). So, the market is simply less impressed when a low entrenchment firm fires the CEO.

Predictions (d) and (e) will help us to distinguish the relative importance of the two views of entrenchment. In the standard CEO entrenchment model performance in the first period is lower if the CEO is entrenched but fired, since the CEO must be worse to get fired. However, in a model where the board is entrenched against misguided shareholders, performance in period 1 conditional on firing the CEO is higher in expectation for the highly entrenched firms because a smaller cost of defying shareholders, S , makes the firing decision less dependent on noise (part d).

The prediction of performance in the second period conditional on retaining the CEO (part e) is also 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 from bad luck. So, more entrenched boards retain a stronger pool of CEOs relative to boards that are not entrenched, which fire and retain based on the overreaction of the shareholders. Thus, entrenched boards have stronger future performance (part e).

The central ideas of the misguided shareholder model are most easily seen by looking at Figure 2, which shows a five-by-two matrix of possible realizations of q and η and each type of firm's firing decision. Firm performance is the sum of q and η .¹⁵ 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 = fire. In the other states H = retain. The shaded regions are states where the less entrenched firm fires, L = fire. In the other states L = retain. We can see from this matrix the impact of shareholder agitation. In the mid upper right $(-q', \eta')$ we see that because overall performance is good ($\hat{q}_1 + \hat{\eta}_1 > 0$) the shareholders do not want the CEO fired even though is of low quality. Thus, the less entrenched board bows to shareholders' demands and retains a bad CEO. In the left middle $(\bar{q}, -\eta')$ and lower mid left box $(q', -\eta')$ overall performance is poor ($\hat{q}_1 + \hat{\eta}_1 < 0$) so the shareholders agitate. The less entrenched board again caves in to shareholders and fires the CEO even though he is not at 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). Now consider the group of CEOs who are retained, where the models make different predictions. The less entrenched firm retains some bad (but lucky) CEOs, $(-q', \eta')$, and fire some good (but unlucky) CEOs, $(q', -\eta')$. Thus, the future performance of the retained group is reduced by these bad performers (both lucky and unlucky). Thus,

¹⁵ 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 .

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.

Tradeoffs: Shareholder Agitation and Costly firing.

The standard notion of entrenchment presents one extreme view: if the board finds it costly to fire the CEO, then anything that increases shareholders' ability to fire management is good for firm value. We also describe the opposite extreme: if the shareholder decisions are capricious then allowing the CEO to be impacted by their whims is bad for firm value. The reality is likely to be somewhere in the middle: Entrenchment is likely to increase the costs of firing and simultaneously insulate the board from shareholders bad ideas. This suggests a tradeoff - some amount of entrenchment may be optimal. If it is very costly to fire the CEO then agitation, even agitation that is sometimes misguided, may play a positive role by convincing a board to fire a low quality CEO even when the personal costs are high. This is presumably what shareholders have in mind when they agitate rather than let the board come to its own decision. At the same time entrenchment may protect the board and the CEO from irrational shareholders, as suggested by the description in our introduction.

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 analysis 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.¹⁶ We omit all firm-year observations where the presiding

¹⁶We also substituted the ages of 62, 60 and 59 and found no significant differences for our results.

CEO was above 60 years of age to avoid dealing with the ambiguity of these departures that are likely retirements.

This preliminary sample of forced departures was then checked against details of each departure in the Wall Street Journal and the New York Times, to uncover ‘natural’ CEO departures due to death or illness. In a few cases, it was very clear that the turnover was non-forced (e.g., CEO dies after being hit by lightning). More often, however, reports only used vague terms such as “due to declining health” or “for personal reasons”. This is often used as a means of trying to disguise underlying turmoil at the company, so in these ambiguous cases, we code the departure as forced.¹⁷ Note, however, that our results are not driven by this portion of the sample. These articles were also used to determine the precise date that the departure was announced for our event study.¹⁸

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 the 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 the 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. After matching to both operating performance and governance data, and removing CEOs over the age of 60, we are left with 728 CEOs in 436 firms.

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

¹⁷See, for example, <http://moneycentral.msn.com/content/P35451.asp>

¹⁸We note two additional 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 analysis, 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).

sample of firm-year observations appear in Table 2. Note that the number of observations is somewhat smaller for our operating performance data than for our event studies (139 versus 180 forced dismissals); this is due to missing data on current assets in Compustat. It is interesting to note that over our 16 year sample period 139 of the 728 CEOs who held the title in our final sample were fired.

IV Results

A. Baseline results

We begin by reporting a set of baseline results on the causes and effects of firing, without allowing for the mediating effect of entrenchment. To evaluate the impact of firing on performance, we consider:

$$\Delta_{t+2}Op>Returns_{fy} = \alpha_f + \alpha_y + \beta * Forced_{fy} + \varepsilon_{fy} \quad (20)$$

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, clustering standard errors 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. Table 4 shows 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, column (3) 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 logit model:

$$p(Forced_{fy} = 1) = \Lambda(\alpha_y + \beta_1 \Delta_{t-1}Op>Returns_{fy} + \beta_2 \Delta_{t-2}Op>Returns_{fy} + \eta_f + \varepsilon_{fy}) \quad (21)$$

where Λ is the logistic function, and η_f is a firm-specific random effect.¹⁹ 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

¹⁹A parametric hazard model using the Weibull distribution generates virtually identical results. The Weibull model similarly generates almost the same results if used in place of the predictive logit regression used below. We use the logit specification for ease of exposition; all results based on hazard specifications are available from the authors. We are unable to use the non-parametric Cox hazard model because this does not allow for the generation of predicted values.

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 probability of *Forced*. Since the lagged performance variables have long tails, we repeat the regressions, trimming the top and bottom 1 percent of observations (column 2 table 5). 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. Additionally, we posit that there may be an asymmetric sensitivity to performance, and therefore allow for a slope change at zero for both the one- and two-year lagged performance variables. In column (3) we find that the sensitivity to lagged performance comes entirely from down-side sensitivity. When outliers are removed (column (4)), we find that the asymmetry is even more pronounced, and that the two-year lag is once again significant.

B. Entrenchment and the Effects of Firing

We begin by considering predictions that are common to the two models outlined in II:

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.

Before turning to regression analyses, we look at the basic patterns presented in the data in Figure 3. 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, 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 the prediction generated by the costly firing view of entrenchment.

The regression equivalent of Figure 3 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 the post-firing change in operating performance of 3.5 percentage points. When outliers are removed from the sample, the point estimate is unchanged.

In analyzing the probability of firing (prediction (2)), we consider a modified specification of equation (21) above. Since there is very little within-firm variation in entrenchment, we cannot include firm effects. Instead, we consider the following model:

$$p(\text{Forced}_{fy} = 1) = \Lambda(\alpha_y + \beta * \text{Entrenchment}_{fy} + \eta_{iy} + \varepsilon_{fy}) \quad (22)$$

In this case, i indexes industry, and η_{iy} is an industry-year effect. Table 6 columns (1) and (2) shows 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 4, 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.²⁰

In Table 6, column (3), we see the regression equivalent of Figure 4, where the interaction term $\log(\textit{tenure}) * \textit{entrenchment}$ is added to the model.²¹ The 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.

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).

We now consider the cases where the two models make opposing predictions by examining:

1. The relationship between entrenchment and pre-firing returns of dismissed CEOs.
2. The relationship between entrenchment and returns of retained CEOs.

²⁰Given the truncation of our data at age 60, this pattern would be difficult to interpret if age at time of hiring were correlated with entrenchment. We do not find any such correlation, however.

²¹Virtually identical results are obtained with fixed effects models; they are omitted here in the interests of space. A hazard model with a time-varying effect of entrenchment also generates identical results.

The first scenario suggests a comparison of levels of pre-dismissal performance, conditional on firing:

$$\Delta_{t-1}Op>Returns_{fy} = \alpha_y + \alpha_i + \beta * Entrenchment_{iy} + \varepsilon_{iy} \quad (23)$$

where the sample is limited to firm-year observations where firing occurred.²² 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 standard costly firing model, -0.008 and -0.020 respectively. We consider the regression equivalent given by equation (23) in Table 7. In column (1), we find the point estimate on Entrenchment is very close to zero and imprecisely measured (-0.004 with a standard error of 0.017 ; the addition of industry fixed-effects in column (2) does not substantively affect the point estimate or the standard error. The standard entrenchment model predicts that entrenched CEOs must perform much worse in order to get fired. If this were true the coefficient would be positive and significant. Thus, our fourth prediction is consistent with the presence of the counteracting effects of entrenchment in our models above.

Finally, we consider the performance of retained CEOs. Overall, there is little correlation between entrenchment and performance, either in levels or changes. However, this may be at least partly due to the fact that the retention of a CEO is a relatively unremarkable event, which occurs as a matter of course when performance does not get too far below average. Hence, in the pool of retained CEOs will be a large number of observations where the firm performed well, and the CEO was not bad. The more interesting part of the sample is where the firm performed poorly, and hence the only CEOs that are retained are those for whom an active decision to retain was made. This intuition suggests a more nuanced test that involves looking at the subsequent performance of retained CEOs where there had recently been poor corporate performance.

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 (21) to determine the ‘propensity for firing’ of a CEO based on past poor performance. We then use this predicted firing variable to examine the change in operating returns after particularly poor performance, conditional on retention. The costly firing view of entrenchment predicts that improvements in operating returns following poor performance will be relatively weak in high entrenchment firms, since this should have resulted in CEO dismissal but did not. By contrast, according to the shareholder agi-

²²Prior work has alternatively 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 made clear by the following thought experiment. For extremely poor performance, essentially all CEOs will be dismissed. Similarly, for extremely strong performance, no CEOs will be dismissed by any board. 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 likely sensitive to functional form.

tation view performance improvements should be stronger in high entrenchment firms, since entrenched boards will be better able to protect good CEOs from dismissal. Empirically, we look at:

$$\begin{aligned} \Delta_{t+2}Op_Returns_{fy} = & \alpha_f + \alpha_y + \beta_1 * Forced_Predicted_{fy} + \beta_2 * Entrenchment_{iy}(24) \\ & + \beta_3 * Forced_Predicted_{fy} * Entrenchment_{iy} + \varepsilon_{iy} \end{aligned}$$

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 (21), as implemented by the regressions predicting firing in columns (3) and (4) of Table (5). The costly firing 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, while the shareholder agitation model predicts $\beta_3 > 0$.²³ The results in Table 8 lean in favor of the shareholder agitation model: the coefficient on the interaction term is positive and significant, even more so when outlying observations are removed. These results provide some tentative evidence leaning in favor of the ‘shareholder agitation model’ – in circumstances where the CEO might be expected to be dismissed based on previous performance, but was retained, subsequent performance is stronger in firms with entrenched boards that may have been able to resist shareholder pressure to dismiss the CEO.

V Conclusion

In this paper, we analyze the role of entrenchment on performance surrounding CEO dismissal. We emphasize that entrenchment has potential costs and benefits, and the choice of entrenchment involves a trade-off of these costs. We illustrate this through a model that enumerates the trade-off between a traditional ‘costly firing’ view of entrenchment and a ‘misguided shareholder’ view based on the premise of performance misattribution. While our results lean in favor of the misguided shareholder model, we emphasize that our intention is not to prove or disprove any particular view. Rather, we hope to shift the emphasis of the debate on entrenchment to considering the potential trade-offs involved, and to focus the

²³There is also a countervailing effect in the shareholder agitation model. For the very best CEOs who had bad luck the non-entrenched board may fight the shareholders. Thus for worse performing firms the less entrenched CEOs would fire some good CEOs and fire some bad CEOs but would retain the very best. This effect would imply that focusing on the group of CEOs that our first stage predicted should be fired might lead us to find nothing or a similar prediction to the standard entrenchment model. However, we do find that the entrenched firms seem to do a better job retaining the CEO; hence, this countervailing effect is not strong.

discussion more closely on the actual decisions associated with a firm's governing bodies, such as CEO dismissal or the decision to merge.

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.

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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

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

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

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

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

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

Since

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

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

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

and

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

Proof of Corollary A.: As $S \rightarrow \infty$ the probability that the board attempts to fire, Equation(7) becomes

$$\text{Prob}[d_b = 1 \mid \hat{q}_1, \hat{q}_s] = \begin{cases} 1 & \text{if } \hat{q}_1 < \infty \text{ and } \hat{q}_s < \bar{q}, \\ 1 & \text{if } \hat{q}_1 < -\infty \text{ and } \hat{q}_s \geq \bar{q}, \\ 0 & \text{if } \hat{q}_1 \geq \infty \text{ and } \hat{q}_s < \bar{q}, \\ 0 & \text{if } \hat{q}_1 \geq -\infty \text{ and } \hat{q}_s \geq \bar{q}. \end{cases} \quad (\text{A10})$$

Therefore, if $\hat{q}_s = \hat{q}_1$ then $E[d_b \mid \hat{q}_1 < \bar{q}] = 1$ and all below average CEOs will be fired.

Proof of Proposition 2:

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

$$E[q_2 - q_1 \mid \text{fired}] = \bar{q} - E[q_1 \mid \text{fired}]. \quad (\text{A11})$$

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

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. Without loss of generality let $S^H = 0$. Thus, for the highly entrenched firm the firing conditions reduce to $\hat{q}_1 < \bar{q}$. Therefore, the board attempts to fire the CEO $2/5$ of the time and $E[q_1^H \mid \text{fired}] = \frac{-q' - q''}{2}$.

For the less entrenched firm $q'' > S^L > \eta'$ and the firing conditions reduce to $\hat{q}_1 + \hat{\eta}_1 < \bar{q}$. Therefore, the board attempts to fire the CEO if $\hat{\eta}_1 = -\eta'$ and $\hat{q}_1 < q''$ or if $\hat{\eta}_1 = \eta'$ and $\hat{q}_1 = -q''$, which occurs $1/2$ of the time. Thus, the expectation of CEO quality conditional of firing is

$$E[q_1^L \mid \text{fired}] = \frac{-q'' - q'' - q' + 0 + q'}{5} = -\frac{2q''}{5}. \quad (\text{A12})$$

Therefore, $5q' > q''$ $E[q_1^H \mid \text{fired}] = \frac{-q' - q''}{2} < -\frac{2q''}{5} = E[q_1^L \mid \text{fired}]$.

b) To show $E[d_b^H] < E[d_b^L]$ note that $E[d_b] = P(\text{fire}) = P[d_b = 1] = P[\hat{q}_1 < \bar{q} + \frac{S}{\alpha} \text{ and } \hat{q}_1 + \hat{\eta}_1 < \bar{q}]$ 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 $1/2$ for the less entrenched firms and $2/5$ for the highly entrenched firms. Therefore, the less entrenched firms fire more frequently.

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

$$E[p_F - p_{Bd}] = (1 - \alpha)(\bar{q} - E[q_1 \mid \text{fired}]). \quad (\text{A13})$$

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

d) Note that

$$E[\pi_1 | \text{fired}] = E[q_1 | \text{fired}] + E[\eta_1 | \text{fired}] + E[\phi | \text{fired}]. \quad (\text{A14})$$

Part A showed that $E[q_1^H | \text{fired}] = \frac{-q' - q''}{2} < -\frac{2q''}{5} = E[q_1^L | \text{fired}]$. We also know that $E[\phi | \text{fired}] = \bar{\phi}$, because the firm fixed component does not affect the firing decision. So, $\frac{\partial}{\partial S} E[\phi | \text{fired}] = 0$.

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

$$E[\eta_1^L | \text{fired}] = \frac{-\eta' - \eta' - \eta' - \eta' + \eta'}{5} = -\frac{3\eta'}{5}. \quad (\text{A15})$$

Therefore, $E[\eta_1^H | \text{fired}] = 0 > -\frac{3\eta'}{5} = E[\eta_1^L | \text{fired}]$. However,

$$E[q_1^H + \eta_1^H | \text{fired}] + \bar{\phi} = \frac{-q' - q''}{2} + 0 + \bar{\phi} > -\frac{2q''}{5} - \frac{3\eta'}{5} + \bar{\phi} = E[q_1^L + \eta_1^L | \text{fired}] + \bar{\phi}. \quad (\text{A16})$$

We can see this is true if $q' < \eta'$ and $q' < q''$ which are true by assumption.

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

$$E[\pi_2 | \text{retained}] = E[q_1 | \text{retained}] + E[\eta_2 | \text{retained}] + E[\phi | \text{retained}]. \quad (\text{A17})$$

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) $\hat{q}_1 \geq \bar{q} + \frac{S}{\alpha}$ and $\hat{q}_1 + \hat{\eta}_1 < \bar{q}$ or if 2) $\hat{q}_1 \geq \bar{q} - \frac{S}{\alpha}$ and $\hat{q}_1 + \hat{\eta}_1 \geq \bar{q}$. 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 $S^H = 0$ the retain conditions reduce to $\hat{q}_1 \geq \bar{q}$, which occurs 3/5 of the time. Therefore,

$$E[q_1^H | d_b = 0] = \frac{q'' + q'' + q' + q' + 0 + 0}{6} = \frac{q' + q''}{3}. \quad (\text{A18})$$

If $S^L > \eta'$ then the retain conditions reduce to $\hat{q}_1 + \hat{\eta}_1 \geq \bar{q}$. Therefore, the board retains the CEO if $\hat{\eta}_1 = \eta'$ and $\hat{q}_1 \geq q'$ if $\hat{\eta}_1 = -\eta'$ and $\hat{q}_1 = q''$. Thus,

$$E[q_1^L | d_b = 0] = \frac{-q' + 0 + q' + q'' + q''}{5} = \frac{2q''}{5}. \quad (\text{A19})$$

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

$$E[q_1 | \textit{retained}] = \frac{E[q_1 | d_B = 0]P[d_B = 0] + E[q_1 | d_B = 1]P[d_B = 1](1 - \alpha)}{P[d_B = 0] + P[d_B = 1](1 - \alpha)}. \quad (\text{A20})$$

Bayes rule allows this to be rewritten

$$E[q_1 | \textit{retained}] = \frac{E[q_2] - \alpha E[q_1 | d_B = 1]P[d_B = 1]}{1 - \alpha P[d_B = 1]}. \quad (\text{A21})$$

Since $E[q_2] = 0$,

$$E[q_1^H | \textit{retained}] = \frac{\alpha \frac{q' + q''}{5}}{1 - \alpha \frac{2}{5}}, \quad (\text{A22})$$

$$E[q_1^L | \textit{retained}] = \frac{\alpha \frac{q''}{5}}{1 - \alpha \frac{1}{2}}. \quad (\text{A23})$$

We know,

$$\frac{\alpha \frac{q' + q''}{5}}{1 - \alpha \frac{2}{5}} > \frac{\alpha \frac{q''}{5}}{1 - \alpha \frac{1}{2}} \quad (\text{A24})$$

since $\alpha < 1$ and $5q' > q'' > S^L > \eta' > q' > S^H \geq 0$, as we assumed to prevent the discrete modelling of q from having perverse effects.²⁴ Therefore, $E[\pi_2^H | \textit{retained}] > E[\pi_2^L | \textit{retained}]$. Q.E.D.

²⁴If $5q' < q''$ then the discrete uniform distribution of states means that the probability of each state is equally likely, so retaining slightly below average CEOs, while firing both average and slightly above average CEOs *raises* the average quality of the retained CEOs. This is unrealistic and increasing the number of states sends the probability that q' is small enough for this to occur to zero. However, this is ultimately a question for the data, and we find strong support for this prediction.

Figure 1. Model with costly entrenchment.

		Noise η	
		$-\eta$	η
CEO quality q	$-q''$	L = fire H = fire	L = fire H = fire
	$-q'$	L = fire H = retain	L = fire H = retain
	0	L = retain H = retain	L = retain H = retain
	q'	L = retain H = retain	L = retain H = retain
	q''	L = retain H = retain	L = retain H = retain

This matrix represents the possible state space for q and η . The value of the firm is the sum of 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.

Figure 2. Model with shareholder misattribution.

		Noise η	
		$-\eta$	η
CEO quality q	$-q''$	L = fire H = fire	L = fire H = fire
	$-q'$	L = fire H = fire	L = retain H = fire
	0	L = fire H = retain	L = retain H = retain
	q'	L = fire H = retain	L = retain H = retain
	q''	L = retain H = retain	L = retain H = retain

This matrix represents the possible state space for q and η . The value of the firm is the sum of 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.

Figure 3

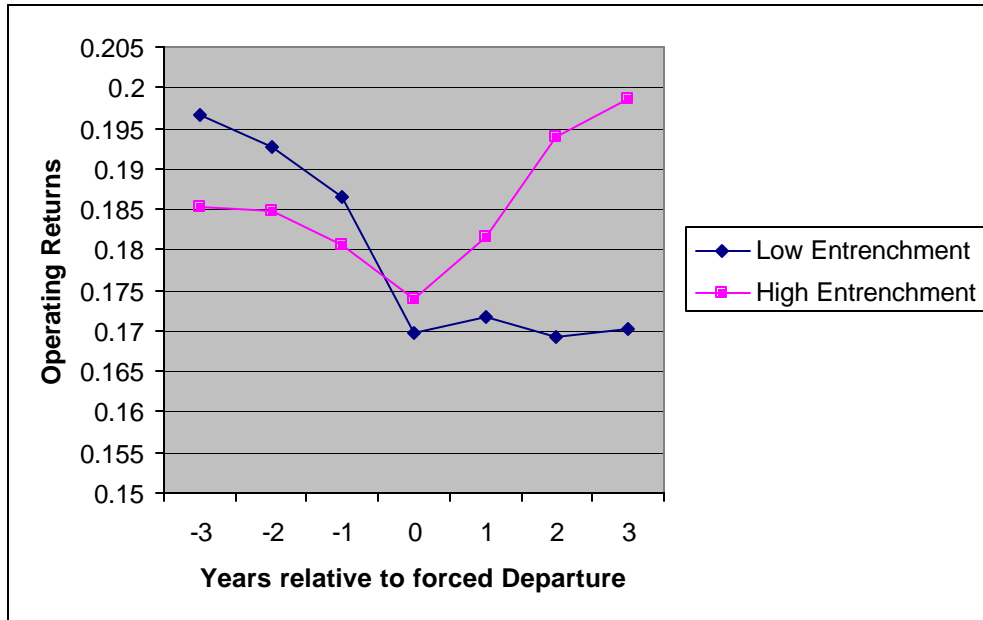


Figure 4

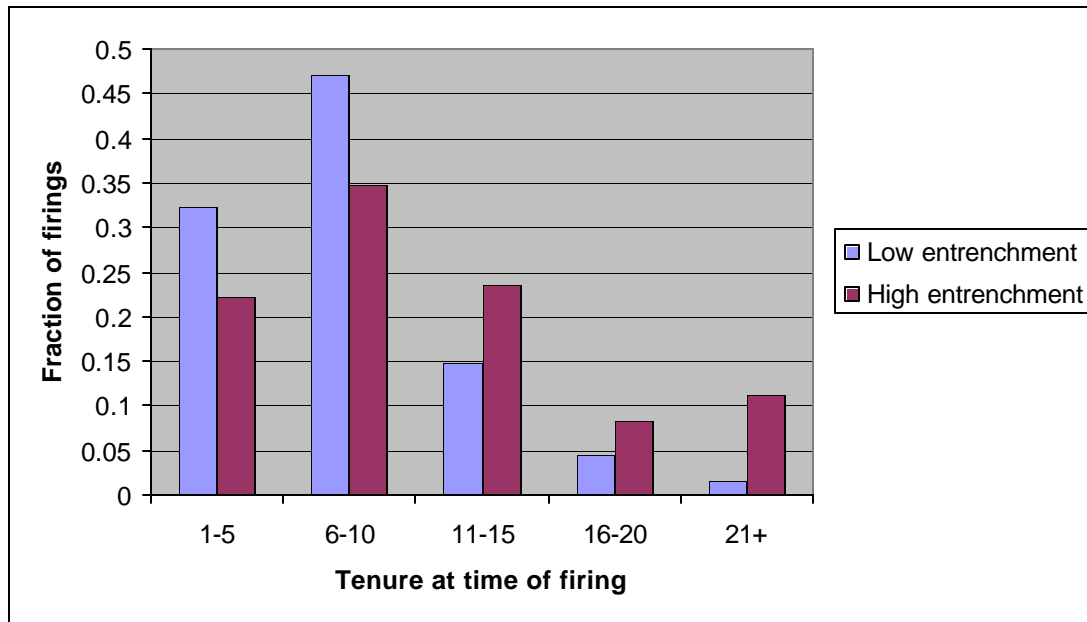


Table I. List of variable abbreviations, definitions and sources.

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	9.74	2.77	3934						
Forced	0.04	0.18	3934	0.04	0.19	1793	0.03	0.18	2141
Assets	4269.69	8438.87	3934	5158.19	11142.89	1793	3525.61	5068.86	2141
Tenure	7.67	6.59	3934	7.93	7.03	1793	7.44	6.18	2141
ΔOp_returns	0.00	0.07	3934	0.00	0.10	1793	0.00	0.05	2141

Forced=1 Subsample

	Full Sample			Entrenchment<10			Entrenchment≥10		
	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.	Obs
Entrenchment	9.56	2.75	139						
Year	1989.30	4.69	139	1989.54	4.56	67	1989.08	4.83	72
Assets	5178.67	9630.63	139	5413.24	12456.43	67	4960.40	5994.72	72
Tenure	7.50	5.88	139	6.06	4.74	67	8.83	6.52	72
ΔOp_returns	0.01	0.06	139	0.00	0.07	67	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)
Forced	0.007 (0.010)	0.003 (0.007)	-0.040 (0.025)	-0.039** (0.017)	-0.04624*** (0.01654)
Entrenchment			0.012 (0.011)	0.004* (0.002)	0.00414 (0.00301)
Forced *Entrenchment			0.005** (0.002)	0.004*** (0.002)	0.00464*** (0.00169)
Outliers Removed?	No	Yes	No	Yes	No
Industry-Year Dummies	No	No	No	No	Yes
Observations	3934	3854	3934	3854	3819
R-squared	0.15	0.18	0.15	0.19	0.40

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)
$\Delta Op_perf(t-1)$	-6.106*** (1.596)	-7.976*** (2.186)		
$\Delta Op_perf(t-2)$	-2.219 (1.483)	-4.039* (2.211)		
$\Delta Op_perf(t-1)_neg$			-8.176*** (2.193)	-13.707*** (2.945)
$\Delta Op_perf(t-1)_pos$			0.055 (3.245)	3.095 (4.013)
$\Delta Op_perf(t-2)_neg$			-2.645 (2.136)	-6.401** (3.234)
$\Delta Op_perf(t-2)_pos$			-1.629 (2.606)	0.377 (3.983)
Outliers Removed	No	Yes	No	Yes
Observations	3934	3794	3934	3794

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	-0.0265 (0.0327)	-0.0367 (0.0340)	-0.1364** (0.0678)	0.0172 (0.06459)	-0.0864* (0.0471)
log(Tenure)			-0.4998 (0.3500)		
log(Tenure)* Entrenchment			0.0644* (0.0350)		
Industry Year Effects	Yes	Yes	Yes	Yes	Yes
Model	RE	FE	RE	RE	RE
Sample	Full	Full	Full	Tenure \geq 6	Tenure<5
Observations	3899	3630	3899	1995	1904

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 - Pre-dismissal change in operating performance

Dependent Variable: Lagged change in operating		
	(1)	(2)
Entrenchment	-0.0004 (0.0017)	-0.0004 (0.0020)
Year FE's	Yes	Yes
Industry FE's	No	Yes
Observations	139	139
R-squared	0.13	0.32

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 8: Effect of Predicted Turnover on Performance, Sample of Retained CEOs

Dependent Variable: Cumulative 2 yr performance, forward lag				
	(1)	(2)	(1)	(2)
Entrenchment	0.0096 (0.0101)	0.0030 (0.0023)	0.0082 (0.0079)	0.0037 (0.0023)
Pred_Firing	-0.1138 (0.5952)	0.2757 (0.3258)	-0.5137 (0.4771)	0.0411 (0.1477)
Entrenchment *Pred_Firing	0.0932*** (0.0325)	0.0511** (0.0212)	0.0921** (0.0455)	0.0263* (0.0139)
1st stage outliers removed?	No	No	Yes	Yes
2nd stage outliers removed?	No	Yes	No	Yes
Observations	3795	3724	3795	3724
R-squared	0.17	0.22	0.17	0.21

All models include firm random effects 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.