

Essays in Corporate Governance

A Thesis

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Dedications

For all of their support, encouragement, and inspiration, I dedicate this dissertation to
Mom, Dad, and Sean.

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Abstract

Essays in Corporate Governance
Jared I. Wilson

Corporate governance examines the mechanisms through which managers and directors are incentivized to act in the best interests of shareholders. The three essays of this dissertation focus on internal and external control mechanisms in the CEO and director labor markets and their effectiveness in aligning the interests of managers, directors and shareholders. The first essay examines the influence of industry shocks and peer firms on board monitoring decisions. Recent evidence documents that industry factors influence CEO turnover decisions, despite agency theory's proposition that boards should filter out industry shocks when evaluating CEO performance. Consistent with industry dynamics affecting board monitoring decisions, I document that industries exhibit CEO turnover waves. During these periods of abnormally high turnover, executives face a heightened threat of discipline as boards increase turnover-performance sensitivity. This increased scrutiny inside waves represents a meaningful managerial incentive that curbs value-destroying behavior of CEOs. Overall, this essay documents the existence of CEO turnover waves, which motivate boards to monitor management differently and have real effects on CEO behavior and shareholder wealth.

The second essay examines the shareholder wealth effects associated with a required venue for shareholder litigation. In response to the increased threat of shareholder litigation filed in multiple states, firms have adopted exclusive forum provisions which limit lawsuits to a single venue of the board's choice. It is unclear whether these provisions

impose increased costs on shareholders' ability to discipline managers and directors or provide benefits to shareholders by eliminating multi-forum and duplicative lawsuits. I use the Delaware Chancery Court's announcement upholding the adoption of these provisions as a natural experiment to evaluate their wealth implications. Overall, this essay suggests that exclusive forum provisions create value for shareholders by specifying a required venue for corporate litigation.

The final essay, with David Becher and Ralph Walkling, examines the stability and composition of acquirer boards around mergers and the director characteristics associated with selection for the post-merger board. Our results indicate that the post-merger board changes substantially and variation is significantly different from both non-merger years and non-merging firms. Adjustments reflect firms upgrading skills associated with executive and merger experience and bargaining between targets and acquirers, rather than agency motives. Conversely, director selection at non-merging firms is driven by general skills and diversity. Our analyses provide insight into the dynamic nature of board structure and characteristics valued in the director labor market.

Chapter 1: CEO Turnover Waves: Spillovers to Monitoring and Managerial Incentives

Jared I. Wilson[†]

Abstract

Recent evidence documents that industry factors influence CEO turnover decisions, despite agency theory's proposition that boards should filter out industry shocks when evaluating CEO performance. Consistent with industry dynamics affecting board monitoring decisions, I document that industries exhibit CEO turnover waves. During these periods of abnormally high turnover, executives face a heightened threat of discipline as boards increase turnover-performance sensitivity. This increased scrutiny inside waves represents a meaningful managerial incentive that curbs value-destroying behavior of CEOs. Overall, this study documents the existence of CEO turnover waves, which motivate boards to monitor management differently and have real effects on CEO behavior and shareholder wealth.

Keywords: CEO turnover, CEO performance evaluation, managerial incentives

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1. Introduction

The separation of ownership and control creates the need for shareholders to depend on governance mechanisms to monitor management and alleviate agency conflicts. Arguably, the most important function of the board of directors is the hiring, succession management and in some cases, firing of the chief executive officer (CEO). The threat of replacement acts as an implicit incentive mechanism aligning the interests of executives with those of shareholders. Turnover decisions have long-term implications for the firm and its shareholders considering the discretion that the CEO holds in the firm's financing, investment and operating decisions.

The decision to dismiss the CEO depends on the board's evaluation of CEO performance. Standard agency theory suggests that boards should assess firm performance relative to industry peers (i.e. Holmstrom, 1979, 1982). By doing so, boards are better able to separate performance that is attributable to their manager from exogenous shocks outside of the CEO's control, like rival firm activities. Recently, however, Eisfeldt and Kuhnen (2013) and Jenter and Kanaan (2015) report that the likelihood of forced CEO turnover increases with poor industry performance suggesting that board monitoring decisions are influenced by industry shocks and peer firms.

Given these competing views, this paper explores the industry dynamics of CEO turnover decisions. Existing empirical evidence suggests that the decisions of peers play a role in influencing the corporate policies of others in the same industry. For example, Leary and Roberts (2014) document that a firm's capital structure decisions are a response to the financing decisions of peer firms. These types of industry spillover effects suggest that the board monitoring decisions of peers, such as firing the CEO, may impact board

actions and evaluations of CEO performance. There are several reasons why peer turnover may motivate boards to monitor their management differently. First, turnover at peer firms may convey information to the board about the type of executive demanded in an industry or about the ability of their own CEO. Second, CEO dismissals at peer firms may draw the board's attention to their own monitoring decisions. Finally, boards may decide to implement a similar strategy as peers and mimic the policies of rivals.

Potential changes to board monitoring associated with peer firm decisions imply that managerial incentives vary according to factors outside of the CEO's control. Consequently, executive behavior may change in response to the shift in incentives and could have important shareholder wealth effects. For example, the type and value of projects that CEOs are willing to engage in may vary by how the board evaluates CEO performance. To better understand what motivates boards to monitor management, this study investigates whether peer board monitoring decisions influence a board's actions and if so, whether CEO behavior is affected.

To address these questions, I construct a sample of 3,596 CEO turnovers from 1992-2014, of which 945 are forced. A direct implication of boards responding to industry shocks and peer firm monitoring decisions is the clustering of CEO turnover within industries. My results indicate that industry turnover rates, especially forced departures, vary significantly over time. For example, Figure 1 illustrates substantial clustering of forced turnover in the Business Services industry. The variation is highlighted by peaks in 2001, 2004 and 2007. This pattern is evident across a wide spectrum of industries and suggests that industries exhibit waves of CEO turnover. I document these executive

turnover waves, which I define as periods of 1-2 years when an abnormally high percentage of the industry fires their CEO.

Next, I consider the determinants of CEO turnover waves, which are just as likely to occur following positive industry performance as they are following negative. The primary catalysts of waves vary by the state of the industry. Turnover waves following positive industry performance are preceded by shocks to the industry's operating environment, where the CEO skill set demanded within an industry changes. Negative performance turnover waves follow increases in the quality of the industry's information environment and external pressure from activist shareholders.

Considering the significant variation in CEO dismissals within industries and the potential for spillover effects to board monitoring, I examine whether CEO turnover waves and the peer turnovers that occur during these periods influence the board's dismissal decisions. The results indicate that CEOs are significantly more likely to be fired during turnover waves.¹ In addition, the sensitivity of turnover to performance directly attributable to management, rather than industry performance, increases inside waves. These results imply that boards place increased scrutiny on CEOs and engage in relative performance evaluation (RPE) during turnover waves when they can benchmark against the salient performance evaluation decisions of peers (i.e. peer CEO turnover).

To provide evidence on why peer turnover influences the board of director's firing decision, I investigate whether the spillover effects vary by industry type. The results indicate that the impact of turnover waves on board monitoring decisions only manifest in

¹ In this analysis, industry turnover waves are identified for each firm excluding any turnovers at that firm. Therefore, only peer turnover is captured in a turnover wave and this result is unlikely to be mechanical in nature.

competitive, low information cost and homogeneous industries. This is consistent with peer CEO dismissals conveying information to other boards in the same industry about their own monitoring decisions. Directors are better able to benchmark CEO performance to peers in these industries because firms are subject to similar economic factors (Holmstrom, 1982) and CEOs have comparable skill sets (Parrino, 1997). In addition, information gathered from rivals is more useful for board monitoring in industries with lower information costs (Hermalin and Weisbach, 1998).

Information conveyed by peer turnovers aids boards in two respects. The increases in disciplinary pressure during turnover waves are limited to underperforming CEOs suggesting that boards are better able to identify relative underperformers. Second, benchmarking to peer dismissals allows boards to better determine whether their CEO has the required industry skill set. Turnover announcements made inside of waves experience higher returns than those made outside of waves providing evidence that boards benefit from gathering information from peer turnovers.

It is possible that spillover effects to board monitoring during turnover waves may be attributed to a common industry factor, rather than information conveyed by peer turnover. If this is the case, turnover should be more sensitive to industry performance during waves. My results, however, indicate that boards engage in RPE and that turnover is more sensitive to performance that is attributable to managers inside turnover waves. In addition, I utilize a propensity score matching method and instrumental variables approach to address endogeneity concerns. Both of these analyses confirm the influence of peer CEO turnover on board monitoring decisions.

A heightened threat of discipline during turnover waves suggests that managerial incentives shift with industry shocks and peer turnover. Therefore, I investigate whether CEO actions are affected by these changes in incentives. There are several effects that changes in board monitoring may have on CEO behavior. First, increased scrutiny of CEO performance inside waves may curb value-destroying behavior. Second, increased discipline during waves may influence managers to forgo some positive net present value (NPV) projects, if these projects are very risky. Finally, greater scrutiny may spur CEOs to engage in projects that they otherwise would be reluctant to undertake in non-wave periods while enjoying the ‘quiet life’.

To explore the impact of turnover waves on CEO actions, I examine acquisition decisions and their shareholder wealth effects.² My results indicate that CEOs are less likely to make acquisitions during turnover waves. Conditional on making a bid, however, acquisition announcement returns during waves are significantly higher than outside of waves. This suggests that CEOs are more selective in the acquisition process when the disciplinary pressure in a wave increases. Overall, these results imply that the spillover effects to monitoring during turnover waves act to curb value-destroying behavior and represent a meaningful managerial incentive.

This study makes several contributions to the corporate finance literature. First, wave-like behavior of corporate events, such as mergers (Mitchell and Mulherin, 1996, Harford, 2005) and IPOs (Lowry, 2003, Chemmanur and He, 2011), has been well documented. I add to this evidence by documenting that industries exhibit CEO turnover waves. Second, my results suggest that board monitoring decisions of peers have a

² Lehn and Zhao (2006) suggest that boards place an emphasis on acquisition performance in CEO evaluations.

significant influence on board actions. Prior literature reports that internal factors, such as board independence and committee membership, influence monitoring of the CEO (Weisbach, 1988 and Faleye, Hoitash and Hoitash, 2011), however the impact of external factors is less understood. My results complement the studies of Bushman, Dai and Wang (2010), Eisfeldt and Kuhnen (2013) and Jenter and Kanaan (2015) by suggesting that peer firm decisions motivate boards to monitor and discipline management differently.

Third, my results suggest that industry turnover waves act as a disciplinary managerial incentive, resulting in changes to CEO behavior, which have a significant impact on shareholder wealth. This finding adds to prior research on internal managerial incentives, like compensation (e.g. Coles, Daniel, and Naveen, 2006 and Low, 2009) and external incentives, like the market for corporate control (e.g. Gorton, Kahl, and Rosen, 2009 and Duchin and Schmidt, 2013). Finally, I document spillover effects within industries related to peer CEO turnover. These results complement studies that explore industry spillover effects to corporate decisions, such as capital structure (Leary and Roberts, 2014), corporate investment (Foucault and Fresard, 2014) and hedge fund activism (Gantchev et al., 2015). Overall, this study documents CEO turnover waves, which motivate boards to monitor management and have real effects on CEO behavior and firm value.

2. Hypotheses

2.1 Does CEO Turnover Cluster in Industries?

Prior literature offers two competing hypotheses related to the clustering of CEO turnover within industries. First, traditional agency theory proposes that boards should engage in relative performance evaluation (RPE) and filter out exogenous shocks from

firing decisions (Holmstrom, 1979, 1982, Gibbons and Murphy, 1990), implying that CEO turnover should not systematically cluster within industries. Existing empirical evidence provides support for RPE, documenting that CEOs are more likely to be fired if their performance is poor relative to their peers (e.g. Parrino, 1997, Huson, Parrino, and Starks, 2001, Huson, Malatesta, and Parrino, 2004).

While agency theory proposes that turnover decisions are independent of industry shocks and peer decisions, more recent studies imply a second hypothesis; the rate of turnover varies and clusters within industries. Several studies report that the likelihood of forced CEO turnover increases with poor industry stock performance (Jenter and Kanaan, 2015 and Peters and Wagner, 2014). In addition, Eisfeldt and Kuhnen (2013) find evidence that shocks to the industry operating environment prompt managerial turnover due to changes in the industry's desired CEO skill set.

Parrino (1997) suggests that poorly performing CEOs are easier to identify in more homogeneous industries. Directors in these industries can better benchmark firm performance against peers, since executives have similar human capital and firms compete in related markets. Similarly, DeFond and Park (1999) suggest that the benefits of comparing performance to rivals are greater in more competitive industries. Furthermore, theoretical literature on boards suggests that the effectiveness of monitoring depends on the industry information environment (i.e. Adams and Ferreira, 2007, Hermalin and Weisbach, 1998). If the cost of acquiring information in an industry is high, directors are less effective at monitoring (Duchin, Matsusaka, and Ozbas, 2010).

In order to test these competing hypotheses, I explore the extent to which CEO turnover clusters within industries. In particular, I examine whether industries exhibit

waves of executive turnover. If turnover is independent of industry shocks, CEO turnover should not display systematic variation within industries. Alternatively, a direct implication of boards responding to industry shocks and peer firm monitoring decisions is the existence of CEO turnover waves.

2.2 Does Peer Turnover Influence Board Monitoring?

Given prior literature documenting that the decisions of peer firms play a significant role in influencing corporate policies, I examine the impact of peer turnover on the board's decision to fire the CEO. Focusing on whether this board action changes during turnover waves, I propose two non-mutually exclusive hypotheses for why such changes in board monitoring may occur.

First, the *information hypothesis* suggests that peer turnover conveys information to other boards about their own monitoring decisions. Prior studies suggest that the actions of peer firms provide information to others in the same industry. For example, Foucault and Fresard (2014) document that the market valuation of rivals provides managers with information about their own growth opportunities. Theoretical models of executive turnover suggest that boards gather information about CEO ability (i.e. Adams and Ferreira, 2007, Hermalin and Weisbach, 1998, and Taylor, 2010). One source of information may include peer turnover, which could signal to the board the type of CEO demanded in an industry or the ability of their own CEO. It is also possible that increased peer turnover may draw the board's attention to their own performance evaluation decisions. In this case, an industry turnover wave could act as a 'wake-up call' for the board of directors and provide information to assess the performance of their own CEO.

Second, the *herding hypothesis* suggests that the influence of peer turnover on board actions is related to directors implementing similar strategies as rivals. This type of mimicking explanation is formalized by Scharfstein and Stein (1990). In their model, firms may mimic the investment decisions of peers, ignoring their own private information. This is rational from a manager's perspective because managers will be more favorably evaluated ex-post if they follow the decisions of others. In the context of peer turnover, boards may mimic peers by also disciplining their CEO, so that they are more favorably evaluated in the director labor market.

The *information hypothesis* suggests that if peer turnover conveys positive information about the firm's current CEO, the probability of turnover will decrease during turnover waves. Alternatively, if peer turnover conveys negative information about the CEO, the likelihood of turnover will increase inside turnover waves. Turnover-performance sensitivity related to performance attributable to management should increase during waves. Under this scenario, peer turnover acts as a salient benchmark that informs the board that their CEO is a relatively poor performer and/or lacks the required industry skill set. In addition, if peer turnover conveys information that is helpful in evaluating CEO performance, any spillover effects will be stronger in industries where engaging in RPE is more useful, which include competitive, homogenous and low information cost industries. To test the attention motive of the *information hypothesis*, I examine whether the impact of peer turnover on board monitoring decisions is stronger for more distracted boards, which I define as busy boards (Fich and Shivdasani, 2006).

The *herding hypothesis* suggests that the probability of turnover will increase during turnover waves. Moreover, turnover-performance sensitivity related to

performance directly attributable to the manager will decrease and sensitivity associated with industry performance will increase. This effect should be stronger for boards of underperforming firms since outperforming firms are unlikely to be motivated to herd. In this situation, boards ignore their private information about CEO ability and base their turnover decision on the performance evaluation of peers.

2.3 Are there Spillover Effects to Managerial Actions?

If peer turnover changes how the board evaluates CEO performance, it also alters managerial incentives. Thus, spillover effects related to peer turnover, which are outside of the CEO's control, are likely to impact the actions of CEOs and have important consequences for shareholders. Prior literature suggests that disciplinary threats within an industry spillover to the behavior of other CEOs in that same industry. For example, Servaes and Tamayo (2014) document that CEOs respond to control threats experienced by rivals by adjusting their capital structure.

I propose three hypotheses related to managerial actions in turnover waves. First, the *selective hypothesis* suggests that increased scrutiny of CEO performance during waves curbs potential value-destroying behavior. CEOs may be particularly cautious in choosing projects that could negatively impact firm value. Second, the *conservative hypothesis* proposes that if CEOs are exposed to more replacement risk during turnover waves, managers may forgo some positive NPV projects, if those projects are especially risky. Finally, the *stimulation hypothesis* suggests that greater scrutiny during waves may spur CEOs to engage in projects that they otherwise would be reluctant to undertake while enjoying the 'quiet life' (Bertrand and Mullainathan, 2003).

To explore the impact of turnover waves on managerial behavior, I examine acquisition decisions and their shareholder wealth effects. The *selective hypothesis* predicts that CEOs will be less likely to engage in acquisitions during turnover waves, but acquisitions announced inside waves will have higher announcement returns than those announced outside of waves. The *conservative hypothesis* also predicts a lower likelihood of acquisitions during waves, but acquirer announcement returns will be lower compared to outside of waves. Finally, the *stimulation hypothesis* suggests that CEOs will be more likely to engage in an acquisition during a turnover wave, although it makes no predictions on the firm value implications of these acquisitions.

3. Data

3.1 CEO Turnover Sample

The initial sample is drawn from the S&P Execucomp database, which includes 43,882 CEO-firm-year observations for the period 1992-2014. The sample is merged with Compustat for accounting data, with the Center for Research of Stock Prices (CRSP) database for stock returns, with I/B/E/S for analyst information, and with institutional ownership data from Thomson Reuters. After excluding CEO-firm-year observations with missing values for stock returns, book value of assets, and institutional ownership, the sample consists of 39,082 observations.

Industries are defined using the Fama and French (1997) classification of firms into 48 industries.³ Industries with less than eight firms in any industry-year during the sample period (bottom quartile of number of firms in an industry-year for the full sample) are

³ Following Jenter and Kanaan (2015), all firms in the ‘Other’ industry classification are excluded from the analysis. Results are similar if industries are defined at the Fama-French 12 industry-level or using the Hoberg-Phillips product market definitions (Hoberg and Phillips, 2010, Hoberg and Phillips, 2015).

excluded.⁴ This limits the sample to 31 industries and ensures that any variation in the main variable of interest, industry turnover rate (number of industry turnovers scaled by the total number of industry firms) is not driven by industries with a small number of firms that all experience CEO turnover in a given year. These restrictions yield a final sample of 36,532 CEO-firm-year observations, which includes 3,169 unique firms and 6,505 distinct CEOs. A CEO turnover is recognized for each firm-year in which the CEO identified in Execucomp changes. Each turnover is classified as forced or voluntary following Parrino (1997).⁵ Changes to the CEO position associated with spin-offs or mergers are not categorized as turnovers. The final sample includes 3,596 CEO turnovers at 1,973 unique firms, of which 945 (2,651) are classified as forced (voluntary) turnover.

3.2 CEO Turnover Wave Identification

In order to identify industry-level CEO turnover waves, I implement a procedure similar to Harford (2005), who identifies merger waves. For each industry and month t , I calculate the actual number of turnovers in the 12-month period from month t through month $t+11$. Each 12-month period of actual turnovers is compared to the 95th percentile of a simulated distribution of 12-month time intervals. Using all turnover events over the 252-month sample period for a given industry, I simulate 1,000 distributions of that number of turnovers by randomly assigning each event to a month where the probability of

⁴ All results are robust to including all industries or eliminating industries with less than 27 firms in any industry-year during the sample period (median of number of firms in any industry-year for the full sample).

⁵ Turnovers in which news announcements from Factiva state that the CEO is fired, forced out, or departs due to policy differences are classified as forced. All other turnovers where the departing CEO is 60 years or older are classified as voluntary. Turnovers of CEOs under age 60 are further reviewed and classified as forced if the turnover news announcement does not report the reason for departure as death, poor health or acceptance of another position (elsewhere or same firm) or if it reports that the CEO is retiring, but does not announce the retirement at least six months before the turnover. All turnovers classified as forced are reclassified as voluntary if the turnover CEO takes a comparable position elsewhere in the six months following turnover.

assignment is 1/252 for each month. Next, I calculate the highest 12-month concentration of turnovers for each of the 1,000 random assignments.

If the actual number of turnovers in the time interval $[t, t+11]$ is greater than or equal to the 95th percentile of 1,000 peak concentrations, month t is identified as the beginning of a turnover wave and all turnovers in this window are classified as part of the wave. This step is repeated for the interval $[t+1, t+12]$, and if the number of turnovers in this interval is greater than or equal to the 95th percentile of the empirical distribution, any turnovers in month $t+12$ are added to the wave identified in month t .⁶ Turnovers are added to the month t wave in this fashion until the first month $t+s$ in which the number of turnovers during the interval $[t+s, t+s+11]$ is less than the 95th percentile of the simulated distribution. This procedure is conducted using all turnovers and only forced turnovers to identify all and forced turnover waves, respectively. I identify 24 turnover waves in 20 industries and 32 forced waves in 23 industries, which are detailed in Appendix C.

3.3 Acquisition Sample

I obtain acquisition data from the Securities Data Company (SDC) Mergers and Acquisitions database. The following restrictions are imposed: (i) the acquirer owns less than 50% of the target at announcement and 100% after completion, (ii) the deal value is at least \$10 million, and at least 5% of the market value of the acquirer at the merger announcement, (iii) the deal is completed and (iv) acquirer return data is available around the announcement date. The deal value restrictions are imposed to limit the sample to acquisitions that are likely under the influence of the CEO. From SDC, I collect the acquisition announcement date, transaction value, method of payment, target firm public

⁶ This modification to the procedure of Harford (2005) is adapted from Choi, Karpoff, and Lou (2014).

status and nation of the target firm. Acquisition announcement returns are gathered from CRSP and calculated as the three-day cumulative abnormal return (CAR) surrounding the deal announcement date using the Fama-French-Carhart four-factor model. The final sample consists of 3,009 transactions by 1,516 unique firms.

3.4 Variable Descriptions and Descriptive Statistics

Table 1 presents summary statistics for the final sample of 36,532 firm-year observations from 1992-2014. Panel A reports firm and CEO characteristics as of the prior fiscal year-end. Following Leary and Roberts (2014), I estimate the industry component of stock returns, industry-induced return, as the fitted value from firm-specific regressions of monthly returns on the excess market return and the excess equally-weighted industry return, where industries are defined at the Fama-French 48 level.⁷ Each firm-level regression is estimated on a rolling annual basis using historical monthly returns. I require at least 24 months of historical returns and include up to 60 months in the estimation. Idiosyncratic stock return is estimated as the residual value from this estimation. This yields an average industry-induced (idiosyncratic) return of 28.9% (-2.4%).⁸

Panel B of Table 1 summarizes industry-level characteristics based on Fama-French 48 industry classifications. I follow DeFond and Park (1999) and define industry competition as the Herfindahl-Hirschman Index (HHI) based on industry sales, which has a mean value of 0.06. Information cost index is the sum of annual quartile rankings of median industry forecast error, median industry analyst dispersion and median industry number of analysts following a firm (reverse ranking), where the minimum index value is

⁷ Results are robust to estimating regressions using the excess value-weighted industry return.

⁸ This is comparable to Bushman et al. (2010), who use a similar procedure for an Execucomp sample (1992-2005).

3 and the maximum is 12. The average industry-year in the sample has an information cost index of 7.55. Following Parrino (1997), industry homogeneity is the average partial correlation coefficient between monthly stock returns of all firms in the same industry and monthly industry returns where its average value is 0.22. Industry takeover activity is defined as the percent of public firms in the same Fama-French 48 industry that receive a takeover offer in the prior fiscal year and has a mean value of 7%.

Finally, Panel C of Table 1 details the characteristics of 3,009 acquisitions announced by sample firms from 1992-2014. The average acquirer announcement return is -0.5% for deals with an average relative deal size of 38%. Thirty-five percent of the acquisitions are financed with 100% stock and 31% of the targets are in a different Fama-French 48 industry than the acquirer. In addition, over half of the acquisitions are of public target, while only 11% are of foreign targets.

4. Turnover Rates within Industries

4.1 CEO Turnover Clustering

Table 2 presents an overview of the CEO turnover sample and describes the clustering of turnovers within industries. Panel A reports the frequencies of forced and voluntary turnovers. The final sample consists of 36,532 total firm-year observations in 31 industries and 3,596 CEO turnovers, yielding an unconditional turnover rate of 9.84%. Of these turnovers, 945 are classified as forced (2.59% of firm-years) and 2,651 are classified as voluntary (7.26% of firm-years).

Panel B of Table 2 reports industry-level time-series clustering of CEO turnovers. One-quarter of all turnovers occur in just 7.7% of industry-years. This clustering is even more pronounced for forced departures. One-quarter of all dismissals occur in only 4.1%

of industry-years. Panel C of Table 2 reports that the average annual industry turnover rate is 9.67% with a standard deviation that amounts to more than 50% of the mean turnover rate. Variation in forced turnover is even more significant. A standard deviation of 2.97% represents 120% of the average annual forced turnover rate, suggesting wide swings in the rate of dismissals from one industry-year to the next.⁹ Overall, the results in Table 2 confirm that CEO turnover varies significantly within industries and clusters in time.

4.2 CEO Turnover Waves

The clustering of turnover observed in Table 2 suggests the existence of CEO turnover waves. Two categories of waves are identified; all turnover waves and forced turnover waves. Panel A of Table 3 reports the frequency of all and forced turnover waves and the number of unique industries experiencing at least one wave during the sample period. I identify 24 CEO turnover waves in 20 industries. Over 60% of industries in the sample experience at least one turnover wave during the sample period suggesting that periods of abnormally high turnover are widespread across industries. I also identify 32 forced turnover waves in 23 unique industries providing further evidence of abnormally high concentrations of CEO dismissals within industries.

Appendix C lists all industries experiencing turnover waves and the start (end) date for each wave. Four industries experience two all turnover waves and seven (one) industries experience two (three) forced waves. The average (forced) turnover wave lasts 1.45 (1.38) years. While there is time overlap between all and forced waves in a given

⁹ Appendix A (B) reports summary statistics of the annual rate of (forced) turnover for all industries in the sample. Industries with the most variation in forced turnover include the Entertainment and Apparel industries, while Banking and Machinery exhibit the least amount of variation. Industries with higher variation in turnover have higher average forced turnover rates, less competition, and are less homogeneous than industries with less variation in forced turnover.

industry, 62% of forced waves are separate from all turnover waves in the same industry. For example, firms in the Steel Works industry experience two forced waves. The second forced turnover wave coincides with an all turnover wave, but the first forced wave is distinct. In addition, waves are fairly well distributed across time as every sample year except for 1992 and 2014 contains at least part of one all turnover wave and all years from 1994-2013 experience at least one forced wave. These results provide evidence of the existence of turnover waves and their prevalence across industries and time.

Panel B of Table 3 compares the frequency of turnover during waves to 12-month non-wave periods.¹⁰ The average number of turnovers in a turnover wave is 18.5 compared to only 4.7 in a non-wave period, which is significantly different at the 1% level.¹¹ These figures represent 28% of the industry experiencing turnover in a wave compared to only 10% in non-wave periods. If turnover was uniformly distributed across the 23-year sample period, the percentage of all industry turnovers occurring in any one 12-month period would be equal to 4.3%. Non-wave periods experience a similar concentration of all industry turnover in a given year, whereas, on average, 14% of all industry turnovers occur during waves.

Differences in the frequency of CEO dismissals during forced turnover waves compared to non-wave periods are even greater (Panel C). The average number of forced turnovers in waves is six times higher than in non-wave periods.¹² This represents 12% of the industry experiencing a forced departure during a forced wave compared to only 2% of the industry in non-wave periods. On average, only 4% of all industry forced turnovers

¹⁰ In unreported results, I compare the frequency of turnover during waves to 15 and 18-month non-wave periods. All results in Table 3 are robust to these benchmarks.

¹¹ 445 out of 3,596 turnovers (12.4%) occur during turnover waves.

¹² 210 out of 945 forced turnovers (22.2%) occur during forced turnover waves.

over the entire sample period are concentrated in non-wave periods. In sharp contrast, on average, 21% of all industry forced turnovers occur during forced waves. Voluntary turnovers also occur during forced turnover waves at almost twice the rate than during non-wave periods suggesting that CEO changes are not all disciplinary in nature during a forced wave. All of the differences between forced wave and non-wave periods are significantly different at the 1% level. Overall, Table 3 provides evidence that the dynamics of the CEO labor market are significantly different during turnover waves. For the remainder of the paper, I limit the analysis to forced turnover waves in order to focus on spillovers to monitoring and managerial incentives during periods of increased disciplinary pressure in an industry.

4.3 CEO Turnover Waves – Industry Determinants

Table 4 examines two sets of industry factors that may be associated with CEO turnover waves: industry stock performance and economic shocks. Industry stock performance is plausibly linked to turnover waves given the evidence of Jenter and Kanaan (2015), that CEO turnover is related to industry performance. The second set of factors captures shocks to the industry's operating environment. Such shocks to profitability, research and development (R&D) expenditures, capital expenditures, asset turnover, and sales growth are motivated by Eisfeldt and Kuhnen (2014) who propose a model in which industry conditions determine the desired CEO skill set sought by firms within an industry and will elicit managerial turnover as that skill set changes. The second group of industry shock measures are motivated by prior literature suggesting that industry competition (DeFond and Park, 1999), industry homogeneity (Parrino, 1997), and the cost of acquiring information about the firm (Farrell and Whidbee, 2003) are associated with CEO turnover.

Finally, I examine whether CEO turnover waves are preceded by other disciplinary shocks to an industry including takeover and shareholder activism activity.

Panel A of Table 4 reports industry stock performance prior to, during, and outside of forced CEO turnover waves. The average equally-weighted industry stock return in the year prior to a wave is 7.4% and during a wave is 10.9%. Performance in both of these periods is not significantly different from industry-years outside of waves (9.9%) suggesting that, in general, stock performance is not a significant predictor of waves. This is consistent with additional results in Panel A that a turnover wave is just as likely to occur following positive industry stock performance as it is following negative performance. However, the probability of a turnover wave following an industry-year in the bottom quintile of industry stock returns is 8.7%, which is significantly higher than 3.6% for industry-years in the top quintile. This result suggests that extreme negative shocks to industry performance are a significant determinant of turnover waves.

Shocks to an industry's operating environment as determinants of turnover waves are examined in Panel B of Table 4 and are defined as indicator variables equal to one if the change in the industry measure is above the median for the full sample in that industry-year. Examining all industry-years in the sample suggests that these shocks do not spur turnover waves. However, given the result that turnover waves are just as likely to occur following positive industry performance as negative, there may be distinct economic drivers of waves based on prior industry performance. Therefore, I analyze industry-years following positive and negative industry stock performance separately. Focusing on years following positive performance, turnover waves are significantly more likely to occur following significant increases in profitability, R&D and capital expenditures. These

results are consistent with Eisfeldt and Kuhnen (2013), who suggest that turnover related to economic shocks reflect changes in the type of CEO demanded by firms in that industry. Boards of directors appear to replace incumbent CEO who no longer have the skills necessary to run the firm in the new industry environment following these ‘CEO skill shocks’.

Shifting attention to years following negative industry stock performance, turnover waves are more likely to occur following a decrease in the cost of acquiring information in the industry. This result is consistent with the findings of Farrell and Whidbee (2003), who document a negative relationship between CEO turnover and analyst forecast error. In addition, turnover waves following negative industry performance occur more frequently following an increase in industry homogeneity. This is consistent with prior studies reporting that poorly performing CEOs are easier to identify in more homogeneous industries (Parrino, 1997). Finally, these turnover waves are more likely to occur following an increase in shareholder activism activity in the industry suggesting that external pressure from investors is also a driver of CEO turnover waves.

Panel C of Table 4 summarizes the results of linear probability models estimating the likelihood that a forced CEO turnover wave starts in a given industry-year as a function of industry stock performance, volatility and economic shocks. All independent variables are measured as of the industry-year prior. The regressions also include year and industry fixed effects to capture any macroeconomic or unobservable industry conditions. Model 1 (2) includes industry-years following positive (negative) stock performance. After controlling for macro and industry characteristics, the primary drivers of positive industry performance turnover waves are shocks to the industry’s operating environment or ‘CEO

skill shocks'.¹³ On the other hand, the main determinants of negative industry performance turnover waves are changes in the industry's information environment and external pressure from activist shareholders.

5. Spillover Effects of Turnover Waves on Board Monitoring

The existence of industry turnover waves suggests that peer turnover may play a role in board monitoring decisions. Therefore, I examine whether turnover waves affect the probability that a CEO is fired and the turnover-performance sensitivity of board monitoring.

5.1 Turnover-performance Sensitivity

Table 5 summarizes the results of linear probability models estimating the likelihood of forced CEO turnover in a given firm-year as a function of forced turnover waves, firm characteristics and CEO attributes.¹⁴ The regressions also include year fixed effects to capture any macroeconomic conditions and firm fixed effects to control for a wide range of unobservable firm characteristics.¹⁵ Model 2 of Panel A includes an interaction term between forced turnover wave and lagged firm performance to capture any differences in turnover-performance sensitivity depending on whether the industry is experiencing a turnover wave. The measure of turnover wave is an indicator equal to one

¹³ To shed additional light on the 'CEO skill shocks', I examine the characteristics of replacement CEOs hired inside versus outside of forced turnover waves. Replacement CEOs hired inside turnover waves are more likely to be external hires, in particular, hires from outside of the industry than replacements hired outside of waves. This is consistent with a different type of CEO being demanded within the industry following one of these 'CEO skill shocks'.

¹⁴ Despite a binary dependent variable, I use a linear probability model (i.e. OLS estimation) for two reasons. First, nonlinear models with fixed effects can provide inconsistent estimates (Neyman and Scott, 1948, Abrevaya, 1997). Estimation of a linear probability model avoids this incidental parameters problem. Second, unbiased coefficient estimates for interaction terms can be obtained using a linear probability model (Ai and Norton, 2003).

¹⁵ Results are robust to substituting industry fixed effects for firm fixed effects.

during a wave.¹⁶ All other independent variables are measured as of the fiscal year end prior to when turnover is identified and coefficient p-values based on standard errors clustered by firm are reported in parentheses.

Consistent with prior literature, Panel A of Table 5 suggests that CEOs are more likely to be fired following both poor idiosyncratic and industry-induced performance. The economic magnitude of the turnover-performance relation is consistent across all models. For example, Model 1 reports that a one standard deviation decrease in idiosyncratic (industry-induced) return is associated with a 0.95 (0.62) percentage point increase in the likelihood of forced turnover.

Focusing on the influence of turnover waves reveals that peer turnover has a significant impact on the probability of forced turnover. Models 1 and 2 report that the probability of CEO dismissal increases by 1.0 - 1.2 percentage points in industries experiencing a forced turnover wave as compared to outside of a wave, which represents a 38% - 46% increase in the unconditional rate of forced turnover. This result is consistent with both hypotheses for spillover effects on board monitoring: peer turnover conveys negative information about the existing CEO or draws the attention of the board and boards mimic the activities of peers. To begin to disentangle these motives, I examine changes to the turnover-performance sensitivity during turnover waves.

Model 2 reports that the coefficient on the interaction term between idiosyncratic return and forced turnover wave is negative and statistically significant suggesting that

¹⁶ In order to avoid a mechanical relationship between forced CEO turnover and forced turnover waves, industry turnover waves are calculated separately for each firm excluding any turnovers at that firm.

CEOs with lower idiosyncratic returns are more likely to be fired during a turnover wave.¹⁷ However, the interaction between industry-induced return and forced turnover wave is insignificant. Both of these results are inconsistent with the *herding hypothesis*. The results do suggest that the increased scrutiny of CEOs during waves only manifests for performance directly attributable to managerial actions rather than for events outside of their control, which is consistent with the *information hypothesis*. Boards place more emphasis on relative performance evaluation in turnover waves where they can benchmark against the salient decisions of peers (i.e. peer turnover).

To provide evidence on the attention motive of the *information hypothesis*, I examine whether the impact of waves on monitoring varies by board distractions. One potential measure of board distraction is board busyness (Fich and Shivdasani, 2006). Untabulated results indicate that the probability of forced turnover in waves increases with the percentage of the board that is busy (holds three or more outside directorships), but the sensitivity of turnover to idiosyncratic performance does not change for busier boards during waves. These results lend some support to the notion that peer turnover draws the attention of the board to their own monitoring decisions.

I examine whether the impact of peer turnover on board monitoring varies by industry type to provide additional evidence on the *information hypothesis*. If boards use signals from peer dismissals as informative about their own monitoring decisions, any

¹⁷ In unreported tests, I replace the continuous measure of idiosyncratic (industry-induced) stock return with an indicator equal to one if prior idiosyncratic (industry-induced) performance is in the bottom quartile for the full sample. These results compare the impact of poor performance inside of turnover waves versus outside waves and continue to suggest that boards place increased scrutiny on CEO performance during turnover waves.

spillover effects to board actions should be stronger in industries where engaging in RPE is more useful.

Panel B of Table 5 summarizes regressions similar to Panel A with the addition of indicator variables based on industry type and interaction terms between those indicators, turnover wave and performance measures.¹⁸ The industry factors in Models 1-3 are industry competition, information cost and homogeneity, respectively. Indicators for competition and homogeneity (information cost) are equal to one if the measure is above (below) the median in a given sample year and zero otherwise. All industry characteristics are measured as of the fiscal year end prior.

The results in Panel B suggest that changes to the board's turnover decision during waves are concentrated in more competitive, lower information cost and more homogeneous industries. The increase in the likelihood of turnover during waves varies from 2.4 percentage points in lower information cost industries to 5.6 percentage points in more competitive industries. In addition, the sensitivity of idiosyncratic returns to turnover more than doubles during waves in these industries. This result suggests that boards are more likely to use peer turnover as a salient benchmark to engage in RPE in industries where gathering information signals from rivals is less costly and CEOs have similar human capital. These findings are consistent with peer turnover conveying information to other boards in the same industry about their own monitoring decision.

One potential source of information that may be conveyed to boards during turnover waves is whether the firm's CEO is a relative underperformer compared to

¹⁸ Results are robust to estimating regressions for above and below median subsamples based on industry competition, information environment and homogeneity instead of the inclusion of industry factor interaction terms.

industry peers. The evidence presented in Panel A of Table 5 suggests that boards place increased emphasis on benchmarking and RPE during waves given that turnover-sensitivity with respect to idiosyncratic performance, but not industry performance increases. To test whether information conveyed during turnover waves is related to better identifying underperformers, I estimate whether the probability of dismissal and sensitivity of turnover to performance during a turnover wave depends on industry underperformance. Panel C of Table 5 summarizes regressions similar to Panel A with the addition of an indicator variable based on whether the CEO is an industry underperformer and an interaction term between that indicator, turnover wave and performance measures. Industry underperformers are defined as CEOs with negative idiosyncratic returns in the prior year.

The results in Panel C of Table 5 detail that the previously documented increases in board monitoring scrutiny during turnover waves are restricted to CEOs who underperform their industry. Model 1 reports that the probability of CEO dismissal increases by 3.4 percentage points for underperforming CEOs during turnover waves, while outperforming CEOs are less likely to be fired. In addition, the increased sensitivity of turnover to idiosyncratic performance during waves also only manifests for underperforming CEOs (Model 2). This result also provides evidence against the *herding hypothesis*, which predicts that turnover for underperforming CEO should become more sensitive to industry performance during turnover waves.

The fact that spillover effects to board monitoring during turnover waves are concentrated in underperforming CEOs, provides additional evidence on the benchmarking motive for information conveyed by peer turnover. Boards can better identify relative

underperformers and engage in relative performance evaluation during turnover waves. This result in conjunction with the results in Section 4 documenting ‘CEO skill shocks’ as drivers of turnover waves suggest that peer turnover during waves conveys information to boards about whether their CEO is a relative underperformer and whether their CEO has the relevant skill set demanded by the industry.

I conduct two main robustness tests related to the spillover effects to board monitoring during CEO turnover waves. First, the results in Table 5 are robust to classifying industries at the Fama-French 12 industry-level and using the Hoberg-Phillips product market industry definitions. Second, Table 5 results are robust to defining the measure of peer turnover as all turnover waves (forced and voluntary) or continuous measures of forced CEO turnover (percentage of industry that fires CEO in industry-year). Boards increase scrutiny on CEO performance and are more likely to dismiss the CEO during turnover waves identified within these alternative industry definitions or during these alternative measures of high industry turnover.

5.2 CEO Turnover Announcement Returns

Panel A of Table 6 reports summary statistics on Fama-French-Carhart four-factor adjusted three-day cumulative abnormal returns surrounding the announcement date of forced turnovers with available return data. The average return surrounding turnover (replacement) announcements is -0.75% (0.83%) which is significantly different from zero at the 5% level. There is a significant difference in the market response to turnover announcements made in conjunction with the appointment of a replacement and those turnover and replacement announcements that are made on separate dates. Combined announcements are met with an average -0.07% announcement return, which is

indistinguishable from zero, while turnover and replacement announcements made separately earn average returns of -2.38% and 2.78% respectively.

To explore whether the market responds to turnover announcements made inside of turnover waves differently than those made outside of waves, Panel B of Table 6 compares announcements returns for these two groups. On average, turnover and replacement announcement returns made inside of turnover waves are significantly higher than those made outside of waves. Turnover (Replacement) announcements made inside of turnover waves experience an average return of 0.31% (2.01%) compared to a -1.06% (0.50%) average return for non-wave turnover (replacement) announcements. The significant difference in announcement returns is concentrated in turnover announcements made in conjunction with naming a replacement CEO. Announcements made inside of turnover waves experience an average 1.68% return, while average returns to those made outside of waves are -0.58%. This result suggests that the market perceives that turnover decisions made by boards during turnover waves are value-increasing for shareholders compared to those made outside of waves. This interpretation is consistent with boards gathering information from peer turnovers during turnover waves in order to better identify underperforming CEOs and replace incumbent CEO that no longer have the skills necessary to run the firm in a new industry environment.

5.3 Addressing Endogeneity

The results in Table 5 suggest that CEOs are more likely to be fired and boards place greater scrutiny on CEO performance during industry turnover waves. This association, however, does not necessarily imply a causal relation because of the possibility that some common industry factor simultaneously induces turnover waves and the spillover

effects to board monitoring. I address this concern using a propensity score matched sample and an instrumental variables approach.

The propensity score approach matches CEO-firm-years that occur during turnover waves with similar CEO-firm-years that occur outside of waves and compares the rate of forced turnover between the two groups. First, I model the likelihood of a CEO turnover wave for each CEO-firm-year in the sample as a function of industry, firm and CEO attributes.¹⁹ The fitted values from this model are the propensity scores. Next, I match CEO-firm-years inside of waves to ones outside of waves in the same year by score. One-to-one matching is performed without replacement, using a caliper of 1%, similar to Heckman, Ichimura, and Todd (1997).²⁰ The difference in the probability of forced turnover between the matched pairs is the effect of the turnover wave.

Table 7 reports the results of the propensity score matching. The average treatment effect (ATE) implies that the probability of forced turnover inside of an average industry turnover wave is 1.24% higher than the rate of dismissal in an average non-wave period. The difference is significant at the 5% level. This represents roughly 50% of the unconditional rate of forced turnover and is similar to the economic effect of turnover waves reported in Panel A of Table 5. This result suggests that CEOs in turnover waves are significantly more likely to be fired than similar CEOs with similar firm performance and industry conditions outside of a turnover wave.

¹⁹ Firm characteristics include idiosyncratic return, industry-induced return, return volatility, firm size, and institutional ownership. CEO attributes include age, tenure and ownership. Industry conditions include industry competition, information cost index, homogeneity, and equally-weighted stock return in the current and prior years.

²⁰ Results are robust to using calipers of 5% and 10%. Results are also robust to matching CEO turnover wave observations to the nearest 5, 10 and 20 neighbors based on all calipers.

I also implement an instrumental variables approach to control for endogeneity. A valid instrument must be significantly related to CEO turnover waves, but uncorrelated with common industry factors that are associated with changes in board monitoring. The instrument chosen is based on a previous study that examines the impact of peer firm financing decisions on the capital structure of other firms in the same industry. Leary and Roberts (2014) suggest that idiosyncratic equity shocks to rival firms are a potential source of exogenous variation. For each firm, I define the instrument for turnover wave as the lagged average idiosyncratic stock return of all other firms in the industry. This variable is plausibly correlated with turnover waves given evidence from prior studies of a link between the probability of CEO turnover and idiosyncratic returns. It also reasonably meets the exclusion restriction since, by definition, the idiosyncratic stock return is performance attributable to that firm's management and filters out any common industry factors.

Table 8 summarizes the results of the two-stage least squares estimation of the impact of CEO turnover waves on the probability of forced turnover. Model 1 reports the first stage model estimating the likelihood of a forced turnover wave. These results suggest that the instrument, average industry idiosyncratic stock return, is a significant determinant of turnover waves. In addition, the p -value for the Cragg and Donald (1993) instrument relevance test strongly rejects the null hypothesis of a weak instrument. Model 2 describes the second stage model estimating the probability of forced CEO turnover as a function of instrumented turnover wave (fitted value from first stage) and other firm and CEO characteristics. Consistent with the results in Tables 5 and 7, CEOs in industries experiencing a turnover wave are significantly more likely to be fired in that year. These

results suggest that even after controlling for endogeneity, peer turnover has significant spillover effects on board monitoring.

Overall, peer turnover in waves motivates boards to monitor management differently, representing an additional disciplinary managerial incentive. These results complement those of Jenter and Kanaan (2015) and others, who provide evidence that CEOs are disciplined for poor absolute industry performance. My results suggest that one of the signals through which boards become informed about the CEO turnover decision is the turnover of peers. The observation of other dismissals in the industry provides boards with a salient benchmark to engage in RPE and directors place increased scrutiny on CEO performance during industry turnover waves.

6. Spillover Effects of Turnover Waves on CEO Actions

If board monitoring changes in turnover waves, this implies that managerial incentives also shift. The evidence indicates that CEOs are more likely to be fired and face increased scrutiny regarding performance directly attributable to their actions during turnover waves. Consequently, there may be spillover effects to CEO actions when boards increase disciplinary pressure in waves.

I explore three alternative hypotheses related to the potential impacts on CEO behavior. First, the *selective hypothesis* suggests that the increased scrutiny over performance and job uncertainty in turnover waves can have a positive disciplinary effect on potential CEO actions. This may influence CEOs to be more selective in project evaluation, so as not to engage in value-destroying projects. Second, the *conservative hypothesis* proposes that if CEOs are exposed to a higher risk of discipline during turnover waves, managers may forgo some positive NPV projects. Finally, the *stimulation hypothesis*

suggests that increased monitoring during turnover waves may spur CEOs to engage in projects that they otherwise would be reluctant to undertake during normal times. To investigate the potential spillover effects of industry turnover waves on CEO actions, I consider acquisition decisions and their outcomes given the emphasis that boards place on the performance evaluation of acquisition activity (Lehn and Zhao, 2006).

Model 1 of Table 9 reports a linear probability model estimating the likelihood of engaging in an acquisition in a given firm-year as a function of forced turnover wave, firm and CEO characteristics. The dependent variable is an indicator equal to one if the firm engaged in at least one acquisition in a given firm-year. The regression also includes year and firm fixed effects and coefficient p-values clustered by firm are reported in parentheses.²¹

The coefficient on forced turnover wave is negative and statistically significant, suggesting that during turnover waves CEOs in that industry are less likely to engage in an acquisition.²² A 1.2 percentage point decrease in the probability of making a bid during a wave represents a 15% reduction in the unconditional probability of engaging in an acquisition (7.9%). This result suggests that changes to managerial incentives during forced turnover waves have a significant impact on CEO actions and could be consistent with both the *selective* and *conservative hypotheses*. To provide further evidence on the spillover effects related to industry turnover waves, I examine the market responses to acquisition announcements. If announcement returns for acquisitions initiated during waves are higher than non-wave periods, this suggests evidence in favor of more selective

²¹ Analysis in Table 9 is robust to restricting the sample to acquisitions of only public targets.

²² 207 out of 3,009 acquisitions (6.9%) occur during forced turnover waves.

CEOs avoiding potentially value-destroying deals, while lower announcement returns suggest CEOs are forgoing risky, positive NPV projects for shareholders.

Model 2 and Table 9 summarizes an OLS regression modeling acquisition announcement returns as a function of forced turnover waves, firm and deal characteristics. The dependent variable is the three-day Fama-French-Carhart four-factor adjusted cumulative abnormal return (CAR) for the acquirer centered on the deal announcement date. The regression also includes year and firm fixed effects and coefficient p-values clustered by firm are included in parentheses.

The results in Model 2 show that the market reacts more favorably to acquisitions announced during turnover waves than those in non-wave periods. The coefficient estimate on turnover wave suggests that the average three-day acquirer CAR for acquisitions announced during a wave is 1.6 percentage points higher providing evidence in favor of the *selective hypothesis*. The increase in the average acquirer announcement return of 1.6 percentage points represents \$96 million in market capitalization for the average firm in the sample or \$109 million for the average firm in the acquirer sample. This effect is economically significant considering the average CAR for the full sample is -0.5%. The result implies that the changes in board monitoring during turnover waves have a disciplinary effect on executive actions. Overall, the results in Table 9 suggests that CEOs are more selective in the acquisition process when boards increase the disciplinary pressure during turnover waves. This is consistent with peer turnover providing a meaningful managerial incentive which decreases potential value-destroying behavior of CEOs.

7. Conclusion

This study examines the extent to which CEO turnover varies within industries and the impact of industry shocks and peer turnover on the board's monitoring function and executive actions. The results suggest that industry turnover rates vary substantially over time, and the extent to which they vary is highlighted by industry-level CEO turnover waves. The wave-like behavior of turnover is widespread as 75% of industries experience at least one forced turnover wave during the sample period, where a significant portion of the industry fires their CEO. The primary drivers of turnover waves vary by the performance of the industry. Waves following positive industry performance are preceded by 'CEO skill shocks', while negative performance waves follow changes in the industry's information environment and external pressure from activists.

Peer turnover plays an important role in how the board evaluates the CEO. The results indicate that executives are more likely to be fired and turnover-performance sensitivity increases during turnover waves. Boards engage in relative-performance evaluation in periods in which they can benchmark against the salient decisions of peers (i.e. forced turnover). These results are concentrated in more competitive, more homogeneous and lower information cost industries. This result is consistent with peer turnover conveying information to the board about its own monitoring function as these are industries in which engaging in relative performance evaluation is more useful. Similar to benchmarking performance to that of peers, boards consider the evaluation and dismissal of rivals as informative about their own CEO monitoring decisions. This interpretation is consistent with higher announcement returns surrounding turnover and replacement

decisions during waves suggesting that boards make informed monitoring decisions during these periods.

Managerial incentives vary with peer turnover given the changes to the board's actions and evaluation of CEO performance during turnover waves. The results suggest that CEOs are less likely to engage in acquisitions during industry turnover waves. Conditional on making a bid, however, acquisitions announced during waves earn significantly higher abnormal returns than acquisitions announced outside of these periods. This implies that CEOs are more selective in the acquisition process when the disciplinary pressure within an industry increases. Collectively, these results suggest that monitoring spillover effects related to peer turnover curb potential value-destroying behaviors and act as a meaningful managerial incentive.

My work provides important evidence on the spillover effects of peer turnover as well as more general work on board monitoring and managerial incentives. I add to the substantial literature related to the wave-like behavior of corporate decision-making by documenting CEO turnover waves. In addition, this paper highlights the importance of external factors in the board's monitoring and evaluation of the CEO. Consequently, the spillover effects related to peer turnover act as a managerial incentive resulting in changes to CEO behavior, which has a significant impact on firm outcomes. Overall, this study details the existence of CEO turnover waves, which motivate boards to monitor management and have real effects on CEO behavior and shareholder wealth.

Appendix A: Industry Rates of CEO Turnover

The table reports summary statistics on the annual rate of turnover for each industry during the 1992-2014 sample period. Industries are defined at the Fama-French 48 level and the list is sorted in decreasing order of standard deviation of the annual rate of industry turnover. All industries with fewer than eight firms in any given sample year are excluded.

Industry	Mean	Median	Std. Dev	Q1	Q3
Entertainment	8.27%	6.25%	8.31%	0.00%	14.29%
Personal Services	12.40%	13.33%	7.61%	8.33%	18.18%
Electrical Equipment	11.56%	10.00%	7.51%	7.41%	16.67%
Printing & Publishing	8.74%	7.14%	6.92%	4.35%	13.04%
Food	9.56%	9.38%	6.71%	3.33%	11.43%
Construction	8.42%	8.00%	6.66%	4.00%	12.00%
Consumer Goods	9.07%	7.41%	6.43%	3.85%	11.54%
Steel	10.83%	11.11%	6.01%	4.55%	13.89%
Business Supplies	10.26%	10.53%	5.97%	4.55%	15.00%
Automobiles	11.79%	10.81%	5.90%	7.69%	17.14%
Construction Materials	9.67%	9.38%	5.86%	3.45%	13.79%
Measuring & Control Equip.	9.69%	10.00%	5.29%	5.26%	13.33%
Restaurants & Hotels	10.86%	10.81%	5.26%	6.67%	14.81%
Chemicals	9.89%	9.30%	5.22%	7.14%	13.73%
Apparel	7.95%	7.69%	5.20%	4.00%	11.11%
Computers	13.59%	12.70%	4.83%	9.62%	18.33%
Communication	9.46%	8.11%	4.82%	7.14%	12.50%
Medical Equipment	8.79%	8.33%	4.81%	5.88%	12.50%
Wholesale	9.96%	9.68%	4.74%	6.35%	13.21%
Machinery	9.92%	10.00%	4.71%	7.46%	12.50%
Transportation	8.06%	7.55%	4.42%	4.76%	11.11%
Healthcare	7.68%	7.41%	4.19%	4.00%	10.71%
Business Services	10.68%	10.49%	4.18%	8.65%	11.83%
Electronic Equipment	9.92%	9.17%	4.14%	8.33%	12.50%
Insurance	7.94%	7.23%	4.13%	5.33%	12.33%
Trading	6.55%	6.50%	4.07%	4.13%	9.86%
Retail	11.55%	11.97%	3.90%	9.17%	14.68%
Pharmaceutical Products	9.25%	9.52%	3.60%	6.45%	11.90%
Petroleum & Natural Gas	8.88%	8.47%	3.56%	6.94%	11.43%
Utilities	10.30%	10.77%	3.22%	8.74%	12.64%
Banking	8.33%	8.80%	3.15%	7.20%	10.78%

Appendix B: Industry Rates of Forced CEO Turnover

The table reports summary statistics on the annual rate of forced turnover for each industry during the 1992-2014 sample period. Industries are defined at the Fama-French 48 level and the list is sorted in decreasing order of standard deviation of the annual rate of industry forced turnover. All industries with fewer than eight firms in any given sample year are excluded.

Industry	Mean	Median	Std. Dev	Q1	Q3
Entertainment	2.99%	0.00%	4.64%	0.00%	5.26%
Apparel	2.91%	0.00%	4.50%	0.00%	4.00%
Personal Services	3.85%	4.17%	4.47%	0.00%	6.25%
Automobiles	2.97%	3.13%	3.83%	0.00%	3.45%
Steel	2.89%	0.00%	3.58%	0.00%	5.00%
Printing & Publishing	1.59%	0.00%	3.29%	0.00%	0.00%
Electrical Equipment	2.91%	3.70%	3.23%	0.00%	5.00%
Food	2.01%	0.00%	3.22%	0.00%	3.13%
Communication	2.78%	2.70%	3.17%	0.00%	5.13%
Computers	6.33%	6.45%	3.14%	3.70%	8.62%
Restaurants & Hotels	3.58%	3.13%	3.09%	0.00%	6.06%
Consumer Goods	1.91%	0.00%	2.96%	0.00%	3.85%
Wholesale	3.00%	1.89%	2.85%	0.00%	5.56%
Measuring & Control Equip.	2.69%	2.50%	2.70%	0.00%	5.41%
Construction	1.60%	0.00%	2.62%	0.00%	4.00%
Construction Materials	1.74%	0.00%	2.53%	0.00%	3.45%
Healthcare	2.24%	3.03%	2.50%	0.00%	3.70%
Retail	4.15%	3.67%	2.48%	2.13%	6.03%
Electronic Equipment	2.79%	1.96%	2.48%	1.08%	3.77%
Medical Equipment	2.48%	2.22%	2.47%	0.00%	4.08%
Business Supplies	1.56%	0.00%	2.42%	0.00%	2.63%
Pharmaceutical Products	2.74%	2.56%	2.21%	1.39%	3.85%
Business Services	3.73%	2.92%	2.20%	2.17%	5.17%
Petroleum & Natural Gas	2.11%	1.56%	2.12%	0.00%	3.28%
Transportation	1.65%	1.96%	1.91%	0.00%	2.38%
Chemicals	1.60%	1.96%	1.79%	0.00%	2.44%
Insurance	1.39%	1.15%	1.63%	0.00%	1.52%
Utilities	1.50%	1.49%	1.57%	0.00%	2.50%
Trading	1.00%	0.84%	1.10%	0.00%	1.65%
Machinery	1.03%	1.56%	0.99%	0.00%	1.69%
Banking	1.21%	0.92%	0.95%	0.76%	1.68%

Appendix C: Industries with CEO Turnover Waves

The table reports each industry identified as experiencing a CEO turnover wave during the 1992-2014 sample period. The first three columns report the start date, end date and length of 24 waves including all turnovers and the second three columns report the start date, end date and length of 32 waves including only forced turnover. Waves are identified using methodology similar to Harford (2005), which is detailed in Section 3.2.

Industry	All Turnover Wave Start	All Turnover Wave End	Length (years)	Forced Turnover Wave Start	Forced Turnover Wave End	Length (years)
Apparel	-	-	-	Feb-05	Mar-06	1.17
Automobiles	-	-	-	Jan-06	Jul-07	1.58
Banking	Jul-06	Nov-07	1.42	-	-	-
Business Services	Feb-99	Nov-01	2.75	Feb-00	Nov-01	1.83
Business Services	Apr-04	Jul-05	1.75	Mar-04	Mar-05	1.08
Business Services	-	-	-	Jun-06	Sep-07	1.33
Business Supplies	Aug-93	Aug-94	1.33	Jun-99	Dec-00	1.58
Chemicals	Jan-95	Feb-96	1.17	-	-	-
Communication	-	-	-	Mar-98	Dec-99	1.83
Communication	-	-	-	Jun-07	Nov-08	1.50
Computers	Feb-99	Jul-00	1.50	Mar-99	Feb-00	1.00
Computers	Aug-06	Jul-07	1.00	-	-	-
Construction	Jun-10	Jul-11	1.17	-	-	-
Construction Materials	Jul-98	Nov-99	1.42	Aug-94	Dec-95	1.42
Construction Materials	-	-	-	Apr-12	Apr-13	1.08
Consumer Goods	Jan-99	Nov-00	1.92	Sep-99	May-01	1.75
Electrical Equipment	Jun-04	Feb-06	1.75	Apr-04	Nov-05	1.67
Electronic Equipment	Jul-04	Feb-06	1.83	Jun-07	Feb-09	1.75
Electronic Equipment	Jun-07	Jan-09	1.67	-	-	-
Entertainment	Jul-08	Dec-09	1.50	Feb-95	May-96	1.33
Financials	Feb-08	Aug-09	1.58	Aug-08	Jun-10	1.92
Financials	Jun-12	May-13	1.00	-	-	-
Food Products	-	-	-	Nov-04	Apr-07	1.50
Insurance	-	-	-	May-99	Sep-00	1.42
Insurance	-	-	-	Jul-07	Jul-08	1.08
Measuring & Control Equip.	-	-	-	Dec-06	Nov-07	1.00
Personal Services	Jan-06	May-07	1.42	Nov-05	Dec-06	1.17
Petroleum & Natural Gas	Oct-11	Sep-12	1.00	Sep-12	Aug-13	1.00
Pharmaceutical Products	Apr-07	Jul-08	1.33	Apr-07	Apr-08	1.08
Printing & Publishing	Jul-05	Jun-06	1.00	Feb-97	Jul-98	1.50
Printing & Publishing	-	-	-	Jan-11	Mar-12	1.25
Restaurants & Hotels	Jul-94	Dec-95	1.50	-	-	-
Retail	-	-	-	Oct-04	Nov-05	1.17
Retail	-	-	-	Dec-05	Dec-06	1.08
Steel Works	Nov-02	Nov-03	1.08	Apr-96	Jan-98	1.83
Steel Works	-	-	-	Nov-02	Feb-04	1.33
Utilities	Jan-97	Jul-98	1.58	Jun-01	Aug-02	1.25
Utilities	-	-	-	Jun-03	Dec-04	1.58
Wholesale	Jan-99	Dec-99	1.08	Jul-98	Jun-99	1.00

Figure 1: CEO Turnover Waves in Select Industry

The figure reports examples of CEO turnover waves identified within the Business Services industry. The solid line represents the number of turnovers in each industry per year. The dotted line represents the number of turnovers scaled by the number of firms in each industry per year. The areas within shaded bars represent CEO turnover wave periods. The first (second) panel includes all (forced) turnovers. Waves are identified using methodology similar to Harford (2005), which is detailed in Section 3.2. The y-axis represents the number/percentage of total CEO turnovers that occur in each sample year. The x-axis represents years of the sample period 1992-2014.

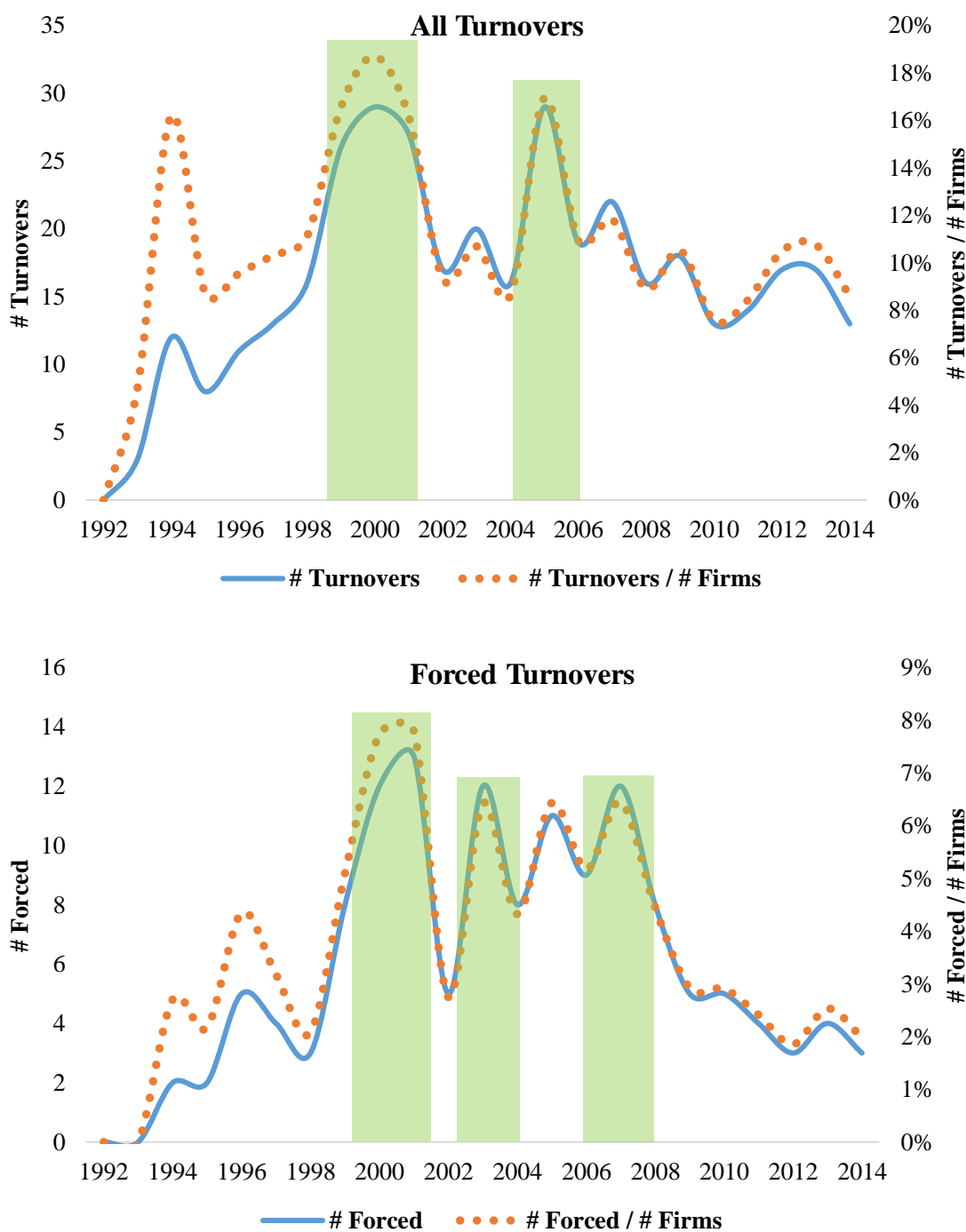


Table 1: Summary Statistics

The table summarizes firm, industry and acquisition characteristics for 36,532 firm-years between 1992-2014. Industries are defined at the Fama-French 48 level and industries with fewer than eight firms in a given year are excluded. Panel A reports firm and CEO characteristics. Industry-induced (idiosyncratic) return is the industry (firm-specific) return in the fiscal year prior. Return volatility is the standard deviation of monthly returns in the fiscal-year prior. Firm size is the natural logarithm of assets at the end of the prior fiscal year. Leverage is total book value of debt scaled by total assets in the prior fiscal year. Market-to-book is the market value of equity scaled by the book value of equity at the end of the prior fiscal year. Institutional ownership is the percentage of outstanding shares held by the top 5 institutional investors as of the prior fiscal year end. CEO age (tenure) is the age (tenure) of the CEO in years. CEO-Chair is an indicator equal to one if the CEO also holds the position of board chair and zero otherwise. CEO ownership is the percentage of outstanding shares held by the CEO. Panel B summarizes industry-level characteristics. Competition is the Herfindahl-Hirschman Index (HHI) based on industry sales. Information cost index is the sum of quartile rankings of median industry forecast error, median industry analyst dispersion and median industry number of analysts following (reverse ranking) where the minimum index value is 3 and the maximum is 12. Industry homogeneity is the average partial correlation coefficient between monthly stock returns of all firms in the same FFI48 industry and monthly industry returns. Industry takeover activity is the percent of public firms in the same Fama-French 48 industry that receive a takeover offer in the prior fiscal year. Panel C summarizes acquisition characteristics for 3,009 acquisitions made by firms in the sample. Announcement return is the 3-day cumulative abnormal return surrounding the acquisition announcement date estimated using the Fama-French-Carhart four-factor model. Relative deal size is the deal transaction value scaled by acquirer market capitalization. All stock is an indicator equal to one if the deal is financed 100% with stock and zero otherwise. Diversifying deal is an indicator equal to one if the acquirer and target are in different Fama-French 48 industries and zero otherwise. Public target is an indicator equal to one if the target is publicly traded and zero otherwise. Foreign target is an indicator equal to one if the target is from a country outside of the United States and zero otherwise.

Table 1: Summary Statistics (Continued)

<i>Panel A: Firm-Level Characteristics</i>	Mean	Median	Std. Dev	Q1	Q3
Industry-induced Return	28.9%	21.7%	51.6%	2.1%	44.9%
Idiosyncratic Return	-2.4%	-8.1%	45.0%	-28.2%	13.2%
Return Volatility	10.8%	9.4%	6.0%	6.6%	13.5%
Firm Size	7.43	7.31	1.77	6.12	8.59
Leverage	22.0%	19.8%	18.5%	5.5%	33.8%
Market-to-Book	2.89	2.10	3.11	1.41	3.37
Institutional Ownership	26.2%	25.7%	9.9%	19.2%	32.5%
CEO Age	55.68	56.00	7.43	51.00	60.00
CEO Tenure	8.00	5.58	8.18	2.50	10.67
CEO-Chair	65.1%	100.0%	47.7%	0.0%	100.0%
CEO Ownership	2.4%	0.4%	5.6%	0.1%	1.5%
<i>Panel B: Industry-Level Characteristics</i>	Mean	Median	Std. Dev	Q1	Q3
Competition (HHI)	0.06	0.05	0.03	0.04	0.07
Information Cost Index	7.55	8.00	2.24	6.00	9.00
Homogeneity	0.22	0.20	0.09	0.15	0.27
Industry Takeover Activity	0.07	0.05	0.07	0.02	0.10
<i>Panel C: Acquisition Characteristics</i>	Mean	Median	Std. Dev	Q1	Q3
Announcement Return	-0.5%	-0.4%	6.8%	-3.7%	2.8%
Relative Deal Size	38%	18%	63%	9%	43%
All Stock	35%	0%	48%	0%	100%
Diversifying Deal	31%	0%	46%	0%	100%
Public Target	62%	100%	49%	0%	100%
Foreign Target	11%	0%	31%	0%	0%

Table 2: CEO Turnover Clustering

The table reports summary statistics of CEO turnover and the clustering of CEO turnover events at the industry-year level. The sample of CEO turnover events includes 3,596 turnovers from 1992-2014. Industries are defined at the Fama-French 48 level and industries with fewer than eight firms in any given year are excluded. Each panel includes statistics on three types of CEO turnover: all, forced, and voluntary. Panel A reports the frequency of turnovers during the sample period. Panel B reports industry-level time-series clustering as the percentage of turnover events that occur in X% of industry-years. Panel C reports summary statistics on the annual rate of turnover at the industry-level.

<i>Panel A: Frequency of Turnover</i>					
Number of Firm-Years	Total Forced Turnovers	Total Voluntary Turnovers	Percentage of Firm-Years with CEO Turnover	Percentage of Firm-Years with Forced CEO Turnover	Percentage of Firm-Years with Voluntary CEO Turnover
36,532	945	2,651	9.84%	2.59%	7.26%

<i>Panel B: Industry-Year Clustering</i>		
Turnover Type	% of Turnovers	% of Industry-Years
All	25%	7.7%
Forced	25%	4.1%
Voluntary	25%	8.1%

<i>Panel C: Rate of Turnover within Industries</i>					
	Mean	Median	Std. Dev.	Q1	Q3
Turnover Rate	9.67%	9.59%	5.46%	5.88%	12.73%
Forced Rate	2.48%	1.68%	2.97%	0.00%	3.85%
Voluntary Rate	7.19%	6.67%	4.53%	4.00%	10.00%

Table 3: CEO Turnover Waves

The table reports summary statistics on CEO turnover waves in industries identified during the 1992-2014 sample period, which are detailed in Appendix C. Industries are defined at the Fama-French 48 level and industries with fewer than eight firms in any given year are excluded. Waves are identified using methodology similar to Harford (2005), which is detailed in Section 3.2. Panel A reports the number of all and forced turnover waves and the number of unique industries experiencing at least one wave during the sample period. Panel B reports statistics related to waves of all turnover events and Panel C summarizes forced turnover waves. Number of turnovers during wave (non-wave) periods is the number of firms experiencing turnover in the industry during wave periods (non-wave 12-month periods). Percentage of industry experiencing turnover during wave (non-wave) periods is the number of firms experiencing turnover in the industry during wave periods (non-wave 12-month periods) scaled by the total number of firms in the industry. Percentage of all industry turnovers during wave (non-wave) periods is the number of turnovers that occur during wave periods (non-wave 12-month periods) scaled by the total number of turnovers within the industry during the sample period.

<i>Panel A: Frequency of CEO Turnover Waves</i>						
		Number of Waves	Number of Industries			
All Waves		24	20			
Forced Waves		32	23			

<i>Panel B: All Turnover Waves</i>						
		Mean	Median	Std. Dev.	Q1	Q3
Number of Turnovers	Wave	18.5	13.0	15.2	10.0	24.5
	Non-Wave	4.7	4.0	3.8	2.0	6.0
Percentage of Industry Experiencing Turnover	Wave	28%	27%	10%	21%	35%
	Non-Wave	10%	9%	5%	6%	13%
Percentage of All Industry Turnovers	Wave	14%	13%	4%	11%	16%
	Non-Wave	4%	4%	2%	3%	6%

Table 3: CEO Turnover Waves (Continued)

		Mean	Median	Std. Dev.	Q1	Q3
<i>Panel C: Forced Turnover Waves</i>						
Number of Turnovers	Wave	6.6	5.0	4.9	4.0	6.0
	Non-Wave	1.1	1.0	1.5	0.0	2.0
Percentage of Industry Experiencing Turnover	Wave	12%	10%	4%	9%	16%
	Non-Wave	2%	2%	3%	0%	4%
Percentage of All Industry Turnovers	Wave	21%	20%	8%	17%	25%
	Non-Wave	4%	3%	4%	0%	6%
Number of Voluntary Turnovers	Wave	6.8	6.0	5.6	2.0	9.0
	Non-Wave	3.8	3.0	3.0	2.0	5.0

Table 4: CEO Turnover Waves – Industry Determinants

The table reports industry characteristics and compares industry-years in which a forced turnover wave begins to industry-years that do not experience a forced turnover wave. Panel A summarizes equally-weighted industry stock returns in the one year prior to forced turnover waves, during forced turnover waves and all other years outside of forced turnover wave waves. Panel A also reports the probability of a forced turnover wave starting the year following various portfolio sorts of industry stock performance. Panel B summarizes shocks to industry characteristics and differences in those characteristics based on a forced turnover wave occurring in the following year. The sample is split into industry-years experiencing positive and negative equally-weighted industry performance in the prior year. Each industry characteristic shock is defined as above or below median for the industry. Profitability is operating income scaled by total assets. R&D is research and development expenditures scaled by total assets. CAPX is capital expenditures scaled by total assets. Asset turnover is sales scaled by total assets. Sales growth is the percentage change in sales. Competition is the Herfindahl-Hirschman Index (HHI) based industry sales. Information cost index is the sum of quartile rankings of median industry forecast error, median industry analyst dispersion and median industry number of analysts following (reverse ranking) where the minimum index value is 3 and the maximum is 12. Industry homogeneity is the average partial correlation coefficient between monthly stock returns of all firms in the same industry and monthly industry returns. Industry takeover activity is the percentage of firms that receive a takeover offer in a given year. Industry activist activity is the percentage of firms with 13D filer as a shareholder in a given year. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Table 4: CEO Turnover Waves – Industry Determinants (Continued)

<i>Panel A: Wave Stock Performance</i>					
	Mean	Median	Std. Dev.	Q1	Q3
Equal-weighted industry return (prior)	7.39%	6.86%	25.21%	-11.16%	14.38%
Equal-weighted industry return (outside)	9.90%	7.16%	19.68%	-3.50%	20.63%
Equal-weighted industry return (during)	10.87%	3.40%	34.55%	-7.25%	14.65%

Prior Industry Stock Performance	No. of Obs.	Probability of Turnover Wave Start	Prior Industry Stock Performance	No. of Obs.	Probability of Turnover Wave Start
Negative	248	5.24%	Quintile 1	138	8.70%
Positive	465	4.09%	Quintile 2	138	1.45%
Negative – Positive		1.16%	Quintile 3	161	2.48%
			Quintile 4	138	6.52%
			Quintile 5	138	3.62%
			Q1 – Q5		5.08% *
			Q1 – (Q2+Q3+Q4+Q5)		5.22% **

	Positive Industry Performance			Negative Industry Performance		
	Wave Start (1)	Non-Wave Start (2)	(1)–(2)	Wave Start (3)	Non-Wave Start (4)	(3)–(4)
Profitability	63%	42%	21% *	54%	59%	5%
R&D	11%	3%	8% *	15%	16%	-1%
CAPX	74%	48%	26% **	54%	43%	11%
Asset Turnover	42%	50%	-8%	46%	53%	-7%
Sales Growth	42%	56%	-14%	62%	43%	19%
Competition	53%	46%	7%	62%	50%	11%
Information Cost Index	53%	69%	-16%	38%	62%	-24% *
Homogeneity	37%	54%	-17%	69%	52%	17% *
Industry Takeover Activity	53%	44%	9%	62%	53%	9%
Industry Activist Activity	42%	31%	11%	62%	42%	20% *

Table 4: CEO Turnover Waves – Industry Determinants (Continued)

<i>Panel C</i>	Dependent Variable: Forced Turnover Wave Start (0/1)	
	Positive Prior Industry Performance	Negative Prior Industry Performance
	Model 1	Model 2
Intercept	-0.045 (0.504)	-0.247 (0.189)
Stock Return Performance	0.031 (0.752)	-0.446 (0.113)
Stock Return Volatility	0.020 (0.768)	0.279 (0.193)
Profitability	0.038* (0.066)	-0.054 (0.126)
R&D	0.103* (0.072)	0.093 (0.197)
Capital Expenditures	0.051*** (0.009)	0.031 (0.376)
Asset Turnover	-0.021 (0.308)	-0.039 (0.253)
Sales Growth	0.007 (0.738)	0.070* (0.058)
Competition	0.010 (0.592)	0.020 (0.539)
Information Cost Index	-0.035* (0.091)	-0.072** (0.031)
Homogeneity	-0.022 (0.256)	0.055* (0.090)
Takeover Activity	0.010 (0.638)	-0.003 (0.928)
Activist Activity	0.012 (0.625)	0.064* (0.095)
Industry & Year FE	Yes	Yes
Observations	465	248
Adjusted R-squared	0.166	0.247

Table 5: CEO Turnover-Performance Sensitivity

The table reports linear probability models estimating the probability of forced CEO turnover. The dependent variable in each model is an indicator variable equal to one if the CEO was fired during a given firm-year. In forced wave is an indicator variable equal to one if the firm-year occurs during a forced turnover wave. Industry forced turnover waves are identified for each firm excluding any turnovers that occurred at the firm using methodology similar to Harford (2005), which is detailed in Section 3.2. Idiosyncratic (Industry-induced) return is the firm-specific (industry) return in the fiscal-year prior. CEO retirement age is an indicator variable equal to one if the age of the CEO is 63-66. CEO tenure is the tenure of the CEO in years. CEO ownership is an indicator equal to one if the CEO's equity ownership is greater than 5% of outstanding shares. Firm size is the natural logarithm of assets at the end of the prior fiscal year. Return volatility is the standard deviation of monthly returns in the fiscal-year prior. Institutional ownership is the percentage of outstanding shares held by the top five institutional shareholders. Panel B includes interactions with an industry factor indicator. The industry factor in Model 1 is competition and the industry factor indicator is equal to one if the Herfindahl-Hirschman Index (HHI) based industry sales is above the sample median in a given year. The industry factor in Model 2 is information cost and the industry factor indicator is equal to one if the information cost index is below the sample median in a given year. Information cost index is the sum of quartile rankings of median industry forecast error, median industry analyst dispersion and median industry number of analysts following (reverse ranking) where the minimum index value is 3 and the maximum is 12. The industry factor in Model 3 is homogeneity and the industry factor indicator is equal to one if the average partial correlation coefficient between monthly stock returns of all firms in the same FFI48 industry and monthly industry returns is above the median in a given year. Panel C includes interaction with an underperformer indicator. Underperformer is an indicator equal to one if the firm's idiosyncratic returns is negative and zero otherwise. All models include firm and year fixed effects. Industries are defined at the Fama-French 48 level and industries with fewer than eight firms in any given year are excluded. *p*-values based on standard errors clustered by firm are in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Table 5: CEO Turnover-Performance Sensitivity (Continued)

<i>Panel A</i>	Dependent Variable: Forced Turnover (0/1)	
	Model 1	Model 2
Intercept	-0.067*** (0.000)	-0.068*** (0.000)
In Forced Wave	0.010** (0.037)	0.012** (0.024)
Idiosyncratic Return	-0.021*** (0.000)	-0.019*** (0.000)
Idiosyncratic Return * In Forced Wave		-0.037** (0.021)
Industry-induced Return	-0.012*** (0.000)	-0.011*** (0.000)
Industry-induced Return * In Forced Wave		-0.011 (0.175)
CEO Retirement Age	0.001 (0.614)	0.001 (0.609)
CEO Tenure	-0.001*** (0.000)	-0.001*** (0.000)
CEO Ownership	0.003 (0.457)	0.003 (0.448)
Firm Size	0.010*** (0.000)	0.010*** (0.000)
Return Volatility	0.086*** (0.001)	0.087*** (0.001)
Institutional Ownership	0.023* (0.098)	0.022 (0.105)
Firm & Year FE	Yes	Yes
Observations	36,532	36,532
Adjusted R-squared	0.024	0.025

Table 5: CEO Turnover-Performance Sensitivity (Continued)

<i>Panel B</i>		Dependent Variable: Forced Turnover (0/1)		
Industry Factor:	Competition	Information Cost	Homogeneity	
	Model 1	Model 2	Model 3	
Intercept	-0.067*** (0.000)	-0.066*** (0.000)	-0.066*** (0.000)	
In Forced Wave	-0.003 (0.621)	-0.001 (0.835)	0.005 (0.331)	
In Forced Wave * Industry Factor	0.056*** (0.001)	0.024** (0.023)	0.049*** (0.000)	
Idiosyncratic Return	-0.020*** (0.000)	-0.021*** (0.000)	-0.020*** (0.000)	
Idiosyncratic Return * In Wave	-0.017 (0.337)	-0.001 (0.913)	-0.029*** (0.002)	
Idiosyncratic Return * In Wave * Industry Factor	-0.096*** (0.005)	-0.059** (0.044)	-0.062** (0.032)	
Industry-induced Return	-0.012*** (0.000)	-0.014*** (0.003)	-0.012*** (0.000)	
Industry-induced * In Wave	-0.003 (0.708)	0.006 (0.682)	-0.004 (0.504)	
Industry-induced * In Wave * Industry Factor	-0.050 (0.181)	-0.028 (0.131)	-0.094*** (0.000)	
Industry Factor	-0.005 (0.176)	-0.003 (0.228)	-0.001 (0.730)	
Idiosyncratic Return * Industry Factor	0.002 (0.728)	0.003 (0.462)	0.007 (0.261)	
Industry-induced Return * Industry Factor	0.003 (0.490)	0.005 (0.314)	0.006 (0.289)	
CEO Retirement Age	0.001 (0.599)	0.001 (0.603)	0.001 (0.665)	
CEO Tenure	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)	
CEO Ownership	0.004 (0.432)	0.004 (0.438)	0.003 (0.467)	
Firm Size	0.011*** (0.000)	0.010*** (0.000)	0.010*** (0.000)	
Return Volatility	0.092*** (0.000)	0.089*** (0.001)	0.087*** (0.000)	
Institutional Ownership	0.022 (0.106)	0.022 (0.107)	0.022 (0.100)	
Firm & Year FE	Yes	Yes	Yes	
Observations	36,532	36,532	36,532	
Adjusted R-squared	0.026	0.025	0.025	

Table 5: CEO Turnover-Performance Sensitivity (Continued)

<i>Panel C</i>	Dependent Variable: Forced Turnover (0/1)	
	Model 1	Model 2
Intercept	-0.069*** (0.000)	-0.070*** (0.000)
In Forced Wave – Outperformer	-0.011** (0.014)	-0.019** (0.015)
In Forced Wave – Underperformer	0.034*** (0.000)	0.008 (0.559)
Idiosyncratic Return	-0.016*** (0.000)	-0.015*** (0.000)
Idiosyncratic Return * In Wave – Outperformer		0.025 (0.243)
Idiosyncratic Return * In Wave – Underperformer		-0.190*** (0.001)
Industry-induced Return	-0.012*** (0.000)	-0.011*** (0.000)
Industry-induced * In Wave – Outperformer		-0.014 (0.167)
Industry-induced * In Wave – Underperformer		-0.013 (0.365)
Underperformer	0.005** (0.018)	0.005*** (0.009)
CEO Retirement Age	0.001 (0.601)	0.001 (0.607)
CEO Tenure	-0.001*** (0.000)	-0.001*** (0.000)
CEO Ownership	0.003 (0.459)	0.003 (0.467)
Firm Size	0.010*** (0.000)	0.010*** (0.000)
Return Volatility	0.085*** (0.001)	0.081*** (0.002)
Institutional Ownership	0.022 (0.104)	0.022 (0.118)
Firm & Year FE	Yes	Yes
Observations	36,532	36,532
Adjusted R-squared	0.026	0.026

Table 6: CEO Turnover Announcement Returns

The table reports summary statistics of the Fama-French-Carhart four-factor adjusted three-day cumulative abnormal returns (CARs) for a sample of 887 forced CEO turnover and replacement announcements. Panel A reports statistics of CARs for the full sample and separates turnover and replacement announcements that are made on the same date (combined) from those made on different dates (stand-alone). Panel B compares CARs of turnovers announced inside turnover waves versus those announced outside of waves. ***, **, and * denote statistically significant differences in means between these two groups (Inside – Outside) at the 1%, 5%, and 10% levels respectively.

<i>Panel A: Forced Turnover Announcement Returns</i>						
	N	Mean	Median	Std. Dev.	Q1	Q3
Turnover Announcement	887	-0.75%	-0.36%	10.64%	-5.50%	4.17%
Replacement Announcement	887	0.83%	0.30%	10.28%	-3.35%	4.47%
Combined Announcement	625	-0.07%	-0.19%	10.25%	-4.72%	4.29%
Stand-Alone Turnover Announcement	262	-2.38%	-1.32%	11.36%	-7.01%	3.40%
Stand-Alone Replacement Announcement	262	2.78%	0.82%	9.93%	-1.67%	5.25%

<i>Panel B: Inside Wave vs. Outside Wave</i>					
	Inside Wave		Outside Wave		Inside - Outside
	N	Mean	N	Mean	
Turnover Announcements	196	0.31%	691	-1.06%	1.37%*
Replacement Announcements	196	2.01%	691	0.50%	1.51%**
Combined Announcements	142	1.68%	483	-0.58%	2.26%**
Stand-Alone Turnover Announcements	54	-3.27%	208	-2.15%	-1.12%
Stand-Alone Replacement Announcements	54	2.84%	208	2.77%	0.07%

Table 7: Propensity Score Matched Sample

The table reports the likelihood of forced turnover conditional on a CEO turnover wave based on a propensity score matching methodology. CEO-firm-years that occur inside of a turnover wave are matched to CEO-firm-years that occur outside of a turnover wave based on a propensity score. The propensity score measures the likelihood that a CEO-firm-year occurs during a forced turnover wave. First, the likelihood of a CEO turnover wave is estimated for each CEO-firm-year in the sample as a function of industry, firm and CEO attributes. The fitted values from this model are the propensity scores. Next, CEO-firm-years inside of turnover waves are matched to ones outside of waves by the propensity score. Matching is done without replacement to the nearest neighbor in the same sample year using a caliper of 1%. The number of CEO-firm-years that are successfully matched are reported. The average treatment effect (ATE) is the difference in the probability of forced turnover between wave CEO-firm-years and non-wave CEO-firm-years.

	In-Wave	Out-Wave	Average Treatment Effect (ATE)	p-value for ATE
N	2,018	2,018		
Probability of Forced Turnover	4.41%	3.17%	1.24%	0.039

Table 8: CEO Turnover-Performance Sensitivity – Instrumental Variable Approach

The table reports the results of an instrumental variable approach for estimating the probability of forced CEO turnover. Model 1 reports the first stage linear probability model estimating the likelihood of a forced turnover wave. The dependent variable is an indicator variable equal to one if a forced turnover wave occurred during the firm-year. The instrument for forced turnover wave is the average idiosyncratic stock return of all other firms in the same Fama-French 48 industry. Idiosyncratic return is the firm-specific return in the fiscal-year prior. Industry forced turnover waves are identified for each firm excluding any turnovers that occurred at the firm using methodology similar to Harford (2005), which is detailed in Section 3.2. Model 2 reports the second stage linear probability model estimating the probability of forced CEO turnover. The dependent variable is an indicator variable equal to one if the CEO was fired during a given firm-year. Instrumented forced turnover wave is created as the fitted value from the first stage regression. Idiosyncratic (Industry-induced) return is the firm-specific (industry) return in the fiscal-year prior. CEO retirement age is an indicator variable equal to one if the age of the CEO is 63-66. CEO tenure is the tenure of the CEO in years. CEO ownership is an indicator equal to one if the CEO's equity ownership is greater than 5% of outstanding shares. Firm size is the natural logarithm of assets at the end of the prior fiscal year. Return volatility is the standard deviation of monthly returns in the fiscal-year prior. Institutional ownership is the percentage of outstanding shares held by the top five institutional shareholders. Firm and year fixed effects are also included. Industries are defined at the Fama-French 48 level and industries with fewer than eight firms in any given year are excluded. *p*-values based on standard errors clustered by firm are in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Table 8: CEO Turnover-Performance Sensitivity – Instrumental Variable Approach (Continued)

Dependent Variable:		
	Forced Turnover Wave (0/1)	Forced Turnover (0/1)
	1 st Stage	2 nd Stage
	Model 1	Model 2
Intercept	-0.123*** (0.000)	-0.047** (0.011)
Instrumented Forced Wave		0.164* (0.088)
Average Industry Idiosyncratic Return	-1.070*** (0.000)	
Idiosyncratic Return	0.005* (0.094)	-0.022*** (0.000)
Industry-induced Return	0.018*** (0.000)	-0.015*** (0.000)
CEO Retirement Age	0.001 (0.856)	0.001 (0.685)
CEO Tenure	-0.000 (0.164)	-0.001*** (0.000)
CEO Ownership	-0.015** (0.019)	0.006 (0.223)
Firm Size	0.017*** (0.000)	0.008*** (0.002)
Return Volatility	0.066** (0.035)	0.077*** (0.001)
Institutional Ownership	0.016 (0.394)	0.021 (0.127)
Firm & Year FE	Yes	Yes
Observations	36,532	36,532
1 st Stage Craig-Donald <i>F</i> -statistic	52.84	-
1 st Stage <i>p</i> -value of Craig-Donald <i>F</i> -statistic	0.000	-
Adjusted R-squared	0.133	0.024

Table 9: Acquisition Probability & Announcement Returns

The table reports results of models estimating the likelihood of making an acquisition and abnormal returns around acquisition announcements. Model 1 reports linear probability models estimating the likelihood of making an acquisition where the dependent variable is an indicator equal to one if the firm engages in an acquisition with a public/private target in a given firm-year and zero otherwise. Model 2 reports OLS regressions estimating abnormal returns around acquisition announcements where the dependent variable is the three-day cumulative abnormal return surrounding acquisition announcement dates. In forced wave is an indicator variable equal to one if the firm-year occurs during a forced turnover wave and zero otherwise. All other independent variables are measured as of the fiscal year prior. Idiosyncratic (Industry-induced) return is the firm-specific (industry) return in the fiscal-year prior. Firm size is the natural logarithm of assets at the end of the prior fiscal year. Leverage is total book value of debt scaled by total assets. Market-to-book is market capitalization scaled by the book value of equity as of the prior fiscal year end. Return volatility is the standard deviation of monthly returns in the fiscal-year prior. Institutional ownership is the percentage of outstanding shares held by the top five institutional shareholders. CEO age (tenure) is the age (tenure) of the CEO in years. CEO ownership is an indicator equal to one if the CEO's equity ownership is greater than 5% of outstanding shares. CEO turnover is an indicator equal to one if the firm experienced turnover in the prior fiscal year. Industry takeover activity is the percent of public firms in the same Fama-French 48 industry that receive a takeover offer in the prior fiscal year. Relative deal size is deal transaction value scaled by acquirer market capitalization. All stock is an indicator equal to one if the deal is financed 100% with stock and zero otherwise. Diversifying deal is an indicator equal to one if the acquirer and target are in different Fama-French 48 industry and zero otherwise. Foreign target is an indicator equal to one if the target is a non-US firm. Public target is an indicator equal to one if the target is publicly traded and zero otherwise. Firm and year fixed effects are also included. Industries are defined at the Fama-French 48 level and industries with fewer than eight firms in any given year are excluded. p -values based on standard errors clustered by firm are in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Table 9: Acquisition Probability & Announcement Returns (Continued)

Dependent Variable: Acquisition (0/1)		Dependent Variable: Acquirer CAR	
	Model 1		Model 2
Intercept	0.336*** (0.000)	Intercept	0.077*** (0.005)
In Forced Wave	-0.012* (0.060)	In Forced Wave	0.016* (0.056)
Idiosyncratic Return	0.009** (0.015)	Idiosyncratic Return	0.002 (0.685)
Industry-induced Return	0.017*** (0.000)	Industry-induced Return	0.005 (0.296)
Firm Size	-0.040*** (0.000)	Firm Size	-0.011*** (0.002)
Leverage	-0.081*** (0.000)	Leverage	0.025 (0.167)
Market-to-Book	0.002** (0.029)	Market-to-Book	-0.002** (0.041)
Return Volatility	-0.144*** (0.000)	Return Volatility	0.047 (0.325)
Institutional Ownership	0.047** (0.029)	Institutional Ownership	-0.007 (0.814)
CEO Age	-0.000 (0.978)	CEO Age	-0.006 (0.362)
CEO Tenure	-0.000 (0.758)	CEO Tenure	-0.000 (0.883)
CEO Ownership	-0.018** (0.014)	CEO Ownership	0.010 (0.297)
CEO Turnover	-0.010** (0.047)	CEO Turnover	0.000 (0.960)
Takeover Activity	0.135*** (0.000)	Takeover Activity	0.028 (0.363)
		Relative Deal Size	-0.013*** (0.000)
		All Stock	-0.007* (0.095)
		Diversifying Deal	-0.007 (0.112)
		Foreign Target	0.004 (0.478)
		Public Target	-0.019*** (0.000)
Firm & Year FE	Yes	Firm & Year FE	Yes
Observations	36,532	Observations	3,009
Adjusted R-squared	0.092	Adjusted R-squared	0.222

Chapter 2:
The Value of Venue in Corporate Litigation:
Evidence from Exclusive Forum Provisions

Jared I. Wilson[†]

Abstract

In response to the increased threat of shareholder litigation filed in multiple states, firms have adopted exclusive forum provisions which limit lawsuits to a single venue of the board's choice. It is unclear whether these provisions impose increased costs on shareholders' ability to discipline managers and directors or provide benefits to shareholders by eliminating multi-forum and duplicative lawsuits. I use the Delaware Chancery Court's announcement upholding the adoption of these provisions as a natural experiment to evaluate their wealth implications. Overall, my findings suggest that exclusive forum provisions create value for shareholders by specifying a required venue for corporate litigation.

JEL Classification: G30, G34, K22, K41

Keywords: Exclusive forum provision, shareholder litigation, corporate governance

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1. Introduction

Corporate governance literature examines the mechanisms through which managers and directors are incentivized to act in the best interests of shareholders. Shleifer and Vishny (1997) suggest one common approach to corporate governance relies on empowering investors through legal protection. When management and the board of directors fail to maximize firm value, shareholders have the ability to discipline them through litigation. Jensen (1993) suggests that directors and executives are motivated by the reputation effects and adverse publicity associated with litigation. Consequently, the threat and use of shareholder lawsuits is an important external governance mechanism aligning the interests of managers and directors with those of shareholders.

The frequency of shareholder lawsuits has significantly increased in recent years. Changes to the shareholder litigation environment are especially apparent in the context of mergers and acquisitions. Cain and Davidoff (2013) document that while only 40% of large mergers (>\$100 million transaction value) involved litigation in 2005, over 90% of deals were litigated in 2012. Furthermore, the authors report that of the deals litigated in 2012, more than 70% incurred multiple lawsuits and over 50% involved lawsuits filed in multiple forums (states). For example, target shareholders of Delaware incorporated firms typically file multiple lawsuits in Delaware courts as well as outside of Delaware claiming that the board breached its fiduciary duty by agreeing to sell the firm for too low a price. In most cases, these lawsuits settle for additional disclosure about the merger transaction and payment of the plaintiffs' attorneys' fees. Judges on the Delaware Chancery Court

have become increasingly concerned about this “forum shopping” by lawyers to find the state or venue with the most favorable outcome and that pays the highest attorneys’ fees.²³

Many boards of directors have responded to the increased frequency of shareholder litigation and the threat of multi-forum lawsuits by adopting exclusive forum provisions to corporate charters or bylaws. These provisions require that shareholder lawsuits brought against the firm, executives and/or directors must be filed in a single state or venue of the board’s choice. It is not clear whether these exclusive forum provisions are beneficial or detrimental for shareholders. On the one hand, some shareholders claim that exclusive forum provisions restrict their legal rights to choose the litigation venue. These opponents argue that the board’s selection of a state such as Delaware as the required forum insulates managers and directors from the threat and discipline of litigation. For example, shareholders may be less willing to file lawsuits in Delaware because of higher expected costs associated with what is perceived to be a managerial-friendly venue for litigation. Therefore, the *managerial entrenchment hypothesis* suggests that exclusive forum provisions weaken incentives created by potential or actual litigation for managers and directors to act in shareholders’ best interests and have negative firm value implications.

On the other hand, firms argue that exclusive forum provisions benefit shareholders by eliminating duplicative lawsuits and specifying the appropriate venue for shareholder litigation. With an exclusive forum provision in place, directors and management save time and money by focusing on one lawsuit in one forum instead of essentially identical lawsuits in multiple forums every time a major corporate event occurs. In addition, these provisions designate the appropriate venue for litigation by eliminating the risk that other

²³ See L. Hoffman, “Judge Makes Merger Lawsuits Disappear” *The Wall Street Journal*, January 11, 2016.

courts involved in multi-forum litigation misinterpret the corporate law of the firms' state of incorporation, which governs shareholder disputes regardless of the venue. Finally, the adoption of a provision may deter opportunistic lawsuits and limit unwarranted reputation costs for directors, resulting in the ability to retain or attract more qualified directors. The *shareholder interest hypothesis* suggests that exclusive forum provisions create value for shareholders through the elimination of duplicative shareholder lawsuits and the designation of a required venue for litigation.

I use the Delaware Chancery Court's *Boilermakers* decision on June 25, 2013 that upheld the adoption of exclusive forum provisions as a natural experiment to examine the shareholder wealth implications associated with the adoption of a required venue for shareholder litigation. This announcement provides a clean setting to evaluate the shareholder wealth effects associated with these provisions because it involves a decision directly related to the validity of provision adoption that is exogenous from firm-specific confounding or anticipation effects. If exclusive forum provisions benefit shareholders by allowing boards to select a required litigation venue that eliminates duplicative lawsuits, firms that have adopted provisions and those that are more likely to be targeted by multi-forum litigation should increase in value around the *Boilermakers* decision relative to firms that are less likely. Alternatively, if these provisions inhibit shareholders' ability to discipline managers and directors through litigation, the opposite result should manifest. It is also possible that the costs and benefits associated with a required litigation venue depend on the extent to which a firm is likely to be subject to litigation. In this case, provisions may have positive firm value effects for shareholders of some firms, while reducing shareholder wealth for others.

The results favor the *shareholder interest hypothesis* and are stronger for firms likely to benefit from the elimination of multi-forum lawsuits. Consistent with the rise of merger-related lawsuits, firms that are likely to be subject to a takeover offer and those that have already adopted an exclusive forum provision react positively around the *Boilermakers* decision.²⁴ For these firms, the benefits of specifying a required forum appear to outweigh the costs that shareholders assume to file litigation in a venue of the board's choice. However, firms that are unlikely to be subject to merger-related litigation experience negative returns around the decision. There is little benefit associated with eliminating duplicative litigation for these firms given that they are unlikely to receive multi-forum lawsuits. Collectively, these findings suggest that the board's ability to unilaterally specify a required forum for shareholder litigation benefits provision adopters and firms likely to be subject to merger-related litigation, while shareholders of firms with low litigation risk incur costs to discipline managers and directors in a forum of the board's choice.

To provide additional evidence on the shareholder wealth effects associated with exclusive forum provisions and a required venue for litigation, I examine the determinants of provision adoption and the market reaction to the announcement of these adoptions. Results suggest that firms that are likely to receive a takeover offer are more likely to adopt a provision. This finding is consistent with these firms eliminating multi-forum litigation that is typically filed against target boards in merger transactions. The evidence also

²⁴ Typically, target shareholders file lawsuits against the target board of directors in multiple forums/states claiming a breach of fiduciary duty around the announcement of a takeover (Cain and Davidoff, 2013). Thomas and Thompson (2004) report that merger-related shareholder lawsuits are the dominant form of corporate litigation representing 80% of breach of fiduciary duty claims in 1999 and 2000 in the Delaware Chancery Court.

indicates that firms adopting exclusive forum provisions experience significantly positive stock returns around provision adoption announcements. This result is concentrated in firms likely to be subject to a takeover offer and subsequently, merger-related lawsuits, which are the dominant form of shareholder litigation (Thomas and Thompson, 2004). While this finding may be an anticipation effect of an upcoming bid, tests using the *Boilermakers* decision as a natural experiment are free from these concerns and draw similar conclusions. Overall, these results provide additional evidence in favor of the *shareholder interest hypothesis* suggesting that exclusive forum provisions benefit shareholders.

This study contributes to the literature examining shareholder litigation as well as more general work on corporate governance. First, I investigate the firm wealth implications associated with exclusive forum provisions, which significantly change how shareholders can pursue litigation against the firm by limiting lawsuits to a single forum of the board's choice. To the best of my knowledge, this paper is the first to evaluate the firm value effects related to this innovation in the shareholder litigation environment.²⁵ Second, this paper adds to prior studies focusing on corporate litigation as a disciplinary mechanism (e.g. Fich and Shivdasani, 2007, Cheng, Huang, Li and Lobo, 2010, Brochet and Srinivasan, 2014) by examining whether these provisions alter the ability of litigation to align the interests of managers and directors with those shareholders. Finally, the results add to the debate over the value of Delaware incorporation. Prior studies, such as Daines

²⁵ Grundfest (2012) examines the temporal trend of provision adoption and the different methods of adoption for IPO firms versus already public firms. Romano and Sanga (2015) consider the factors driving the growth in provision adoption and the different methods of adoption for IPO firms and established firms. The authors document that the trend to near-universal adoption of provisions for IPO firms is driven by law firms that always adopt a provision in the IPOs they advise, while corporate governance is not a significant determinant of adoption for established firms.

(2001), suggest that one channel through which Delaware incorporation is valuable is Delaware's specialized business courts. My study complements this work by suggesting that the Delaware corporate judicial system benefits shareholders of Delaware-incorporated firms and supports the notion that it is the appropriate venue for shareholder disputes involving these firms. Overall, this paper provides empirical evidence that exclusive forum provision and the designation of a specific venue for shareholder litigation have positive shareholder value implications, particularly for firms that are likely to be subject to merger-related litigation.

2. Exclusive Forum Provisions and Hypotheses

2.1 Exclusive Forum Provisions

Exclusive forum provisions, adopted into either the corporate charter or bylaws, create limits on where shareholders can file lawsuits against the firm, executives, and/or board of directors. These provisions require all shareholder lawsuits brought in the name of the firm to be filed in the single forum (state or court) of the board's choice. The provisions serve two purposes including the elimination of duplicative lawsuits as well as litigation filed outside of the firm's state of incorporation. Bylaw amendments can be unilaterally adopted by the board, while charter amendments must be voted on by shareholders. Shareholder lawsuits subject to these provisions are state corporate law claims including class-action, derivative, and other intra-corporate suits. Shareholders typically allege that executives or directors violated their fiduciary duty and failed to maximize shareholder value. In the case of major corporate actions like mergers, target shareholders may allege that the board agreed to sell the company for too low a price (Krishnan, Masulis, Thomas, and Thompson, 2012).

2.2 *Boilermakers Decision*

The adoption of exclusive forum provisions has created a debate between adopting firms and shareholders over whether they are beneficial or detrimental to firm value. This debate is highlighted by shareholders of twelve firms with existing provisions that sued each firm's board in the Delaware Chancery Court in February 2012 claiming that directors lacked the power to adopt such provisions without shareholder consent. All but two of the sued firms repealed their existing provisions. Chevron Corporation and FedEx Corporation did not, deciding to litigate. On June 25, 2013, the Delaware Chancery Court ruled in the *Boilermakers* decision that boards have the authority to adopt these provisions without shareholder consent.²⁶ The impact of this decision and exclusive forum provisions, however, remains unknown. Examining the wealth implications of a required forum for litigation is essential for our understanding of shareholder lawsuits as an incentive mechanism aligning the interests of managers and directors with those of shareholders. The debate over provision adoption suggests two competing hypotheses regarding their firm wealth effects: the *shareholder interest hypothesis* and the *managerial entrenchment hypothesis*.

2.3 *Shareholder Interest Hypothesis*

The *shareholder interest hypothesis* contends that exclusive forum provisions benefit shareholders by eliminating duplicative lawsuits and specifying the appropriate venue for shareholder litigation. Boards argue that these provisions increase shareholder wealth by eliminating the possibility of a wave of essentially identical lawsuits filed in

²⁶ *Boilermakers Local 154 Retirement Fund et al. v. Chevron Corp. et al.*, No. 7220-CS; *IClub Investment Partnership v. FedEx Corp. et al.*, No. 7238-CS, 2013 WL 3191981 (Delaware Chancery, June 25, 2013).

multiple forums every time a merger or other major corporate action is announced. With an exclusive forum provision in place, directors and management can focus on one lawsuit in one forum instead of duplicative lawsuits in multiple states all making the same claim. This is important because addressing litigation consumes a large amount of time for managers and directors and can be prohibitively costly for the firm and its shareholders (e.g. Bizjak and Coles, 1995, Field, Lowry, and Shu, 2005).²⁷

Boards of directors also argue that exclusive forum provisions benefit shareholders by specifying the appropriate venue for litigation. Boards suggest that plaintiffs' ability to file duplicative lawsuits in multiple forums places shareholders at risk of inconsistent rulings. Exclusive forum provisions eliminate the risk that other courts involved in multi-forum litigation misinterpret the corporate law of the firms' state of incorporation, which governs shareholder disputes regardless of the venue in which the suit is filed. For example, Delaware incorporated firms may select the state of Delaware, specifically the Delaware Chancery Court which has special expertise in applying Delaware corporate law, as their exclusive forum.

In addition to direct costs, such as attorney's fees, managers and directors face reputation costs associated with shareholder litigation.²⁸ The fear of reputation penalties may discourage some individuals from serving as directors or cause already serving directors to be risk averse, reducing board effectiveness (Black, Cheffins, and Klausner, 2006). The adoption of an exclusive forum provision may limit the reputation costs faced by directors through the deterrence of opportunistic lawsuits. Armour, Black, and Cheffins

²⁷ Cain and Davidoff (2013) report an average number of shareholder lawsuits per merger transaction of 5.2 and average attorneys' fees of \$600,000 per merger-related shareholder lawsuit in 2012.

²⁸ Hanley and Hoberg (2012), among others, suggest that firms have strong incentives to avoid the potential reputational losses associated with litigation.

(2012) suggest that Delaware judges apply plaintiff attorney fee scrutiny to encourage what the judges perceive as valid cases and discourage frivolous cases brought in Delaware. One possible consequence may be that opportunistic lawsuits are not filed in Delaware that otherwise would be brought outside of Delaware. Given that firms overwhelmingly choose Delaware as the required forum, these provisions may limit opportunistic lawsuits. As a result, directors do not face as high of a risk of reputation penalties from frivolous lawsuits and firms may increase their ability to attract and retain high quality directors.

Overall, this hypothesis proposes that exclusive forum provisions benefit shareholders by specifying a required venue for shareholder litigation and eliminating duplicative multi-forum lawsuits. The *shareholder interest hypothesis* suggests:

H₁: Exclusive forum provisions increase firm value.

If this hypothesis holds, firms that adopt exclusive forum provisions should experience positive abnormal returns around provision adoption announcements. In addition, firms likely to be subject to shareholder litigation and multi-forum lawsuits should increase in value around the *Boilermakers* decision relative to firms with lower respective likelihoods. Firms expected to be subject to multi-forum litigation are likely to be affected by the *Boilermakers* decision because exclusive forum provisions limit shareholder lawsuits to a single forum of the board's choice.

2.4 Managerial Entrenchment Hypothesis

On the other hand, the *managerial entrenchment hypothesis* suggests that exclusive forum provisions harm shareholders by restricting their choice of the legal venue and discouraging discipline of managers and directors through litigation. Under this hypothesis, the board of director's ability to set the rules governing where they can be sued

by shareholders hinders shareholders' ability to discipline managers and directors and is detrimental to firm value.

The *managerial entrenchment hypothesis* recognizes that shareholders must incur costs to prevent managers and directors from taking actions that are harmful to shareholder interests. Exclusive forum provisions can increase the costs associated with bringing a lawsuit and decrease the disciplinary effect imposed on managers and directors by such litigation.²⁹ Armour, Black, and Cheffins (2012) provide evidence that shareholder lawsuits are increasingly brought outside of Delaware. This suggests that shareholder plaintiffs and their lawyers find the net benefit of filing suit in Delaware to be lower than filing in other states. Given that firms overwhelmingly choose Delaware as their exclusive forum, these provisions may discourage shareholders from filing suit against managers or directors if it must be done in Delaware. If exclusive forum provisions deter the threat of shareholder litigation, the incentive alignment between shareholders, directors and managers may be weakened and allow management and the board to entrench themselves.

Exclusive forum provisions allow the board of directors to choose a forum that may be perceived as more management and director-friendly (i.e. Delaware). Several studies suggest that Delaware corporate law may cater towards managerial interests (e.g. Cary, 1974, Bebchuk, 1992). Therefore, these provisions may act to increase the job security of incumbent management and directors through more favorable outcomes in a forum of the board's choice. In addition, shareholders may be less willing to engage in

²⁹ In general, proxy advisory firms Institutional Shareholder Services, Inc. (ISS) and Glass, Lewis & Co. oppose exclusive forum provision adoption without a shareholder vote. ISS and Glass Lewis make case-by-case recommendations on the efficacy of these provisions but suggest that the provisions may negatively impact shareholders by removing their choice of venue. In addition to recommending a vote against provision adoption, Glass Lewis recommends voting against the governance committee chair of any firm that has already adopted an exclusive forum provision without shareholder approval.

litigation and discipline management and the board if they are limited to only filing lawsuits in what is perceived to be a business-friendly venue.

Prior studies provide evidence of director reputation losses associated with the threat of shareholder litigation (i.e. Fich and Shivdasani, 2007). The fear of lawsuits can motivate outside directors to act in the interests of shareholders (Fama and Jensen, 1983 and Bhagat, Brickley, and Coles, 1987). However, if exclusive forum provisions reduce the threat of shareholder litigation, then the fear of reputation loss associated with these lawsuits is reduced. This decreases the incentive alignment between directors and shareholders. Also, previous studies related to director and officer (D&O) insurance suggest mechanisms that shield directors and officers from the discipline of shareholder litigation may create unintended moral hazard (Chalmers, Dann, and Harford, 2002 and Lin, Officer, and Zou, 2011). This suggests negative outcomes for similar governance mechanisms, like exclusive forum provisions, that may shield directors and officers from the discipline of shareholder litigation.

Overall, this hypothesis proposes that exclusive forum provisions decrease incentives created by shareholder litigation for managers and directors to act in shareholders' best interests. The *managerial entrenchment hypothesis* suggests:

H2: Exclusive forum provisions decrease firm value.

If this hypothesis holds, firms that adopt exclusive forum provisions should experience negative abnormal returns around the announcement of provision adoption. In addition, firms likely to be subject to shareholder litigation and multi-forum lawsuits should decrease in value around the *Boilermakers* decision relative to firms with lower respective likelihoods.

3. Research Design and Descriptive Statistics

The initial sample to investigate hypotheses related to the shareholder wealth effects of exclusive forum provisions is drawn from the Compustat database. I begin with 78,527 firm-year observations during the sample period that begins in fiscal year 2009 and ends in fiscal year 2015. This sample of firm-years is merged with the Center for Research of Stock Prices (CRSP) database for stock returns, with the Thomson Reuters Institutional Ownership database for institutional ownership, with acquisition data from the Thomson/SDC U.S. Merger and Acquisition database (SDC), with Execucomp for CEO characteristics, and with governance data from Institutional Shareholder Services (ISS) and Management Diagnostic's BoardEx databases. After excluding firm-years with missing values for stock returns, book value of assets, and institutional ownership, the final sample consists of 25,544 firm-year observations for 5,078 unique firms.

Firms with exclusive forum provisions as of December 31, 2015 are identified in two ways. First, I conduct a Factiva search using the keywords 'exclusive forum' and 'current report' to search for public companies that have amended their corporate charter or bylaws to include an exclusive forum provision (midstream adopters). This search yields 8-K documents from the SEC announcing the charter or bylaw amendment. Information related to the adoption of the provision is collected from the corresponding SEC documents (8-K, DEF 14A, etc.). Second, I search S-1 (IPO) filings for a set of firms that went public between 2010-2015. This set of firms is collected from Thomson/SDC to determine if the firm went public with an exclusive forum provision in their corporate charter or bylaws at the time of the IPO. I identify a total of 753 public companies that have adopted an exclusive forum provision as of December 31, 2015. The final sample of

provision adopters is restricted to 510 firms (2,156 firm-years) that adopted the provision as an already public company (midstream adopter) with available information in the Compustat/CRSP sample for fiscal years 2009-2015. The sample of provision adopters is limited to only midstream adopters in order to capture the shareholder wealth effects associated with provision adoption.

The *Boilermakers* decision on June 25, 2013 provides a good quasi-experimental setting to measure the value implications associated with a required forum for shareholder litigation. It involves a decision directly related to the validity of provision adoption that is exogenous to confounding effects related to firm-specific provision adoption. In addition, news analyses suggest that the *Boilermakers* decision was not fully anticipated by the market.³⁰

Schwert (1981) suggests that stock price changes following an announcement, such as the *Boilermakers* decision, can be informative about the market's valuation of the decision. Since all firms share the same event window, their abnormal returns may be correlated and traditional event study methodology may underestimate the standard errors. Schwert (1981) recommends forming portfolios to reduce the cross-sectional correlation between stocks. I adopt this approach and form portfolios based on the likelihood that firms in the portfolio are affected by the decision. The Fama-French-Carhart four factor model is used as the benchmark to measure three-day cumulative abnormal returns around the *Boilermakers* decision. The following regression is estimated:

³⁰ I conduct a Factiva search during the one-year period prior to the *Boilermakers* decision for any news related to its potential outcome. This search does not yield any events that could be interpreted as related to the outcome of this decision prior to its announcement on June 25, 2013. However, to the extent that any earlier unobservable events signaled the outcome of the *Boilermakers* decision, it will bias against finding significant results at its announcement.

$$R_{p,t} = \alpha + \beta_1 R_{m,t} + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 UMD_t + \beta_5 Boilermakers_t + e_t \quad (1)$$

where R_p is the portfolio return, R_m is the market return, SMB is the size factor, HML is the book-to-market factor, and UMD is the momentum factor, all at date t . The dummy variable $Boilermakers_t$ equals one for the three trading days between June 24 and June 26, 2013, and zero for all other dates. The estimation period spans the 348 trading days between February 7, 2012 and June 26, 2013. Schwert (1981) suggests that the estimation period should include any events related to the ultimate outcome of a decision like *Boilermakers*. Therefore, I begin the estimation period on the date that shareholders of thirteen firms filed lawsuits against each firm's board of directors over their existing exclusive forum provisions. The estimated average daily abnormal return during the *Boilermakers* decision event window is captured by the β_5 coefficient.

Firms are sorted into portfolios based on the likelihood they are affected by the *Boilermakers* decision to test hypotheses related to the firm value implications of exclusive forum provisions. Firms that are most likely to be affected include those that have or will eventually adopt a provision and firms with a higher likelihood of being subject to multi-forum litigation, given that exclusive forum provisions limit shareholder lawsuits to a single venue of the board of director's choice. I use measures of the probability of receiving a takeover offer as a proxy for the likelihood that a firm is subject to multi-forum lawsuits considering the increased frequency of such litigation associated with mergers in recent years. Cain and Davidoff (2013) report that over 90% of large mergers involved litigation in 2012 with 50% of these deals receiving multiple lawsuits in multiple forums. Typically, target shareholders allege that the target board of directors breached their fiduciary duty by failing to disclose sufficient information about the deal and/or obtain a

fair price. Takeover probability is estimated as the fitted value from panel regressions using information from the Thomson/SDC Merger & Acquisitions database.³¹

A firm's existing governance structure may also play a role in the adoption and shareholder wealth effects of an exclusive forum provision.³² I consider the effect of several internal and external governance features commonly associated with agency conflicts including board co-option (Coles, Daniel and Naveen, 2014), board busyness (Fich and Shivdasani, 2006), CEO-Chair duality, CEO ownership, classified board (Bebchuk and Cohen, 2005) and institutional ownership.

Table 1 provides provision characteristics for 753 firms with exclusive forum provisions as of December 31, 2015 with available information in Compustat and CRSP. Panel A reports that 69% of the sample is a midstream adopter. Midstream adopters typically add the provision to their bylaws, while firms that adopt at their IPO normally include the provision in their corporate charter. Over half of exclusive forum provisions were adopted in conjunction with other amendments to the firm's bylaws/charter. Finally, 80% of sample firms have adopted since the *Boilermakers* decision on June 25, 2013. This result is consistent with the notion that the *Boilermakers* decision provided clarity on the validity of provision adoption and that the decision to uphold exclusive forum provision adoption encouraged many firms to adopt.

Panel B of Table 1 reports the temporal distribution of exclusive forum provision adoptions by year. The low rate of adoption in 2012 and beginning of 2013 can be attributed to firms' reluctance to adopt until lawsuits against FedEx and Chevron related to

³¹ Appendix B provides variable definitions and estimation results.

³² Prior literature, such as Brickley, Coles and Terry (1994), suggests that the firm value implications associated with the adoption of internal governance mechanisms vary by existing firm governance structures.

the adoption of their exclusive forum provisions were resolved in the Delaware Chancery Court. These lawsuits were filed in February 2012 and resolved in June 2013. Panel C describes the industry distribution of exclusive forum provisions by Fama-French 12 industry classifications. Provision adoption is not concentrated in any one industry, although business equipment (21%), healthcare (19%), financials (12%), and retail and wholesale (11%) are the most well represented industries in the sample. Panel D of Table 1 details the states selected as exclusive forums and incorporation (headquarters) states of sample firms. Firms overwhelmingly choose Delaware as their exclusive forum, which typically matches the firm's state of incorporation. Grundfest (2012) and Romano and Sanga (2015) construct samples of exclusive forum provision adopters and find similar distributions of IPO/non-IPO, charter/bylaw and pre-/post-*Boilermakers* decision adopters.

4. Empirical Results

4.1 Determinants of Exclusive Forum Provision Adoption

Table 2 presents univariate comparisons of exclusive forum provision adoption firm-years, firm-years for non-adopting firms, and a matched sample of non-adoption firm-years from fiscal years 2009-2015. I consider takeover probability, firm characteristics, and governance measures as the main determinants of provision adoption. Column 1 includes 510 provision firm-years, column 2 includes 25,034 firm-years of non-adopting firms, and column 3 includes 510 non-adopting firm-years matched to adopting firms based on adoption year, industry, and firm size.

Panel A of Table 2 reports the average difference in measures of takeover probability between the sub-samples. As previously discussed, firms that receive takeover offers are likely to be subject to multi-forum litigation. Consistent with an attempt to

eliminate duplicative merger-related litigation, firms that adopt an exclusive forum provision have significantly higher takeover probability and actually receive a takeover offer in the following year at a significantly higher frequency than non-adopting firms. Overall, Panel A suggests that firms adopting exclusive forum provisions are more likely to be subject to shareholder litigation and multi-forum lawsuits.

Panel B of Table 2 reports average differences in firm fundamentals between adopting and non-adopting firms. Focusing on columns 1 and 2, firms with exclusive forum provisions are larger, have higher operating performance, higher Tobin's Q, more free cash flow, and lower stock return volatility than non-adopting firms. Adopting firms are also more likely to be incorporated in Delaware as well as incorporated in a state that is different from their state of headquarters. This result is consistent with an attempt to eliminate duplicative multi-forum shareholder litigation that may be filed in both the state of headquarters and state of incorporation. Shifting to columns 1 and 3, adopting firms are relatively similar to the matched non-adopting sample, but remain more likely to be incorporated in Delaware and in a state that is different from the state of headquarters.

Average differences in corporate governance characteristics are reported in Panel C. There is some evidence that boards of exclusive forum provision adopters have a higher percentage of busy directors, but this result only manifests in the non-matched firm comparison. In addition, adopting firms have a higher percentage of institutional ownership. Overall, the results from Table 2 suggest that the main determinant of exclusive forum provision adoption is the likelihood of a takeover offer and the subsequent multi-forum litigation associated with such an offer.

Table 3 summarizes the results of logistic regressions modeling the likelihood of provision adoption as a function of takeover likelihood, firm attributes and governance. The regressions also include year and industry fixed effects. Panel A includes all firm-years in the main sample and Panel B includes a sub-sample with available governance measures. Models 1 and 2 include the full sample and Models 3 and 4 are limited to the matched sample of adopting and non-adopting firms. The dependent variable in all models is equal to one if the firm adopted an exclusive forum provision in that fiscal year and zero otherwise. Coefficient p -values based on standard errors clustered by industry are reported in parentheses and a standardized coefficient in brackets. The standardized coefficient relates the modeled effect on the likelihood of adoption for a one standard deviation change in a continuous variable, or for a change from 0 to 1 for an indicator variable.

After controlling for firm and industry characteristics, Model 1 documents a significantly positive relation between provision adoption and takeover probability. Firms that are likely to be subject to multi-forum litigation associated with a takeover appear to adopt a provision to eliminate duplicative lawsuits. The motivation to eliminate duplicative, multi-forum litigation is especially relevant for potential takeover targets considering that, in the typical merger, target shareholders file lawsuits in multiple forums against the target board claiming a breach of fiduciary duty.

Firms that adopt exclusive forum provisions are larger, have lower prior stock performance, more free cash flow and higher R&D expenditures than firms that do not adopt. Even after controlling for firm and industry factors, adopting firms are more likely to be incorporated in a state that is different from their state of headquarters, which is

consistent with firms attempting to eliminate duplicative multi-forum shareholder litigation that may be filed in both the state of headquarters and state of incorporation.³³

Model 2 reports that firms experiencing a takeover offer in the following fiscal year are significantly more likely to adopt an exclusive forum provision than firms that do not receive a takeover bid. Firms that are subject to a future takeover bid are 0.8 percentage points more likely to adopt a provision, representing a 40% increase in the unconditional rate of adoption (2.0%). This result provides additional support for the notion that firms that are likely to be subject M&A-related litigation, the most dominant form of shareholder lawsuits, are more likely to adopt a provision. Results in Models 3 and 4 of Panel A provide consistent evidence for the matched sample; exclusive forum provision adopters are more likely to receive a future takeover offer.

The regressions in Panel B of Table 3 control for internal and external measures of governance. Even after controlling for firm governance, provision adopters continue to be more likely to be subject to takeover offers than non-adopters. There is limited evidence that adopting firms have boards with a higher percentage of captured directors. In general, however, the results suggest that the governance structure of the firm does not have a significant impact on provision adoption.³⁴

Overall, results from Table 3 suggest that firms likely to be targeted by multi-forum lawsuits associated with a takeover offer are more likely to adopt exclusive forum provisions. These results, however, do not provide evidence on the shareholder wealth implications associated with these provisions. In order to distinguish between the two

³³ Results are robust to replacing the Different Inc./HQ indicator with an indicator for Delaware incorporation, which yields a significantly positive coefficient.

³⁴ Romano and Sanga (2015) find similar results of no significant differences in the governance structures of exclusive forum provision adopters from non-adopters.

proposed hypotheses, I begin by examining the firm-specific market reaction to the announcement of exclusive forum provision adoption.

4.2 Market Reaction to Exclusive Forum Provision Adoption

The sample of provision adoption announcement returns consists of 482 midstream adoptions with no confounding events, such as merger or earnings announcements, around the announcement date. Table 4 reports average Fama-French-Carhart four-factor adjusted three-day cumulative abnormal returns (CAR) surrounding the filing date of the 8-K announcing the amendment to the corporate charter or bylaws.³⁵

Panel A reports that the full sample average adoption announcement return is positive 1.56% and statistically significant at the 1% level. This result suggests that, on average, the market perceives exclusive forum provisions as value creating governance mechanisms, providing support for the *shareholder interest hypothesis*. Furthermore, this hypothesis suggests that exclusive forum provisions are more valuable to firms that are more likely to be subject to shareholder litigation and multi-forum lawsuits. The degree to which provisions benefit shareholders through increased protection from duplicative and/or opportunistic lawsuits may depend on firm-specific characteristics, specifically takeover likelihood, state of incorporation, and governance measures. Therefore, I compare announcement returns for firms sorted into high and low sub-samples based on full sample median firm characteristics. All firm characteristics are measured as of the fiscal year end prior to the provision adoption announcement.

Panel B of Table 4 describes results based on high and low takeover likelihood subsamples. On average, adoption firms with higher takeover probability experience

³⁵ Announcement returns are winsorized at the 1% and 99% levels. In addition, results are robust to using 1, 2, or 5-day windows surrounding the announcement date.

significantly positive announcement returns of 2.46%, while those with a lower likelihood experience average returns of 0.69%, which is still significant at the 10% level. In addition, firms that receive a takeover offer in the year following provision adoption experience a significantly positive average announcement return of 10.30%. These results suggest that exclusive forum provisions are especially valuable to shareholders of firms that are likely to be subject to takeover-related lawsuits, which is the dominant form of shareholder litigation (Thomas and Thompson, 2004).

An alternative explanation for the positive returns around adoption announcement for firms that are likely to or do receive a takeover offer in the future is related to the anticipation of an upcoming bid. Provision adoption, which eliminates multi-forum litigation that is especially prevalent in merger transactions, may signal to the market that the firm is likely to receive a takeover offer in the future. Thus, the positive returns around adoption may not reflect the market's evaluation of the provision and instead capture the positive effects of the upcoming bid.

To address this concern, I examine a set of provision adopters in which a future takeover bid may be more anticipated. Cai, Song and Walkling (2011) document that takeover bids following a lull in industry takeover activity are less anticipated than subsequent bids in that industry. Therefore, I focus on adopting firms in industries with higher takeover activity in the prior year. For these firms, the adoption of a provision is less likely to signal to the market that the firm is expected to receive a takeover offer because the possibility of a takeover offer is more likely to have been anticipated in the industry. In these cases, the adoption announcement return should to a greater extent reflect the impact of the exclusive forum provision and not an upcoming bid.

In unreported results, the average adoption announcement return for firms with above median takeover probability and in the highest quartile of prior year industry takeover activity is a statistically significant 2.24%. In addition, adopting firms that receive a future takeover offer and are in the highest quartile of prior year industry takeover activity have an 8.86% announcement return around provision adoption. While this test is unable to rule out the potential effects of anticipation, subsequent tests using the *Boilermakers* decision as a natural experiment are free from these concerns and are consistent with the positive impact of exclusive forum provisions for firms likely to be subject to merger-related litigation.

Panel C of Table 4 sorts firms based on the time period in which they adopted an exclusive forum provision. Firms that adopted provisions following the *Boilermakers* decision on June 25, 2013 experience a significantly positive average announcement return of 1.76%, while announcement returns of those that adopted prior are positive, but essentially zero. This result is consistent with the notion that the *Boilermakers* decision provided clarity on the validity of provision adoption and that these provisions are beneficial for shareholders.

Adopting firms are sorted based on their state of incorporation in Panel D. Regardless of differences in state of headquarters and incorporation, adoption announcement returns are significantly positive. In addition, adopters incorporated in Delaware and outside of Delaware react positively to adoption announcements. This evidence refutes the argument by opponents of the provisions that boards choose litigation venues, such as Delaware, which may be perceived as a more management friendly in order to insulate themselves from the discipline of shareholder litigation by choosing. The positive announcement

returns for Delaware incorporated adopters also adds to the debate over the value of Delaware incorporation and suggests that one channel through which Delaware incorporation is valuable is Delaware's specialized business courts. This supports the notion that it is the appropriate venue for shareholder disputes involving these firms.

Adoption announcement returns are sorted based on governance characteristics in Panel E of Table 4. Except for adopters with low institutional ownership, all sorts based on firm governance experience significantly positive adoption announcement returns. This includes firms with a high percentage of captured or busy directors as well as adopters with a CEO-Chair or classified board. These results suggest that governance structures do not play a significant role in the degree of value associated with exclusive forum provisions and provide no evidence to support the *managerial entrenchment hypothesis* which predicts significantly lower returns for firms with weaker governance structures.

The final sort in Panel F of Table 4 is based on two exclusive forum provision characteristics. Provisions that are adopted into the firm's bylaws or corporate charter both experience significantly positive announcement returns. This result suggests that even when boards unilaterally amend the corporate bylaws without shareholder approval to adopt an exclusive forum provision, it is value increasing for shareholders. Panel F also reports the announcement returns for provisions adopted without any other amendments to the bylaws or charter, which may provide a cleaner test of the firm value implication of exclusive forum provisions. These adopting firms experience significantly positive announcement returns of 2.10%. Collectively, the results in Table 4 suggest that all adopters and especially firms most likely to be subject to merger-related litigation and

multi-forum lawsuits experience significant gains in firm value associated with exclusive forum provision adoption and provide support for the *shareholder interest hypothesis*.

Table 5 presents the results of OLS regressions modeling the market response to exclusive forum provision adoption as a function of litigation risk, firm characteristics, and governance. The regressions also incorporate year and industry fixed effects. The dependent variable in each model is the Fama-French-Carhart four-factor adjusted three-day announcement CAR. Coefficient p-values based on standard errors clustered by industry are reported in parentheses.

After controlling for firm and industry factors, Model 1 documents a significantly positive relation between announcement returns and takeover probability. The results in Model 2 report that firms that receive a takeover offer in the year following the adoption of a provision experience adoption announcement returns that are 10.0% higher than adopters that do not, which is economically significant considering an average announcement return of 1.56%. This result continues to hold after controlling for firm governance characteristics in Models 3 and 4. In general, these results are consistent with the notion that the benefits of exclusive forum provisions are greater for firms that are likely to be subject to multi-forum litigation as target shareholders typically file lawsuits against the target board in multiple venues. These firms appear to benefit from a required venue for litigation which eliminates duplicative lawsuits.

As mentioned, it is possible that the adoption of an exclusive forum provision signals to the market that the firm is likely to receive a takeover offer. Under this scenario, the positive returns observed around provision adoption could reflect anticipation of an upcoming bid and prevent interpretation about the true impact of the provisions. To help

address this concern, I repeat the analysis in Table 5 for the subsample of adopters in the highest quartile of prior year industry takeover activity in which future takeover offers may be more anticipated. In untabulated analysis, I find quantitatively and qualitatively similar results to those in Table 5. While this robustness test is unable to fully alleviate this concern, subsequent tests using the *Boilermakers* decision as a natural experiment to evaluate the wealth implications of exclusive forum provisions are free of concerns related to confounding effects of firm-specific adoptions. This decision was not fully anticipated by the market and is exogenous to anticipation effects related to firm decision-making.

The findings in Tables 4 and 5 suggest that announcement returns to provision adoption are significantly positive, supporting the view that these provisions benefit shareholders. The designation of a specific venue for shareholder litigation and increased protection from duplicative lawsuits provided by provisions are especially valuable for firms that are likely to be subject to merger-related litigation in the future. Overall, these results provide evidence in favor of the *shareholder interest hypothesis*; exclusive forum provisions create value for shareholders.

4.3 Market Reaction to Boilermakers Decision

The *Boilermakers* decision of June 25, 2013 provides a natural experiment around which to study the firm value implications associated with exclusive forum provisions. It is a setting that was not fully anticipated by the market and is directly related to the validity of provision adoption. The decision validated that boards of directors have the ability to unilaterally adopt exclusive forum provisions into the firm's corporate bylaws without shareholder consent. It is also exogenous from confounding effects related to firm-specific provision adoption announcements. To examine the stock market reaction around this

decision, all firms incorporated in Delaware with available stock return data (2,024 firms) are sorted into portfolios based on takeover likelihood and exclusive forum provision adoption characteristics.³⁶ All firm characteristics are calculated as of the fiscal year end prior to the decision. Next, the Fama-French-Carhart four-factor model in equation (1) is used to estimate the abnormal returns to the portfolios in the three-day event window surrounding the *Boilermakers* decision.³⁷

Overall, the results suggest that the firm value implications associated with exclusive forum provisions and the ability for boards to unilaterally specify a required forum for shareholder litigation depend on the extent to which a firm is likely to be subject to shareholder litigation and multi-forum lawsuits. For provision adopters and firms that are likely to be subject to multi-forum lawsuits and merger-related litigation, the benefits of specifying a required forum to eliminate duplicative lawsuits appear to outweigh the costs that shareholders must bear to file litigation in a venue of the board's choice. However, for firms that are unlikely to receive multi-forum lawsuits, there is little benefit associated with eliminating duplicative litigation and, if the board was to adopt an exclusive forum provision, shareholders of these firms must assume the incremental costs of filing a lawsuit in a venue that the board selects.

Table 6 begins by sorting firms into portfolios based on takeover likelihood. The results in Panel A suggest that the stock price reaction to the *Boilermakers* decision is unrelated to the estimated ex-ante probability of a takeover offer. Panel B, however,

³⁶ The sample is restricted to Delaware incorporated firms given that the decision was made by the Delaware Chancery Court and was solely applicable to Delaware incorporated firm. In unreported results, I also examine the market reaction to the *Boilermakers* decision based on portfolios sorted by measures of firm governance. There are no discernable patterns in returns based on board co-option, board busyness, CEO-chair duality, or external monitoring.

³⁷ The average three-day abnormal return based on equation (1) for all firms around the *Boilermakers* decision is -0.320% and significantly different from zero.

provides strong evidence that firms that receive a takeover offer in the year following the *Boilermakers* decision experience a significantly positive average return of 1.27% around the decision date. On the other hand, firms that do not receive a future takeover offer experience an average return of -0.37%. A zero-investment portfolio that buys firms that receive a takeover offer and sells firms that do not earns a risk-adjusted three-day abnormal return of 1.64% that is statistically significant at the 1% level. This result provides support for the notion that the market perceives exclusive forum provisions to be beneficial for firms most likely to be subject to multi-forum litigation associated with target shareholders typically filing lawsuits against the target board in these transactions, but value-decreasing for firms not likely to be subject to such merger-related lawsuits.

Panel B of Table 6 also double sorts portfolios based on future takeover offers and provision adoption. Of the firms that experience a future takeover offer, nineteen either had already adopted an exclusive forum provision or do so following the decision, but prior to their takeover offer. These firms experience an average announcement return of 1.42% around the *Boilermakers* decision, while non-adopting firms earn a 1.23% return. This result suggests that the validation of the board's ability to specify a required venue for shareholder litigation is value-increasing for shareholders of firms most likely to benefit from the elimination of duplicative and multi-forum lawsuits, regardless of whether the firm actually adopts a provision in the future.

Focusing on firms that do not receive a takeover offer in the one year following the decision, those that adopt a provision before or after the decision earn significantly positive returns relative to non-adopting firms. This result suggests that the ability to specify a required forum for litigation is beneficial for adopting firms, even if the firm is not likely

to be subject to a takeover offer in the near future. Significantly negative returns concentrated in the non-takeover target, non-adopter portfolio suggests that there are potential costs related to the board's ability to unilaterally specify a litigation venue for shareholders of firms that are unlikely to benefit from the elimination of duplicative, multi-forum lawsuits. It should be noted that the firms associated with the greatest value losses around the decision do not eventually adopt a provision, providing further evidence that the actual adoption of an exclusive forum provision is, on average, a value-increasing practice.

Panel C of Table 6 sorts firms into portfolios based on whether the firm had adopted an exclusive forum provision before the *Boilermakers* decision, after the decision or not at all. Relative to firms that never adopt, exclusive forum provision adopters experience a significantly positive return around the decision. The long-short portfolio that buys provision adopters and sells non-adopters earns a three-day abnormal return of 0.47%, which is statistically significant at the 10% level. The positive announcement effect for provision adopters is concentrated in those firms that had already adopted a provision at the time of the *Boilermakers* decision. The 0.7% return for these firms is significantly different from the portfolio return of firms that never adopt a provision. Only two of the pre-*Boilermakers* adopters were takeover targets in the year following the decision implying that a significantly positive response to the decision is not limited to takeover targets as shown in Panel B. These results suggest that the board's ability to specify a required venue for shareholder litigation is value-increasing for firms that had already adopted - evidence in favor of the *shareholder interest hypothesis*.

While the post-*Boilermakers* adopter portfolio return is not significantly different from non-adopters, the long-short portfolio is still positive. Seventeen of the post-*Boilermakers* adopters eventually receive a takeover offer in the following year and earn an abnormal return of 1.58% around the decision providing more evidence of the benefits of provision adoption for these types of firms. The insignificant return for most of the post-*Boilermakers* adopters suggests that the market may not be able to fully anticipate which firms will adopt unless the firm is likely to receive a takeover offer. Even in those cases where the market cannot fully anticipate the provision adoption and its benefits, Table 4 provided evidence that firms earn positive returns around their individual adoption announcements following the *Boilermakers* decision. Collectively, the findings related to the market reaction surrounding the *Boilermakers* decision suggest that exclusive forum provisions and the ability to specify a required venue for shareholder litigation are beneficial for adopting firms as well as those firms likely to be targeted by duplicative and/or opportunistic merger-related lawsuits and are detrimental to firms that are not.

5. Conclusion

Shareholders' ability to discipline management and the board through the threat and use of corporate litigation is an important incentive mechanism aligning the interests of managers and directors with those of shareholders. In recent years, many firms have responded to an increased frequency of shareholder litigation and threat of multi-forum lawsuits, specifically related to mergers, by adopting exclusive forum provisions. These provisions eliminate duplicative shareholder lawsuits filed against the firm, executives and/or directors to a single state or venue of the board's choice. In this paper, I examine

the shareholder wealth implications associated with the adoption of exclusive forum provisions and a required venue for shareholder litigation.

The results indicate that these provisions benefit shareholders by specifying a required venue for shareholder litigation and eliminating duplicative multi-forum lawsuits. Takeover likelihood is a key determinant of provision adoption as firms with a higher probability of receiving a takeover offer and expected to be subject to multi-forum litigation are more likely to adopt a provision. In addition, I find that firms adopting exclusive forum provisions experience significantly positive stock returns around the announcement of provision adoption suggesting that the market perceives these provisions to be value increasing governance mechanisms. The designation of a specific venue for shareholder litigation and increased protection from duplicative lawsuits provided by provisions are especially valuable for firms that are likely to be subject to merger-related litigation in the future.

I use the Delaware Chancery Court's *Boilermakers* decision on June 25, 2013 that upheld the adoption of these exclusive forum provisions as a natural experiment to further examine the shareholder wealth effects of such provisions. The results suggest that firms that adopt exclusive forum provisions and those that are likely to be subject to shareholder litigation and multi-forum lawsuits increase in value around this decision relative to firms with low litigation risk. This evidence suggests that exclusive forum provisions and the ability for boards to unilaterally specify a required forum for shareholder litigation are value-increasing for provision adopters and firms that are likely to be subject to multi-forum lawsuits and merger-related litigation, while shareholders of firms with low

litigation risk appear to incur increased costs to discipline the board and managers using lawsuits.

This paper contributes to the literature examining shareholder litigation as an incentive mechanism aligning the interests of managers and directors with those of shareholders. Exclusive forum provisions significantly change how shareholders can pursue litigation against the firm by limiting lawsuits to a single venue of the board's choice. This recent innovation in the shareholder litigation environment benefits shareholders, especially those of firms likely to be targeted by multi-forum and merger-related litigation. In addition, the results shed light on the value of Delaware incorporation considering that the vast majority of provision adopters are Delaware-incorporated firms that choose Delaware as their exclusive forum. This study suggests that Delaware's corporate judicial system benefits shareholders of Delaware-incorporated firms and supports the notion that Delaware is the appropriate venue for shareholder disputes involving these firms. Overall, exclusive forum provisions and a required venue for shareholder lawsuits are associated with positive wealth effects for shareholders of firms likely to be subject to litigation.

Appendix A: Variable Definitions

Variable Definition	
<i>Panel A: Takeover Likelihood Measures</i>	
Takeover Probability	The fitted value from a panel regression estimating the probability that a firm will be subject to a takeover offer (Appendix B)
Future Takeover	Indicator equal to one if a firm is subject to a takeover offer in the following fiscal year
<i>Panel B: Firm Characteristics</i>	
Firm Size	Natural log of total market capitalization
ROA	Net income scaled by total book value of assets
Tobin's Q	Market value of firm scaled by total book value of assets
FCF	Operating cash flow minus dividends scaled by total book value of assets
R&D	Research and development expenditures scaled by total assets
Leverage	Total book value of debt scaled by total book value of assets
Prior Performance	One-year buy and hold market-adjusted return in prior fiscal year
Return Volatility	Standard deviation of daily returns over prior fiscal year
Delaware Incorporation	Indicator equal to one if a firm's state of incorporation is Delaware
Different Inc./HQ	Indicator equal to one if a firm's state of incorporation is different from its state of headquarters
<i>Panel C: Governance Characteristics</i>	
Captured	Percentage of independent directors with tenure less than the tenure of the current CEO
Busy	Percentage of independent directors with greater than or equal to three additional public directorships
CEO Chair	Indicator equal to one if the CEO is also chair of the board
Institutional Ownership	Percentage of outstanding shares held by the top five institutional investors
CEO Ownership	Percentage of outstanding shares held by the CEO
Classified Board	Indicator equal to one if the firm has a classified board

Appendix B: Takeover Probability Model

The table reports logistic regressions modeling takeover probability. The dependent variable is an indicator equal to one if the firm was subject to a takeover offer in year t and zero otherwise. Coefficients are estimated for 25,544 firm-years over the 2009-2015 period. All independent variables are measured at the end of fiscal year $t-1$. Firm Size is the natural log of market capitalization. Tobin's Q is market value of the firm scaled by total book value of assets. FCF is operating cash flow minus dividends scaled by total book value of assets. Leverage is total debt scaled by total book value of assets. ROA is net income scaled by total book value of assets. Institutional ownership is the percent of shares held by the top five institutional investors. Targeted in Industry is the number of other firms in the same Fama-French 12 industry subject to a takeover offer in a given sample year. Year and industry (Fama-French 12) fixed effects are also included. p -values based on standard errors clustered by industry are in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

	Takeover Bid
Intercept	-1.970*** (0.000)
Firm Size	-0.198*** (0.000) [-0.011]
Tobin's Q	-0.070*** (0.000) [-0.004]
FCF	0.415 (0.256) [0.022]
Leverage	0.722*** (0.003) [0.039]
ROA	0.019 (0.959) [0.001]
PPE	-0.303* (0.088) [-0.016]
Institutional Ownership	1.077*** (0.000) [0.058]
Targeted in Industry	0.016*** (0.004) [0.001]
Observations	25,544
Pseudo r^2	0.029
Year Fixed Effects	Yes
Industry Fixed Effects	Yes

Table 1: Provision Characteristics

The table reports summary statistics on provision characteristics for 753 firms with exclusive forum provisions through December 31, 2015 with available information in Compustat and CRSP. Panel A reports characteristics on when the exclusive forum provision was adopted (at IPO vs. after IPO), whether the exclusive forum provision was adopted into the corporate bylaws or corporate charter, whether the exclusive forum provision was adopted as a stand-alone amendment or in conjunction with other amendments and whether the exclusive forum provision was adopted before or after the *Boilermakers* decision (June 25, 2013). Panel B reports the temporal distribution of sample exclusive forum adoptions by year. Panel C reports the industry distribution of sample exclusive forum provisions by Fama-French 12 industry classification. Panel D reports the top five states selected as the exclusive forum, the top five states of incorporation and the top five states of headquarters for sample exclusive forum provision adopters.

<i>Panel A: Provision Characteristics</i>														
	N		%											
IPO	235		31%											
Non-IPO	518		69%											
Bylaw Amendment	519		69%											
Charter Amendment	234		31%											
Stand-Alone Amendment	322		43%											
Combined Amendment	431		57%											
Pre-Boilermakers	147		20%											
Post-Boilermaker	606		80%											
<i>Panel B: Adoption Date</i>														
Year	2010	2011	2012	2013	2014	2015								
Provision count	33	94	13	206	249	158								
Percent (%)	4%	13%	2%	27%	33%	21%								
<i>Panel C: Industry Distribution</i>														
	N		%											
Non-Durables	29		4%											
Durables	10		1%											
Manufacturing	70		9%											
Energy	30		4%											
Chemicals	20		3%											
Business Equipment	155		21%											
Telecommunications	22		3%											
Utilities	10		1%											
Retail & Wholesale	84		11%											
Healthcare	144		19%											
Financials	87		12%											
Other	92		12%											
<i>Panel D: States</i>														
Exclusive Forum State (Top 5)	N		%		Incorporation State (Top 5)	N		%		Headquarters State (Top 5)	N		%	
	N	%	N	%		N	%	N	%					
Delaware	671	89%	Delaware	675	90%	California	188	25%						
Maryland	13	2%	Maryland	14	2%	Texas	76	10%						
North Carolina	9	1%	North Carolina	7	1%	New York	53	7%						
California	7	1%	Nevada	7	1%	Massachusetts	46	6%						
Nevada	6	1%	Pennsylvania	5	1%	Illinois	43	6%						

Table 2: Firm Characteristics – Midstream Adopters

The table reports sample means for firm-year observations with non-missing data in Compustat and CRSP for fiscal years 2009-2015. Column 1 includes 510 firm-years in which a firm adopted an exclusive forum provision. Column 2 includes 25,034 non-adoption firm-years. Column 3 includes 510 non-adoption firm-years matched to adopting firms based on adoption year, industry and firm size. The final columns are differences in means between adopting and non-adopting firm-years. Panel A includes measures of takeover likelihood. Takeover Probability is the fitted value from a panel regression estimating the probability that a firm will be subject to a takeover offer (Appendix B). Future Takeover is an indicator equal to one if the firm was subject to a takeover during the following fiscal year. Panel B includes other firm characteristics measured in the fiscal year prior to provision adoption. Firm Size is the natural log of total market capitalization. ROA is net income scaled by total book value of assets. Tobin's Q is market value of the firm scaled by total book value of assets. FCF is operating cash flow minus dividends scaled by total book value of assets. Leverage is total book value of debt scaled by total book value of assets. R&D is research and development expenditures scaled by total book value of assets. Prior Performance is the one-year buy and hold abnormal return over the prior fiscal year. Return Volatility is the standard deviation of daily return over the fiscal year. Delaware Incorporation is an indicator equal to one if the firm's state of incorporation is Delaware. Different Inc./HQ is an indicator equal to one if the firm's state of incorporation is different from its state of headquarters. Panel C includes firm governance characteristics measured in the fiscal year prior to provision adoption. Captured is the percentage of independent directors with tenure less than the tenure of the current CEO. Busy is the percentage of independent directors with greater than or equal to three additional public directorships. CEO Chair is an indicator equal to one if the CEO is also chair of the board. Institutional ownership is the percent of shares held by the top five institutional investors. ***, **, and * denote statistically significant differences in means at the 1%, 5%, and 10% levels respectively.

Table 2: Firm Characteristics – Midstream Adopters (Continued)

<i>Panel A: Takeover Risk</i>					
	Adopters (1)	Non-Adopters (2)	Non-Adopters Matched (3)	(1) – (2)	(1) – (3)
Takeover Probability	6.4%	6.3%	6.0%	0.1%	0.4% **
Future Takeover	15.3%	6.1%	4.9%	9.2% ***	10.4% ***
<i>Panel B: Firm Characteristics</i>					
	Adopters (1)	Non-Adopters (2)	Non-Adopters Matched (3)	(1) – (2)	(1) – (3)
Firm Size	7.16	6.23	7.15	0.93 ***	0.00
ROA	7.3%	3.3%	6.6%	4.0% ***	0.7%
Tobin's Q	2.09	1.89	2.34	0.20 ***	-0.25 **
FCF	3.8%	0.9%	2.8%	2.9% ***	1.0%
Leverage	22.5%	21.3%	19.4%	1.3%	3.1% **
R&D	5.7%	5.0%	5.2%	0.6%	0.5%
Prior Performance	2.6%	0.5%	6.9%	2.2%	-4.3%
Return Volatility	10.4%	12.6%	10.7%	-2.2% ***	-0.3%
Delaware Incorporation	85.3%	61.2%	64.7%	24.1% ***	20.6% ***
Different Inc./HQ	89.6%	70.8%	75.1%	18.8% ***	14.5% ***
<i>Panel C: Governance Characteristics</i>					
	Adopters (1)	Non-Adopters (2)	Non-Adopters Matched (3)	(1) – (2)	(1) – (3)
Captured	47.8%	46.4%	47.3%	1.5%	0.6%
Busy	20.8%	16.0%	19.4%	4.8% ***	1.4%
CEO Chair	46.0%	48.2%	45.6%	-2.3%	0.4%
Institutional Ownership	28.4%	25.5%	27.2%	2.9% ***	1.3% *

Table 3: Probability of Exclusive Forum Provision Adoption

The table reports logistic regressions modeling the likelihood of exclusive forum provision adoption. The sample consists of 25,544 firm-year observations from 2009-2015. In each model, the dependent variable is an indicator equal to one if the firm adopts an exclusive forum provision in that fiscal year and zero otherwise. Panel A reports the results for the full sample of firm-years. Panel B reports results for a sub-sample of firm-years with available firm governance characteristics. Models 1 and 2 of each panel includes all firm-year observations. Models 3 and 4 include the sample of 510 adoption firm-years and 510 non-adoption firm-years matched to adopting firms based on adoption year, industry and firm size. Takeover Probability is the fitted value from a panel regression estimating the probability that a firm will be subject to a takeover offer in the following fiscal year (Appendix B). Future Takeover is an indicator equal to one if the firm is subject to a takeover offer in the following fiscal year. Captured is the percentage of independent directors with tenure less than the tenure of the current CEO. Busy is the percentage of independent directors with greater than or equal to three additional public directorships. CEO Chair is an indicator equal to one if the CEO is also chair of the board. Firm Size is the natural log of total market capitalization. Prior Performance is the one-year buy and hold abnormal return over the prior fiscal year. FCF is operating cash flow minus dividends scaled by total book value of assets. Leverage is total book value of debt scaled by total book value of assets. R&D is research and development expenditures scaled by total book value of assets. Institutional ownership is the percent of shares held by the top five institutional investors. Different Inc./HQ is an indicator equal to one if the firm's state of incorporate is different from firm's state of headquarters. All independent variables are measured at the end of the prior fiscal year. Year and industry fixed effects based on Fama-French 12 industry classifications are also included. *p*-values based on standard errors clustered by industry are in parentheses and marginal effects computed at the mean values of the independent variables are provided in brackets. Marginal effects are the change in the probability of provision adoption for a one standard deviation change in a continuous variable or a shift from zero to one for an indicator variable. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Table 3: Probability of Exclusive Forum Provision Adoption (continued)

<i>Panel A: Full Sample</i>	Model 1	Model 2	Model 3	Model 4
Intercept	-8.566*** (0.000)	-7.903*** (0.000)	-2.136*** (0.000)	-1.296*** (0.000)
Takeover Probability	0.073** (0.028) [0.001]		0.087** (0.026) [0.022]	
Future Takeover		1.026*** (0.000) [0.008]		1.266*** (0.000) [0.316]
Firm Size	0.220*** (0.000) [0.002]	0.170*** (0.000) [0.001]	0.033 (0.300) [0.008]	-0.022 (0.211) [-0.006]
Prior Performance	-0.232* (0.055) [-0.002]	-0.232** (0.022) [-0.002]	-0.207 (0.221) [-0.052]	-0.230 (0.163) [-0.058]
FCF	1.093*** (0.005) [0.009]	1.227*** (0.002) [0.010]	1.190*** (0.010) [0.297]	1.279*** (0.002) [0.320]
Leverage	-0.339 (0.257) [-0.003]	-0.089 (0.635) [-0.001]	0.500 (0.112) [0.125]	0.857*** (0.007) [0.214]
R&D	1.615** (0.021) [0.013]	1.371** (0.026) [0.011]	2.390*** (0.000) [0.598]	2.111*** (0.000) [0.528]
Institutional Ownership	-0.023 (0.965) [-0.000]	0.468 (0.152) [0.004]	-0.078 (0.904) [-0.020]	0.491 (0.461) [0.123]
Different Inc./HQ	1.090*** (0.000) [0.009]	1.080*** (0.000) [0.008]	1.118*** (0.000) [0.280]	1.128*** (0.000) [0.282]
Year & Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	25,544	25,544	1,020	1,020
Pseudo r ²	0.135	0.144	0.044	0.063

Table 3: Probability of Exclusive Forum Provision Adoption (continued)

<i>Panel B: Governance Sample</i>	Model 1	Model 2	Model 3	Model 4
Intercept	-8.447*** (0.000)	-7.861*** (0.000)	-2.159*** (0.000)	-1.353*** (0.000)
Takeover Probability	0.067* (0.052) [0.001]		0.083** (0.039) [0.021]	
Future Takeover		1.048*** (0.000) [0.010]		1.249*** (0.000) [0.312]
Captured	0.227* (0.090) [0.002]	0.238* (0.087) [0.002]	0.255* (0.073) [0.064]	0.210 (0.130) [0.052]
Busy	0.204 (0.347) [0.002]	0.211 (0.319) [0.002]	0.179 (0.661) [0.045]	0.182 (0.639) [0.045]
CEO-Chair	-0.096 (0.265) [-0.001]	-0.094 (0.268) [-0.001]	-0.122 (0.143) [-0.030]	-0.095 (0.244) [-0.024]
Firm Size	0.202*** (0.000) [0.002]	0.155*** (0.000) [0.001]	0.025 (0.560) [0.006]	-0.028 (0.152) [-0.007]
Prior Performance	-0.259** (0.042) [-0.003]	-0.254** (0.017) [-0.002]	-0.224 (0.167) [-0.056]	-0.242 (0.134) [-0.060]
FCF	1.156*** (0.000) [0.011]	1.284*** (0.000) [0.012]	1.152** (0.013) [0.288]	1.240*** (0.003) [0.310]
Leverage	-0.246 (0.397) [-0.002]	-0.025 (0.889) [-0.000]	0.493 (0.117) [0.123]	0.830*** (0.009) [0.207]
R&D	1.404** (0.023) [0.014]	1.187** (0.032) [0.011]	2.293*** (0.000) [0.573]	2.040*** (0.000) [0.510]
Institutional Ownership	-0.067 (0.898) [-0.001]	0.388 (0.243) [0.004]	-0.096 (0.883) [-0.024]	0.446 (0.498) [0.112]
Different Inc./HQ	1.106*** (0.000) [0.011]	1.100*** (0.000) [0.011]	1.151*** (0.000) [0.288]	1.154*** (0.000) [0.289]
Year & Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	22,569	22,569	1,020	1,020
Pseudo r ²	0.122	0.131	0.046	0.064

Table 4: Exclusive Forum Provision Adoption Announcement Returns

The table reports sample mean Fama-French-Carhart four-factor adjusted three-day cumulative abnormal returns (CARs) for a sample of 482 non-IPO exclusive forum provision adoption announcements. The announcement date is defined as the 8-K filing date announcing the bylaw/charter change with the SEC. Any announcements with confounding events, such as merger or earnings announcements are excluded from the sample. Announcement returns are winsorized at the 1% and 99% levels. Panel A reports mean CARs for the full sample. Panel B sorts the sample into high and low samples based on full sample median takeover measures. Takeover Probability is the fitted value from a panel regression estimating the probability that a firm will be subject to a takeover offer in the following fiscal years (Appendix B). Future Takeover is an indicator equal to one if the firm is subject to a takeover offer in the following fiscal year. Panel C sorts the sample into pre- and post-Boilermakers decision samples. Panel D sorts the sample in whether the firm is incorporated in a state that is different from its state of headquarters and whether the firm is incorporated in the state of Delaware. Panel E sorts the sample into high/yes and low/no samples based on full sample median governance characteristics. Captured is the percentage of independent directors with tenure less than the tenure of the current CEO. Busy is the percentage of independent directors with greater than or equal to three additional public directorships. CEO Chair is an indicator equal to one if the CEO is also chair of the board. Institutional ownership is the percent of shares held by the top five institutional investors. CEO Ownership is the percentage of outstanding shares held by the CEO. Classified Board is an indicator equal to one if the firm has a classified board. Panel F sorts the sample into yes and no samples based on exclusive forum provision characteristics. Bylaw Amendment is an indicator equal to one if the exclusive forum provision is added to the corporate bylaws. Stand-Alone Amendment is an indicator equal to one if the exclusive forum provision amendment is the only change made to the corporate bylaws or charter. All firm characteristics are measured as of the fiscal year end prior to provision adoption. ***, **, and * denote statistically significant differences in means at the 1%, 5%, and 10% levels respectively.

Table 4: Exclusive Forum Provision Adoption Announcement Returns (continued)

<i>Panel A: Full Sample</i>					
	N	Avg. CAR	% Positive		
Full Sample	482	1.56% ^{***}	52.28%		
<i>Panel B: Takeover Probability</i>					
	High		Low		
	N	Avg. CAR	N	Avg. CAR	High-Low
Takeover Probability	236	2.46% ^{***}	246	0.69% [*]	1.77% ^{***}
Future Takeover	66	10.30% ^{***}	416	0.17%	10.13% ^{***}
<i>Panel C: Boilermakers Decision</i>					
	Yes		No		
	N	Avg. CAR	N	Avg. CAR	Yes-No
Post Decision	421	1.76% ^{***}	61	0.15%	1.61% [*]
<i>Panel D: State of Incorporation</i>					
	Yes		No		
	N	Avg. CAR	N	Avg. CAR	Yes-No
Different Inc./HQ	429	1.51% ^{***}	53	1.97% [*]	-0.38%
Delaware Incorporation	408	1.41% ^{***}	74	2.34% ^{**}	-0.93%
<i>Panel E: Governance Characteristics</i>					
	High/Yes		Low/No		
	N	Avg. CAR	N	Avg. CAR	High-Low
Captured	244	2.09% ^{***}	238	1.01% ^{**}	1.08%
Busy	289	1.69% ^{***}	193	1.35% ^{**}	0.34%
CEO Chair	217	1.59% ^{***}	265	1.53% ^{***}	0.06%
Institutional Ownership	303	2.20% ^{***}	179	0.47%	1.72% ^{**}
CEO Ownership	288	1.28% ^{***}	194	1.97% ^{***}	-0.69%
Classified Board	228	1.55% ^{***}	254	1.57% ^{***}	-0.02%
<i>Panel F: Provision Characteristics</i>					
	Yes		No		
	N	Avg. CAR	N	Avg. CAR	Yes-No
Bylaw Amendment	469	1.55% ^{***}	13	1.61% ^{**}	-0.06%
Stand-Alone Amendment	312	2.10% ^{***}	170	0.60%	1.54% ^{**}

Table 5: Exclusive Forum Provision Adoption Announcement Returns - Multivariate

This table presents OLS regressions where the dependent variable is the Fama-French-Carhart four-factor adjusted three-day cumulative abnormal return (CAR) surrounding exclusive forum provision adoption announcement. Announcement returns are winsorized at the 1% and 99% levels. Takeover Probability is the fitted value from a panel regression estimating the probability that a firm will be subject to a takeover offer in the following fiscal year (Appendix B). Future Takeover is an indicator equal to one if the firm is subject to a takeover offer in the following fiscal year. Firm Size is the natural log of total market capitalization. Prior Performance is the one-year buy and hold abnormal return over prior fiscal year. FCF is operating cash flow minus dividends scaled by total book value of assets. Leverage is total book value of debt scaled by total book value of assets. R&D is research and development expenditures scaled by total book value of assets. Institutional ownership is the percent of shares held by the top five institutional investors. Delaware Incorporation is an indicator equal to one if the firm is incorporated in the state of Delaware. Bylaw Amendment is an indicator equal to one if the exclusive forum provision is added to the corporate bylaws. Stand-Alone Amendment is an indicator equal to one if the exclusive forum provision amendment is the only change made to the corporate bylaws or charter. Post-Boilermakers is an indicator equal to one if the firm adopts the exclusive forum provision following the Boilermakers decision on June 25, 2013. Captured is the percentage of independent directors with tenure less than the tenure of the current CEO. Busy is the percentage of independent directors with greater than or equal to three additional public directorships. CEO Chair is an indicator equal to one if the CEO is also chair of the board. CEO Ownership is the percentage of outstanding shares held by the CEO. Classified Board is an indicator equal to one if the firm has a classified board. All firm characteristics are measured as of the fiscal year end prior to provision adoption. Industry fixed effects based on Fama-French 12 industry classifications are also included. *p*-values based on standard errors clustered by Fama-French 12 industries are in parentheses ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Table 5: Exclusive Forum Provision Adoption Announcement Returns - Multivariate (continued)

	Model 1	Model 2	Model 3	Model 4
Intercept	-0.035 (0.354)	0.006 (0.755)	-0.028 (0.475)	0.005 (0.824)
Takeover Probability	0.005* (0.074)		0.005* (0.094)	
Future Takeover		0.100*** (0.000)		0.100*** (0.000)
Firm Size	0.005* (0.100)	0.002 (0.325)	0.004 (0.311)	0.002 (0.548)
Prior Performance	-0.010 (0.214)	-0.009 (0.299)	-0.009 (0.240)	-0.008 (0.284)
FCF	0.015 (0.471)	0.012 (0.778)	0.018 (0.445)	0.014 (0.752)
Leverage	-0.021 (0.375)	-0.001 (0.957)	-0.021 (0.389)	-0.001 (0.918)
R&D	0.032 (0.316)	0.009 (0.835)	0.031 (0.330)	0.011 (0.789)
Institutional Ownership	-0.001 (0.987)	0.021 (0.563)	-0.003 (0.938)	0.019 (0.650)
Delaware Incorporation	-0.012 (0.349)	-0.011 (0.144)	-0.013 (0.381)	-0.011 (0.176)
Bylaw Amendment	-0.011 (0.288)	-0.015 (0.202)	-0.011 (0.339)	-0.014 (0.259)
Stand-Alone Amendment	0.014** (0.036)	0.003 (0.520)	0.014** (0.031)	0.003 (0.540)
Post-Boilermakers	0.013 (0.101)	0.004 (0.376)	0.014* (0.063)	0.006 (0.303)
Captured			-0.001 (0.919)	-0.004 (0.664)
Busy			0.015 (0.609)	0.010 (0.637)
CEO Chair			0.002 (0.865)	0.005 (0.576)
CEO Ownership			-0.018 (0.595)	-0.009 (0.732)
Classified Board			0.001 (0.902)	0.003 (0.723)
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	482	482	482	482
<i>F</i> -statistic	1.42	2.87	1.41	2.72
<i>p</i> -value of <i>F</i> -statistic	0.09	0.00	0.09	0.00
Adjusted <i>r</i> ²	0.05	0.24	0.05	0.26

Table 6: Market Reaction to *Boilermakers* Decision

The table reports portfolio returns for all Delaware-incorporated firms with non-missing information in Compustat and CRSP around the *Boilermakers* decision on June 25, 2013. Portfolio returns are Fama-French-Carhart four-factor model returns over the 3-day window surrounding the *Boilermakers* decision estimated using equation (1). Portfolios are sorted based on takeover probability measures and exclusive forum provision adoption characteristics. Panel A reports results for portfolios sorted by Takeover Probability, which is the fitted value from a panel regression estimating the probability that a firm will be subject to a takeover offer (Appendix B). Panel B reports results for portfolios sorted by Future Takeover, which is an indicator equal to one if the firm is subject to a takeover offer in the following fiscal year. Panel C reports results for portfolios sorted by whether the firm has an exclusive forum provision in place at the time of the *Boilermakers* decision or adopts one following the decision. All firm characteristics are measured as of the fiscal year end prior to the *Boilermakers* decision. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels respectively.

Panel A: Takeover Probability				
	# of Firms	Takeover Prob.	Portfolio CAR (%)	t-stat
1 Lowest	506	3.21%	-0.011%	-0.04
2	506	4.72%	-0.240%	-0.84
3	506	6.14%	-0.632%	-2.15**
4 Highest	506	8.89%	-0.306%	-0.93
		Diff (4-1)	-0.295%	-0.74
Panel B: Future Takeover				
	# of Firms		Portfolio CAR (%)	t-stat
No	1,929		-0.374%	-1.83*
Non-Adopter	1,536		-0.473%	-2.10**
Adopter	393		0.012%	0.05
Yes	95		1.268%	1.98**
Non-Adopter	76		1.234%	1.68*
Adopter	19		1.421%	1.26
		Diff (Yes-No)	1.642%	2.66***
Panel C: Provision Adopters				
	# of Firms		Portfolio CAR (%)	t-stat
No	1,612		-0.392%	-1.74*
Yes	412		0.077%	0.36
Pre- <i>Boilermakers</i>	66		0.703%	1.58
Post- <i>Boilermakers</i>	346		-0.043%	-0.87
		Diff (Yes-No)	0.469%	1.88*
		Diff (Pre-No)	1.095%	2.31**
		Diff (Post-No)	0.349%	1.30

Chapter 3:
Board Changes and the Director Labor Market:
The Case of Mergers

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Abstract

We examine the stability and composition of acquirer boards around mergers and the director characteristics associated with selection for the post-merger board. Our results indicate that the post-merger board changes substantially and variation is significantly different from both non-merger years and non-merging firms. Adjustments reflect firms upgrading skills associated with executive and merger experience and bargaining between targets and acquirers, rather than agency motives. Conversely, director selection at non-merging firms is driven by general skills and diversity. Our analyses provide insight into the dynamic nature of board structure and characteristics valued in the director labor market.

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1. Introduction

The composition, characteristics, and role of the board of directors are central issues in corporate governance. Ideal boards provide independent advising and monitoring of management appropriate to the needs of the firm. These functions are especially important around strategic decisions, such as mergers, which have the potential to significantly impact firm value. Moreover, mergers can alter a firm's monitoring and advising needs and provide a convenient opportunity to improve or denigrate the existing board composition and structure. Nevertheless, little empirical attention has been given to board changes, either around mergers or in general.

We develop two competing hypotheses to examine the structure and composition of boards around mergers. On the one hand, prior studies suggest reasons to expect that boards should remain fairly stable around mergers (*stability hypothesis*). Hermalin and Weisbach (1998) posit that board structure is the result of negotiations between a CEO and its board. Entrenched or powerful CEOs may exert pressure on a board (Coles, Daniel, and Naveen, 2014; Bebchuk and Fried, 2004). In this case, CEOs may try to limit board changes to maintain their influence even when a firm's nature, and monitoring needs, warrant such changes. In addition, transaction costs can impede boards from an optimal structure and/or composition (e.g., Coles, Daniel and Naveen, 2008). New directors added or incumbent directors leaving may alter board cohesion and impose personal costs on directors. The limited empirical evidence supports this notion of relative board stability around mergers. Harford (2003) finds that post-merger target director retention is rare.

Alternatively, theoretical arguments suggest shifts in acquirer boards (*change hypothesis*). First, mergers represent a substantial shock to a firm that likely shifts its

operational activities and increases firm complexity. Thus, a firm's advising and monitoring needs change and imply appropriate adjustments to board structure and composition. This firm need motive suggests that board changes and director selection around mergers reflect the demand for increased advising and monitoring of the larger, more complex firm. Second, a bargaining motive suggests that the post-merger board is the outcome of negotiations between acquirers and targets based on relative bargaining power or to aid deal completion. Third, changes around mergers may provide managers cover to add CEO-friendly directors and shift the power structure between the CEO and the board. Hermalin and Weisbach (1998) suggest that more powerful CEOs use their increased bargaining power over the director selection process to weaken board monitoring. Under a CEO opportunism motive board changes around mergers occur for managerial welfare reasons.

These alternative hypotheses (*stability vs. change*) lead us to explore several important and unaddressed questions: How stable are post-merger boards? Which director characteristics are associated with selection on the post-merger board and are attributes demanded around a merger different than those in the absence of one? How does post-merger director selection relate to the longevity of their tenure? Finally, how important are firm need, bargaining, and CEO opportunism motives in decisions regarding the post-merger board's structure and composition?

Addressing these questions around mergers offers three main advantages. First, mergers provide a unique setting to observe a relatively well-defined director labor pool and compare the characteristics of directors selected to those that are not. Most prior studies are unable to observe candidates considered but not appointed to a board, leaving

an incomplete picture of the director selection process. Second, we can compare potential board changes around mergers to concurrent shifts in a firm's nature, and test ideas consistent with advising and monitoring needs. Third, mergers are a rich setting to explore potential conflicts of interest with management, acquirer and target boards and both firms' shareholders, which may impact board structure and composition.

To address the stability of boards around mergers, we require a benchmark of typical board changes. However, evidence on such a standard is limited. Most prior studies examining board structure focus on cross-sectional variation, though a few examine changes over time, but for the pre-Sarbanes-Oxley (SOX) period. Denis and Sarin (1999) report changes to board size and independence from 1983-1992, while Cicero, Wintoki, and Yang (2013) and Wintoki, Linck, and Netter (2012) examine these changes for two-year periods leading up to the implementation of SOX. Thus, we first provide a benchmark of the time series variation of board structure in the modern era, which is important given the fundamental shift in boards around SOX and contemporaneous changes in exchange listing requirements (Linck, Netter, and Yang, 2009).

Examining our first question on board stability, we document substantial shifts in board size and composition around mergers from 1996-2012. For the average deal, 0.95 target directors and 1.15 *unaffiliated directors* (directors neither on the target nor acquirer boards) are added to the post-merger board. The selection of these unaffiliated directors suggests their importance given the pool of available target and acquirer directors likely considered but not appointed. This addition of 2.1 directors around a merger is significantly greater than the 0.80 directors added in the absence of one. We also document significant changes to existing personnel as roughly twice as many acquirer directors depart

as in non-merging firms (1.40 versus 0.81, respectively). Since firm size and complexity typically increase with a merger, we might expect board size to increase. Board size does increase 42% of the time, and yet in over half of these cases an acquirer director still departs. Further, in nearly one-quarter of deals, acquirer boards shrink even though non-acquirer directors are typically added. These results are inconsistent with the *stability hypothesis* and suggest board structure and composition changes are significantly different around mergers.

Given evidence consistent with the *change hypothesis*, we assess firm need, bargaining, and CEO opportunism motives. We first focus on specific director attributes demanded for a post-merger board by comparing skills sought around a merger to those in a non-merger year. Both unaffiliated and target director additions around mergers reflect an increased demand for specific skills, such as prior CEO, merger and board experience. Non-merger director selection, however, occurs for more routine reasons such as diversity, financial expertise and retirement; director selection drivers are distinct in mergers. These results hold comparing merger years to a propensity score-matched sample of non-merging firms or to post-merger size/industry matched non-merging firms (control for supply and demand factors of director selection). To further understand the director labor market, we compare all acquirer and target directors' attributes, selected or not, and unaffiliated directors added. Directors selected post-merger represent an upgrade in talent from pre-merger (prior CEO, merger and industry experience). Even if CEOs are likely entrenched, directors added do not have weaker monitoring abilities, inconsistent with CEO opportunism. Collectively, our results indicate firm need drives director selection around mergers.

Next, we examine the motives for board structure and composition change around mergers at the firm-level. As a target's size and complexity increases, target directors with specific skills (e.g. CEO or merger experience) are more likely to be added post-merger. This result is consistent with firm need and suggests that these firms require increased monitoring and advising. Target representation on the post-merger board is also associated with lower target announcement returns, suggesting that target directors bargain bid premia for board seats. Our results, however, provide no evidence in favor of acquirer agency conflicts as a motive for board changes around mergers.

To provide additional evidence for our hypotheses, we examine the tenure of directors added to the post-merger board. We expect that directors retained for a short period are more likely to have been added for integration or bargaining purposes. In comparison to target directors, unaffiliated directors are significantly more likely to be retained for periods longer than three years. Directors that remain long-term have more CEO-merger experience, financial expertise, and are more likely to be placed on key committees, consistent with firms keeping directors to fulfill longer-term firm needs. In addition, the shorter tenure of target directors is concentrated in deals with more complex targets, consistent with the notion that they are temporarily retained to facilitate the post-merger integration process. Collectively, our results provide evidence that firm need and bargaining motives play an important role in changes to acquirer boards around mergers.

Our paper addresses the ongoing debate over the efficacy of board structure and its role as a governance mechanism. On the one hand, studies suggest that boards are optimally designed and provide appropriate oversight of the CEO and the firm. Alternatively, director selection may be driven largely by CEOs seeking private benefits as well as other

agency conflicts. We find that the selection of board members is driven by the specific nature of the firm, rather than CEO opportunism. While we do find some evidence for director retention that is consistent with bargaining, the directors selected appear of better quality. Overall, the drivers of director selection are different around mergers and are consistent with a firm's monitoring and advising needs.

2. Hypotheses

The impact of mergers on the structure and composition of acquirer boards is an empirical issue previously undocumented in the literature. We develop two competing hypotheses related to the structure of the post-merger board: relative stability versus change.

2.1 Motivations for Board Stability around Mergers

There are several reasons why post-merger boards may remain stable (*stability hypothesis*). First, as targets are relatively smaller, the incumbent board may be adequate to monitor and advise the post-merger firm. Second, theory suggests board structure is the result of negotiations between CEOs and a board (Hermalin and Weisbach, 1998). Coles et al. (2014) and Bebchuk and Fried (2004) find that entrenched or powerful CEOs can wield significant influence. Even if a firm's nature and monitoring require alterations, powerful CEOs may curb board changes that would diminish their influence.³⁸

Transaction costs can also impede boards from their optimal structure and/or composition. Coles et al. (2008) note that CEOs can face personal costs if incumbent directors with professional/ personal relations to a CEO leave or if new directors are added without such relations. Research also indicates that few target directors are included post-

³⁸ Alternatively, an entrenched CEO may not only protect her position, but may seek to opportunistically alter the board in her favor. We consider this alternate interpretation of agency motives in Section 2.2.3.

merger. Harford (2003) documents that in over half of mergers, no target directors are retained and when a target director is retained, on average only one is selected. These arguments imply stability of the post-merger board.

To test board stability, we compare pre-merger acquirer and target boards to post-merger boards. Structural shifts are reflected in changes to board size while adjustments to board composition are captured by both additions and departures. We also compare variations in boards around mergers to years in which the same firm does not merge and to a propensity score-matched sample of non-merging firms based on pre-merger firm and board characteristics.

2.2 Motivations for Board Changes around Mergers

Alternatively, there is theoretical and empirical evidence in other contexts suggesting board structure and composition could change post-merger (*change hypothesis*). We propose three non-mutually exclusive motivations for such change: firm need, bargaining, and agency.

2.2.1 Firm Need

Mergers can represent a substantial shock to a firm, requiring board changes in response to shifts in underlying firm fundamentals. As mergers expand a firm into new product lines, additional geographic areas, and increase its size and/or complexity, its monitoring and advising needs could change as well. Acquisitions can also represent a convenient opportunity to upgrade the set of existing board skills since personnel changes can be easier to explain.

The firm need motive suggests post-merger board changes are consistent with evolving monitoring and advising needs. Fama and Jensen (1983) propose that a firm's

organization depends on the operational complexity, with more complex firms requiring larger and more hierarchical organizations. Harris and Raviv (2008) and Raheja (2005) hypothesize and Boone et al. (2007), Coles et al. (2008), and Linck et al. (2008) provide empirical evidence in the cross-section that more complex firms have larger, more independent boards; implying a positive association between complexity and board changes around mergers. We employ several measures of complexity, including relative deal size, industry diversification, number of target business segments, and R&D expenditures (Boone et al., 2007, Coles et al., 2008, and Linck et al., 2008).

In addition to testing firm need at the firm-level, we examine characteristics of directors selected versus not selected post-merger. Prior work identifies characteristics valued in the director labor market: CEO experience (Fich, 2005 and Fahlenbrach, Low, and Stulz, 2010), diversity (Adams and Ferreira, 2009), financial expertise (Guner, Malmendier, and Tate, 2008), higher education (Cashman, Gillan, and Whitby, 2012), industry expertise (Denis, Denis and Walker, 2015), merger experience (Harford and Schonlau, 2013), outside directorships (Fama and Jensen, 1983), and performance (Bargeron, Schlingemann, Stulz, and Zutter, 2013). As a firm's monitoring and advising needs increase, these director skills become more valuable. Under the firm need motivation, directors added around mergers should possess more of these attributes than directors added in the absence of a deal. In addition, this motive predicts that directors selected for the post-merger board will have more of these qualities than directors not selected.

Firms assess skills needed in an ever-changing environment.³⁹ Existing directors can also face retirement or mandatory age limitations. Thus, firm need suggests that boards seek desirable attributes not currently present or that need to be replaced. Many firms use a two-dimensional matrix showing needs versus existing attributes to determine if candidates possess skills absent. For example, while financial expertise may be valuable, it may already exist. In this case, a board would be less likely to seek more financial talent at the expense of other characteristics. The proprietary information on specific board needs is unobservable, but will be reflected in the skills of directors added. The characteristics of directors chosen exhibit a board's revealed preference.

2.2.2 Bargaining

A second reason acquirers may alter boards around mergers is related to negotiations. The price paid to target shareholders, location of the headquarters, name of the post-merger firm, and identity of the post-merger CEO and chair are all bargaining items. The bargaining motive suggests that the structure and composition of the post-merger board is an outcome of negotiations between acquirers and targets.⁴⁰ In this case, the addition of target directors post-merger is related to the negotiated deal terms and/or the bargaining position of the parties involved in the transaction.

Prior studies focus on the potential conflict of interest faced by target management in the negotiation process. Wulf (2004) finds that target CEOs trade post-merger retention for premium at the expense of target shareholders. Hartzell, Ofek, and Yermack (2004)

³⁹ Recent examples include boards seeking directors familiar with modern social media. The 2011 Spencer Stuart Board Index indicates that demand for directors with digital backgrounds increased over 20% in the prior year.

⁴⁰ As one example, 21st Century Fox offered shareholders of Time Warner, Inc. board representation as part of Fox's bid to acquire Time Warner (*Wall Street Journal*, July 27, 2014).

show that target CEOs are able to negotiate retention in exchange for lower merger bonuses related to the deal. The bargaining power of the parties involved may also be related to the post-merger board structure. Acquirers with a stronger bargaining position might not need to offer board seats as a concession in order to ensure deal completion. On the other hand, targets with more bargaining power may be better able to negotiate for post-merger seats without trading off other deal terms.

To test this bargaining, we examine the relation between the addition of target directors, measures of relative bargaining power and deal premium. We use four proxies for the relative bargaining power between the acquirer and target: relative deal size, target prior performance, target poison pill (Comment and Schwert, 1995) and target classified board (Bates, Becher, and Lemmon, 2008). Larger targets and those with higher prior performance, a poison pill or classified board likely hold more bargaining power. Deal premium, proxied by a target's announcement returns, can be traded for seats on the post-merger board. The bargaining motive predicts a positive relation between target director on the post-merger board and target bargaining power, but a negative one for target announcement returns. This motivation, however, does not provide specific predictions about characteristics of target directors selected to the post-merger board; thus we are agnostic with regard to predictions for this rationale at the individual director level.

2.2.3 CEO Opportunism

A final reason for post-merger board changes also relates to entrenchment issues. CEO opportunism suggests that board changes occur for acquirer managerial welfare reasons. Mergers can provide a convenient opportunity for acquirer CEOs to shift to a more management friendly board. Hermalin and Weisbach (1998) model board structure

as a negotiation between a CEO and outside directors. More powerful CEOs may use their bargaining power to weaken board monitoring under the guise of structural shifts related to a deal. Fracassi and Tate (2012) provide evidence consistent with this as firms with more influential CEOs are more likely to appoint directors connected to a CEO, which reduces firm value and leads to weaker board monitoring. Shivdasani and Yermack (1999) find that CEOs involved in the director selection process are more likely to appoint busy directors, which could be consistent with the appointment of less valuable monitors. The absence of constraints on a CEO's power may also affect the post-merger board. Boone et al. (2007) observe a positive relation between board independence and constraints on CEO influence, including monitoring by institutional owners. This prior evidence implies an association between director selection, a CEO's power and the existence of external monitoring.

CEO opportunism predicts a positive association between acquirer CEO power and board changes, but a negative one between powerful CEOs and measures of individual director monitoring quality. Both of these relations would be moderated by constraints on CEO power, such as the existence of external monitors. Proxies for CEO power include the percentage of board capture, CEO-Chair duality, classified board, CEO ownership, and business connections between a CEO and directors (Coles, Daniel and Naveen, 2014; Fracassi and Tate, 2012). External monitoring is proxied by the percentage of shares held by the top 5 institutional owners.

3. Data

3.1 Main Sample

To test our hypotheses, we construct three samples: primary acquirer sample, propensity score-matched sample of non-merging firms based on pre-merger firm

characteristics and a post-merger firm size, Fama-French 12 industry-matched sample of non-merging firms. Our primary acquirer sample consists of deals between 1996 and 2012 from the Thompson/SDC U.S. Merger and Acquisitions database (SDC). To observe acquirer and target directors, we require that both firms are U.S. publicly traded, the merger completed and 100 percent of a target is acquired. From SDC, we collect announcement and completion dates, transaction value, method of payment, and merger premium. This sample is merged with Compustat for accounting data, Center for Research of Stock Prices (CRSP) for stock returns, and institutional ownership data from Thomson Reuters.

Data on directors 1996 to 2003 (2004 to 2012) are obtained from RiskMetrics (BoardEx).⁴¹ We require information on acquirer and target pre-merger boards from the board report date closest to but prior to the announcement and on the post-merger board from the board report date closest to but after completion. BoardEx provides details on director education, certifications, as well as past and current employment and directorships. For directors with missing information, we hand-collect data from proxy statements. Our final sample consists of 716 acquirers in 1,153 mergers.

To identify changes to acquirer boards, post-merger directors are matched with pre-merger acquirer and target directors. We define three types of post-merger directors: (i) retained directors from the pre-merger acquirer board (10,688); (ii) retained directors from the pre-merger target board (1,089); and (iii) unaffiliated directors on neither the acquirer nor target board pre-deal (1,459). We also define two other types of directors: not retained

⁴¹ The BoardEx universe begins in 2000, but since Management Diagnostics began data collection in 2003, firms that were publicly traded between 2000 and 2003, but delisted before 2004 are not part of the BoardEx universe.

acquirer (target) directors on the pre-merger acquirer (target) board, but not on the post-merger board (1,895(9,199)).

3.2 Non-Merger Year Samples

To understand board structure and composition changes around a merger, it is necessary to have a benchmark of typical board changes in non-merger situations. Surprisingly, the availability of such a benchmark is limited.⁴² As a result, we create three distinct non-merger year samples: own-firm non-merger sample, propensity score-matched sample, and supply-side matched sample.

3.2.1 Own-Firm Non-Merger Sample

First, we create a sample of firm-years in which the acquirers in our sample did not engage in a merger. Board changes in this non-merger years sample are identified the same as the merger sample detailed above. Retained directors sat on the board in the prior year and continue to do so. New directors did not sit on the board in the prior year. Not retained directors sat on the board in the prior year, but no longer do so. This own-firm non-merger sample includes 6,659 firm-years.

3.2.2 Propensity Score-Matched Sample

Comparing changes in board structure around a merger to those in non-merger years allows us to compare a firm to itself. This methodology, however, may not account for the fact that the changes are driven by underlying factors rather than a merger, such as time trends or other industry factors. As a result, we employ a difference-in-difference methodology where we construct a second benchmark of non-merger board changes by

⁴² Denis and Sarin (1999) examine changes to board size and independence (1983-1992). Cicero, Wintoki, and Yang (2013) and Wintoki, Linck and Netter (2012) present changes in board size and independence over two-year periods pre-Sarbanes Oxley. These studies focus on changes in the fraction of outside directors and the number of directors.

matching the *pre-merger* firm to firms that did not merge. Firms are matched using a propensity score-matching methodology based on firm and board characteristics. Each acquirer is matched to ten non-merger firms with replacement with the closest propensity scores based on the model in Appendix B.⁴³ We calculate differences in board changes across time (e.g., pre- versus post-merger) and matched firms. The difference of these differences (difference-in-difference) allows us to compare two sets of relatively similar firms in the same year, where the main difference is one undergoes a merger and the other does not. This sample yields 6,346 matched non-merger firm-years to compare to our main sample.

3.2.3 Supply-side Matched Sample

The characteristics of directors selected for the post-merger board reveals a firm's demand for particular skills and attributes. It is possible, however, that director selection is not purely a demand effect. For a given director to be added, they must also agree to serve. The post-merger firm is larger and presumably more prestigious, making a seat on that board more attractive (Masulis and Mobbs, 2014). To control for these supply-side effects, our third benchmark focuses on the *post-merger* firm. We create another matched sample of firms that did not engage in a merger in the same year. This sample is based on the post-merger firm size and industry and yields 44,833 matched non-merger firm-years to compare to our merger sample. These matched firms are likely attracting potential candidates from the same pool of individuals as the acquirers.

⁴³ All results are robust to a non-merger matched sample based on the five nearest neighbors or a caliper of 0.001.

3.4 Descriptive Statistics

Table 1 details summary statistics for the primary sample of 1,153 acquisitions from 1996-2012. Panel A presents deal characteristics, which are consistent with studies using similar sample restrictions (e.g., Cai and Sevilir, 2012, and Ishii and Xuan, 2014). Panel A focuses on measures of firm complexity to test for firm need. Average (median) relative deal size is 0.46 (0.22), suggesting a wide range of deal complexity within our sample. Panel B details that, on average, acquirer size and number of business segments increase after a merger. In addition, the average target spends a significantly higher percentage of assets on R&D than the average acquirer.

Following prior studies, the number of outside directorships, education level, financial expertise, as well as CEO, merger, and industry experiences are proxies for director talent and quality (Panel C). Compared to acquirer boards, target boards are smaller, and their directors hold fewer outside directorships, are less educated, and have less prior merger/CEO-merger experience. Target boards, however, have more financial experts and outside CEO experience than acquirers. We conduct individual director-level analyses, with pair-wise comparisons (e.g., target directors retained to acquirer directors leaving) to test the firm need and CEO opportunism motives.

To test for bargaining, we use four proxies for the target's relative bargaining power: relative deal size, target prior performance, target poison pill and target classified board. Panel B of Table 1 shows that average annual prior target stock performance is 9.5% compared to 16.8% for acquirers. Roughly 40% of targets have a poison pill and 60% have a classified board. In addition, a target's abnormal merger announcement return is used as a proxy for a negotiating term that can be traded for seats on the post-merger

board under the bargaining motive. Panel A of Table 1 reports that target shareholders experience an average announcement return of 25.1%.

Measures of acquirer CEO power and external monitoring are used to test for CEO opportunism. Proxies for CEO power include the degree of board capture, CEO-Chair duality, CEO ownership, and business connections between a CEO and directors. Panel C details that 55% of the pre-merger acquirer board is captured, significantly higher than for targets (51%). Two-thirds of acquirer CEOs are chair, higher than for the target (59%) and average acquirer CEO ownership is 2.4%. Finally, the percentage of acquirer directors that currently or previously served on the same board or worked at the same firm as the acquirer CEO (*connected to CEO*) is 10%, but only 0.8% of target directors have these connections. External monitoring is proxied by the percentage of shares held by the top 5 institutional owners and this percentage of shares held by these owners is higher for targets than acquirers and increases for the combined firm (Panel B).

4. Results

4.1 Board Dynamics around Mergers

Our first research question focuses on whether there are changes to acquirer boards around mergers and if these changes are different from changes in the absence of a merger. Table 2 provides a univariate difference-in-difference analysis, where we compare changes to acquiring boards to changes of our benchmark firms.⁴⁴ For each of our board structure measures, we calculate the difference in both the pre- and post-period across merger and matched firms and then calculate the difference in these differences. Panel A examines

⁴⁴ We find similar results comparing board changes around a merger to our own-firm non-merger sample (unreported).

difference-in-differences for various measures of board changes across all firms, while Panel B segments results by relative deal size.

Panel A reports that in the pre-merger period differences in board structure and composition changes between acquiring firms and the propensity score-matched non-acquiring firms is insignificant. After a merger, however, there are substantial and significant differences in board changes for merging firms. Nearly 10% of the post-merger board consists of newly added unaffiliated directors versus 7.9% for non-merger matched firms. Similarly, at least one unaffiliated director is added in 58% of merger years versus 51% for non-merger firms (both are significantly higher around mergers). This corresponds to an addition of 1.15 unaffiliated directors in merger years compared to only 0.80 directors in non-merger years. In unreported results, we also find that retained target directors represent 7.1% of the post-merger board or 0.95 additional directors added to the post-merger board (implying 10% of the target board is retained).⁴⁵

Significant board changes, however, are not limited to adding directors. A greater fraction of a prior year's directors departs in merger years (12.8%) than at non-merging firms (7.9%). This corresponds to at least one director departing in 65% (51%) of the years with (without) a merger. The difference-in-differences of director additions and departures from pre- to post-merger periods are all statistically significant at the 1% level. This suggest that changes to acquiring firm boards are significantly greater relative to non-acquiring matched firms in the year following a merger.

New directors added and incumbent directors departing does not fully reflect board changes in mergers. Board size increases nearly twice as frequently around mergers, yet

⁴⁵ Harford (2003) finds a similar percentage of target director retention post-merger.

over 50% (33%) of the time an acquirer director also departs at merging (non-merging) firms; difference-in-differences are significant at the 1% level. Acquirer board size is significantly less likely to remain stable following a merger compared to the matched sample of non-acquiring firms (36% in merger versus 50% in non-merger years). While firm size and complexity increase in mergers, board size decreases 22% of the time, despite the addition of new directors in nearly half of these cases. Overall, the composition and/or size of the board changes nearly 84% (68%) of the time around mergers compared to the absence of one, highlighting the dynamics of board variation in mergers.

While we document considerable board variation around mergers, these changes could be primarily driven by the nature and complexity of a deal. To test this, we split our mergers into terciles by relative deal size (Panel B). Regardless of size, acquirer boards are less stable in merger than non-merger years. In particular, additions and departures to acquirer boards vary by deal size, yet the difference-in-differences are substantial even in the smallest deals.

The univariate difference-in-difference tests in Table 2 yield evidence consistent with substantial changes to acquirer boards around mergers. We verify whether these results hold in a multivariate framework in Table 3. To capture the impact of mergers on boards, we create two indicators; one for acquirers (*Merger*) and one the post-merger period (*Post*). We regress measures of board structure and composition changes on these indicators and their interaction (*Merger x Post*). If acquiring boards experience more change than the non-merging matched sample, the coefficient on the interaction term should be positive and significant. We also control for firm and board characteristics as well as industry and year fixed effects. The board structure and composition changes of

interest include change in board size (Models 1 and 4), the addition of unaffiliated directors (Models 2 and 5) and the departure of incumbent directors (Models 3 and 6).

Model 1 of Table 3 reports that the coefficient on *Merger x Post* is 0.562 and is significant at the 1% level. This result suggests that, following a merger, the board size of acquiring firms increases significantly compared to the non-merger matched sample. We find similar results in regard to the addition of unaffiliated directors (Model 2) and the departure of incumbent directors (Model 3). These results imply an increase in the relative addition/departure of unaffiliated/ incumbent directors following a merger. The economic magnitude of the relative board changes following a merger is similar to those reported in the univariate analysis. Our results are qualitatively and quantitatively unchanged in Models 4-6 where we include all control variables providing additional evidence that acquiring firm boards are *not* stable around mergers.

Despite our difference-in-difference analysis, other explanations may exist for board changes around mergers. First, these changes may be driven by anticipation of a deal or as a firm re-evaluates its needs post-merger. We examine shifts in boards in the years prior to and after a merger (Figure 1) and find little evidence of significant board changes. For example, the average percentage of new directors in the year prior to (after) a merger is 9.8% (7.7%) compared to 18.7% in a merger year.⁴⁶ Next, given board classification as a potential entrenchment device, firms with classified boards may experience fewer changes. In unreported tests we find no evidence firms with classified boards experience any less board changes around mergers.

⁴⁶ We obtain qualitatively similar results if we extend the window to three years before/after the merger is completed.

It is also possible that the emergence of activist investors plays a role in a firm undertaking a merger and the concurrent changes in board structure and composition. Prior studies document that these investors do seek board representation (Brav, Jiang, Partnoy and Thomas, 2008 and Klein and Zur, 2009). In unreported results, we search for all cases where an acquirer is the subject of a 13-D filing or amendments in the two years pre-merger announcement. Reviewing each filing, we find that 5.5% of our mergers experience the emergence of an activist investor in this two-year window.⁴⁷ For these few cases where an activist emerges, we examine all related 13D filings and Factiva news stories to determine if the activist attempted to influence the board or the merger. In only 0.6% of our deals did an outside investor *publicly* encourage the merger or attempt to obtain representation on the acquirer board. We also exclude all deals in which an activist appears in this two-year window and find qualitatively and quantitatively similar results. Collectively, these results suggest that the influence of activists is not a first-order concern in our study.

Finally, some unobservable endogenous factor not captured by the propensity score-matching methodology may drive the motivation to undertake a merger as well as the subsequent board changes. One setting that the motivation to merge may be more exogenous is an industry merger wave, which may be spurred by technological or regulatory shocks (Harford, 2005). During such a wave, acquirers may be forced to merge in response to these shocks. Examining deals that take place inside a merger wave, we continue to find significant changes to board composition and structure around mergers

⁴⁷ An activist investor may have already filed a 13D prior to our two-year window before the merger (existing activist). Less than 1% of acquirers had an existing activist file an amendment during this window. Further, on average, these existing activists hold a position in the acquirer for more than five years before the merger.

(untabulated). As a result, we do not find any support that these alternative motivations explain board changes around mergers.

Overall, results in Tables 2 and 3 as well as Figure 1 are striking: acquiring boards are *not* stable around mergers. These findings suggest substantial shifts in board structure and composition surrounding mergers and these changes are significantly greater than those that otherwise occur. We next turn our attention to understand why these changes occur.

4.2 What Does the Director Labor Market Value?

By focusing on adjustments to the post-merger board at the individual director level, our goal is to better understand the specific skills of board members valued in the director labor market. The setting of mergers affords the opportunity to compare directors selected to a post-merger board to those not selected. The revealed preference of firms' post-merger selections provides evidence on why board structure and composition change around mergers. We begin by exploring whether the attributes demanded in a merger year are different from those sought in a non-merger year.

4.2.1 Merger vs. Non-merger Years

For each acquirer in our main merger sample, Panel A of Table 4 compares attributes of directors added to the board in merger years to the set of firms in the propensity score-matched sample that did not engage in a merger.⁴⁸ Comparison (1) focuses on all new directors on a board (unaffiliated and retained targets in merger years versus new in non-merger years). Comparisons (2) and (3) examine only unaffiliated and only retained

⁴⁸ In unreported analysis, we also compare the attributes of directors added around a merger to directors added at the same acquiring firms in non-merger years and find quantitatively and qualitatively similar results.

target directors, respectively, added in merger years versus new directors in non-merger years.

In general, comparison (1) suggests that firms select directors in merger years for different reasons than in non-merger years as all attributes of directors added in merger years are statistically different from those selected in non-merger years. In particular, directors in merger years are added for their deal and executive experience (external CEO, merger, CEO-merger, and industry experience); a skill set likely related to the monitoring and advising needs of merger integration. Conversely, director selection in non-merger years focuses on retirement (age), general skills (higher education and financial expertise) and diversity (gender).⁴⁹ These results are consistent with firm need; as the monitoring and advising needs of a firm change with a merger, certain director skills (e.g. deal and industry experience) become more valuable.

Comparisons (2) and (3) of Panel A separate new directors in merger years into unaffiliated and target directors, respectively. Again, we find that unaffiliated and retained target directors possess more executive and deal experience than new directors added in non-merger years. Both unaffiliated and target directors added have significantly more CEO and CEO-merger experience than new directors selected at non-merger matched firms. In addition, retained target directors possess more outside directorships and merger experience than non-merger year additions.

Panel B of Table 4 addresses potential supply-side effects related to the composition of the post-merger board. As firm size increases, seats on the post-merger

⁴⁹ Results are robust to restricting merger experience to recent experience in the past three years (rather than at any point in the past) as well as restricting financial expertise to only CFA/CPA certification in this and all further analysis.

board may be more prestigious in the director labor market and thus, attract more qualified directors than the pre-merger board. We address this concern by matching each acquirer to a set of non-acquirers in the same year, Fama-French 12 industry and firm size decile based on the size of the post-merger firm. This matched sample of new directors added in non-merger years allows us to compare unaffiliated directors added to acquirer boards to a comparable pool of new directors that may have been considered but not selected by an acquirer. In general, results are consistent with Panel A. Overall, directors added in merger years are selected for their executive and deal experience. These results provide further support for firm need; changes in acquiring boards around mergers reflect attributes related to a firm's changing monitoring and advising needs.

4.2.2 Director Selection - Acquirer and Target Director Pools

Next, we examine determinants of post-merger board selection for acquirer and target pools of directors using logistic regressions in Table 5. These models include deal fixed effects which allow within deal variation in director characteristics for each pool to explain selection. The deal fixed effects control for any unobservable firm or deal-specific attributes that may simultaneously link engaging in a merger and changes to a board. Column 1 examines selection from the combined acquirer and target director pool.⁵⁰ Consistent with firm need, acquirer and target directors on a post-merger board have more outside directorships. Notwithstanding the literature on busy boards, experience on additional boards broadens the experience brought to the current board. In addition, selected directors possess more prior merger experience than those not selected, also consistent with firm need. Finally, directors with outside target industry experience are

⁵⁰ This model includes all acquirer and target directors, even if no target director is on the post-merger board.

less likely to be added. While this appears inconsistent with firm need, it is concentrated in related deals and suggests a duplicative effect as acquirer and target directors have similar industry knowledge. Consistent with firm need, if we limit the sample to diversifying deals, the coefficient on target industry experience becomes positive and significant for target directors (untabulated).

To further address supply side issues in the director labor market, we construct measures of the relative importance of a directorship (Masulis and Mobbs, 2014). A director's board seat with the highest (lowest) market capitalization is ranked as the most (least) important directorship. Directors with only one seat are ranked as the most important. Directors are more likely to appear on the post-merger board if that directorship (acquirer or target) is their most important.

Having examined characteristics of all directors retained post-merger, we next condition on deals in which at least one target director is added and focus on the target director pool (Column 2). Target directors with more outside directorships and more outside CEO experience are more likely to be added to the post-merger board (all consistent with firm need), although female target directors are less likely added. While our results indicate diversity in gender is valued, there may be a limit to which adding any specific attribute is valuable, especially if other desirable qualities (e.g., CEO experience) are demanded. Focusing on supply-side effects, target directors are less likely added if the target directorship is the director's least important seat. These results provide support for the firm need motive; when target directors are added to the post-merger board, they possess more outside executive and board experience than target directors not retained.

Finally, we separate the acquirer pool and condition on deals when at least one acquirer director departs (Column 3). Consistent with firm need, acquirer directors on the post-merger board hold more outside directorships and merger experience than those that depart. In addition, acquirer directors retained have less outside target industry experience, again concentrated in related deals. Acquirer directors with outside CEO experience are less likely retained, which appears inconsistent with firm need. However, in subsequent tests, the net amount of outside CEO experience on the post-merger board increases with the addition of unaffiliated directors. Inconsistent with the agency motives, CEO connections do not explain post-merger retention.

As an additional test of CEO opportunism, we estimate regressions similar to Table 5 for subsamples based on potential agency conflicts and find the characteristics of retained acquirer and target directors are not different for CEO-Chair duality, acquirers with captured boards (highest tercile of percentage captured), high CEO ownership (highest tercile of CEO ownership), low institutional ownership (lowest tercile of institutional ownership), or connections between directors and the acquirer CEO (highest tercile of percent connected). These results are not consistent with CEO opportunism. Overall, results suggest that boards change around mergers to increase experience; director backgrounds with executive and deal experience are most valued.

4.2.3 Director Selection – Unaffiliated and Retained Target Directors

To further understand the post-merger board at the director-level, Table 6 compares unaffiliated directors added to other (not) retained directors. We estimate logistics including deal fixed effects as in Table 5. Consistent with firm need, unaffiliated directors are added for their CEO, outside directorship, and target industry experience. In fact, these

directors have more of this experience than retained and not retained acquirer directors. Unaffiliated directors are also more likely to be connected to an acquirer CEO than target directors (retained or not), but, not surprisingly, less so than acquirer directors retained. This finding could be indicative of either agency conflicts or a desire to populate a board with directors of known quality, given that there are both costs and benefits associated with the appointment of connected directors (Schmidt, 2015). We address these interpretations in subsequent tests. Unaffiliated directors added do have significantly less merger experience than retained or departing acquirer or target directors. In general, however, our results provide support for firm need; the addition of unaffiliated directors upgrades the director skill set of the post-merger board that could be useful in merger integration.

Table 6 also examines retained target directors and builds on our evidence that boards upgrade talent around mergers. Consistent with unaffiliated directors, retained target directors hold more directorships and have more outside CEO experience than (not) retained acquirer directors. In addition, these directors have more target industry experience than acquirer directors, providing additional support for firm need as a motive for director selection.

We also examine if managerial welfare motives explain the addition of unaffiliated or retained target directors. We estimate regressions similar to Table 6 for subsamples based on our measures of acquirer CEO power (untabulated). The characteristics of unaffiliated and retained target directors compared to all other sets of directors do not vary by these measures. Regardless of potential CEO opportunism, directors added around a merger possess more outside CEO experience and outside directorships than retained and

not retained acquirer (target) directors. These results provide additional evidence in favor of firm need rather than agency motives.

Overall, results from Tables 4-6 examining the determinants of director selection provide broad evidence that past experience matters for director selection onto the post-merger board. In particular, directors with outside CEO, merger, and additional industry experience as well as those with more outside directorships are more likely included on the post-merger board. Our findings suggest that firm need drives director selection and improves overall board quality around mergers.

4.3 What Determines Board Changes around Mergers?

Next, we focus on firm-level tests to examine motivation for board changes. Table 7 examines the percentage of: target directors added (Model 1), unaffiliated directors added (Model 2), and acquiring board not retained (Model 3). In Model 1, the percentage of target directors on the post-merger board increases with relatively larger deals and more complex (high R&D) targets. Consistent with firm need, as target complexity or size increases, so do the monitoring and advising skills needed. Merging with a target outside an acquirer's industry may imply a greater need for advising skills, suggesting higher target director retention in these deals. Results show that these directors are retained more often in related deals and could be consistent with CEO opportunism. However, target directors retained in either related or diversified deals are both characterized as high quality directors (CEO, directorship, and merger experience).

Given that the post-merger board contains more unaffiliated directors than target directors retained, we next examine the addition of unaffiliated directors (Model 2). None of our variables designed to measure firm need or the general controls appear to explain

the addition of unaffiliated directors at the firm-level. All previously documented results, however, suggest that unaffiliated directors are added for their prior executive and director experience. Importantly, retirement does not play a role in the percentage of unaffiliated directors added as the percentage of pre-merger acquirer directors over 72 provides no explanatory power.⁵¹ Finally, we examine the percentage of pre-merger acquirer directors not retained (Model 3). Similar to target director retention and consistent with firm need, the percentage of acquirer directors not retained increases with relative deal size and deal complexity (target R&D). Overall, results from Table 7 suggest that changes to board structure and composition around mergers are driven by firm need and complexity.

Table 8 focuses on bargaining related to the percentage of the combined board comprised of: retained target directors (Model 1), retained target outside directors (Model 2), retained target inside directors (Model 3), and whether the target CEO is retained (Model 4). The percentage of target directors added is significantly negatively related to target announcement returns; consistent with a tradeoff of power for premium where target directors negotiate for seats on the post-merger board in exchange for a lower premium (Wulf, 2004). We find that even where it is likely targets trade power-for-premium, target directors retained are still of higher quality (CEO, directorship, and merger experience) (unreported). From an acquirer's view, retention of these target directors appears driven by firm need rather than CEO opportunism. Target takeover defenses (e.g., poison pill or classified board) may strengthen its bargaining position and allow a board to better negotiate representation on the post-merger board. The presence of a target poison

⁵¹ The mandatory retirement age for directors is 72 years (Cline and Yore, 2014). Results are robust to using the percentage of directors 65, 68, or 70 or older or average director age instead of the percentage of directors 72 or older.

pill/classified board has a significantly positive effect on the percentage of target directors post-merger and supports the notion that the post-merger board is an outcome of bargaining between acquirers and targets.⁵²

Models 2 – 4 of Table 8 decompose retained target directors into outsiders, insiders, and target CEO. The results suggest that the power for premium trade-off documented in Model 1 is concentrated in outside target director retention. Consistent with Bargeron et al. (2013), we do not find that target CEO retention is related to this trade-off.

Finally, Table 9 explores agency explanations for board changes around mergers using the same methodology as Table 7. As noted, the CEO opportunism motive predicts that firms with more powerful CEOs should experience more change to the post-merger board. Across our four measures of CEO power (board capture, CEO-Chair duality, connections between the acquirer CEO and directors, and CEO ownership) and our three measures of board changes, we find very little evidence that board changes around mergers are associated with agency conflicts. In particular, only director connections to the CEO has a significantly positive impact on target director retention. In all other instances, there is no relation between measures of CEO power and board changes, except acquirers with higher board capture, CEO-Chair duality and higher CEO ownership are *less* likely to retain target directors and not retain incumbent acquirer directors.

Overall, results from Tables 7 and 8 suggest that both firm need and bargaining play an important role in changes to board structure and composition around mergers, while Table 9 provides little evidence that acquirer CEO opportunism are driving these changes.

⁵² Targets may also adopt these structures to protect their exploitable assets, so the relation between target director retention and governance may be related to the integration rather than bargaining. In our sample, however, there is no correlation between measures of target complexity (R&D expenditures) and classified board/poison pill.

4.4 Unaffiliated and Retained Target Director Tenure

Examining board tenure provides additional insight into the motives for board changes around mergers. Our three motives for post-merger board changes: firm need, agency, and bargaining (target) have different implications for the length of director retention. Unaffiliated and target directors chosen to fulfill long-term specific firm needs are likely retained longer. However, target directors primarily added to facilitate bargaining (i.e., complete the deal at a lower premia) fulfill their purpose at deal closing. Also, target directors may be retained for shorter-term needs, such as aiding the post-merger integration process. For both the bargaining and integration motives, we would expect target director tenure to be short-lived. In contrast, target directors chosen on the basis of long-term firm need would be expected to have a longer tenure.

Table 10 summarizes the director tenure results and finds that 70% of all new directors remain longer than three years, suggesting that board changes around mergers are fairly permanent.⁵³ Panel A segments new directors into unaffiliated and target. We find that 75% of unaffiliated directors remain for at least three years post-merger, which is significantly greater than the 70% retention of new directors for three plus years in the propensity score-matched non-merger sample. This result provides additional evidence that these changes are relatively more permanent. For target directors, however, only 63% remain on the post-merger board for more than three years.

Panel B segments directors by whether they stay or go over this three-year horizon. In general, directors that stay long-term have more CEO-merger experience, financial expertise, and are on key committees (audit, compensation, and nominating). This result

⁵³ Results are qualitatively similar if examine alternate tenure horizons such as one-year or two-years.

is consistent with firm need; the more permanent shifts in acquiring firm boards reflect directors with outside executive and deal experience and utilization of these talents in more prominent board roles. In addition, directors with longer tenure are not more connected to the acquirer CEO than those with shorter tenure; which is also consistent with upgrading a board's skill set and inconsistent with agency motives. These results hold whether we examine unaffiliated or target directors (untabulated).

While target directors added also represent an upgrade in board skill, it is not clear why fewer stay long-term. We explore two explanations: bargaining and integration. If the observed shorter tenure is a function of bargaining, we would expect this to be more prevalent in deals where targets receive a relatively lower premium. However, in Panel C of Table 10 comparing deals with high and low premia, we find that target directors in low premia mergers have a longer tenure. This result is inconsistent with bargaining driving shorter tenure for retained target directors.

If integration is a reason for this shorter tenure, we would expect that the subset of target directors with shorter tenure to be concentrated in cases where target integration is more of a concern: large, diversifying, and complex deals. Retained target directors have significantly shorter tenure in more complex deals (Panel C). Furthermore, Panel D examines characteristics of target directors that are retained for less than three years. Results show that retained target directors in more complex deals have significantly more financial, industry, CEO, and CEO-merger experience. All results in Table 10 hold if the sample is limited to directors less than the age of 72, 69, or 65. These findings are consistent with the notion that target directors with skills related to merger integration are retained in deals that likely require more such support.

In unreported tests, we repeat these analyses in a multivariate framework controlling for director characteristics (age, experience, committee membership, etc.) and board classification. Consistent with Table 10, unaffiliated directors are significantly more likely to remain on the combined board for more than three years as compared to retained target directors.⁵⁴ In addition, the shorter tenure of target directors continues to manifest in more complex deals, consistent with integration as the motive for shorter target director retention. Overall, our results suggest that the substantial changes to acquirer boards are relatively permanent and directors added in mergers reflect a demand for skills related to the monitoring and advising needs of the post-merger firm.

5. Robustness

We conduct robustness on subsamples based on time and regulation. SOX impacted board structures and makeup (Linck et al., 2009). In addition, regulated firms may demand different expertise or regulators may limit board composition (Houston and James, 1995; Kole and Lehn, 1999). In unreported results, we analyze sub-samples of pre- and post-SOX as well as excluding financials and utilities and find the significant board changes around mergers are consistent across time periods and industries. We conduct all analyses in Tables 2 - 9 on these sub-samples and while there are idiosyncratic differences, our general results remain. Boards change substantially around mergers and directors are added to the post-merger board in an attempt to improve the executive and deal experience of the board or due to bargaining between the merger participants.

⁵⁴ Unaffiliated directors are 15% more likely to remain for more than three years than retained target directors.

In sensitivity tests examining the determinants of target director retention, the addition of unaffiliated directors and the departure of acquirer directors (Tables 7-9), we control for additional factors that may impact the degree of change around mergers: serial acquirer (whether the firm engages in other acquisitions in the prior two years), free cash flow, leverage, geographic segments, operational segments, acquirer announcement return, geographic distance between the acquirer and target, and target firm governance measures as well as target industry homogeneity, average analyst forecast error or analyst coverage. Inclusion of these variables does not further explain post-merger board composition or alter our other results.

6. Summary and Conclusions

Prior literature has given little attention to changes in boards of acquiring firms. This is surprising given the importance of the board of directors and the potential for changes in the firm's monitoring and advising needs around a merger. It is possible that certain factors, like transaction costs, restrict adjustments to optimal board structure and composition, implying the relative stability of the post-merger board. Alternatively, theory suggests adjustments to the post-merger board as the monitoring and advising needs of the firm change due to the merger.

Our results indicate dynamic shifts in acquirer boards around mergers that are significantly different from both non-merging firm and non-merger years. Directors are added to the post-merger board at a significantly higher rate than for non-acquiring firms. In over 40% of deals, board size increases even though an acquirer director frequently departs. Board size also decreases in nearly 25% of deals although firm size and complexity increase. Overall, acquirer board size and/or composition change 84% of the

time and these changes are driven primarily by firm need and bargaining. The addition of unaffiliated and/or target directors reflects demand for monitoring and advising the post-merger firm and improved director quality. In addition, target firms negotiate representation on the post-merger board when they have relatively more bargaining power compared to the acquirer firm or in exchange for accepting lower merger premiums.

Examining director level characteristics, unaffiliated and target directors added after mergers have significantly different attributes from directors added to boards of non-merging firms. Skills related to executive and deal experience are more valued around mergers, while general skills such as education and financial expertise are sought in non-merger years. Moreover, directors added to the post-merger board have more outside board and executive experience than both retained and not retained acquirer directors, suggesting boards upgrade overall talent around a merger. Finally, significant adjustments to acquiring firm boards around mergers are relatively permanent as a vast majority of these new directors remain on the post-merger board long-term.

Our results provide evidence on the dynamics of acquirer boards and, more generally, on director selection. Mergers provide a unique setting to contrast the characteristics of candidates added, retained and not selected, offering insights into attributes valued in the director labor market. Our evidence suggests that acquirers improve overall board quality and place an increased importance on executive and deal experience in director selection around mergers. Overall, we complement prior studies on the determinants of board structure by providing insight into the dynamic nature and board structure and the characteristics valued in the director labor market.

Appendix A: Variable Definitions

Variable Definition	
<i>Panel A: Deal Characteristics</i>	
Deal Value (\$ mil)	Transaction value (\$ millions)
Relative Deal Size	Deal transaction value scaled by acquirer market value of equity
Acquirer CAR	Acquirer 3-day cumulative abnormal return (-1, +1) around the merger announcement date
Target CAR	Target 3-day cumulative abnormal return (-1, +1) around the merger announcement date
Premium	Final bid price scaled by target share price 42 days prior to merger announcement minus one
Diversifying Deal	Indicator variable equal to one if the acquirer and target are in different Fama-French 12 industries, zero otherwise
All Equity	Indicator variable equal to one if merger is 100% financed with equity, zero otherwise
All Cash	Indicator variable equal to one if merger is 100% financed with cash, zero otherwise
Tender Offer	Indicator variable equal to one for those deals announced via a tender offer, zero otherwise
Hostile	Indicator variable equal to one for those deals where the acquiring firm makes a hostile takeover attempt, zero otherwise
Multiple Bidders	Indicator variable equal to one if a target firm receives more than one takeover offer, zero otherwise
<i>Panel B: Firm Characteristics</i>	
Firm Size (\$ million)	Total book value of assets
Business Segments	Number of unique business segments
ROA	Net income scaled by total book value of assets
R&D	Research and development expenditures scaled by total book value of assets
Leverage	Total book value of debt scaled by total book value of assets
Top 5 Institutional Ownership (%)	Percentage of total outstanding shares held by the largest five institutional owners
Stock Performance	One-year buy and hold abnormal returns
Stock Volatility	Standard deviation of annual monthly returns
Board Size	Total number of directors on the board
Independence	Percentage of independent directors on the board
Captured	Percentage of outside directors with tenure less than the current CEO
CEO-Chair	Indicator variable equal to one if the CEO is also chair of the board, zero otherwise
CEO Age	CEO age in years
Directors \geq Age 72	Percentage of the board that is 72 years or older

Appendix A (continued): Variable Definitions

	Variable Definition
<i>Panel C: Director Characteristics</i>	
Outsider	Indicator variable equal to one if director is an outsider, zero otherwise
Director Tenure	Director tenure in years
Director Age	Director age in years
Female	Indicator variable equal to one if director is female, zero otherwise
Outside Directorships	Total number of additional public board seats held
Hold Outside Directorships	Indicator variable equal to one if director holds additional public board seats, zero otherwise
Higher Education	Indicator variable equal to one if director holds post-secondary degree, zero otherwise
Financial Expert	Indicator variable equal to one if director holds CFA or CPA or has prior/current CFO experience, zero otherwise
Outside CEO Experience	Indicator variable equal to one if director is currently or previously CEO of an outside public firm, zero otherwise
Merger Experience	Indicator variable equal to one if director has previously served on a board that engaged in an acquisition, zero otherwise
CEO-Merger Experience	Indicator variable equal to one if director has previously served as CEO of a firm that engaged in an acquisition, zero otherwise
Target Industry Experience	Indicator variable equal to one if director has additional employment or director experience in target Fama-French 12 industry, zero otherwise
Connected to CEO	Indicator variable equal to one if director currently/previously served on the same board or worked at the same firm as the acquirer CEO, zero otherwise
Audit Committee Member	Indicator variable equal to one if director sits on the audit committee, zero otherwise
Compensation Committee Member	Indicator variable equal to one if director sits on the compensation committee, zero otherwise
Nominating Committee Member	Indicator variable equal to one if director sits on the nominating committee, zero otherwise
Highest Ranked Seat	Indicator variable equal to one if acquirer (target) firm seat is director's largest directorship in terms of market capitalization, zero otherwise
Lowest Ranked Seat	Indicator variable equal to one if acquirer (target) firm seat is director's smallest directorship in terms of market capitalization, zero otherwise

Appendix B: Propensity Score-Matching Model Results

The table reports the results of the propensity score-matching model estimating the likelihood of engaging in a merger. All independent variables are calculated as of the prior fiscal year end. Year and industry fixed effects are also included. All variable definitions are included in Appendix A. p-values based on standard errors clustered by firm are in parentheses and ^a, ^b, and ^c denote statistical significance at the 1%, 5%, and 10% levels respectively.

	Dependent Variable: Merger (0/1)
Constant	-3.481 ^a (0.000)
Firm Size	0.238 ^a (0.000)
Leverage	-0.162 ^c (0.074)
Stock Performance	0.039 ^c (0.090)
Tobin's Q	0.012 (0.150)
Independence	0.102 (0.392)
CEO-Chair Duality	0.041 (0.235)
CEO Age	-0.004 ^c (0.081)
Board Size	0.012 ^c (0.071)
Unaffiliated Added	-0.065 ^c (0.059)
Incumbent Departs	0.011 (0.757)
Observations	28,861
Pseudo r ²	0.168
Year & Industry Fixed Effects	Yes

Figure 1: Changes to Acquirer Board Surrounding Mergers

The figure reports changes to the board of directors for firms that engage in an at least one acquisition during the sample period 1996-2012. Changes to the board in year t-1 and year t+1 are compared to board changes in the year surrounding the merger, year t. Changes include the percentage of the board that is new, percentage of the board that is retained, percentage of the board that is not retained, the likelihood of adding a new director, and the likelihood of not retaining an incumbent director. The unshaded bar represents year t-1, the black bar represents the merger year, and the shaded bar represents year t+1.

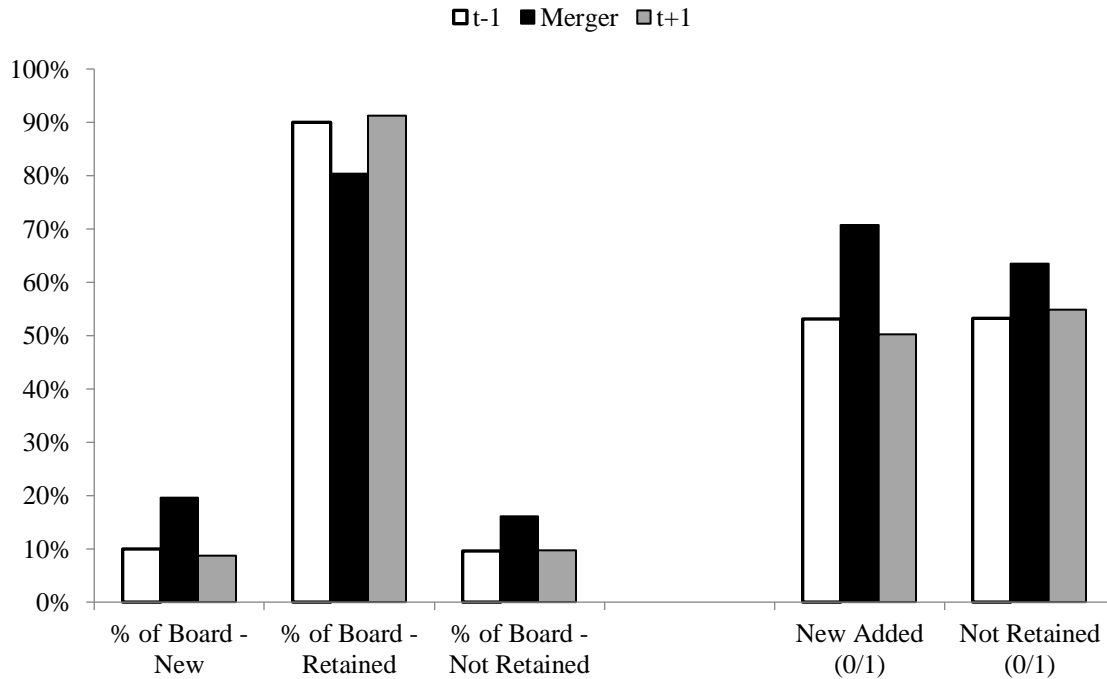


Table 1: Deal and Firm Characteristics

The table reports summary statistics for 1,153 deals from 1996-2012. Panel A contains deal characteristics. Panel B includes differences in means of firm characteristics for acquirer pre-deal, target pre-deal and post-merger firms. Panel C reports summary statistics on board characteristics. All variable definitions are included in Appendix A. All variables are winsorized at the 1% and 99% levels. ^a, ^b, and ^c denote statistically significant differences in means at the 1%, 5%, and 10% levels respectively.

<i>Panel A: Deal Characteristics</i>					
	Mean	Median	Std Dev	Q1	Q3
Deal Value (\$ mil)	\$3,725	\$990	\$9,616	\$323	\$3,071
Relative Deal Size	0.461	0.219	0.820	0.060	0.610
Acquirer CAR	-1.5%	-1.0%	6.5%	-4.3%	1.4%
Target CAR	25.1%	20.1%	24.9%	8.8%	34.6%
Premium	40.5%	34.3%	36.7%	18.7%	54.4%
Diversifying Deal	33.2%				
All Equity	24.9%				
All Cash	35.6%				
Tender Offer	16.9%				
Hostile	1.0%				
Multiple Bidders	4.9%				
<i>Panel B: Firm Characteristics</i>					
	Acquirer (1)	Target (2)	Post-Merger (3)	(1) – (2)	(3) – (1)
Firm Size (\$ mil)	\$59,142	\$7,407	\$76,049	\$51,734 ^a	\$16,907 ^a
Business Segments	2.971	1.732	3.087	1.239 ^a	0.116 ^b
R&D	0.031	0.058	0.031	-0.026 ^a	0.000
ROA	0.117	0.066	0.096	0.051 ^a	-0.021 ^a
Stock Performance	16.8%	9.5%	–	7.3% ^b	–
Top 5 Institutional Ownership	24.2%	26.5%	24.5%	-2.3% ^a	0.3% ^b
CEO Ownership	2.39%	1.89%	1.95%	0.50%	-0.44% ^b
Poison Pill	–	37.9%	–	–	–
Classified Board	51.1%	59.8%	49.4%	-8.5% ^a	-1.7% ^a

Table 1: Deal and Firm Characteristics (Continued)

<i>Panel C: Board Characteristics</i>					
	Acquirer (1)	Target (2)	Post-Merger (3)	(1) – (2)	(3) – (1)
Board Size	10.87	8.90	11.48	1.96 ^a	0.61 ^a
Independence	73.7%	70.3%	74.7%	3.4% ^a	1.0%
Directors >= Age 72	6.3%	6.6%	6.4%	-0.3%	0.1%
Female	11.3%	7.7%	11.7%	3.6% ^a	0.4%
Director Tenure	7.73	7.39	7.46	0.34 ^b	-0.28 ^c
Outside Directorships	1.12	0.76	1.08	0.35 ^a	-0.04
Hold Additional Seats	54.3%	40.2%	54.0%	14.1% ^a	-0.3%
Higher Education	57.6%	49.7%	58.5%	7.9% ^a	0.8%
Financial Expert	12.5 %	12.6%	13.1%	-0.1%	0.6%
Outside CEO Experience	22.3%	25.2%	22.9%	-2.9% ^a	0.5%
Merger Experience	80.4%	52.1%	73.9%	28.3% ^a	-6.5% ^a
CEO-Merger Experience	9.9%	7.2%	16.4%	2.7% ^a	6.5% ^a
Target Industry Experience	24.6%	34.8%	25.9%	-10.2% ^a	1.3%
Connected to CEO	10.0%	0.8%	7.3%	9.2% ^a	-2.7% ^a
Captured	54.9%	51.1%	55.9%	3.7% ^a	1.1% ^a
CEO-Chair	66.0%	59%	62%	7.0% ^a	-3.0% ^c
CEO Age	55.50	54.59	55.87	0.91 ^a	0.37

Table 2: Board Structure – Acquiring Firms versus Non-Acquiring Firms

The table compares board dynamics of firm-years involving a merger with a public target to a propensity score-matched sample of firm-years with no merger activity. Results of the propensity score model are reported in Appendix B. There are 1,008 merger firm-years in each of the pre- and post-merger periods and 6,346 non-merger firm-years in each of the pre- and post-merger periods. Panel A considers all merger and non-merger firm-years. Panel B splits firm-year matches into relative deal size terciles and reports the difference-in-difference effect only. ^a, ^b, and ^c denote statistically significant differences at the 1%, 5%, and 10% levels, respectively.

<i>Panel A</i>	Pre-			Post-			Diff-in-diff
	Merger	Non-Merger	Diff.	Merger	Non-Merger	Diff.	
% of Board – Unaffiliated Director	9.61%	9.27%	0.34%	9.90%	7.92%	1.98% ^a	1.65% ^a
≥ 1 Unaffiliated director added	54.66%	51.95%	2.71%	58.33%	50.79%	7.55% ^a	4.84% ^a
% of Board – Not Retained	9.25%	9.18%	0.07%	12.80%	7.88%	4.92% ^a	4.84% ^a
≥ 1 Director departs	55.46%	52.99%	2.46%	65.48%	50.61%	14.86% ^a	12.40% ^a
Δ Board size	0.04	0.00	0.04	0.60	-0.02	0.62 ^a	0.58 ^a
Board size increases	27.28%	24.93%	2.35%	41.96%	24.98%	16.99% ^a	14.64% ^a
& director departs	12.10%	10.05%	2.05% ^c	23.91%	8.29%	15.62% ^a	13.57% ^a
Board size does not change	45.73%	49.80%	-4.06%	35.71%	49.51%	-13.80% ^a	-9.74% ^a
& director departs	16.96%	18.01%	-1.05% ^b	19.25%	17.11%	2.13% ^c	3.18%
Board size decreases	26.98%	25.28%	1.71%	22.32%	25.51%	-3.19% ^b	-4.90% ^a
& director added	10.71%	9.23%	1.48%	10.71%	8.95%	1.76% ^c	0.28%

Table 2: Board Structure – Acquiring Firms versus Non-Acquiring Firms (Continued)

<i>Panel B</i>	Merger- Low Size (1)	Merger- Medium Size (2)	Merger- High Size (3)
% of Board – Unaffiliated Director	1.59% ^c	3.13% ^a	0.30%
≥ 1 Unaffiliated director added	3.32%	6.43% ^c	5.31% ^c
% of Board – Not Retained	2.85% ^a	4.15% ^a	6.56% ^a
≥ 1 Director departs	11.16% ^a	9.27% ^a	14.81% ^a
Δ Board size	-0.10	0.44 ^a	1.58 ^a
Board size increases	-5.12%	15.55% ^a	37.25% ^a
& director departs	-0.24%	10.91% ^a	32.09% ^a
Board size does not change	2.56%	-12.35% ^a	-21.10% ^a
& director departs	8.06% ^a	1.09%	-1.49%
Board size decreases	2.56%	-3.20%	-16.15% ^a
& director added	1.42%	1.42%	-3.73% ^c

Table 3: Board Dynamics around Mergers – Difference-in-difference

The table presents OLS regressions where the dependent variables are the change in board size (Models 1 and 4), an indicator equal to one if an unaffiliated director is added to the board (Models 2 and 5), and an indicator variable equal to one if a director departs the board (Models 3 and 6). Merger is an indicator equal to one for 2,016 firm-years in the year prior to and following a firm engaging in a merger and equal to zero for 12,692 non-merger propensity score-matched firm-years. Post is an indicator equal to one for merging firms and non-merger matched firms in the year following the merger and zero otherwise. All other independent variables are calculated as of the prior fiscal year end. Year and industry fixed effects are also included. All variable definitions are included in Appendix A. p-values based on standard errors clustered by firm are in parentheses and ^a, ^b, and ^c denote statistical significance at the 1%, 5%, and 10% levels respectively.

Table 4: Director Characteristics – Merger Years versus Non-Merger Years

The table compares director characteristics of firm-years involving a merger with a public target to firm-years with no merger activity. Panel A compares years in which a firm engages in a merger to a propensity score-matched sample of firms based on pre-merger firm characteristics that do not engage in a merger. This sample includes 1,189 (933) unaffiliated (retained target) director-firm-years in merger years and 6,051 new director-firm-years in non-merger years. Panel B compares years in which a firm engages in a merger to a matched sample of firms in the same year, Fama-French 12 industry and firm size decile based on post-merger size that do not engage in a merger. This sample includes 1,459 (1,089) unaffiliated (retained target) director-firm-years in merger years and 12,872 new director-firm-years in non-merger years. Column (1) compares the mean characteristics of all new directors in merger years (unaffiliated and retained target) to new directors in non-merger years. Column (2) compares mean characteristics of unaffiliated directors in merger years to new directors in non-merger years. Column (3) compares mean characteristics of retained target directors in merger years to new directors in non-merger years. ^a, ^b, and ^c denote statistically significant differences in means between merger and non-merger years at the 1%, 5%, and 10% levels, respectively.

<i>Panel A: Propensity Score-Matched Firm Comparison</i>	{Unaffiliated & Retained Target} vs. Non-Merger (1)		Unaffiliated vs. Non-Merger (2)		Retained Target vs. Non-Merger (3)	
	Merger	Non-Merger	Merger	Non-Merger	Merger	Non-Merger
Outsider	87%	85% ^a	86%	84%	89%	85% ^a
Age	58.0	56.1 ^a	56.5	56.2	60.0	56.1 ^a
Female	12%	14% ^c	15%	14%	9%	14% ^a
Higher Education	56%	65% ^a	58%	66% ^a	53%	66% ^a
Financial Expert	7%	10% ^a	8%	10% ^c	6%	10% ^a
Hold Outside Directorships	54%	50% ^a	53%	51%	55%	50% ^b
Outside CEO Experience	25%	18% ^a	25%	20% ^a	26%	18% ^a
Merger Experience	44%	28% ^a	30%	29%	61%	29% ^a
CEO-Merger Experience	19%	8% ^a	18%	10% ^a	19%	9% ^a
<i>Panel B: Post-merger Size Matched Firm Comparison</i>	{Unaffiliated & Retained Target} vs. Non-Merger (1)		Unaffiliated vs. Non-Merger (2)		Retained Target vs. Non-Merger (3)	
	Merger	Non-Merger	Merger	Non-Merger	Merger	Non-Merger
Outsider	87%	85%	85%	85%	88%	85% ^c
Age	58.0	55.4 ^a	56.6	55.4 ^a	59.8	55.2 ^a
Female	12%	16% ^a	14%	16%	9%	16% ^a
Higher Education	55%	66% ^a	56%	66% ^a	52%	66% ^a
Financial Expert	7%	9% ^a	7%	9% ^a	6%	10% ^a
Hold Outside Directorships	53%	51%	51%	52%	56%	48% ^b
Outside CEO Experience	25%	19% ^a	25%	20% ^a	26%	17% ^a
Merger Experience	41%	29% ^a	28%	30%	59%	27% ^a
CEO-Merger Experience	18%	7% ^a	17%	8% ^a	19%	6% ^a

Table 5: Determinants of Aggregate Director Selection – Acquirer and Target Pools

The table details logistic models estimating director selection onto the post-merger board from pools of potential candidates. All regressions contain deal fixed-effects. Column (1) analyzes director selection from the candidate pool containing acquirer and target directors, the pool in column (2) contains only target directors, and column (3) contains only acquirer directors. Column (1) includes all mergers, column (2) includes only mergers in which at least one target director was retained, and column (3) includes only mergers in which at least one acquirer director was not retained. The dependent variable for all logit models is an indicator variable equal to one if the director is selected for the post-merger board and zero if not selected. All other variable definitions are included in Appendix A. p-values are included in parentheses. ^a, ^b, and ^c denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Acquirer & Target Selection (1)	Target Selection ≥ 1 Target Retained (2)	Acquirer Selection ≥ 1 Acquirer Not Retained (3)
Outsider	0.545 ^a (0.000)	0.659 ^b (0.011)	0.795 ^a (0.000)
Age	-0.033 ^a (0.000)	-0.022 ^a (0.003)	-0.057 ^a (0.000)
Female	0.234 ^a (0.006)	-0.324 ^c (0.069)	0.265 ^b (0.024)
Higher Education	0.074 (0.165)	0.004 (0.968)	0.062 (0.384)
Financial Expert	-0.002 (0.979)	-0.181 (0.251)	0.150 (0.176)
Hold Outside Directorships	0.513 ^a (0.000)	0.861 ^a (0.000)	0.292 ^a (0.001)
Outside CEO Experience	-0.060 (0.357)	0.259 ^c (0.058)	-0.214 ^b (0.011)
Target Industry Experience	-0.187 ^a (0.009)	-0.183 (0.168)	-0.207 ^b (0.035)
Merger Experience	0.567 ^a (0.000)	-0.169 (0.275)	0.778 ^a (0.000)
Connected to CEO	-0.052 (0.660)	0.703 (0.190)	0.122 (0.379)
Highest Ranked Seat	0.298 ^a (0.001)	0.054 (0.776)	0.165 (0.142)
Lowest Ranked Seat	-0.052 (0.579)	-0.383 ^b (0.048)	0.124 (0.329)
Acquirer Director	4.284 ^a (0.000)		
Target CEO	1.214 ^a (0.000)	1.456 ^a (0.000)	
Acquirer CEO	1.234 ^a (0.000)		1.404 ^a (0.000)
Tenure	-0.018 ^a (0.000)	0.014 (0.182)	-0.031 ^a (0.000)
Observations	17,849	2,427	7,108
Pseudo r ²	0.570	0.056	0.073
Deal Fixed Effects	Yes	Yes	Yes

Table 7: Determinants of Board Dynamics – Firm Need

The table presents Tobit regressions where the dependent variables are the percentage of the post-merger board that is retained target directors (Model 1), the percentage of the post-merger board that is unaffiliated directors (Model 2), and the percentage of the pre-merger acquirer board that is not retained (Model 3). Year and Fama-French 12 industry fixed effects are also included. All variable definitions are included in Appendix A. p-values based on standard errors clustered by Fama-French 12 industry are in parentheses and ^a, ^b, and ^c denote statistical significance at the 1%, 5%, and 10% levels respectively.

	Dependent Variable:		
	% Combined Board: Retained Target Model 1	% Combined Board: Unaffiliated Model 2	% Acquirer Board: Not Retained Model 3
Constant	-0.249 ^a (0.004)	0.039 (0.608)	-0.047 (0.638)
Relative Deal Size	0.160 ^a (0.000)	0.015 (0.420)	0.058 ^b (0.028)
Diversifying Deal	-0.085 ^a (0.000)	0.010 (0.583)	-0.026 (0.166)
Target R&D	0.069 ^a (0.000)	-0.017 (0.111)	0.032 ^a (0.000)
Target Business Segments	0.012 (0.110)	-0.001 (0.888)	0.007 (0.361)
All Equity	0.123 ^a (0.000)	-0.007 (0.585)	0.067 ^a (0.000)
All Cash	-0.183 ^a (0.000)	0.013 (0.446)	0.006 (0.780)
Tender Offer	-0.104 ^b (0.011)	-0.005 (0.771)	-0.009 (0.597)
Hostile	-0.139 ^b (0.047)	-0.024 (0.753)	-0.142 ^b (0.042)
Multiple Bidders	-0.113 ^b (0.031)	0.030 (0.335)	0.003 (0.895)
Acquirer Board Independence	0.003 (0.943)	-0.041 (0.316)	0.029 (0.506)
Acquirer CEO Age	-0.001 (0.585)	0.002 ^a (0.007)	0.003 ^a (0.007)
Acquirer Directors Age >= 72	-0.023 (0.743)	-0.056 (0.277)	-0.178 ^c (0.072)
Acquirer Stock Performance	-0.070 ^a (0.006)	0.010 (0.426)	-0.025 ^a (0.001)
Observations	1,125	1,125	1,125
Pseudo r ²	0.65	0.15	0.34
Year & Industry Fixed Effects	Yes	Yes	Yes

Table 8: Determinants of Board Dynamics: Bargaining

The table presents regressions modeling the power for premium tradeoff. Models 1-3 are Tobit regressions and Model 4 is a linear probability model. The dependent variables are the percentage of the post-merger board that is retained target directors (Model 1), the percentage of the post-merger board that is retained target outside directors (Model 2), the percentage of the post-merger board that is retained target inside directors (Model 3), and an indicator equal to one if the target CEO is retained on the post-merger board (Model 4). Year and Fama-French 12 industry fixed effects are also included. All variable definitions are included in Appendix A. p-values based on standard errors clustered by Fama-French 12 industry are in parentheses and ^a, ^b, and ^c denote statistical significance at the 1%, 5%, and 10% levels respectively.

Table 8: Determinants of Board Dynamics: Bargaining (Continued)

	Dependent Variable:			
	% Combined Board: Retained Target	% Combined Board: Retained Target Outsider	% Combined Board: Retained Target Insider	Target CEO Retained (0/1)
	Model 1	Model 2	Model 3	Model 4
Constant	-0.172 ^c (0.082)	-0.194 ^c (0.052)	-0.125 ^b (0.017)	0.220 ^c (0.080)
Target CAR	-0.175 ^a (0.005)	-0.170 ^a (0.002)	-0.069 (0.245)	-0.083 (0.234)
Target Stock Performance	-0.037 (0.223)	-0.032 (0.274)	-0.024 ^c (0.076)	-0.017 (0.488)
Target Poison Pill	0.024 (0.110)	0.018 (0.250)	0.031 ^a (0.001)	0.037 ^c (0.050)
Target Classified Board	0.029 ^c (0.067)	0.034 ^b (0.020)	-0.009 (0.383)	0.025 (0.383)
Relative Deal Size	0.148 ^a (0.000)	0.150 ^a (0.000)	0.028 ^c (0.061)	0.086 ^c (0.057)
Diversifying Deal	-0.062 ^a (0.001)	-0.074 ^a (0.000)	0.008 (0.554)	-0.007 (0.737)
All Equity	0.117 ^a (0.000)	0.108 ^a (0.000)	0.057 ^a (0.000)	0.120 ^a (0.002)
All Cash	-0.171 ^a (0.000)	-0.167 ^a (0.000)	-0.077 ^b (0.017)	-0.089 ^a (0.007)
Tender Offer	-0.086 ^a (0.004)	-0.071 ^c (0.060)	-0.056 ^c (0.079)	-0.031 (0.165)
Hostile	-0.148 ^b (0.012)	-0.117 ^b (0.039)	-0.696 ^a (0.000)	-0.176 ^a (0.003)
Multiple Bidders	-0.112 ^b (0.021)	-0.094 ^c (0.052)	-0.094 ^b (0.027)	-0.144 ^b (0.015)
Acquirer Board Independence	0.001 (0.987)	0.028 (0.592)	-0.061 ^c (0.083)	-0.058 (0.413)
Acquirer CEO Age	-0.001 (0.474)	-0.001 (0.366)	-0.000 (0.990)	-0.001 (0.565)
Acquirer Directors Age >= 72	-0.009 (0.910)	-0.034 (0.745)	0.019 (0.820)	0.092 (0.328)
Acquirer Stock Performance	-0.051 (0.105)	-0.055 ^c (0.065)	0.001 (0.937)	-0.019 (0.532)
Observations	1,125	1,125	1,125	1,125
r ²	0.66	0.69	0.50	0.18
Year & Industry Fixed Effects	Yes	Yes	Yes	Yes

Table 9: Determinants of Board Dynamics – Agency

The table presents Tobit regressions where the dependent variables are the percentage of the post-merger board that is retained target directors (Model 1), the percentage of the post-merger board that is unaffiliated directors (Model 2), and the percentage of the pre-merger acquirer board that is not retained (Model 3). Year and Fama-French 12 industry fixed effects are also included. All variable definitions are included in Appendix A. p-values based on standard errors clustered by Fama-French 12 industry are in parentheses and ^a, ^b, and ^c denote statistical significance at the 1%, 5%, and 10% levels respectively.

Table 9: Determinants of Board Dynamics – Agency (Continued)

	Dependent Variable:		
	% Combined Board: Retained Target	% Combined Board: Unaffiliated	% Acquirer Board: Not Retained
	Model 1	Model 2	Model 3
Constant	0.022 (0.867)	0.073 (0.360)	0.076 (0.395)
Acquirer Board Captured	-0.052 ^b (0.035)	-0.030 (0.143)	-0.048 (0.104)
Acquirer CEO-Chair	-0.035 ^b (0.022)	0.018 (0.444)	-0.001 (0.977)
Acquirer % Connected to Acquirer CEO	0.136 ^a (0.005)	-0.056 (0.134)	0.047 (0.344)
Acquirer CEO Ownership	-0.074 (0.214)	-0.068 (0.307)	-0.225 ^a (0.001)
Acquirer Top 5 Instit. Ownership	0.108 (0.252)	-0.078 (0.258)	-0.120 (0.135)
Diversifying Deal	-0.075 ^a (0.000)	0.009 (0.651)	-0.024 (0.203)
All Equity	0.109 ^a (0.000)	-0.005 (0.700)	0.064 ^a (0.000)
All Cash	-0.272 ^a (0.000)	0.004 (0.795)	-0.017 (0.380)
Tender Offer	-0.154 ^a (0.003)	-0.008 (0.660)	-0.019 (0.316)
Hostile	-0.137 ^b (0.029)	-0.022 (0.787)	-0.128 (0.125)
Multiple Bidders	-0.031 (0.522)	0.038 (0.274)	0.030 (0.294)
Acquirer Board Independence	-0.047 (0.433)	-0.059 (0.108)	-0.008 (0.870)
Acquirer CEO Age	-0.001 (0.766)	0.002 ^a (0.003)	0.003 ^b (0.028)
Acquirer Directors Age >= 72	0.023 (0.604)	-0.032 (0.583)	-0.137 (0.202)
Acquirer Stock Performance	-0.067 ^b (0.017)	0.011 (0.373)	-0.024 ^a (0.003)
Observations	1,125	1,125	1,125
r ²	0.51	0.17	0.32
Year & Industry Fixed Effects	Yes	Yes	Yes

Table 10: Unaffiliated/Target Director Tenure

The table presents analysis of director tenure for retained target directors and unaffiliated directors on the post-merger board. There are a total of 841 deals with at least one retained target or unaffiliated director (2,548 retained target and unaffiliated directors) on the post-merger board. Panel A reports the percentage of directors that remain 3 years following the merger. Panel B compares characteristics of those directors that remain for at least 3 years to those directors that leave within 3 years following the merger. 1,344 (588) retained target or unaffiliated directors stay (leave) for (in) more (less) than 3 years, 804 (264) unaffiliated directors stay (leave) for (in) more (less) than 3 years, and 540 (324) retained target directors stay (leave) for (in) more (less) than 3 years. Panel C reports the percentage of retained target directors that remain 3 years following the merger for the subsamples of deals based on above and below median premium and deal complexity (target R&D expenditures) mergers. Panel D compares characteristics of retained target directors that leave within 3 years following the deal in above and below median deal complexity (target R&D expenditures) mergers. All variable definitions are included in Appendix A. ^a, ^b, and ^c denote statistically significant difference in means at the 1%, 5%, and 10% levels, respectively.

Table 10: Unaffiliated/Target Director Tenure (Continued)

<i>Panel A: Tenure</i>				
	All	Unaffiliated	Target	Difference
Tenure \geq 3 years	69.6%	75.3%	62.5%	12.8% ^a
<i>Panel B: Stay vs. Leave</i>				
	Stay \geq 3 years	Leave < 3 years		
Outsider	90%	80% ^a		
Age	57.24	58.30 ^a		
Female	14%	7% ^a		
Higher Education	59%	46% ^a		
Financial Expert	7%	5% ^c		
Hold Outside Directorships	56%	52%		
Outside CEO Experience	24%	26%		
Target Industry Experience	28%	29%		
Merger Experience	42%	43%		
CEO-Merger Experience	18%	15% ^c		
Connected to CEO	6%	4%		
Audit Committee	31%	25% ^a		
Compensation Committee	26%	19% ^a		
Nominating Committee	21%	18% ^c		
<i>Panel C: Target Director Tenure</i>				
	High Premium	Low Premium	Difference	
Tenure \geq 3 years	52.0%	64.9%	-12.9% ^b	
	Low Complexity	High Complexity	Difference	
Tenure \geq 3 years	65.0%	55.2%	9.8% ^a	
<i>Panel D: Short Tenure Target Director Characteristics</i>				
	Low Complexity	High Complexity	Difference	
Financial Expert	5%	14%	9% ^a	
Hold Outside Directorships	56%	64%	8%	
Outside CEO Experience	24%	33%	10% ^c	
Target Industry Experience	28%	37%	9% ^c	
Merger Experience	64%	65%	1%	
CEO-Merger Experience	15%	24%	10% ^b	

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Vita

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EDUCATION

Ph.D., Business Administration - Finance, Drexel University, Philadelphia, PA (2016)
 B.S., Business Administration - Finance, University of Pittsburgh, Pittsburgh, PA (2011)
 B.S., Economics - Finance, University of Pittsburgh, Pittsburgh, PA (2011)

RESEARCH

“CEO Turnover Waves: Spillovers to Monitoring and Managerial Incentives”

Presentations: Eastern Finance Association Annual Meeting (2016), ECCCS Workshop on Governance and Control, SKEMA Business School (2016), Securities and Exchange Commission (2016), Kelley School of Business, Indiana University, Indianapolis (2016), Ohio University (2015), FMA Doctoral Consortium (2015), Drexel University (2015)

“The Value of Venue in Corporate Litigation: Evidence from Exclusive Forum Provisions”

Presentations: FMA Annual Meeting (2015), Southern Finance Association Annual Meeting (2015), American Law and Economics Association Annual Meeting (2015), Eastern Finance Association Annual Meeting (2015), Conference on Empirical Legal Studies (2014), Drexel University (2014)

“Board Changes and the Director Labor Market: The Case of Mergers” with David A. Becher and Ralph A. Walkling

Presentations: Eastern Finance Association Annual Meeting (2016), Villanova University (2016), FMA Annual Meeting (2015), Southern Finance Association Annual Meeting (2015), Drexel University (2014)

“Performance-based Turnover on Corporate Boards” with Thomas W. Bates and David A. Becher

Presentations: Conference on Financial Economics & Accounting (2015), Southern Finance Association Annual Meeting (2015), Drexel University (2015)

TEACHING

Introduction to Finance, Drexel University; Fall 2013: 1 section, Winter 2014: 2 sections

Math Camp (Ph.D.), Drexel University; 2013-2015

SAS/Stata Bootcamp (Ph.D.), Drexel University; 2015

AWARDS

Drexel University Research Excellence Award, 2016

Outstanding Doctoral Student Paper Award, Eastern Finance Association, 2016

PhD Symposium, ECCCS Workshop on Governance and Control, 2016

LeBow PhD Award for Outstanding Student Research Paper, 2015

Financial Management Association Doctoral Consortium, 2015

American Finance Association Doctoral Student Travel Grant, 2015

LeBow PhD Award for Outstanding Student Instructor, 2014

Dean’s Fellowship, LeBow College of Business, 2011-2016

