STAGGERED BOARDS AND FIRM VALUE, REVISITED

K. J. Martijn Cremers*, Lubomir P. Litov**, Simone M. Sepe***

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ABSTRACT

This paper revisits the association between firm value (as proxied by Tobin's Q) and whether the firm has a staggered board. Confirming prior studies, we find that in the cross-section firms with a staggered board tend to have a lower value. However, we obtain the opposite result in the time series: firms adopting a staggered board increase in value, while de-staggering is associated with a decrease in value. We further show that the decision to adopt a staggered board seems endogenous, and related to an *ex ante* lower firm value, which helps reconciling the existing cross-sectional results to our novel time series results. To explain our new results, we explore whether staggered boards may promote long-term value creation by serving as a credible longer-term commitment device by the shareholders. Consistent with this, we find that adopting a staggered board has a stronger positive association with firm value for firms where such longer-term commitment seems more relevant, i.e., firms with more R&D, more intangible assets, more innovative and larger and thus likely more complex firms.

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* Mendoza College of Business, University of Notre Dame. *Email address:* mcremers@nd.edu

** The University of Arizona, Eller School of Management; and Wharton Financial Institutions Center, University of Pennsylvania. *Email address:* litov@email.arizona.edu

*** James E. Rogers College of Law, University of Arizona; and Institute for Advanced Study in Toulouse – Fondation Jean-Jacques Laffont – Toulouse School of Economics. *Email address:* sms234@email.arizona.edu.

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1. Introduction

Whether the adoption of a staggered (or classified) board is a desirable governance arrangement for publicly traded firms is the subject of a long-standing debate, which shows no signs of waning. Unlike a unitary board, where all directors stand for (re)election each year, in a staggered board directors are typically grouped into three different classes, with only one class of directors standing for annual (re)election. Hence, a staggered board helps to insulate directors from the threat of quick removal, because challengers need to win at least two election cycles to gain a board majority when each director serves staggered three-year terms.

For scholars supporting the "managerial entrenchment" view of staggered boards, such insulation is undesirable as it diminishes the accountability of directors (and the managers they oversee) and encourages moral hazard such as shirking, empire building, and private benefits extraction by insiders (Manne, 1965; Jensen, 1988, 1993). Moreover, protection from removal could enable self-interested insiders to block value-increasing acquisition attempts (Easterbrook and Fischel, 1981) or preemptively deter potential acquirers from making valuable acquisition offers (Grossman and Hart, 1980).

In contrast, scholars supporting the competing "longer-term value creation" view of staggered boards conceive of staggered boards as a way to encourage boards to pursue long-term value creation (Bratton and Wachter, 2010; Strine, 2006; Lipton and Rosenblum, 1991), with directors seen as better positioned to make informed corporate decisions (Bainbridge, 2006; Blair and Stout, 1999). Under this view, board insulation would help avoiding situations in which less informed shareholders assessing a firm's business choices only through stock market performance may pressure management to overinvest in short-term projects at the expense of long-term firm value (Stein, 1988, 1989; Bebchuk and Stole, 1993; Mizik and Jacobson, 2007).

This debate notwithstanding, the empirical literature has long and consistently documented that board classification reduces firm value (see Bebchuk, 2013, for a review). With few exceptions,[1] existing empirical

[1] Bates, Becher, and Lemmon (2008) show that target shareholder returns are not influenced by the presence of a staggered board. Field and Karpoff (2002) find that IPO firms with takeover defenses enjoy better long term operating performance than IPO firms without defenses. Larcker, Ormazabal, and Taylor (2011) find negative stock return announcement effect of proposals for proxy access reform, including a proposal to eliminate staggered boards. Duru, Wang, and Zhao (2013) find that as corporate information environments become more opaque, staggered boards bear a

studies find that, in the cross-section, staggered boards are associated with lower firm value as measured by Tobin's Q (Bebchuk and Cohen, 2005; Faleye, 2007; Bebchuk, Cohen, and Ferrell, 2009; Cohen and Wang, 2013) and that staggering up is associated with negative abnormal returns (Mahoney and Mahoney, 1993; Bebchuk, Coates, and Subramanian, 2002; Masulis, Wang, and Xie, 2007), at economically and statistically significant levels.[2] Largely influenced by these studies,[3] major institutional investors, including American Funds, Blackrock, CalPERS, Fidelity, TIAA-CREF, and Vanguard, as well as the two most prominent proxy advisors, ISS and Glass Lewis, today unambiguously favor the repeal of staggered boards and the annual election of directors (Cohen and Wang, 2013).

This paper calls into question the interpretation of the evidence in the existing empirical literature, documenting that the negative cross-sectional association between staggered boards and firm value is reversed in the time series and offering a new interpretation of staggered boards. We first replicate the existing evidence that *cross-sectionally*, firms with staggered boards tend to have lower firm values as measured by Tobin's Q. After that, our main new finding is that in the *time series*, staggering up (down) is associated with an increase (decrease) in firm value. Our striking time series result casts doubt on the existing interpretation of the cross-sectional results, challenging the idea that staggered boards *cause* a lower firm value and suggesting, instead, that the decision to adopt a staggered board might relate to an *ex ante* lower firm value. To explain our novel time series results, we explore a new interpretation, namely whether staggered boards may promote long-term value creation by serving as a credible longer-term commitment device by the shareholders. Indeed, even if no shareholders are myopic (in a rational sense, see Stein, 1988, 1989), their ability to potentially sell their shares in public markets at any time means that shareholders have difficulty to *ex ante* commit to a longer investment. The adoption of a staggered board – which requires shareholder

positive cross-sectional relation to R&D expenses and CEO pay-performance sensitivity. Ahn and Shrestha (2013) find that in the cross-section staggered boards are positively related to the financial value of firms with greater advising needs, and negatively of firms with high monitoring costs.

[2] On the other hand, other studies find that de-staggering of the board is associated with *positive* abnormal returns (Cunat, Gine, and Guadalupe, 2012; Faleye, 2007; Guo, Kruse and Nohel, 2008 and 2012). An exception is Ge, Tanlu, and Zhang (2014), who find that destaggerring is associated with deterioration in ROA and decrease in R&D investment.

[3] The Shareholder Rights Project—founded and directed by Professor Lucian Bebchuk—has had a leading role in promoting de-staggering initiatives based on the above-cited empirical studies, see http://srp.law.harvard.edu.

approval – can thus be seen as an *ex ante* commitment device of the shareholders to evaluate directors over longer periods of time.

Of course, causality concerns are not new in the staggered board literature. Prior studies broadly acknowledge that the interpretation of the identified cross-sectional negative correlation between staggered boards and firm value is not unequivocal. In particular, since governance arrangements are chosen in response to firm-specific circumstances (Adams, Hermalin, and Weisbach, 2010), these studies recognize that staggering decisions could be partly motivated by, rather than the cause of, low firm values.

Existing studies, however, are more limited in how they address endogeneity, as they exclusively employ cross-sectional regressions to estimate the relation between staggering decisions and firm value. The focus on a cross-sectional association is largely attributable to limitations in available staggered board data and the difficulty of performing a time series analysis of this relation using limited data. Hence, an essential contribution of this paper is our use of a more comprehensive dataset for a large cross-section of firms from 1978 to 2011, which allows us to consider the time series evidence as well. This is particularly important because the 1995 – 2002 time period used in much of the recent literature (e.g., Bebchuk and Cohen, 2005; Faleye, 2007; and Bebchuk, Cohen, and Ferrell, 2009) has very few instances of firms adopting a staggered board or de-staggering. In contrast, our longer sample includes two separate episodes in which many firms change their board structure: many firms staggered up during the 1978 – 1989 period (as documented in Cremers and Ferrell, 2014), and a likewise considerable proportion of firms de-staggered during the 2005 – 2011 period. As a result, we are able to significantly improve the identification of the association between staggered boards and firm value using various methods that exclusively rely on time series changes, such as pooled panel Tobin's Q regressions with firm fixed effects, changes in *Q* regressions on changes in board structure in both the full and a matched sample, and long-term event studies using stock portfolios formed around changes in board structures.

Our main time series result, that firm value goes up if the board changes from a single class of directors to a staggered board (and the reverse for de-staggering), is robust and both economically and statistically significant. Using pooled panel Tobin's Q regressions with firm fixed effects and the full 1978 – 2011 time period, we find that staggering up (down) is associated with an increase (decrease) in Tobin's Q of 3.7%. We likewise document a positive association between changes in Tobin's Q and changes in whether the firm has a staggered board, consistent with our firm fixed effects results. Economically, we find that staggering up (down) this year is associated with an increase (decrease) in Tobin's Q of approximately 3% in the same fiscal year, of 4.2% over the next year, and a cumulative increase of 7.4% over the next four fiscal years.[4]

How to reconcile the conflicting signs in the cross-section versus the time series? One possibility is that the cross-sectional results are largely due to reverse causality. If having a relatively low firm value induces some firms to adopt a staggered board (rather than the adoption of a staggered board causing lower firm value), this could explain the cross-sectional result that firms with staggered boards tend to have low firm values before they staggered up and reconcile those results with the time series results. Consistent with this hypothesis, we find that low firm value is a significant predictor of board staggering.[5] We consider two non-linear specifications for the decision to adopt a staggered board: a random effects probit model and the Cox proportional hazard model. These specifications suggest that a standard deviation decrease in firm value can explain 35.1% (probit model) to 57.8% (Cox model) of board staggering events. Conversely, we find no statistically significant association between firm value and the decision to de-stagger.

In the attempt to explain our novel time series results, we first consider several explanations that do not imply a positive, constructive role of staggered boards. A possible explanation along these lines is that the adoption of a staggered board may be related to expectations of future takeover activity and thus changes in firm value may be partly due to an anticipation effect (Edmans, Goldstein, Jiang, 2012; Cremers, Nair and John, 2008; Song and Walkling, 2000). As takeovers usually produce high abnormal returns to the target's

[4] We confirm that board staggering up (down) is associated with an increase (decrease) in financial value by constructing portfolios of firms around the time the firm staggers up (down).

[5] Event studies, which are better equipped to exclude reverse causality, tend to support the entrenchment view of staggered boards, both relative to their adoption (for a survey see Bhagat and Romano, 2002a; 2002b) and to related regulatory and case law changes (Karpoff and Malatesta, 1989; Cohen and Wang, 2013). However, event studies are necessarily limited in the estimation of the long-term impact of staggering and de-staggering decisions. For example, following the announcement of a de-staggering decision, the market could be able to assess the reduction of moral hazard incentives that such an announcement implicitly reveals, but might be unable to fully evaluate whether that decision may produce myopic managerial incentives in the longer term.

shareholders, the positive (negative) valuation effect of a staggered board's adoption (removal) could be driven by an anticipation effect of increased (decreased) probability of future takeover activity. However, we find no empirical evidence for such anticipation effect when controlling for or interacting with industry-level or annual takeover activity, and results are robust when we explicitly incorporate any future takeover premium or when any firms taken over are removed from our sample *ex post*.

An alternative explanation for the positive association between staggering up and firm value could be that firms that stagger up simultaneously decrease other entrenching governance mechanisms or strengthen safeguards against managerial entrenchment. We find no support for this alternative explanation either using proxies such as CEO-board chairman duality, the G-Index of shareholder rights, and equity-based incentives. Further, in contrast with prior cross-sectional studies using smaller samples (Faleye, 2007), we find that having a staggered board does not decrease the likelihood and performance sensitivity of *either* voluntary *or* involuntary (i.e., forced) CEO turnover. Since the ability to fire a poorly performing CEO suggests that the board is not captured by the CEO or top management (Bebchuk and Fried, 2004), this result again challenges the view that board classification is conducive to managerial entrenchment.

Next, we employ two settings where legal differences can help to test whether the association between staggered boards and financial value is primarily driven by shareholder power in the removal of directors, as is suggested by the managerial entrenchment view of staggered boards. The first setting involves differences in the legal implementation of staggered boards (charter-based versus bylaws-based staggered boards) affecting the ability of shareholders to remove directors quickly even if there is a staggered board.[6] The second setting considers a major change in the judicial landscape affecting the importance of staggered boards over time, namely the 1985 landmark Delaware Supreme Court decision of *Moran v. Household*, which granted boards the ability to adopt poison pill plans without shareholder approval. *Moran v. Household* substantially increased the

[6] Bebchuk and Cohen (2005) compare charter-based staggered boards and bylaws-based staggered boards and discuss why only charter-based staggered boards provide an effective protection against shareholders that want to replace the whole board quickly (shareholders can unilaterally – i.e., without board approval – amend a company's bylaws but not a company's charter, and thus can unilaterally remove a bylaws-based staggered board). Our finding of no empirical difference in the positive effect of charter-based versus bylaws-based staggered boards on firm value suggests that our results are not driven by any anticipation of hostile action against entrenched managers.

importance of takeover defenses generally (Cremers and Ferrell, 2014) and the defensive value of staggered boards in particular (Daines and Klausner, 2001; Bebchuk and Hart, 2002).

In both cases, if staggered boards primarily serve as an entrenchment device that prevents shareholders from removing directors quickly when desired, the previous literature suggests that these legal differences should matter for the association between staggered boards and the financial value of the firm. However, we find no evidence that the association between adopting a staggered board and changes in firm value is different across charter-based versus bylaws-based staggered boards or before versus after *Moran v. Household*.

We finally try to find support for the view that staggered boards may be advantageous, considering whether there would be a tradeoff between reducing managerial entrenchment and committing shareholders and boards to a longer horizon. Such tradeoff in turn suggests that adopting a staggered board is more strongly related to increased financial value for firms where a strong *ex ante* commitment from shareholders is more important. We argue that such is the case for firms with high levels of information asymmetry and for firms with greater complexity. Our empirical results provide strong support that typical proxies for information asymmetry and firm complexity (see Bushee, 1998; Chan, Lakonishok, and Sougiannis, 2001; Eberhart, Maxwell, and Siddique, 2004; Faleye, 2007 and Core, Holthausen, and Larcker, 1999) help to explain our main results. Specifically, we find that the association between adopting a staggered board and increased firm value is significantly stronger among firms with higher R&D expenses, among firms with more intangible assets, among firms that are more successful in innovation (as measured by patent citation counts), and among firms with larger size.

While acknowledging a lack of directly causal evidence, we conclude that overall our findings seem to support the view that staggered boards help to commit shareholders and boards to longer horizons and challenge the managerial entrenchment interpretation that staggered boards are not beneficial to shareholders. Our results are consistent with the recent empirical work by Larcker, Ormazabal, and Taylor (2011), which documents a negative stock return announcement effect of proposals for proxy access reform, including a proposal to eliminate staggered boards.[7] They are also consistent with the literature suggesting that staggered boards provide a value-increasing measure of stability and continuity (Ross, Westerfield, and Jordan, 1991; Koppes, Ganske, and Haag, 1998). Specifically, staggered boards would offer an "institutional memory" that prevents swift changes in a firm's investment policy based on short-termist objectives, enhancing a firm's ability to create longer-term value.

Our paper relates to several other strands of literature as well. First, staggered boards are a prominent provision in the broad shareholder rights index developed by Gompers, Ishii, and Metrick (2003)—the "G-Index"—who find that firms with weaker shareholder rights have lower firm value. Subsequent studies confirm this for different subsets of G-Index provisions (Bebchuk, Cohen, and Ferrell, 2009; Cremers and Nair, 2005; Masulis, Wang, and Xie, 2007) as well as for longer computation periods and in the time series (Cremers and Ferrell, 2014). Another related literature considers how takeovers might have negative effects on a firm's relationship with its customers, suppliers and strategic partners (Knoeber, 1986; Shleifer and Summers, 1988; Cremers, Nair, and Peyer, 2008; Johnson, Karpoff, and Yi, 2014), where *ex ante* commitments to these stakeholders could help shareholders as well. Finally, our paper is related to literatures on the relationship between firm valuation and takeover probability (Song and Walkling, 2000; Cremers, Nair, and John, 2008 and Edmans, Goldstein and Jiang, 2012), on how structural differences across boards affect the way in which firms function and how they perform (see Adams, Hermalin, and Weisbach, 2010 for a review), on CEO turnover (starting with Weisbach, 1988), on CEO compensation incentives (Bebchuk and Fried, 2004; Guthrie, Sokolowski, and Wan, 2012), on the value relevance of a firm's investments in R&D and intangible assets (Eberhart, Maxwell, and Siddique, 2004; Bushee, 1998) and, finally, on takeover defenses and firm innovation (Manso, 2011; Laux, 2012; Chakraborty, Rzakhanov, and Sheikh, 2013, and Baranchuk, Kieschnick, and Moussawi, 2013).

[7] These proposals were included in the 2009 Shareholder Bill of Rights Act by Senator Charles Schumer as one of several measures designed to provide shareholders with enhanced corporate power.

The remainder of the paper is organized as follows. In Section 2, we discuss the theoretical background. In Section 3, we present our sample and summary statistics. In Section 4, we discuss our empirical results, and Section 5 concludes.

2. Theoretical Background

The managerial entrenchment and the long-term value creation views offer competing explanations of the way in which staggered boards affect firm value, each hinging on the interaction between a board's protection from removal and managerial incentives. Each view, however, focuses on a different incentive set. According to the managerial entrenchment view, staggered boards are a manifestation of the moral hazard problem affecting the shareholder-manager relationship. Staggering-up decisions are opportunistically taken by managers to secure their control position and gain protection against the threat of removal in the event managers fail to deliver satisfactory performance. Underpinning this view is the assumption that firm outcomes such as current earnings – i.e., "hard" (quantitative and verifiable) information that are easily incorporated into stock prices (see Tirole, 2006) – provide a sufficient statistics for evaluating managerial performance, with low firm outcomes triggering efficient management replacement (Bebchuk and Cohen, 2005). On this assumption, the threat of removal provides beneficial *ex ante* disciplinary effects, promoting increased managerial effort and positively affecting firm value (Scharfstein, 1988).

According to the long-term value creation view, however, the above approach to staggered boards downplays the importance of managerial incentives to balance short-term and long-term performance outcomes (Stein, 1988, 1989). Indeed, if one relaxes the assumption that currently observable firm outcomes are fully informative about managerial performance (especially towards long-term value creation), the threat of quick removal may induce managers to overinvest in short-term projects out of the fear that informational asymmetry might make the market unable to accurately evaluate long-term investment strategies. R&D investments provide a typical example of the kind of projects managers might forego in these circumstances (Mizik and Jacobson, 2007). R&D investments are by definition affected by a high level of asymmetric information (Daines and Klausner, 2001; Johnson and Rao, 1997; Pugh, Page, and Jahera, 1992), i.e., information about such investments tends to be "soft" (non-verifiable) (see Tirole, 2006). Moreover, R&D investments tend to require large capital expenditures and, therefore, to decrease a firm's earnings in the short term. As a result, because poor managerial performance *always* deliver low earnings, shareholders may rationally interpret the short-term outcomes accompanying R&D projects as evidence of poor managerial performance (Eberhart, Maxwell, and Siddique, 2004). This, in turn, may drive down stock prices and hence increase the risk of managerial removal. A possible solution to managers overinvesting in short-term projects and underinvesting in long-term projects would be a staggered board, where directors do not have to stand for election every year and thus may have better long-term incentives relative to directors who are up for re-election annually (Laffont and Tirole, 1988; Stein, 1989).

A priori, however, shareholders who observe low firm outcomes in the short term do not know whether this is attributable to poor managerial performance or the undertaking of long-term investment projects. Why, then, should one assume that the market systematically mistakes the nature of management actions? In its classic elaboration, the long-term value creation view suggests that this occurs because shareholders are "impatient", i.e., discount future gains heavily (Stein, 1988; Bushee, 1998). However, assuming that shareholders only care about short-term results can at best explain the behavior of *some* shareholders over some limited period of time, but seems too strong an assumption to justify a systematic undervaluation of strategies that are in a firm's best long-run interest. For example, this assumption seems less likely to apply to mutual fund companies and pension funds, which typically have long-term investment interests (Strine, 2014). Moreover, the actions of any impatient shareholders could be counteracted by sophisticated investors such as hedge funds or other arbitrageurs.

Our alternative explanation for the systematic undervaluation of long-term projects is that it might be the result of a combined adverse selection and limited commitment problem. Following Fudenberg and Tirole (1990), when there is a lag between an agent's choice of action and the full realization of that action—as in the case where a manager undertakes a long-term project—the standard moral hazard problem becomes an adverse selection problem at the interim stage. Because the agent (manager) has private information on the development of her actions, at the interim stage the principal (shareholder) is unable to tell how well the agent is performing. As a result of this adverse selection problem, the market may move toward a pooling equilibrium under which firms investing in long-term projects are systematically undervalued (Akerlof, 1970).[8]

Staggered boards may thus provide a credible *ex ante* shareholder commitment to evaluate management performance in the long-term (Kydland and Prescott, 1977) rather than at interim stages (Laffont and Tirole, 1988). Absent board insulation, even if shareholders committed to avoid interfering with a firm's board in the short term, that commitment would not be credible given *ex post* adverse selection issues and the shareholders' default right of replacing unitary boards as a whole at the next annual meeting. Moreover, even under such a commitment, in public markets shareholders could always exit at the interim stage, potentially driving down stock prices and hence exposing management to a higher risk of removal by challengers.

The centralized governance model implied by the above view of staggered boards also seems consistent with the theoretical results of the incomplete markets literature. Drèze (1974) and Grossman and Hart (1979) first pointed out the limits of decentralized decision making (i.e., empowered shareholders) when markets are incomplete. Because profit maximization is not well defined in incomplete markets, shareholder disagreement may arise in equilibrium. In particular, Drèze (1985) shows that empowering boards of directors with veto power over shareholder proposals may help to reduce welfare-decreasing shareholder disagreement. Along the same line, DeMarzo (1993) suggests that equilibrium production is optimal when boards have full control over a firm's investments, unless there is a controlling shareholder.

The above observations seem to suggest the existence of a tradeoff between two problems shareholders are faced with: moral hazard (due to conflicts of interests with firm insiders) and adverse selection (due to the limited commitment of shareholders to refrain from evaluating performance too soon, see also Kadhyrzanova and Rhodes-Kropf, 2011). The empirical question in evaluating the association of staggered boards and firm value is then whether moral hazard or adverse selection is the first-order informative problem.

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[8] Brandenburger and Polak (1996) show that managers who seek to maximize the stock price take actions *ex-ante* that conform to shareholder beliefs, ignoring their own superior information. In competitive markets, shareholders update their beliefs about a firm's interim performance based on a firm's relative performance. In updating that belief, however, they anticipate that bad types may mimic good types—i.e., *ex post* defending low short-term earnings as the result of long-term projects even when they are the product of bad managerial choices made in the attempt to mold the shareholders' posterior beliefs.

In empirically addressing this question, we begin by investigating the overall effect of board insulation on firm value as measured by Tobin's Q. We next examine the relative importance of the moral hazard and adverse selection (or limited commitment) problems to test the theoretical inferences discussed above. Specifically, we first consider a variety of empirical proxies – such as the prevalence of takeover defenses and potentially distorted executive compensation – for the severity of moral hazard problems, and then look at different empirical proxies – including the levels of R&D expenses, intangible assets, innovation, and operational complexity – for the relevance of the adverse selection problem.

3. Data and Descriptive Statistics

3.1. Data

Our data come from several sources, with the overall data sample covering the time period 1978-2011. Data availability varies with the different sources we employ for the various variables used in our analysis. We obtain data for the key independent variable of our study, i.e., *Staggered Board*, from two main sources, covering a total number of 3,023 firms. For the time period 1990-2011, as in prior studies on the value impact of staggered boards (Bebchuk and Cohen, 2005; Faleye, 2007; Masulis, Wang, and Xie, 2007), we use the corporate governance dataset maintained by Risk Metrics, which acquired the Investor Responsibility Research Center (IRRC)).[9]

For the time period 1978-1989, we use data from Cremers and Ferrell (2014), who comprehensively hand-collected information on firm-level corporate governance provisions for these years, including information on the same provisions tracked by the IRRC for the period 1990-2011 and, in particular, on staggered boards. As observed by Cremers and Ferrell (2014), including pre-1990 data is valuable because the 1980s were characterized by significant time variation in corporate governance features (including board

[9] During the period 1990-2006, IRRC published volumes in the following years: 1990, 1993, 1995, 1998, 2000, 2002, 2004, and 2006. To remedy the lack of available data for the years in which the IRRC did not publish its volumes, most prior studies using the IRRC dataset assume that the governance provisions reported as in place in the years of a published volume were in place in the year following that volume's publication. In contrast, we hand-checked the data on staggered boards in all missing years in the 1994 – 2006 time period using proxy statements from the SEC's EDGAR website, in order to more accurately capture the timing of changes in board structure. We start our hand checks in 1994 because electronic records on the SEC's website are only available since 1994.

staggering), as a result of the important changes that took place in those years in takeover activity, the law surrounding the use of anti-takeover defenses, and the strength of shareholder rights.

As in Bebchuk and Cohen (2005), we also examine the separate effect of charter-based staggered boards (*Staggered Board-Charter*) and bylaws-based staggered boards (*Staggered Board-Bylaws*). We retrieve data on *Staggered Board-Charter* and *Staggered Board-Bylaws* from Cremers and Ferrell (2014) for the period 1978-1989 and from a hand-collected dataset from Bebchuk and Cohen (2005) for the period 1990-2004.

Since our main focus is on the value relevance of staggered boards, the main dependent variable in our analysis is firm value. Consistent with many prior studies investigating the relation between governance arrangements and firm value (Demsetz and Lehn, 1985; Morck, Shleifer, and Vishny, 1988; Lang and Stultz, 1994; Yermack, 1996; Daines, 2001; and Gompers, Ishii, and Metrick, 2003), we measure firm value using Tobin's Q (*Q*), defined as the ratio of the market value of assets to the book value of assets (as in Fama and French, 1992) and using Compustat data.

As an additional measure of changes to firm value, we use the stock returns surrounding changes of the staggered board structure, obtaining stock return data for both our equally weighted portfolio analysis and value weighted portfolio analysis from the CRSP database (see Section 4.1.3 below). From the same database, we also obtain data on the number of outstanding shares and share prices, which we employ in our value weighted portfolio analysis.

In our analysis about the association of staggered boards with involuntary CEO Turnover, we employ two additional dependent variables: *CEO Turnover* and *Forced CEO Turnover*. We define *CEO Turnover* as a binary variable equal to one if there is a voluntary CEO departure and zero otherwise, and *Forced CEO Turnover* as a binary variable equal to one if the CEO was forced to leave office in a given fiscal year and zero otherwise. Our source for both variables is the data file from Jenter and Kanaan (2010), who collected data on both *CEO Turnover* and *Forced CEO Turnover* over the time period 1993-2001 for all ExecuComp firms.

We provide brief definitions of all the controls in Table 1. We always include the following control variables: *Ln (Assets), Delaware Incorporation, ROA*, *CAPX/Assets*, *R&D/ Sales* and *Industry M&A Volume*. The last control is used in order to exclude that our results on the identified association between the adoption of a staggered board and firm value may be biased by an anticipation effect of future takeover activity (Edmans, Goldstein, Jiang, 2012). In the analysis of (in) voluntary CEO turnover, following Faleye (2007) we also include *Excess Return* and *Poison Pill*. Our extended set of controls include *G-Index*, *Ln (Assets)*, *Insider Ownership*, and *Insider Ownership²* to replicate more closely the results of Bebchuk and Cohen (2005). *Insider Ownership* substantially reduces our sample size, as Compact Disclosure (our data source until 2006) primarily covers NYSE and AMEX firms before 1995. Similarly, in robustness analysis, we expand our set of controls (including, for example, *Majority of Independent Directors* and *Board Size*) to replicate more closely the results of Faleye (2007) about the role of staggered boards for (in) voluntary CEO turnover. Among the variables appearing in our extended set of controls, the *G-Index*, introduced by Gompers, Ishii, and Metrick (2003), is a composite of twenty-four provisions which measures the strength of shareholders rights by adding one point if any of the provisions included in the index is present. Higher *G-Index* scores indicate weaker shareholder rights. In computing the G-Index, we remove *Staggered Board* (as in Bebchuk and Cohen, 2005) and *Poison Pill*, as we separately include these two provisions.[10]

Table 2 presents descriptive statistics of all the variables we use. In the overall cross-section nearly 53% of all firms have a staggered board. The average *Q* in our sample is 1.581 with a standard deviation of 0.867. In unreported results we compare the averages of the control variables across the sample of firms with and without staggered boards, finding no substantial differences across the two samples. Pearson pairwise correlations for the main variables used in our analysis are provided in Online Appendix Table A.1.

3.2. Staggering and De-staggering

Figure 1 presents the percentage of firms with a staggered board in our sample each year from 1978 to 2011. There is substantial time variation. In the period of 1978 to 1983 we observe a slow trend of staggering

[10] We obtain *G-Index* data from Cremers and Ferrell (2014) for the period 1978-1989 and the RiskMetrics dataset (formerly IRRC) for the period 1990-2011. Because, as noted above, IRRC volumes are only available for certain years during the time period 1990-2006, for all provisions other than *Staggered Board* and *Poison Pill* we assume that any change took place in the year when it was first reported. Further, because after 2006 the IRRC volumes do not provide data on all the governance features included in the *G-Index*, we assume that values for the *G-Index* provisions that are missing during the period 2007 –2011 are the same as the values reported in 2006.

up, which rapidly accelerates starting in 1984 until 1992. The period 1992 – 2006 is characterized by a fairly stable ratio of firms with a staggered board, at around 60%. After 2006, the ratio of firms with a staggered board steadily declines, until reaching a percentage of about 45% in 2011.

Figure 2 aims to disentangle time variation from cross-sectional variation occurring from new firms entering the database. We do so by visualizing the dynamics of staggering up and staggering down within a specific cohort of firms through time (creating new cohorts roughly once a decade), where no new firms are entering each cohort subsequently while firms drop out of the sample due to M&A, privatizations, bankruptcies and other de-listings. We study the dynamics of six cohorts of firms (hence six lines are shown in Figure 2): (i) firms with a staggered board in 1978, (ii) firms without a staggered board in 1978, (iii) firms with a staggered board in 1990, (iv) firms without a staggered board in 1990, (v) firms with a staggered board in 2000, and (vi) firms without a staggered board in 2000.

Among the firms with a staggered board in 1978, only a few de-staggered until 2005, with nearly 93% remaining instead staggered in 2004 (out of the firms still in the sample). Starting from 2005, a large number of firms in this cohort have de-staggered, with only about 71% of the surviving firms in this cohort remaining staggered in 2011.[11] Conversely, among the firms without a staggered board in 1978, almost half have staggered-up by 1989. About 40% of the firms in this cohort that adopted a staggered board in the early 1980s de-staggered in the following years, with the number of firms that de-staggered past 2005 reaching nearly 30% of the cohort sample.[12] Comparing the 1990 and 2000 cohorts to the 1978 cohort, we observe analogous trends. In particular, among the firms with a staggered board in 1990 and 2000, almost all remained staggered until 2005 and began to increasingly de-stagger afterward. We thus note that when a firm staggers up, it typically takes a while before it decides to de-stagger. For example, none of the firms that staggered up in the early 2000s has de-staggered in recent years.

Lastly, we observe that over the 1995 – 2002 time period that has been the focus of most prior studies on staggered boards (e.g., Bebchuk and Cohen, 2005; Faleye, 2007; Bebchuk, Cohen, and Ferrell, 2009), there

[11] The 1978 cohort of firms with staggered boards starts with 195 firms in 1978, from which 42 firms survive until 2011.
[12] The 1978 cohort with no staggered board contains 684 firms in 1978, from which 146 firms survive until 2011.

is almost no time variation. The lack of time series variation in the key variable of our analysis, *Staggered Board*, in that period might thus be viewed as a limitation to those studies.

4. Results

4.1. Staggered Boards and Firm Value

This section considers the cross-sectional and time series association between staggered boards and firm value. As documented in the prior section, our dataset for a large cross-section of firms from 1978 to 2011 contains many changes in staggered board structures. Hence, the main empirical contribution of this section is an improved identification of the association between staggered boards and firm value using various methods that exclusively rely on changes in the time series. These methods include pooled panel Tobin's Q regressions with firm fixed effects, changes in *Q* regressions on changes in board structure in our full as well as a matched sample, and long-term event studies using stock portfolios formed around changes in board structures. In contrast, Bebchuk and Cohen (2005), Faleye (2007) and Bebchuk, Cohen, and Ferrell (2009) rely on data with very few instances of firms adopting a staggered board or de-staggering and consider only cross-sectional results.

Additionally, we try to predict which firms adopt or remove a staggered board in order to reconcile our cross-sectional and time series evidence and consider reverse causality. For all tables, we consistently show the t-statistics of all coefficients based on robust standard errors clustered by firm. The motivation for employing standard errors clustered by firm is to incorporate the correlation of regression residuals across time for a given firm, which is particularly important for variables with little time variation (Petersen, 2009).

4.1.1. Cross-Sectional Analysis

Table 3 presents the results of the value impact of staggered boards in the cross-section of firms. Since our full panel covers 34 years of data, we are able to perform sub-sample analyses in order to establish robustness of cross-sectional results in different sample periods. Column (1) presents results for our full time period (1978-2011). Columns (2) through (4) present results for the following sub-periods: 1978 – 1989; 1990

– 2000; and 2001 – 2011. Column (5) presents results for the same time period used in Bebchuk and Cohen (2005) (i.e., 1995 – 2002) In this table and Table 4 only, we also provide the t-statistic based on robust standard errors that are not clustered, and note that the t-statistics are considerably smaller when we cluster by firm.

In Column (1), consistent with the findings of Bebchuk and Cohen (2005), we document that the association of *Staggered Board* and *Q* is negative and both statistically and economically significant, suggesting that firms with a staggered boards have a firm value that is 2.6% (= -0.041/1.581) lower. We find similarly negative coefficient estimates of *Staggered Board* across all three sub-periods (i.e., 1978 – 1989, 1990 – 2000, and 2001 – 2011), but the coefficient is only statistically significant (at 5% confidence level) for the 1990-2000 sample period. This suggests that the evidence that firms with staggered boards tend to have lower valuations in the cross-section is only apparent in the decade with almost no changes in board structure, while there is little evidence in the two decades with significant time variation in board structure (the 1978 – 1989 and 2001 – 2011 sample periods).

Column (5) includes the same controls as in Bebchuk and Cohen (2005) with industry (using four-digit SIC codes) and year fixed effects.[13] Reflecting the lack of time series variation, the coefficient estimate of *Staggered Board* becomes insignificant with a t-statistics of 1.25 once we cluster the standard errors by firm. The economic significance, however, remains similar to that in Column (1), as having a staggered board is associated with a 2.6% (= -0.042/1.64) lower *Q* in Column (4). Overall, these results are consistent with Bebchuk and Cohen (2005), though they report stronger economic and statistical significance (using robust standard errors that do not seem to be clustered).

4.1.2. Time Series Analysis

While the results of Table 3 confirm the results in the existing literature that firms with a staggered board tend to have lower firm value in the cross section, Table 4 considers the time series evidence by using the same pooled panel Tobin's Q regressions as in Table 3 but now with firm rather than industry fixed effects.

[13] Bebchuk and Cohen (2005) use two-digit rather than four-digits SIC codes as we do. Our results remain the same even using two-digit or three-digit SIC codes or using the Fama – French 49 industry definitions.

Including firm fixed effects is equivalent to removing the time-invariant component in both *Q* and *Staggered Board* and all controls, therefore reducing the potential bias resulting from omitted time-invariant variables at the firm level and mitigating related endogeneity concerns. Once we include firm fixed effects, we are essentially comparing the average firm value before versus after a change in staggered boards.

In contrast to the cross-sectional regressions, Table 4 shows a positive, statistically significant positive association between *Staggered Board* and *Q*. The economic magnitude of this positive association is also considerable. In Column (1), for example, the adoption of a staggered board is associated with an increase in *Q* of 3.7% (= 0.059/1.581).[14] The coefficient estimate of the staggered board in Column (1) is significant when clustering standard errors at the firm level, with a t-statistic of 2.11. Across different sub-sample periods, we naturally find weaker results in periods where there are few changes in staggered boards. This is particularly the case of Column (3), which presents results for the time period 1990-2000 and where the *Staggered Board* coefficient is insignificant. This is unsurprising, as the cohort analysis reported in Figure 2 above indicated very little variation in staggering-up (down) activity during the 1990s. The lack of statistical significance in Column (2) cannot be ascribed to limited time variation but suggests that the association between staggered boards and firm value was weaker at the beginning of our time period and grew stronger over time. We will revisit this in Section 4.3 below, where we find that the staggered board coefficient is not statistically different before versus after 1985.

Column (5), using the period and controls in Bebchuk and Cohen (2005), presents only marginal statistical evidence of a positive *Staggered Board* coefficient (significant at 10% confidence when clustering at the firm level). Economically, Column (5) presents quite strong significance, with the adoption of a staggered board associated with a 7.2% increase in *Q* (= 0.119/1.644).

We further investigate the time series dimension of the association between firm value and staggered boards by regressing changes in *Q* on changes in *Staggered Board*. We calculate the change in firm value including the time period during which investors would likely have learned about the change in board

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[14] For robustness, in the Online Appendix Table A.2, we replicate the analysis, using the extended set of controls employed in Bebchuk and Cohen (2005). Results are robust.

structure.[15] For example, say a firm has a staggered board at the end of fiscal year 2008 but not at the end of fiscal year 2009. That means that the board structure change in this example occurred somewhere during the fiscal year 2009. We assume that investors first learned about that (proposed) change sometime during 2008. We hence consider the change in the firm value at the end of the fiscal year when the board change occurred to the firm value 1, 2, 3, up to 4 years later. We also include the changes in the main controls. By examining a span of (more than) 4 years, we are able to study the long-term association of staggering decisions and firm value. Comparing how the change in value differs across time horizons is interesting, as it can show over what time period the average effects documented in Table 4 occur.

Table 5 confirms that firm value, as proxied by Tobin's Q, increases following the adoption of a staggered board and decreases following a decision to de-stagger.[16] Column (1) shows that during the year in which stock market participants are likely to first learn about the staggering up (down) decision, this decision is associated with a positive (negative) change in firm value. Comparing the coefficient on the change in the staggered board across the subsequent four columns, we find that the increase (decrease) in firm value after staggering up (down) occurs gradually, rather than all in the first year. This suggests that market participants need some time to fully learn about the changed prospects of the firm that occur in the period following the change in board structure. The economic magnitude of the positive time series association between staggered boards and firm value in Table 5 is stronger than that reported in Table 4.[17]

4.1.3. Portfolio Analysis

So far, our time series analysis reveals that there is a statistically significant and economically meaningful *positive* time series relationship between staggered boards and Q. However, investors are unable to trade on Q. It is therefore of interest to verify whether the increase in Tobin's Q after adopting a staggered board is

[15] For robustness, in the Online Appendix Table A.3, we verify that these results are robust to (i) not including the transition year in Panel A, (ii) including additional control variables as in Bebchuk and Cohen (2005) in Panel B and (iii) controlling for delisting bias when considering multiple-year changes for firms that are delisting in Panel C.

[16] Table 5 also employs standard errors that are clustered at the firm level to correct for the autocorrelation in the dependent variable. Our results are robust to using Newey-West standard errors estimated with up to five lags.

[17] In Table 5 we do not control for future changes in the controls, as we do in Table 4. In addition, when we use firm fixed effects in Table 4, we are effectively comparing the average level of Q after the change to the average level of Q before the change, i.e., we are estimating an average effect before-versus-after. In Table 5, instead, we are comparing the changes in the following years to only the level of Q just before the change.

reflected in different stock prices (and *vice versa* as firms stagger down). To this end, following prior corporate governance studies (Gompers, Ishii, and Metrick, 2003; Bebchuk, Cohen, and Ferrell, 2009; and Cremers and Ferrell, 2013), in Table 6 we study monthly returns of portfolios buying (selling) stocks of firms around the time they stagger up (down). We consider both portfolios that only use staggered board information at the time this was public information, as well as portfolios that are constructed with perfect foresight of subsequent changes in board structure. While fairly noisy due to the limited number of stocks in each portfolio (depending on how long we keep stocks in the portfolio, the number of stocks averages around 13 – 23), our stock return analysis serves as a basic robustness check for our *Q* results.

We construct a portfolio that buys stock of firms around the time that they stagger up (the "long" portfolio) and another portfolio that buys stock of firms around the time that they de-stagger (the "short" portfolio). We consider different ways to decide when exactly and how long to hold stock of firms surrounding changes in staggered board status. First ("*6m12*"), we include all stocks of firms that have (de-)staggered their boards starting 6 months before the fiscal year-end date of the year in which the firm has reported its board being (de-)staggered for the first time, and hold these stocks for 12 months. Second ("*12m12*"), we include all stocks of firms that have (de-)staggered their boards starting 12 months before the fiscal year-end date of the year in which the firm has reported its board being (de-)staggered for the first time, and again hold these stocks for 12 months. Third ("*12m24*"), we include all stocks of firms that have (de-)staggered their boards starting 12 months before the fiscal year-end date of the year in which the firm has reported its board being (de-)staggered for the first time, and hold these stocks for 24 months afterwards. Both "*12m12*" and "*12m24*" most likely include the period in which shareholders first learned about the proposed change and voted to approve the change. For "*6m12*", in many cases the changes in board structure will already be public knowledge at the time of portfolio construction. Fourth, as another robustness check, we include all stocks of firms that have (de-)staggered their boards starting 18 months before the fiscal year-end date of the year in which the firm has reported its board being (de-)staggered for the first time, and hold these stocks for 12, 18 and 24 months afterwards ("*18m12*", "*18m18*" and "*18m24*", respectively).

We present results based on three different pricing models using monthly factor returns from the website of Ken French: (i) the four-factor Carhart (1997) model, (ii) the three-factor Fama-French model and (iii) the market model (including only the market return). For each model, we present the monthly alphas to the long portfolio, short portfolio, and long minus short portfolio. Finally, we equally-weight both the long and short portfolios.[18]

Using the four-factor model, the monthly alpha to the long "*6m12*" portfolio is statistically significant at nearly 52 basis points. In contrast, the short portfolio return is not statistically significant at 6.2 basis points per month. The results are similar if we employ either the three-factor Fama-French model or the CAPM to estimate excess monthly returns to this portfolio. We observe a similar magnitude to the "*12m12*" portfolios, with nearly 53 basis points monthly alpha for the long portfolio (although not statistically significant), but in this case we also find a negative monthly alpha of nearly 30 basis points to the short portfolio. Combined together, the long minus short "*12m12*" portfolio has a monthly alpha of 1.24%, which is statistically significant. Presented annually, the monthly excess return to the long minus short portfolio corresponds to nearly 16% annual excess return. Finally, we obtain analogous results for the "*12m24*" portfolio, under all three of the pricing models considered. Hence, the overall results of our portfolio analysis are consistent with our time series results using *Q*, even if the alpha estimates are quite noisy due to the limited number of stocks in each portfolio.[19]

4.1.4. Reverse Causality

Our time series and portfolio analyses suggest that the negative correlation identified in prior cross-sectional studies of the association of staggered boards with firm value might be due to reverse causality. In particular, if having a relatively low firm value induces some firms to adopt a staggered board (rather than a

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[18] Online Appendix Table A.4, Panel A presents results for value-weighted portfolios, which are similar.. Online Appendix Table A.4, Panel B presents results for equal-weighted results for *"18m12"*, *"18m18"* and *"18m24"*. Online Appendix Table A.4, Panel C presents the corresponding value-weighted results for *"18m12"*, *"18m18"* and *"18m24"*.

[19] While the stock returns have generally weak statistical significance (due to the generally low number of stocks included in the portfolios), the economic magnitudes in Table 6 are generally consistent with earlier estimates. For example, the equal-weighted long-short portfolio that buys (sells) stock of firms staggering up (down) surrounding the 24-month period around these changes in board structure generates an annual four-factor alpha of 5.15% (t-statistic of 1.44). That is quite similar to the economic magnitude of changes in Tobin's Q associated with a change in staggered board in Table 5.

staggered board causing a low firm value), this could explain the cross-sectional result that firms with staggered boards tend to have low firm values. However, reverse causality cannot explain the time series results, as firm value tends to go up after the adoption of a staggered board. Neither can it explain the (statistically weak) portfolio analysis results, as a portfolio that is long in stocks of firms that have staggered up (the "long" portfolio) and short in stocks of firms that have de-staggered (the "short" portfolio) earns positive abnormal returns (both under equally-weighted portfolio analysis and value-weighted portfolio analysis). We investigate the reverse causality hypothesis between *Staggered Board* and *Q* by considering whether staggering and de-staggering decisions are related to pre-existing firm value.

Table 7 presents reverse causality regressions to explain the adoption (removal) of a staggered board, including in the sample all firms that do not (do) have a staggered board up until and including the year in which they adopt (remove) a staggered board. Whenever a change in staggering (de-staggering) occurs in a firm, that firm is dropped from that sample after the year of such a change. Each panel shows two different non-linear specifications: a random effects probit model and the Cox proportional hazard model where the change in board structure is the "failure" event.[20] As everywhere else in the paper, we cluster the robust standard errors by firm. As shown by Column (2) in Table 7, presenting results for the Cox model, a standard deviation increase in firm value is associated with a decrease of 57.8% in the probability of staggering up (with a t-statistics of 7.63). Similar results are obtained through the probit model (see Column (1)), where a standard deviation increase in the value of *Q* is associated with a 35.1% reduction in the probability of staggering up (with a t-statistic of 3.84).[21]

The results of Table 7 suggest that the choice of staggering up is largely endogenous and motivated by a low firm value. Concerning de-staggering decisions, both specifications in Columns (3) and (4) of Table 7 produce insignificant results. This indicates that firm value does not reliably predict staggering down. Our reverse causality conjecture is further confirmed when we add the one-year lagged *Q* as an additional control to the pooled panel regressions with industry fixed effects regressions of Table 3, presented in Online

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[20] See Greene (2000, 2004) on the efficiency of the random vs. fixed effects probit model estimator.
[21] For robustness, in the Online Appendix Table A.5, we show the results of both the probit model and Cox model for the extended set of controls used in Bebchuk and Cohen (2005).

Appendix Table 6. If reverse causality affects the cross-sectional results, we would expect the identified negative impact to become considerably weaker once we control for lagged firm value. Consistent with this, in all specifications the coefficient of *Staggered Board* is insignificant once we control for lagged firm value.

4.1.5 Changes in Q using a Matched Sample

Our final methodology to investigate the changes in financial value around changes in board structure involves a matched sample approach. Motivated by the results in the previous subsection on reverse causality, we create a matched sample for all firm-years that have either staggered up or staggered down (i.e., the treatment firms), where the control firms in the matched sample do not change their staggered board structure in the year that the treatment firms are matched to changes in their board structure (the event year). We match the treatment to the control sample based on the following criteria: the treatment and the control firm (i) have the same Fama-French 49 industry in the event year, (ii) are both non-dual class firms in the event year, and (iii) have the lowest difference in *Q* in the event year. Next, we rerun the change in *Q* regressions like in Table 5 for the matched sample of treatment and control firms, reporting the results in Table 8.

The matched sample results in Table 8 are quite similar to the full sample results in Table 5. This robustness check indicates that controlling for lagged *Q* through the matched sample does not change our main result that the financial value of firms that adopt (remove) a staggered board goes up (down).

4.2. Staggered Boards and Managerial Entrenchment

Our main new finding that staggering up is associated with increased firm value seems to cast a doubt on the claim that board insulation encourages moral hazard by incumbents or leads to more managerial entrenchment. In this section, we consider two potential interpretations of our time series results that might reconcile such results with the managerial entrenchment view of staggered boards and do not imply a positive, constructive role of staggered boards.

The first interpretation is that firms may adopt staggered boards to defend itself against anticipated takeover activity. Under this interpretation, changes in firm value may be partly due to an anticipation effect (Edmans, Goldstein, Jiang, 2012; Cremers, Nair and John, 2008; Song and Walkling, 2000). Our standard controls include *Industry M&A Volume*, for which we find a negative and both economically and statistically significant coefficient (at 1% confidence level). This variable controls for industry-specific merger activity, which is one of the best predictors of firms receiving a bid themselves (see, e.g., Cremers, Nair and John, 2008).

To consider whether the positive association between staggered boards and firm value may be driven by the expectation of increased takeover activity that the adoption of a staggered board may implicitly reveal, we consider various specifications that could indicate this possibility, but find no evidence. These results are not shown to save space. First, we interact the *Staggered Board* dummy with our proxy for industry-level M&A activity. If added to the specifications considered in Tables 3 and 4, the interaction of *Staggered Board* with *Industry M&A Volume* is consistently insignificant. Second, analogous interactions with market-wide M&A volume are likewise consistently insignificant. Third, our results are in general unlikely to be driven by firms in our sample that are taken over, as they are robust to *ex post* removing all firms from the sample if they are taken over during our sample time period. Fourth and finally, our results are robust to replacing the Tobin's Q at the fiscal year-end with the Tobin's Q calculated from the last available CRSP market price (using the delisting price if available) whenever a firm is dropped from our sample in the next fiscal year. This incorporates any takeover premium received by target shareholders. Taken together, these results seem consistent with Edmans, Goldstein, and Jiang (2012), who find that the "trigger effect" of future takeover activity seems to dominate the "anticipation effect", i.e., low firm value tends to attract more takeover activity, rather than (the expectation of) more takeover activity resulting in higher firm value.

A second explanation is that firms that stagger up may simultaneously decrease other entrenching governance mechanisms or have other corporate mechanisms that provide strong safeguards against managerial entrenchment. In both cases, the time series increase in firm value that we document could depend on the overall reduction of managerial entrenchment rather than the adoption of a staggered board, challenging our positive account of staggered boards and suggesting that moral hazard is the dominant problem in shareholder-manager relationships. We first test this alternative explanation by interacting *Staggered Board* (in pooled panel *Q* regressions with firm and year fixed effects) with three proxies for managerial entrenchment: *CEO-Board Chairman Duality,* the *G-index,* and *Poison Pill*, and, next, with three proxies for managerial incentives in the compensation contract of the CEO.

CEO-Board Chairman Duality refers to the duality of the CEO and board chairman roles. CEOs who also chair the board of directors may be better positioned to opportunistically dominate the board (Brickley, Coles, and Jarrell, 1997). Alternatively, CEO-duality may be a consequence of well-performing CEOs being rewarded. Under this hypothesis, CEO duality is therefore a proxy for the firm being managed effectively (Adams, Hermalin, and Weisbach, 2010). The *G-index* proxy measures limitations to shareholder rights and managerial entrenchment, as explained in Section 3 above. Finally, the poison pill is a particularly powerful entrenchment device that is by itself strongly negatively related to firm value in both the cross-section and the time series (see Cremers and Ferrell, 2014). These results are presented in Table 9.

The interaction of *CEO-Board Chairman Duality* with the staggered board dummy (in Column (1)) is positive and significant. Hence, firms with dual CEO-board chairman experience a larger increase in value if they stagger up relative to firms whose CEO does not also chair the board. This result contradicts the conjecture that splitting the role of CEO and board chairman reduces the scope for managerial entrenchment and may thus be the primary driver of observed increases in firm value in firms with a staggered board. On the other hand, consistent with the hypothesis of Adams, Hermalin, and Weisbach (2010), this result seems to suggest that managing longer-term projects (i.e., one potential reason to stagger up) is relatively complex and thus better accomplished by talented CEOs, who have earned the privilege of chairing the board of directors. In particular, changes in CEO-chair duality are related to changes in firm value only for firms with a staggered board, as the coefficient on CEO-chair duality by itself is positive and statistically significant only in Column (2) (where its interaction with *Staggered Board* is included as well) and is insignificant in Column (1) (without the interaction).

The coefficient of the interactions of *G-index* (in Column (3)) is insignificant. This suggests that the positive impact of staggering up on firm value cannot be explained by the simultaneous decrease of other entrenching mechanisms. In other words, we find that the change in firm value before versus after the adoption / removal of a staggered board is independent of the level of shareholder rights at the firm, which seems again to challenge the managerial entrenchment hypothesis of staggered boards. However, consistent with Cremers and Ferrell (2014), the non-interacted effect of *G-index* on firm value (in Columns (3) and (4)) remains negative and significant even if firm fixed effects are included.

Similarly, the coefficient interaction of *Poison Pill* in Column (5) is insignificant. It should be noted, however, that having a poison pill in place cannot be expected to affect substantially the efficacy of staggered boards in practice. This is because boards can implement a poison pill plan at any point in time, even after a hostile bid has been launched without the need for shareholder approval, such that all firms in effect have a "shadow poison pill" (Coates, 2000). We nonetheless find a (marginally) statistically significant coefficient on *Poison Pill* in Column (6) when it is not interacted, consistent with Cremers and Ferrell (2014), suggesting that the adoption of a poison pill provides a negative signal to shareholders.

The three proxies related to the CEO's compensation contract are the equity-based incentives as measured by *CEO Delta* and *CEO Vega*, and, finally, the CEO's total compensation. The results are presented in Table 10. For *CEO Delta*, the interacted coefficient is insignificant, while *CEO Delta* by itself is positive and highly significant. This suggests that increases in pay-for-performance are positively related to changes in firm value, but similarly for firms with and without a staggered board. In contrast, *CEO Vega* by itself is negative although insignificant, while the interacted coefficient between a staggered board and *CEO Vega* is strongly and positively related to the firm value. Specifically, in firms where *CEO Vega* is one standard deviation above the mean, the increase in firm value is 3.43% (=0.199 * 0.2725 / 1.581) higher if they stagger up relative to firms with average *CEO Vega*. However, the coefficient of *Staggered Board* by itself remains large and significant, suggesting that *CEO Vega* is unlikely to be the primary driver of increased firm value in firms with a staggered board. On the other hand, the results we obtain on the interaction with *CEO Vega* provide some evidence that firms with a staggered board may be better able to offer incentives for effective managerial risk-taking, especially incentives to increase the long-run riskiness of the firm's cash flows (which is better measured by *CEO Vega* than *CEO Delta*). Indeed, if staggering up is partly done because of the need for a longer-term outlook on the board, then strong risk-taking incentives for the CEO may become more productive after the board staggers up. In effect, staggered boards may give partial insurance to managers, as a staggered board's longer-term outlook could make it less likely that managers might be punished for short-term underperformance, so that managers can rationally increase their appetite for risk.

We also investigate the interaction of *Staggered Board* with *CEO Total Compensation* to consider the view that high executive compensation itself is evidence of managerial entrenchment and more so in the presence of a staggered board (Bebchuk and Fried, 2004). Our results are not consistent with this view. Rather, when we add the interaction of the adoption of a staggered board with the level of total CEO compensation to firm value regressions, this interaction has a strongly positive association with firm value. Economically, firm with *CEO Total Compensation* that is one standard deviation above the mean have an increase in firm value that is 5.3% (= 0.061*0.8762) higher if they stagger up relative to firms with average total CEO compensation. Consistent with Gabaix and Landier (2008), who argue that more skilled managers tend to be employed in large firms that pay them more, this result suggests that staggered boards may be more valuable at firms with a highly-paid CEO, potentially because these CEOs are particularly talented at the challenging task of running complex, large organizations with a long-term outlook.

4.3. Staggered Boards and Legal Differences Affecting the Removal of Directors

In this subsection, we consider two settings to test whether shareholders primarily view staggered boards as an impediment against quick director removal (as suggested under the managerial entrenchment view). Both settings rely on legal differences affecting the effectiveness and importance of staggered boards to impede shareholder action when they want to replace directors. The first setting differentiates between staggered boards established in the corporate charter (*Staggered Board-Charter*) and staggered boards established in the company bylaws (*Staggered Board-Bylaws*). Shareholders cannot amend charter-based staggered boards as amendments to charter provisions can only be initiated by the board. However, shareholders can unilaterally

– i.e., without board approval – amend a company's bylaws, and thus can unilaterally remove a bylaws-based staggered board. As a result, only charter-based staggered boards provide effective protection against shareholders that want to replace the whole board quickly (Bebchuk and Cohen, 2005).

If shareholders primarily view staggered boards as complicating future hostile action against entrenched managers (again as suggested by the managerial entrenchment view), we would expect our previous results to be driven by charter-based staggered boards. Table 11 presents the results of pooled panel *Q* regressions when we distinguish between charter-based versus bylaws-based staggered boards. *Staggered Board-Charter* and *Staggered Board-Bylaws* have basically the same coefficient in both the industry fixed effects regression (Column (1)) and the firm fixed effects regression (Column (3)). Indeed, we overwhelmingly reject the hypothesis that the coefficient on *Staggered Board-Bylaws* is different (see Columns (2) and (4)).[22] In conclusion, using our 34-year sample, we find no evidence that shareholders view the financial value implications differently across charter-based and bylaws-based staggered boards, and thus they do not seem to primarily view staggered boards through the lens of anticipating future removal of the directors.

The second setting concerns a potentially fundamental shift in the defense value of staggered boards. In the 1985 *Moran v. Household* decision, the Delaware Supreme Court for the first time judicially validated the right of a firm's board to unilaterally adopt - and maintain indefinitely in place - a poison pill plan under which incumbents are entitled to significantly dilute the value of a hostile bidder's position. *Moran v. Household* substantially allowed boards "to just say no" to unsolicited bid acquisitions, as poison pills are quite effective takeover defenses (Lipton and Rowe, 2002).

As argued by Cremers and Ferrell (2014), the *Household* decision (in conjunction with the *Unocal* decision, also in 1985) increased the importance of shareholder rights after 1985. Before *Household*, shareholder rights were less important as a hostile bidder could gain corporate control through a tender offer or the acquisition of a large share block (i.e., without the need to first replace a majority of the target's directors). After 1985, however, the only route left to a hostile bidder to gain corporate control when confronted with a hostile

[22] These results are different from Bebchuk and Cohen (2005), who find that the cross-sectional results are largely driven by charter-based staggered boards. We are unsure why we cannot replicate their results. We verify that the different result is not due to a different time period or a different set of controls, see Online Appendix Table 7, Panels A and B.

board – that now has a poison pill available – is to first replace the directors (who have sole discretion about the use of a poison pill). As a result, the provisions in the *G-Index* guiding how shareholders relate to the board of directors would become more important after 1985. Consistent with this, Cremers and Ferrell (2014) find that the negative association between *Q* and the *G-Index* is only apparent in the poison pill era (i.e., after the decision in *Household*) but not before (in both the cross-section and the time series).

Relatedly, Daines and Klausner (2001) and Bebchuk and Hart (2002) argue that poison pills enormously increased the defense value of staggering up decisions. In the poison pill era and for firms with a staggered board, any hostile bidder will need to win proxy fights *at least* two consecutive annual meetings to gain board majority, which may turn out to be very costly for the bidder. Therefore, if shareholders view staggered boards primarily through the prism of hostile bidders, we would expect that the negative association between staggered boards and firm value would be substantially stronger post 1985.

Empirically, we find no evidence that the association between adopting a staggered board and changes in firm value is different before versus after *Moran v. Household*, see Column (6) of Table 11.[23] The results in this subsection further challenge the managerial entrenchment view of staggered boards, i.e., they cast doubt on whether staggered boards primarily serve as an entrenchment or antitakeover device rather than a way for shareholders to commit to a longer-term horizon.

4.4. CEO Turnover and Staggered Boards

In this subsection, we consider whether having a staggered board is associated with the likelihood of forced CEO turnover. Indeed, a board's ability and decision to fire the CEO indicates that the board is able to properly perform its monitoring function and, therefore, the existence of a low level of managerial entrenchment. Accordingly, if adopting a staggered board supports managerial entrenchment, we would expect that both the likelihood and the performance sensitivity of forced CEO turnover be significantly lower

[23] Column (6) includes firm fixed effects, and thus compares the average *Q* before and after a change in board structure. The specification in Column (5) includes industry fixed effects, and that result shows that the negative cross-sectional association between staggered boards and firm value only holds after 1985, consistent with Cremers and Ferrell (2014). This suggests that our reverse causality results in Table 7 are likewise driven by the post-1985 period, i.e., only after 1985 is staggering up related to having a lower *Q*.

at firms with a staggered board – as entrenched managers can "capture" the board and substantially control their tenure irrespective of performance (Bebchuk and Fried, 2004). In support of this view, Faleye (2007) documents that firms with a staggered board have both lower involuntary CEO turnover and that this forced CEO turnover is less sensitive to firm performance.

We revisit this issue in our sample. Replicating the analysis in Faleye (2007), Table 12 relates the likelihood and performance sensitivity of involuntary CEO turnover in a logistic regression to *Staggered Board*$_{[t]}$ and *Excess Return*.. In contrast to the results in Faleye (2007), in Columns (1) and (2), we find that *Staggered Board*$_{[t]}$ does not impact *Forced CEO Turnover*. In line with these findings, in Columns (3) and (4), we also find that *Staggered Board* does not adversely affect voluntary *CEO Turnover*. Moreover—and again in contrast to Faleye (2007)—we find that the performance sensitivity of both *Forced CEO Turnover* and *CEO Turnover* does not decrease with *Staggered Board*.

We are unclear as to why we cannot replicate the findings in Table 7 of Faleye (2007). Our results are robust to using the extended set of controls he uses, see Online Appendix Table A.8. One possibility is that Faleye (2007) reports that he uses a fairly small sample of only 813 annual observations for 1995 – 2002, out of which 203 observations concern forced CEO turnovers. This suggests that his sample is unusual with about 25% of CEOs being forced to leave each year, which is much higher than what we observe in the Jenter and Kanaan (2010) sample that we use. After we match the Jenter and Kanaan (2010) data to ours, we are left with 9,519 annual observations for 1993 – 2001, out of which 164 observations concern forced CEO turnovers (about 1.7% per year). Our percentage of forced CEO turnovers is extremely close to the annual 1.8% forced CEO turnover rate reported by Kaplan and Minton (2012) for a sample of Fortune 500 firms for 1992 – 2005.

Overall, these findings cast further doubt on the entrenchment effect of staggered boards, at least as based on the association between staggered boards and both the frequency and performance sensitivity of involuntarily CEO turnover.

4.5. Staggered Boards and Adverse Selection

This subsection empirically explores our alternative, positive account of staggered boards. As discussed in Section 2, we suggest that staggered boards may mitigate the adverse selection problems that may arise when less informed shareholders assess a firm's investment decisions only through stock market performance (i.e., hard information) (Fudenberg and Tirole, 1990; Brandenburger and Polak, 1996; Laffont and Tirole, 1988). Less-informed shareholders are unable to tell whether low short-term outcomes are the result of managerial underperformance or the undertaking of attractive long-term projects. As a result, upon the realization of low short-term outcomes, they will tend to inefficiently pool firms together and systematically undervalue a firm's projects. In response, managers may inefficiently reduce the level of a firm's long-term investments, fearing that such investments may increase the risk of a change in control or removal by the shareholders. Viewed through this lens, staggered boards may thus provide a credible *ex ante* commitment by the shareholders to evaluate a manager's actions only upon the full realization of those actions, promoting the creation of long-term firm value.

Nonetheless, by insulating boards from market pressure, staggered boards may also bring about increased managerial entrenchment. Empirically then we need to consider the governance tradeoff between reducing managerial entrenchment and committing shareholders and directors more strongly to a longer horizon (see also Kadhyrzanova and Rhodes-Kropf, 2011). We test for such tradeoff by focusing on firms where a strong *ex ante* commitment from shareholders seems more important, which we argue is the case for firms with long-term research and development projects, with high levels of information asymmetry, and for firms with greater complexity. We employ *R&D/ Sales* and *Ranked Patent Citation Count* as proxies for the importance of long-term research and development projects (see Hall, Jaffe, and Trajtenberg, 2001), *Intangible Assets/ Total Assets* as a proxy for the level of information asymmetry, and *Firm Sales* as a catch-all proxy for firm complexity as in Core, Holthausen, and Larcker (1999). All variables are defined in Table 1.

Table 13 shows the results of pooled panel *Q* regressions on *Staggered Board* with and without its interactions with the above variables of interests (plus controls).[24] The results strongly support the view that

[24] All the continuous variables in the interaction terms (i.e., *R&D/ Sales*, *Intangible Assets/ Total Assets*, and *Firm Sales*) are demeaned prior to calculating the interaction.

staggered boards help committing shareholders and boards to the longer horizon, as staggered up is considerably more strongly related to changes in firm value for firms in which *ex ante* commitment from the shareholders seem most useful. For example, the interaction of *R&D/Sales* (see Column (1)) has a positive and both statistically and economically significant coefficient. Firms whose *R&D/Sales* is one standard deviation higher than the mean (i.e., "high R&D" firms) experience a 6.8% (=1.956*0.0552/1.581) higher level of *Q* after staggering up relative to firms whose *R&D/Sales* is at the mean.[25] Remarkably, as compared to the direct economic effect of *Staggered Board*, the economic effect of *Staggered Board* for high R&D firms is nearly one and half times as high.[26]

Similarly, we find that firms with *Intangible Assets/ Total Assets* that are one standard deviation higher than the mean present a 3.48% (=0.118*0.4665/1.581) higher *Q* if they stagger up relative to firms with average intangible assets. Firms that have one standard deviation higher *Ranked Patent Citation Count* have a 3.10% (=0.226*0.2171/1.581) higher *Q* if they stagger up compared to firms with mean (i.e., very low) patent counts. Finally, firms whose *Firm Sales* is one standard deviation higher than the average tend to have a 3.35% (= 0.036*1.4713 /1.581) higher *Q* if they stagger up relative to firms with average size.

5. Conclusion

How to think about staggered boards, or more generally the sharing of power between the board of directors and outside shareholders? In this paper, we challenge the common view in the empirical literature that corporate democracies (i.e., firms with strong shareholder rights) are valued more than firms with strong board rights (Gompers, Ishii, and Metrick, 2003; Bebchuk and Cohen, 2005). We do so by revisiting the evidence that staggered boards are associated with lower firm value and that as a result it is generally preferable to allow shareholder to remove a majority of directors each year. Using a comprehensive data on staggered boards in 1978-2011 for a panel of large U.S. firms, we show that the documented negative cross-

[25] We obtain this estimation by multiplying the coefficient of the interacting variable (i.e., 1.956) by the standard deviation of *R&D/Sales* (0.0552), divided by the average *Q* (1.581) in the sample of observations used to estimate Column (1).
[26] The economic effect of *Staggered Board* on *Q* for all firms in Column (1) is a 4.49% (=0.071/1.581) increase of *Q*, calculated as the ratio of the coefficient estimate of 0.071 on *Staggered Board* divided by the average *Q*.

sectional association between staggered boards and firm value is statistically strong only in time periods without any changes in board structure, and is reversed in the time series analysis.

This surprising result seems very robust. Using both pooled panel Tobin's Q regressions with firm fixed effects and first differences regressions of changes in Tobin's Q and changes in whether the firm has a staggered board, we find that firm value goes up upon the adoption of a staggered board and goes down upon removal of a staggered board. In particular, using firm fixed effect regressions, we find that staggering up (down) is associated with an increase (decrease) in Tobin's Q of about 3.7%. We further corroborate these results using stock returns of portfolios holding stocks of firms around the time the firm staggers up or staggers down, and find that stocks that stagger up tend to have positive abnormal returns around the time they adopt a staggered board. In contrast, stocks that de-stagger tend to have no or negative abnormal returns. We reconcile our time series evidence that the adoption of a staggered board is associated with increased firm value with prior cross-sectional finding opposite results by reverse causality, i.e., we find that the adoption of a staggered board seems largely endogenous and related to an *ex ante*, rather than an *ex post*, lower firm value.

Overall our findings cast a doubt on the argument that strong board rights necessarily exacerbate moral hazard problems by entrenching management from the discipline of shareholders or the market for corporate control. Our analysis also raises the question of how one should interpret the positive impact of empowered boards on firm value. While we cannot demonstrate any direct causal link, we explore a hypothesis based on potential adverse selection problems in the shareholder-manager relationships. Under this hypothesis, staggering up may provide a valuable *ex ante* commitment device against shareholders evaluating performance over too short-term periods. This may be especially important in contexts of severe informational asymmetry, where the market is generally unable to tell whether low short-term outcomes are due to poor managerial performance (i.e., 'bad' managerial types) or the undertaking of costly long-term projects that require significant short-term expenses up front (i.e., 'good' managerial types). Anticipating that bad types may attempt to mimic good types, shareholders may inefficiently pool firms together and systematically undervalue the undertaking of costly long-term projects.[27] This, in turn, may drive down stock prices and correspondingly increase the risk of managerial removal. In response, directors and the managers they oversee may become less focused on long-term value creation.

As a result, in corporate environments where asymmetric information and long-term investments play a crucial role (as they do in many modern large firms, see Porter, 1992; Zingales, 2000), staggered boards may help commit shareholders to avoid short-term performance evaluation of the board and promote incentives for the pursuing of long-term firm value. We find empirical support for this hypothesis, as we document that adopting a staggered board has a more positive effect on firm value for firms where such *ex ante* commitment from the shareholders seems more important, i.e., for firms with higher R&D and more innovative research, with more intangible assets, and for firms that are larger and thus more complex.

From a broader perspective, these results cast a doubt on recent academic and regulatory proposals in favor of shareholder empowerment, documenting that a system of strong shareholder rights may reduce rather than increase firm value. To the best of our knowledge, we are also the first to challenge the claim that the empirical evidence decidedly supports the adoption of a shareholder-driven corporate governance model (see, e.g., Bebchuk, 2013). In contrast to this claim, our results seem to suggest that the traditional board-centered model (i.e., vesting authority primarily on the board to run the corporation) can efficiently serve the interests of both shareholders and society as whole.

[27] Consistent with this hypothesis, Cremers, Pareek, and Sautner (2013) document that the average institutional holding duration (i.e., the average length of time a stock is held in an institutional portfolio) is about 1.5 years with about 40% of holdings having a duration below 1 year, which seem well below the typical time horizons over which the uncertain prospects of large capital expenditures are revealed.

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FIGURE 1:
PERCENTAGE OF FIRMS WITH A STAGGERED BOARD

The chart below shows the percentage of firms with a staggered board in our sample, each year from 1978 – 2011. Excluded from the sample are stocks that have dual class shares.

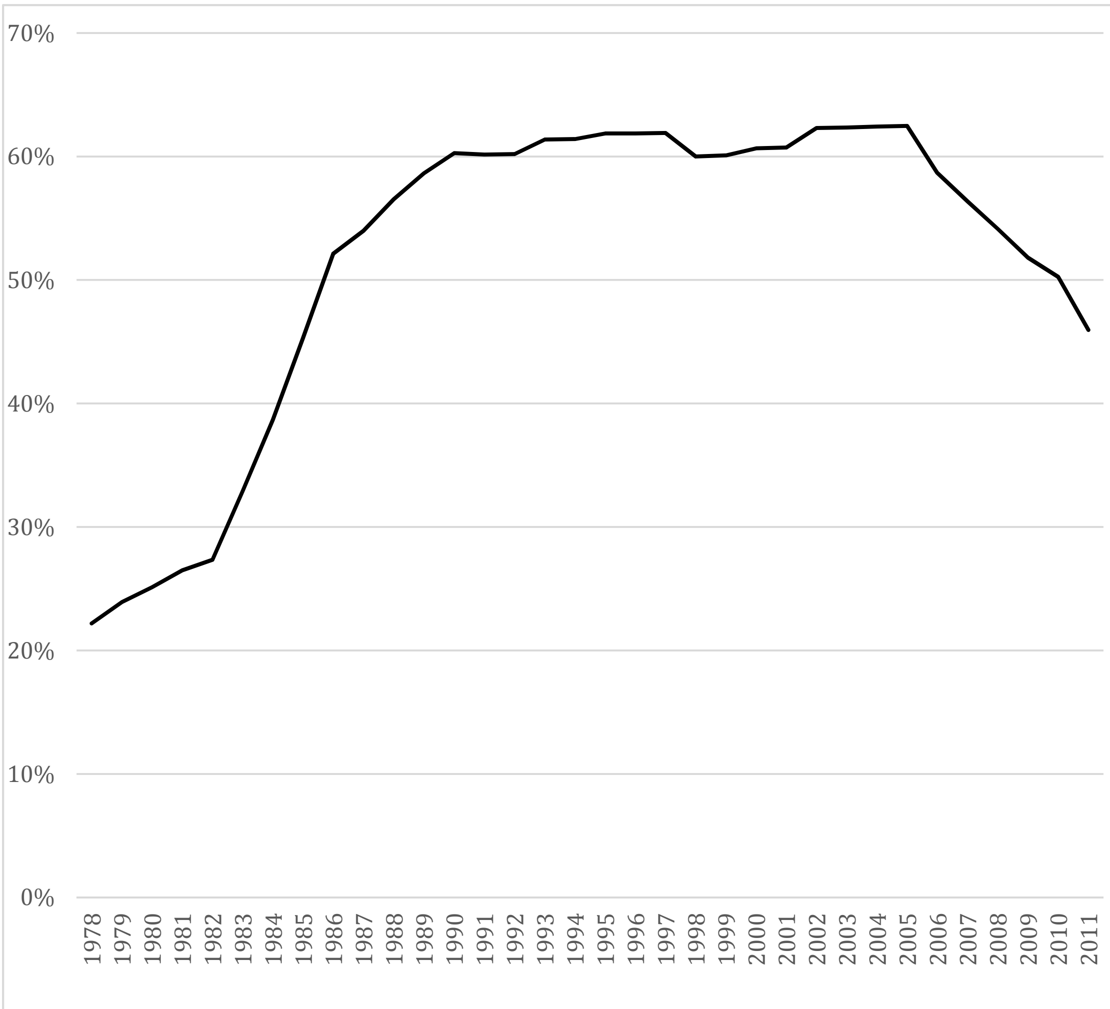

FIGURE 2:

COHORT ANALYSIS FOR STAGGERING UP AND DE-STAGGERING

Figure 2 documents the percentage of firms with a staggered board each year for six cohorts of firms: (i) firms with a staggered board in 1978 ("SB in 1978"), (ii) firms without a staggered board in 1978 ("No SB in 1978"); (iii) firms with a staggered board in 1990 ("SB in 1990"), (iv) firms without a staggered board in 1990 ("No SB in 1990"), (v) firms with a staggered board in 2000 ("SB in 2000"), and lastly (vi) firms without a staggered board in 2000 ("No SB in 2000"). The figure shows the annual percentage with a staggered board *within* each cohort, as a percentage of those firms that remain in our sample that year.

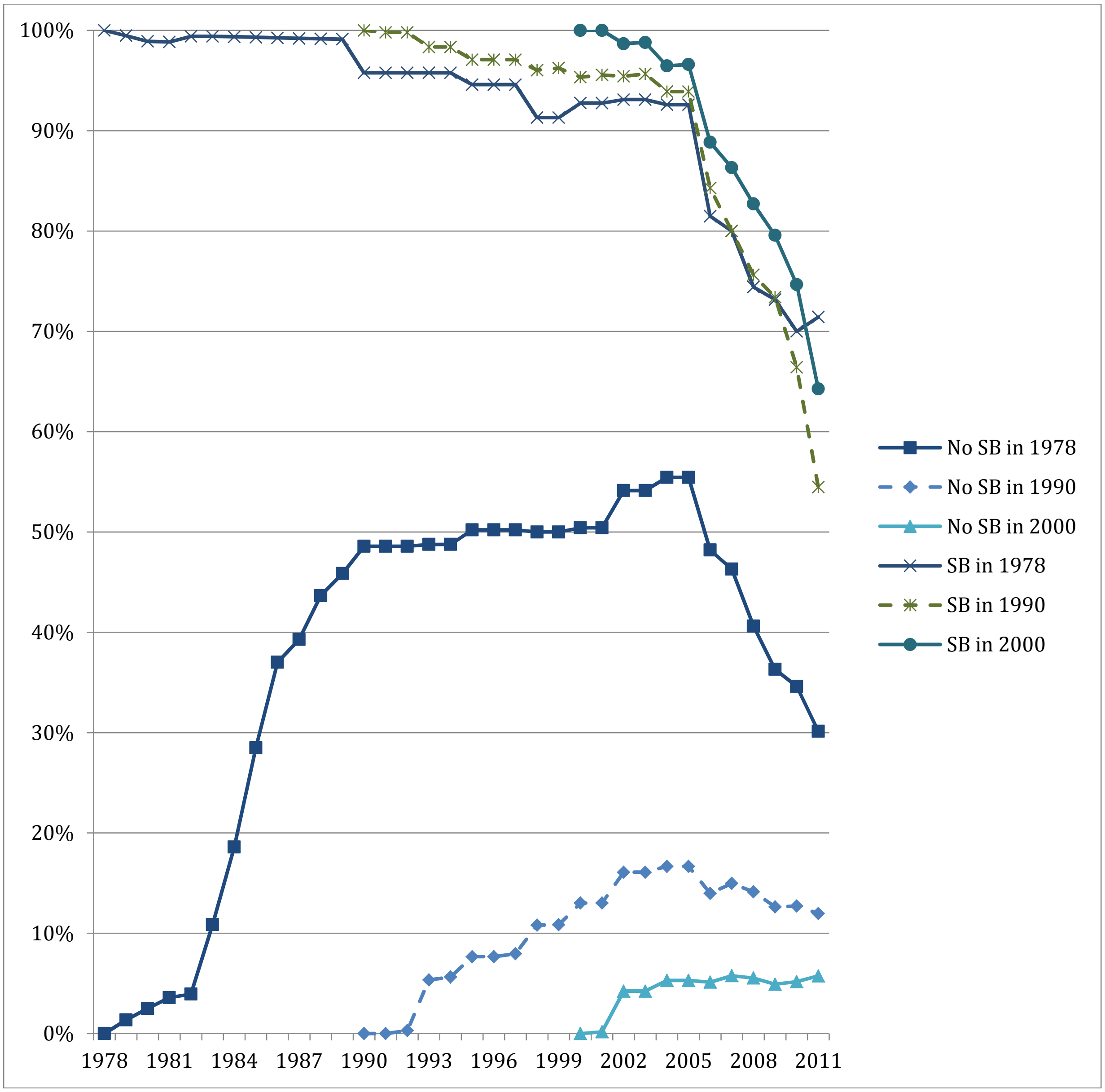

TABLE 1: DEFINITIONS OF VARIABLES

Table 1 presents brief definitions of the main variables that appear in the analysis. All continuous variables are winsorized at one percent in both tails.

Dependent Variables:	
CEO Turnover$_{[t]}$	Defined as one if there is a voluntary CEO departure in the Jenter and Kanaan (2010) data file; as zero otherwise. Data are available for the time period 1993-2001.
Forced CEO Turnover$_{[t]}$	Defined as one if there is an involuntary CEO departure in the Jenter and Kanaan (2010) data file; as zero otherwise. Data are available for the time period 1993-2001.
Monthly Returns on long (short) portfolio "6m12"	Defined as the monthly return of a portfolio created by stocks that stagger up (down) their boards. Portfolio is created by including all stocks of firms that have (de)staggered their board for 12 months, starting 6 months before the fiscal year-end date of the year in which the company has reported its board being (de-)staggered for the first time. Returns are either equally or value weighted.
Monthly Returns on long (short) portfolio "12m12"	Defined as a long (short) portfolio created by including all stocks of firms that have (de)staggered their board for 12 months, starting 12 months before the fiscal year-end date of the year in which the company has reported its board being (de-)staggered.
Monthly Returns on long (short) portfolio "12m24"	Defined as a long (short) portfolio created by including all stocks of firms that have (de)staggered their board for 24 months, starting 12 months before the fiscal year-end date of the year in which the company has reported its board being (de-)staggered.
Tobin's Q$_{[t]}$	Defined as the Market value of assets (i.e., Total Assets – Book Equity + Market Equity) divided by the book value of assets. Calculation follows Fama and French (1992). Source of data is Compustat annual data file.

Independent Variables:	
Board Size$_{[t]}$	Number of director seats. Data are from RiskMetrics and are available for the time period 1996-2001.
CAPX/ Assets$_{[t]}$	Capital Expenditure$_{[t]}$/ Total Assets$_{[t]}$.
Delaware Incorporation$_{[t]}$	Indicator variable if the company is incorporated in Delaware in year t.
Excess Returns$_{[t]}$	Annual returns for each firm at the fiscal year end date net of market return for the same period. Data for stock returns are from CRSP. Data for market returns is from Ken French's online data library. This variable is then Winsorized at 2.5% in each tail of its distribution. Data are available for the time period 1993-2001.
G-Index (minus staggered board)$_{[t]}$	Sum of 23 (i.e., 24 excluding staggered board) governance provisions indicators in the corporate charter or bylaws introduced by Gompers, Ishii, and Metrick (2003).

Insider Ownership$_{[t]}$	The insider ownership in year t is the percentage of shares owned by insiders from all shares. Collected from Compact Disclosure for 1986-2006. We supplement these data with the ownership by the top management team from ExecuComp for 2007-2011. From ExecuComp, we use the total shares owned by the top five officers of the firm.
Ln (Age)$_{[t]}$	Natural logarithm of firm age. The age is calculated as the difference in year t and the first year the company appeared in the CRSP database.
Ln (Assets)$_{[t]}$	Natural logarithm of total book assets in year t.
Majority of Independent Directors Indicator$_{[t]}$	Equals one when a majority of directors are independent, zero otherwise. Data are from Risk Metrics and are available for the time period 1996-2001.
Industry M&A Volume$_{[t]}$	The ratio of mergers & acquisitions' dollar volume in SDC to the total market capitalization from CRSP for a calendar year, as per a given Fama-French 49 industry. The CRSP annual industry market capitalization is for ordinary stocks only and excludes ADRs and REITs. If no M&A activity per given industry-year is reported in SDC, we assume it to be zero. We include transactions where buyer achieves control of the target.
Poison Pill$_{[t]}$	Anti-takeover provision obtained from the Cremers and Ferrell (2014) database for the time period 1993-2011.
R&D/ Sales$_{[t]}$	R&D$_{[t]}$/ Sales$_{[t]}$.
ROA$_{[t]}$	EBITDA$_{[t]}$/Total Assets$_{[t]}$.
Staggered Board$_{[t]}$	Indicator variable equal to one (zero otherwise) if the board is staggered in year t. Data are obtain from Cremers and Ferrell (2014) for 1978-1989, and from Risk Metrics, SharkRepellent.net and hand collection for 1990-2011.
Staggered Board-Charter$_{[t]}$	Indicator variable equal to one (zero otherwise) if the board is staggered in year t in the corporate charter. Data are obtained from Cremers and Ferrell (2014) for 1978-1989, and from Bebchuk and Cohen (2005) for 1990-2003, and hand collection for 2004-2011.
Staggered Board-Bylaws$_{[t]}$	Indicator variable equal to one (zero otherwise) if the board is staggered in year t in the corporate bylaws. Data are obtained from Cremers and Ferrell (2013) for 1978-1989, and from Bebchuk and Cohen (2005) for 1990-2003, and hand collection for 2004-2011.
Interacted Variables:	
CEO Delta$_{[t]}$	Percent change in the value of the Chief Executive Officer (i.e., CEO) option portfolio in year t for a one percent increase in stock price. We calculate it following Core and Guay (2002). We divide the value by 1,000. Data are available from ExecuComp for 1992-2010.
CEO Total Compensation$_{[t]}$	CEO's Total Compensation (Salary + Bonus + Other Annual + Restricted Stock Grants + LTIP Payouts + All Other + Value of Option Grants). The source of the data is the variable TDC1 in ExecuComp data file. Available for 1992-2011.

CEO Vega$_{[t]}$	Percent change in the value of the CEO option portfolio for a one percent increase in the volatility of the returns on the underlying stock. We calculate it following Core and Guay (2002). We divide the value by 1,000. Data are available from ExecuComp for 1992-2010.
CEO-Board Chairman Duality$_{[t]}$	Indicator variable equal to one if the chairman of the board is also the CEO in year t. Source of the data is BoardEx data file and Risk Metrics (formerly IRRC) data file for 1996-2011.
Firm Sales$_{[t]}$	Ln (Sales) in year t.
Governance Index$_{[t]}$	Defined above. Source is Gompers, Ishii and Metrick (2003).
Intangible Assets/ Total Assets$_{[t]}$	(Total Assets$_{[t]}$ - Net PP&E$_{[t]}$)/ Total Assets$_{[t]}$.
R&D/ Sales$_{[t]}$	Defined above. Source is Compustat.
Ranked Patent Citation Count$_{[t]}$	Annually ranked patent citation count. Data are available for 1978-2003. Citations are calculated following Hall, Jaffe, and Trajtenberg (2001). Source is the NBER U.S. Patent Citations data file. We divide the ranked patent citation count by 1,000.

TABLE 2: DESCRIPTIVE STATISTICS FOR MAIN DEPENDENT AND INDEPENDENT VARIABLES.

Table 2 presents sample descriptive statistics for the main dependent and independent variables as well as the interacted variables. *Staggered Board-Charter*$_{[t]}$ and *Staggered Board-Bylaws*$_{[t]}$ statistics are presented for the entire sample, i.e., including observations without staggered board.

Dependent Variables:	**Mean**	**Median**	**St. Dev.**	**Min**	**Max**	**Obs.**
$Q_{[t]}$	1.581	1.282	0.867	0.725	4.660	31,574
$\Delta Q_{[t-1, t]}$	-0.006	0.007	0.453	-1.886	1.582	28,328
$\Delta Q_{[t-1, t+1]}$	-0.015	0.010	0.585	-2.421	1.941	28,328
$\Delta Q_{[t-1, t+2]}$	-0.017	0.013	0.664	-2.708	2.181	26,181
$\Delta Q_{[t-1, t+3]}$	-0.024	0.011	0.722	-2.889	2.349	24,150
$\Delta Q_{[t-1, t+4]}$	-0.030	0.013	0.768	-3.048	2.394	22,232

Independent Variables:	**Mean**	**Median**	**St. Dev.**	**Min**	**Max**	**Obs.**
CAPX/ Assets$_{[t]}$	0.06	0.05	0.05	0	0.20	31,574
Delaware Incorporation$_{[t]}$	0.55	1	0.50	0	1	31,574
G-Index (minus staggered board)$_{[t]}$	7.68	8.00	3.20	1	18.00	23,525
Insider Ownership$_{[t]}$	0.07	0.03	0.10	0	1	21,216
Ln (Age)$_{[t]}$	2.87	3.00	0.98	0	4.45	27,754
Ln (Assets)$_{[t]}$	7.29	7.17	1.56	4.55	11.05	31,574
Industry M&A Volume$_{[t]}$	0.027	0.010	0.050	0	0.359	31,574
R&D/ Sales$_{[t]}$	0.03	0	0.06	0	0.23	31,574
ROA$_{[t]}$	0.14	0.14	0.08	-0.05	0.32	31,574
Staggered Board$_{[t]}$	0.53	1	0.50	0	1	31,574
Staggered Board-Charter$_{[t]}$	0.432	0	0.495	0	1	29,689
Staggered Board-Bylaws$_{[t]}$	0.078	0	0.267	0	1	29,689

Interacted Variables:[28]	**Mean**	**Median**	**St. Dev.**	**Min**	**Max**	**Obs.**
R&D/ Sales$_{[t]}$	0.003	-0.025	0.0552	-0.025	0.205	31,574
Intangible Assets/ Total Assets$_{[t]}$	-0.039	0.116	0.4665	-1.663	0.448	31,337
Ranked Patent Citation Count$_{[t]}$	0.007	-0.023	0.2171	-0.258	0.678	15,338
Firm Sales$_{[t]}$	0.022	-0.056	1.4713	-3.309	3.739	31,558
CEO-Board Chairman Duality$_{[t]}$	0.577	1	0.4941	0	1	10,356
G-Index (minus staggered board)$_{[t]}$	0.103	0.428	3.1986	-6.572	10.428	23,525
CEO Delta$_{[t]}$	-0.056	-0.627	1.9854	-0.855	15.284	17,573
CEO Vega$_{[t]}$	-0.002	-0.101	0.2725	-0.178	1.485	15,983
CEO Total Compensation$_{[t]}$	0.0004	-0.054	0.8762	-2.573	4.439	17,965

[28] All continuous variables that are used in interaction analysis are demeaned. Descriptive statistics shown above are for the demeaned variables within the samples used in the corresponding regressions.

TABLE 3: FIRM VALUE AND STAGGERED BOARDS

In this table we present a replication analysis of Bebchuk and Cohen (2005) with two different sets of control variables and across different time periods. Columns (1)-(4), (6), and (7) include the following control variables: *Staggered Board$_{[t-1]}$*, *Ln (Assets)$_{[t-1]}$*, *Delaware Incorporation$_{[t-1]}$*, *ROA$_{[t-1]}$*, *CAPX/Assets$_{[t-1]}$*, *R&D/ Sales$_{[t-1]}$*, and *Industry M&A Volume$_{[t-1]}$*. Column (5) adds these control variables: *G-Index$_{[t-1]}$*, *Ln (Firm Age)$_{[t-1]}$*, *Insider Ownership$_{[t-1]}$*, and *Insider Ownership$^2_{[t-1]}$*. The analysis includes the following sub-periods: 1978-2011, 1978-1989, 1990-2000, 2001-2011, and 1995-2002. Estimation is using pooled panel *Tobin's Q$_{[t]}$* regressions. We include year and industry fixed effects. All control variables are defined in Table 1. Statistical significance of the coefficients is indicated at the 1%, 5%, and 10% levels by ***, **, and *, respectively, in two tailed tests, based on robust standard errors clustered by firm. For the key independent variable—*Staggered Board$_{[t-1]}$*— we show two separate standard errors: "(.)" reflects robust standard errors clustered at the firm level; "[.]" reflects robust standard errors that are not clustered.

Dep. Variable: *Q$_{[t]}$*					
Variables	(1)	(2)	(3)	(4)	(5)
Period:	1978-2011	1978-1989	1990-2000	2001-2011	1995-2002
Staggered Board$_{[t-1]}$	-0.041**	-0.009	-0.073**	-0.026	-0.042
(firm cluster)	*(2.38)*	*(0.51)*	*(2.52)*	*(1.06)*	(1.17)
[no cluster]	*[4.98]*	*[0.96]*	*[4.33]*	*[1.94]*	*[1.83]*
G-Index$_{[t-1]}$					-0.005
					(0.57)
Ln (Assets)$_{[t-1]}$	-0.027***	-0.027***	-0.006	-0.042***	0.052***
	(3.74)	(3.33)	(0.44)	(4.11)	(3.24)
Ln (Firm Age)$_{[t-1]}$					-0.050
					(1.34)
Delaware Incorporation$_{[t-1]}$	0.014	0.026	0.016	0.009	-0.010
	(0.76)	(1.26)	(0.49)	(0.31)	(0.28)
Insider Ownership$_{[t-1]}$					0.318
					(0.95)
Insider Ownership$^2_{[t-1]}$					-0.179
					(0.37)
ROA$_{[t-1]}$	5.073***	2.7***	5.859***	5.306***	5.939***
	(32.74)	(15.98)	(22.75)	(24.06)	(19.11)
CAPX/Assets$_{[t-1]}$	-0.263	-0.251	-0.521	0.227	-1.048**
	(1.14)	(1.23)	(1.22)	(0.58)	(2.17)
R&D/ Sales$_{[t-1]}$	4.231***	4.669***	6.158***	3.823***	5.499***
	(12.01)	(5.19)	(10.31)	(9.33)	(7.17)
Industry M&A Volume$_{[t-1]}$	-0.235***	0.009	-0.137	-0.273***	0.129
	(3.04)	(0.10)	(0.92)	(2.74)	(0.85)
# of firms in regression	3,023	1,079	1,420	2,116	992
N	31,574	8,500	9,617	13,457	5,253
Adjusted R-Squared	0.50	0.49	0.57	0.49	0.61

TABLE 4: FIRM VALUE AND STAGGERED BOARDS – CONTROLLING FOR FIRM FIXED EFFECTS

In this table we present a replication analysis of Bebchuk and Cohen (2005) with two different sets of control variables and across different time periods. Columns (1)-(4), (6), and (7) include the following control variables: *Staggered Board*$_{[t-1]}$, *Ln (Assets)*$_{[t-1]}$, *Delaware Incorporation*$_{[t-1]}$, *ROA*$_{[t-1]}$, *CAPX/Assets*$_{[t-1]}$, *R&D/ Sales*$_{[t-1]}$ and *Industry M&A Volume*$_{[t-1]}$. Column (5) adds these control variables: *G-Index*$_{[t-1]}$, *Ln (Firm Age)*$_{[t-1]}$, *Insider Ownership*$_{[t-1]}$, and *Insider Ownership*$^2_{[t-1]}$. The analysis includes the following sub-periods: 1978-2011, 1978-1989, 1990-2000, 2001-2011, and 1995-2002. Estimation is using pooled panel *Tobin's Q*$_{[t]}$ regressions. We include year and firm fixed effects. All control variables are defined in Table 1. Statistical significance of the coefficients is indicated at the 1%, 5%, and 10% levels by ***, **, and *, respectively, based on robust standard errors clustered by firm. For the key independent variable—*Staggered Board*$_{[t-1]}$— we show two separate standard errors: "(.)" reflects robust standard errors clustered at the firm level; "[.]" reflects robust standard errors that are not clustered.

Dep. Variable: $Q_{[t]}$					
Variables	(1)	(2)	(3)	(4)	(5)
Period:	1978-2011	1978-1989	1990-2000	2001-2011	1995-2002
Staggered Board$_{[t-1]}$	0.059**	0.034	0.008	0.083**	0.119*
(firm cluster)	*(2.11)*	*(1.26)*	*(0.11)*	*(2.19)*	(1.82)
[no cluster]	*[4.65]*	*[2.35]*	*[0.17]*	*[3.43]*	*[2.15]*
G-Index$_{[t-1]}$					-0.005
					(0.33)
Ln (Assets)$_{[t-1]}$	-0.215***	-0.13***	-0.174***	-0.353***	-0.396***
	(12.01)	(4.55)	(4.65)	(11.04)	(8.10)
Ln (Firm Age)$_{[t-1]}$					0.327
					(1.59)
Insider Ownership$_{[t-1]}$					0.562
					(1.27)
Insider Ownership$^2_{[t-1]}$					-0.742
					(1.06)
ROA$_{[t-1]}$	2.939***	1.316***	2.79***	1.705***	2.071***
	(20.27)	(10.5)	(11.34)	(8.39)	(7.74)
CAPX/Assets$_{[t-1]}$	0.102	0.134	-0.686**	-0.075	-0.907**
	(0.60)	(0.80)	(2.36)	(0.26)	(2.19)
R&D/ Sales$_{[t-1]}$	1.445***	2.03	3.256***	0.561	0.423
	(2.72)	(1.26)	(3.41)	(0.95)	(0.35)
Industry M&A Volume$_{[t-1]}$	-0.248***	-0.042	-0.27*	-0.15	0.129
	(3.59)	(0.45)	(1.84)	(1.56)	(0.93)
# of firms in regression	3,023	1,079	1,420	2,116	992
N	31,574	8,500	9,617	13,457	5,253
Adjusted R-Squared	0.71	0.70	0.77	0.77	0.80

TABLE 5: FIRM VALUE AND STAGGERED BOARDS– FIRST DIFFERENCE REGRESSIONS.
FUTURE CHANGES IN Q VS. PAST CHANGES IN CONTROL VARIABLES (INCLUDING TRANSITION YEAR)

In this table we present pooled panel first difference regressions with the dependent variable being the change in Q from t-1 to t in Column (1) (i.e., Δ $Q_{[t-1, t]}$), the change in Q from t-1 to t+1 in Column (2) (i.e., Δ $Q_{[t-1, t+1]}$) , the change in Q from t-1 to t+2 in Column (3) (i.e., Δ $Q_{[t-1, t+2]}$), , the change in Q from t-1 to t+3 in Column (4) (i.e., Δ $Q_{[t-1, t+3]}$), and the change in Q from t-1 to t+4 in Column (5) (i.e., Δ $Q_{[t-1, t+4]}$). All dependent variables are adjusted for the annual average of the corresponding variable in the cross-section. As independent variables, we include the following: Δ *Staggered Board*$_{[t-1,t]}$, Δ *Ln (Assets)*$_{[t-1,t]}$, Δ *ROA*$_{[t-1,t]}$, Δ *CAPX/Assets*$_{[t-1,t]}$, Δ *R&D/ Sales*$_{[t-1,t]}$, and Δ *Industry M&A Volume*$_{[t-1,t]}$. Sample period is 1978-2011, but it varies per column due to availability of lagged data and is reported for each column. Standard errors are clustered at the firm level. Results are robust to an adjustment to the standard errors for autocorrelation as in Newey-West (where the adjustment includes up to sixth lags). T-statistics (in their absolute value) of the regression coefficients are shown in parentheses below the coefficient estimates. Statistical significance of the coefficients is indicated at the 1%, 5%, and 10% levels by ***, **, and *, respectively. All control variables are defined in Table 1. Included but not shown are industry fixed effects as per the Fama-French 49 industry definitions. The number of firms per regression model is noted per each column. Our sample for Column (1) includes 386 cases of staggering up and 309 cases of staggering down.

Dep. Variable:	Δ $Q_{[t-1, t]}$	Δ $Q_{[t-1, t+1]}$	Δ $Q_{[t-1, t+2]}$	Δ $Q_{[t-1, t+3]}$	Δ $Q_{[t-1, t+4]}$
Variables	(1)	(2)	(3)	(4)	(5)
Δ *Staggered Board*$_{[t-1, t]}$	0.030**	0.041**	0.061**	0.096***	0.075**
	(2.16)	(2.11)	(2.37)	(3.22)	(2.22)
Δ *Assets*$_{[t-1, t]}$	-0.292***	-0.554***	-0.719***	-0.768***	-0.784***
	(15.35)	(21.56)	(23.55)	(22.50)	(20.69)
Δ *ROA*$_{[t-1, t]}$	2.013***	1.779***	1.42***	1.228***	1.203***
	(22.70)	(16.48)	(12.69)	(10.54)	(9.71)
Δ *CAPX/Assets*$_{[t-1, t]}$	-0.221**	-0.970***	-1.006***	-1.326***	-1.163***
	(1.99)	(6.96)	(6.94)	(8.40)	(6.64)
Δ *R&D/ Sales*$_{[t-1, t]}$	-0.683**	-0.480	-0.775	-0.833	-1.158*
	(1.97)	(1.29)	(1.63)	(1.56)	(1.93)
Δ *Industry M&A Volume*$_{[t-1,t]}$	0.269***	0.157***	0.138***	0.084	0.179***
	(6.07)	(3.29)	(2.67)	(1.52)	(2.94)
Sample Period	1979-2012	1979-2011	1979-2010	1979-2009	1979-2008
# of firms in regression	2,886	2,766	2,597	2,456	2,311
N	29,166	28,004	25,875	23,860	21,954
Adjusted R-Squared	0.08	0.07	0.07	0.07	0.07

TABLE 6: PORTFOLIO ANALYSIS

In this table we present the analysis of equally weighted monthly portfolio returns for firms that have staggered up (in the 'long' portfolio) and firms that have de-staggered (in the 'short' portfolio) around board staggering and de-staggering events in our sample of firms during the time period 1978-2011. The long (short) portfolios are composed every month as follows. For portfolio "*6m12*", we include all stocks of firms that have (de-)staggered their boards starting 6 months before the fiscal year-end date of the year in which the firm has reported its board being (de-)staggered for the first time, and hold these stocks for 12 months. For portfolio "*12m12*", we include all stocks of firms that have (de-)staggered their boards starting 12 months before the fiscal year-end date of the year in which the firm has reported its board being (de-)staggered for the first time, and again hold these stocks for 12 months. For portfolio *"12m24*", we include all stocks of firms that have (de-)staggered their boards starting 12 months before the fiscal year-end date of the year in which the firm has reported its board being (de-)staggered for the first time, and hold these stocks for 24 months. We use three models: the four factor Carhart (1997) model (i.e., Momentum, HML, SMB, and market return), the three factor Fama-French model (i.e., HML, SMB, and market return), and the market model (i.e., CAPM). For each model, we present the returns to the (i) long portfolio, (ii) short portfolio, and (iii) long minus short portfolio. The absolute values of the t-statistics are based on robust standard errors and are presented in parentheses below the coefficients. The annualized alphas to each portfolio are in percentages based on monthly returns. Statistical significance of the coefficients is indicated at the 1%, 5%, and 10% levels by ***, **, and *, respectively. The average number of stocks in the long and short portfolios (averaged across all months) is shown for the four-factor model.

TABLE 6: PORTFOLIO ANALYSIS –EQUALLY WEIGHTED RETURNS (CONTINUED)

Portfolio *"6m12"*	Four-Factor Model			Three-Factor Model			Market Factor Model		
	Long	*Short*	*Long - Short*	*Long*	*Short*	*Long - Short*	*Long*	*Short*	*Long - Short*
Alpha (Monthly)	0.516**	0.062	0.416	0.442*	-0.016	0.447	0.738**	0.141	0.479
	(2.04)	(0.19)	(0.95)	(1.72)	(0.05)	(1.05)	(2.57)	(0.43)	(1.13)
Alpha (Annual)	6.37%	0.75%	5.11%	5.43%	-0.19%	5.50%	9.22%	1.71%	5.90%
Average # Firms	*13*	*15.2*	-	*13*	*15.2*	-	*13*	*15.2*	-
N	321	224	211	321	224	211	321	224	211
Adj. R-Squared	0.613	0.587	0.010	0.611	0.571	0.011	0.532	0.526	0.001

Portfolio *"12m12"*	Four-Factor Model			Three-Factor Model			Market Factor Model		
	Long	*Short*	*Long - Short*	*Long*	*Short*	*Long - Short*	*Long*	*Short*	*Long - Short*
Alpha (Monthly)	0.529	-0.293	1.235**	0.388	-0.425	1.296**	0.581*	-0.256	1.266***
	(1.54)	(1.08)	(2.24)	(1.13)	(1.59)	(2.47)	(1.85)	(0.93)	(2.65)
Alpha (Annual)	6.54%	-3.46%	15.87%	4.76%	-4.98%	16.71%	7.20%	-3.03%	16.30%
Average # Firms	*12.8*	*16.1*	-	*12.8*	*16.1*	-	*12.8*	*16.1*	-
N	319	237	216	319	237	216	319	237	216
Adj. R-Squared	0.466	0.62	0.002	0.459	0.606	0.005	0.416	0.575	0.011

Portfolio *"12m24"*	Four-Factor Model			Three-Factor Model			Market Factor Model		
	Long	*Short*	*Long - Short*	*Long*	*Short*	*Long - Short*	*Long*	*Short*	*Long - Short*
Alpha (Monthly)	0.401**	0.039	0.419	0.292*	-0.067	0.407	0.525***	0.039	0.461*
	(2.30)	(0.17)	(1.44)	(1.65)	(0.31)	(1.45)	(2.7)	(0.18)	(1.68)
Alpha (Annual)	4.92%	0.47%	5.15%	3.56%	-0.80%	4.99%	6.49%	0.47%	5.67%
Average # Firms	*23.7*	*22.5*	-	*23.7*	*22.5*	-	*23.7*	*22.5*	-
N	388	350	349	388	350	349	388	350	349
Adj. R-Squared	0.679	0.623	0.001	0.671	0.617	0.004	0.603	0.593	0.001

TABLE 7: FIRM VALUE AND STAGGERED BOARDS: REVERSE CAUSALITY TESTS

In this table we present reverse causality regressions to explain the adoption (in columns (1) and (2)) and removal (in columns (3) and (4)) of a staggered board as a function of the valuation of the firm (as captured by $Q_{[t-1]}$) plus other characteristics. The sample for columns (3)-(4) ((1)-(2)) includes all firms that do (not) have a staggered board up until (and including) the year in which they remove (adopt) the staggered board if there is any such change, and are dropped from the sample afterwards. Each panel shows two models. Columns (1) and (3) use a random effects Probit model, with robust standard errors clustered by firm and reporting marginal effects. Columns (2) and (4) use the Cox proportional hazard model (see Greene, 2000) and reports the hazard ratio using robust standard errors clustered at the firm level (after standardizing the continuous variables to have zero mean and unit variance). All columns in both panels include the following control variables: $Q_{[t-1]}$, *Ln (Assets)*$_{[t-1]}$, *Delaware Incorporation*$_{[t-1]}$, *ROA*$_{[t-1]}$, *CAPX/Assets*$_{[t-1]}$, *R&D/ Sales*$_{[t-1]}$ and *Industry M&A Volume*$_{[t-1]}$. Statistical significance of the coefficients is indicated at the 1%, 5%, and 10% levels by ***, **, and *, respectively. T-statistics (in their absolute value) are shown in parentheses below the coefficient estimates. All control variables are defined in Table 1. The sample in the table refers to the time period 1978-2011.

	Random Effects Probit Model	*Cox Model*	*Random Effects Probit Model*	*Cox Model*
Dep. Variable:	*Pr (Stagger in period t)*		*Pr (De-stagger in period t)*	
Variables	(1)	(2)	(3)	(4)
$Q_{[t-1]}$	-0.007***	0.422***	0.001	0.856
	(3.84)	(7.63)	(0.68)	(1.48)
Ln (Assets) $_{[t-1]}$	-0.0003	1.11*	0.007***	1.830***
	(0.47)	(1.69)	(12.70)	(6.22)
Delaware Incorporation$_{[t-1]}$	-0.001	0.790**	0.003	1.021
	(0.54)	(2.14)	(1.73)	(0.14)
ROA$_{[t-1]}$	0.033*	1.471***	-0.019	1.049
	(1.79)	(5.05)	(1.35)	(0.46)
CAPX/Assets$_{[t-1]}$	0.057**	1.124**	-0.031	1.029
	(2.29)	(2.45)	(1.45)	(0.48)
R&D/ Sales$_{[t-1]}$	-0.071**	0.898	0.003	0.993
	(2.44)	(1.54)	(0.15)	(0.09)
Industry M&A Volume$_{[t-1]}$	0.065***	1.016	-0.028	0.956
	(3.21)	(0.23)	(1.55)	(0.42)
Percentage Effect	*-35.1%*	*-57.8%*	*-6.2%*	*-14.4%*
# of firms in regression	1,784	1,651	1,813	1,494
N	15,359	14,535	17,368	13,462
Pseudo R-Squared	-	0.04	-	0.027
Wald Chi-Squared (p-value)	51.3 (0.00)	-	163.4 (0.00)	-

TABLE 8: FIRM VALUE AND STAGGERED BOARDS– FIRST DIFFERENCE REGRESSIONS FOR MATCHED SAMPLE. FUTURE CHANGES IN Q VS. PAST CHANGES IN CONTROL VARIABLES (INCLUDING TRANSITION YEAR)

In this table we present pooled panel first difference regressions with the dependent variable being the change in Q from t-1 to t in Column (1) (i.e., $\Delta Q_{[t-1, t]}$), the change in Q from t-1 to t+1 in Column (2) (i.e., $\Delta Q_{[t-1, t+1]}$), the change in Q from t-1 to t+2 in Column (3) (i.e., $\Delta Q_{[t-1, t+2]}$), , the change in Q from t-1 to t+3 in Column (4) (i.e., $\Delta Q_{[t-1, t+3]}$), and the change in Q from t-1 to t+4 in Column (5) (i.e., $\Delta Q_{[t-1, t+4]}$) for the sample of all firm-years that have either staggered up or staggered down and a matched sample of firm-years that do not change their staggered board structure. We match the two samples based on the following criteria: the treatment and the control firm (1) have the same Fama-French 49 industry in the event year, (ii) are both non-dual class firms in the event year, and (3) have the lowest difference in Q in the event year. All dependent variables are adjusted for the annual average of the corresponding variable in the cross-section. As independent variables, we include the following: Δ *Staggered Board*$_{[t-1,t]}$, Δ *Ln (Assets)*$_{[t-1,t]}$, Δ *ROA*$_{[t-1,t]}$, Δ *CAPX/Assets*$_{[t-1,t]}$, Δ *R&D/ Sales*$_{[t-1,t]}$, and Δ *Industry M&A Volume*$_{[t-1,t]}$. Sample period is 1978-2011, but it varies per column due to availability of lagged data and is reported for each column. Standard errors are clustered at the firm level. Results are robust to an adjustment to the standard errors for autocorrelation as in Newey-West (where the adjustment includes up to sixth lags). T-statistics (in their absolute value) of the regression coefficients are shown in parentheses below the coefficient estimates. Statistical significance of the coefficients is indicated at the 1%, 5%, and 10% levels by ***, **, and *, respectively. All control variables are defined in Table 1. Included but not shown are industry fixed effects as per the Fama-French 49 industry definitions. Our sample for Column (1) includes 338 cases of staggering up and 271 cases of staggering down which are matched to firms that do not change their staggered board structure in the event period.

Dep. Variable:	$\Delta Q_{[t-1, t]}$	$\Delta Q_{[t-1, t+1]}$	$\Delta Q_{[t-1, t+2]}$	$\Delta Q_{[t-1, t+3]}$	$\Delta Q_{[t-1, t+4]}$
Variables	(1)	(2)	(3)	(4)	(5)
Δ *Staggered Board*$_{[t-1, t]}$	0.036**	0.043**	0.061**	0.097***	0.082**
	(2.54)	(2.16)	(2.38)	(3.08)	(2.27)
Δ *Assets*$_{[t-1, t]}$	-0.249***	-0.446***	-0.436***	-0.577***	-0.718***
	(2.92)	(3.81)	(2.98)	(4.05)	(4.38)
Δ *ROA*$_{[t-1, t]}$	2.118***	1.624***	1.386**	1.136*	0.667
	(6.60)	(4.00)	(2.45)	(1.87)	(1.28)
Δ *CAPX/Assets*$_{[t-1, t]}$	-0.64	-0.842	-1.186	-1.561**	-1.774**
	(1.39)	(1.53)	(1.65)	(2.12)	(2.42)
Δ *R&D/ Sales*$_{[t-1, t]}$	1.323	5.291	4.693	3.725	1.997
	(0.71)	(1.58)	(1.14)	(1.01)	(0.57)
Δ *Industry M&A Volume*$_{[t-1,t]}$	-0.415	-0.067	0.016	0.158	-0.144
	(1.50)	(0.17)	(0.05)	(0.48)	(0.36)
Sample Period	1979-2012	1979-2011	1979-2010	1979-2009	1979-2008
N	1,205	1,146	989	912	830
Adjusted R-Squared	0.08	0.06	0.06	0.06	0.07

TABLE 9. FIRM VALUE AND STAGGERED BOARDS
INTERACTIONS OF STAGGERED BOARD WITH BOARD FEATURES AND GOVERNANCE PROVISIONS

In this table we present time-series analysis as in Table 4 that includes interactions with variables that capture board features and governance provisions. We include the following control variables: *Ln (Assets)$_{[t-1]}$*, *Delaware Incorporation$_{[t-1]}$*, *ROA$_{[t-1]}$*, *CAPX/Assets$_{[t-1]}$*, *R&D/Sales$_{[t-1]}$*, and *Industry M&A Volume$_{[t-1]}$* which we do not show for brevity (unless a variable is being interacted with *Staggered Board$_{[t-1]}$*). The interacted variables include the following: *CEO-Board Chairman Duality$_{[t-1]}$*, *G-Index$_{[t-1]}$*, and *Poison Pill$_{[t-1]}$*. The sample period is 1978-2011. Individual interactions vary in their availability, as noted by the observation count and year span for each estimated column. The *G-Index$_{[t-1]}$* is adjusted by subtracting *Staggered Board$_{[t-1]}$* and is subsequently demeaned prior to calculating its interaction with *Staggered Board$_{[t-1]}$*. Estimation is using pooled panel *Tobin's Q$_{[t]}$* regressions. We include year and firm fixed effects. All interaction and control variables are defined in Table 1. Economic significance for the interactions of the continuous interacted variables is calculated as the coefficient estimate times the standard deviation of the interacted variable, divided by the sample average for *Q$_{[t]}$*. Economic significance for *Staggered Board$_{[t-1]}$* is calculated as its coefficient estimate divided by average *Q$_{[t]}$*. Robust standard errors are clustered at the firm level. T-statistics (in their absolute value) are shown in parentheses below the coefficient estimates. Statistical significance of the coefficients is indicated at the 1%, 5%, and 10% levels by ***, **, and *, respectively.

Dep. Variable: *Q$_{[t]}$*						
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Staggered Board$_{[t-1]}$	0.09*	0.133***	0.077**	0.077**	0.103***	0.100***
	(1.94)	(2.97)	(2.57)	(2.58)	(2.61)	(2.62)
CEO-Board Chairman Duality$_{[t-1]}$	-0.017	0.036*				
	(0.58)	(1.96)				
Governance Index$_{[t-1]}$			-0.015**	-0.013**		
			(2.40)	(2.44)		
Poison Pill$_{[t-1]}$					-0.032	-0.036*
					(1.03)	(1.79)
*CEO-Board Chairman Duality$_{[t-1]}$ * Staggered Board$_{[t-1]}$*	0.089***					
	(2.81)					
*Governance Index$_{[t-1]}$ * Staggered Board$_{[t-1]}$*			0.004			
			(0.64)			
*Poison Pill $_{[t-1]}$ * Staggered Board$_{[t-1]}$*					-0.007	
					(0.20)	
Sample Period	1996 - 2011	1996 - 2011	1978 - 2011	1978 - 2011	1986 - 2011	1986 - 2011
Table 3 Controls Included	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	Firm, Year	Firm, Year	Firm, Year	Firm, Year	Firm, Year	Firm, Year
N	18,552	18,552	23,525	23,525	25,011	25,011
Adjusted R-Squared	0.73	0.73	0.71	0.71	0.72	0.72

TABLE 10. FIRM VALUE AND STAGGERED BOARDS
INTERACTIONS OF STAGGERED BOARD WITH EXECUTIVE COMPENSATION

In this table we present time-series analysis as in Table 4 that includes interactions with variables that capture executive compensation. We include the following control variables: *Ln (Assets)*$_{[t-1]}$, *Delaware Incorporation*$_{[t-1]}$, *ROA*$_{[t-1]}$, *CAPX/Assets*$_{[t-1]}$, *R&D/Sales*$_{[t-1]}$, and *Industry M&A Volume*$_{[t-1]}$ which we do not show for brevity (unless a variable is being interacted with *Staggered Board*$_{[t-1]}$). The interacted variables include the following: *CEO Delta*$_{[t-1]}$, *CEO Vega*$_{[t-1]}$, and *CEO Total Compensation*$_{[t-1]}$. The sample period is 1992-2011. Individual interactions vary in their availability, as noted by the observation count and year span for each estimated column. All continuous variables in the interaction terms (*CEO Delta*$_{[t-1]}$, *CEO Vega*$_{[t-1]}$ and *CEO Total Compensation*$_{[t-1]}$) are demeaned prior to calculating their interactions with *Staggered Board*$_{[t-1]}$. Estimation is using pooled panel *Tobin's Q*$_{[t]}$ regressions. We include year and firm fixed effects. All interaction and control variables are defined in Table 1. Economic significance for the interactions of the continuous interacted variables is calculated as the coefficient estimate times the standard deviation of the interacted variable, divided by the sample average for *Q*$_{[t]}$. Economic significance for *Staggered Board*$_{[t-1]}$ is calculated as its coefficient estimate divided by average *Q*$_{[t]}$. Robust standard errors are clustered at the firm level. T-statistics (in their absolute value) are shown in parentheses below the coefficient estimates. Statistical significance of the coefficients is indicated at the 1%, 5%, and 10% levels by ***, **, and *, respectively.

Dep. Variable: *Q*$_{[t]}$						
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Staggered Board$_{[t-1]}$	0.116**	0.120***	0.127**	0.152***	0.105**	0.126***
	(2.58)	(2.63)	(2.54)	(3.05)	(2.53)	(2.85)
CEO Delta$_{[t-1]}$	0.053***	0.058***				
	(4.66)	(7.60)				
CEO Vega$_{[t-1]}$			-0.070	0.026		
			(1.28)	(0.58)		
CEO Total Compensation$_{[t-1]}$					0.086***	0.121***
					(4.29)	(8.87)
CEO Delta$_{[t-1]}$ * *Staggered Board*$_{[t-1]}$	0.008					
	(0.57)					
CEO Vega$_{[t-1]}$ * *Staggered Board*$_{[t-1]}$			0.199***			
			(2.82)			
CEO Total Compensation$_{[t-1]}$ * *Staggered Board*$_{[t-1]}$					0.061**	
					(2.44)	
Fixed Effects	Firm, Year	Firm, Year	Firm, Year	Firm, Year	Firm, Year	Firm, Year
Table 3 Controls Included	Yes	Yes	Yes	Yes	Yes	Yes
N	17,573	17,573	15,983	15,983	17,965	17,965
Adjusted R-Squared	0.74	0.74	0.73	0.73	0.74	0.74

TABLE 11. FIRM VALUE AND STAGGERED BOARDS

INTERACTIONS OF STAGGERED BOARD, STAGGERED BOARD-CHARTER, AND STAGGERED BOARD-BYLAWS WITH PRE-1986 INDICATOR

In this table we present pooled panel regressions results using the full 1978-2011 sample of $Q_{[t]}$ on *Staggered Board*$_{[t-1]}$, *Staggered Board-Charter*$_{[t-1]}$ and *Staggered Board-Bylaws*$_{[t-1]}$ in columns (1)-(4) and their interactions with *Pre-1986 Indicator*, which is a dummy equal to one for years before 1986 and zero otherwise, in columns (5)-(8). We always include year fixed effects and the following control variables: *Ln (Assets)*$_{[t-1]}$, *Delaware Incorporation*$_{[t-1]}$, *ROA*$_{[t-1]}$, *CAPX/Assets*$_{[t-1]}$, *R&D/Sales*$_{[t-1]}$, and *Industry M&A Volume*$_{[t-1]}$ which are not shown. Columns (1), (2), (5) and (6) include year and industry fixed effects, while columns (3), (4), (7) and (8) include year and firm fixed effects. The sample period is 1978-2011. All variables are defined in Table 1. Robust standard errors are clustered at the firm level. T-statistics (in their absolute value) are shown in parentheses below the coefficient estimates. Statistical significance of the coefficients is indicated at the 1%, 5%, and 10% levels by ***, **, and *, respectively.

Dep. Variable: $Q_{[t]}$						
Variables	(1)	(2)	(3)	(4)	(5)	(6)
Staggered Board$_{[t-1]}$		-0.007		0.067**	-0.049**	0.058*
		(0.36)		(2.20)	(2.47)	(1.85)
Staggered Board – Charter$_{[t-1]}$	-0.007		0.066**			
	(0.37)		(2.17)			
Staggered Board – Bylaws$_{[t-1]}$	-0.003	0.004	0.067*	0.000		
	(0.11)	(0.14)	(1.89)	(0.01)		
Pre-1986 Indicator × Staggered Board$_{[t-1]}$					0.047	0.004
					(1.65)	(0.11)
Year fixed effects and other controls of Table 3 included	Yes	Yes	Yes	Yes	Yes	Yes
N	23,793	23,793	23,793	23,793	23,793	23,793
Adjusted R-Squared	0.54	0.54	0.70	0.70	0.54	0.54
Firm Fixed Effect	No	No	Yes	Yes	No	Yes
Industry Fixed Effect	Yes	Yes	No	No	Yes	No

TABLE 12. STAGGERED BOARDS AND CEO TURNOVER

In this table we summarize analysis from logistic regressions relating the occurrence of *Forced CEO Turnover* in Columns (1) and (2) and *CEO Turnover* in Columns (3) and (4) to key independent variables. As key independent variables we include: *Staggered Board*$_{[t]}$, *Excess Returns*$_{[t-1]}$, and their interaction. We obtain *Forced CEO Turnover*$_{[t]}$ and *CEO Turnover*$_{[t]}$ from the data file used by Jenter and Kanaan (2010). *Excess Returns*$_{[t]}$ are defined as annual returns as of the end of the fiscal year preceding the calendar date of the turnover event, net of the market returns for the corresponding period. Actual returns are from CRSP while market returns are from Kenneth French's online data library. Prior to calculating the interaction of *Staggered Board*$_{[t]}$ and *Excess Returns*$_{[t]}$, we demean the latter. We further control for *Poison Pill*$_{[t]}$ and *Delaware Incorporation*$_{[t]}$. We present estimates of marginal effects. Standard errors are clustered at the firm level. T-statistics (in their absolute value) are shown in parentheses below the coefficient estimates. Statistical significance of the coefficients is indicated at the 1%, 5%, and 10% levels by ***, **, and *, respectively, in two tailed tests.

Dep. Variable:	*Pr (Forced CEO Turnover*$_{[t]}$*)*	*Pr (Forced CEO Turnover*$_{[t]}$*)*	*Pr (CEO Turnover*$_{[t]}$*)*	*Pr (CEO Turnover*$_{[t]}$*)*
Variables	(1)	(2)	(3)	(4)
Staggered Board$_{[t]}$	0.002	0.001	0.001	0.0004
	(0.77)	(0.45)	(0.12)	(0.06)
Excess Returns $_{[t]}$	-0.021***	-0.020***	-0.044***	-0.042***
	(7.23)	(3.62)	(5.91)	(3.74)
Staggered Board$_{[t]}$ * *Excess Returns*$_{[t]}$		-0.002		-0.004
		(0.22)		(0.25)
Poison Pill$_{[t]}$	0.004*	0.004*	0.010*	0.010*
	(1.88)	(1.9)	(1.74)	(1.75)
Delaware Incorporation$_{[t]}$	0.002	0.002	0.002	0.002
	(0.97)	(0.97)	(0.27)	(0.27)
Number of events	164	164	894	894
Sample Period	1993-2001	1993-2001	1993-2001	1993-2001
N	9,519	9,519	9,519	9,519
Pseudo R-Squared	0.04	0.04	0.008	0.008

TABLE 13. FIRM VALUE AND STAGGERED BOARDS
INTERACTIONS OF STAGGERED BOARD WITH INVESTMENTS AND OPERATIONAL COMPLEXITY

This table presents time-series analysis as in Table 4 that includes interactions with variables that capture investments and operational complexity. We include the following control variables: *Ln (Assets)*$_{[t-1]}$, *Delaware Incorporation*$_{[t-1]}$, *ROA*$_{[t-1]}$, *CAPX/Assets*$_{[t-1]}$, and *R&D/Sales*$_{[t-1]}$, and *Industry M&A Volume*$_{[t-1]}$ which we do not show for brevity (unless a variable is being interacted with *Staggered Board*$_{[t-1]}$). The interacted variables include the following: *R&D/ Sales*$_{[t]}$, *Intangible Assets/ Total Assets*$_{[t]}$, *Ranked Patent Citation Count*$_{[t]}$, and *Firm Size*$_{[t]}$. The sample period is 1978-2011. Individual interactions vary in their availability, as noted by the observation count and year span for each estimated column. All continuous variables in the interaction terms (*R&D/ Sales*$_{[t]}$, *Intangible Assets/Total Assets*$_{[t]}$, and *Firm Sales*$_{[t]}$) are demeaned prior to calculating their interactions with *Staggered Board*$_{[t-1]}$. Estimation is using pooled panel *Tobin's Q*$_{[t]}$ regressions. We include year and firm fixed effects. All interaction and control variables are defined in Table 1. Economic significance for the interactions of the continuous interacted variables is calculated as the coefficient estimate times the standard deviation of the interacted variable, divided by the sample average for *Q*$_{[t]}$. Economic significance for *Staggered Board*$_{[t-1]}$ is calculated as its coefficient estimate divided by average *Q*$_{[t]}$. Robust standard errors are clustered at the firm level. T-statistics (in their absolute value) are shown in parentheses below the coefficient estimates. Statistical significance of the coefficients is indicated at the 1%, 5%, and 10% levels by ***, **, and *, respectively.

Dep. Variable: *Q*$_{[t]}$								
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Staggered Board$_{[t-1]}$	0.071**	0.059**	0.073**	0.06**	0.026	0.025	0.034	0.055**
	(2.44)	(2.11)	(2.45)	(2.14)	(0.68)	(0.64)	(1.28)	(2.00)
R&D/ Sales$_{[t-1]}$	0.39	1.445***						
	(0.56)	(2.72)						
Intangible Assets/ Total Assets$_{[t-1]}$			0.063	0.120***				
			(1.64)	(3.81)				
Ranked Patent Citation Count$_{[t-1]}$					0.035	0.156**		
					(0.38)	(2.47)		
Firm Sales$_{[t-1]}$							-.208***	-.190***
							(10.46)	(10.97)
R&D/ Sales$_{t-1}$ * *Staggered Board*$_{[t-1]}$	1.956**							
	(2.54)							
Intangible Assets/ Total Assets$_{[t-1]}$ * *Staggered Board*$_{[t-1]}$			0.118***					
			(2.86)					
Ranked Patent Citation Count$_{[t-1]}$ * *Staggered Board*$_{[t-1]}$					0.226*			
					(1.90)			
Firm Sales$_{[t-1]}$ * *Staggered Board*$_{[t-1]}$							0.036**	
							(2.29)	
Sample Period	1978 - 2011	-	1978 - 2011	-	1978 - 2003	-	1978 - 2011	-
N	31,574	31,574	31,337	31,337	15,338	15,338	31,558	31,558
Adjusted R-squared	0.72	0.71	0.71	0.71	0.73	0.73	0.71	0.71