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Directors: Older and Wiser, or Too Old to Govern?

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Abstract

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Keywords: boardroom aging, older directors, board monitoring, board advising, agency problems

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Abstract

An unintended consequence of recent governance reforms in the U.S. is firms' greater reliance on older director candidates, resulting in noticeable board aging. We investigate this phenomenon's implications for corporate governance. We document that older independent directors exhibit poorer board meeting attendance, are less likely to serve on or chair key board committees and receive less shareholder support in annual elections. These directors are associated with weaker board oversight in acquisitions, CEO turnovers, executive compensation, and financial reporting. However, they can also provide particularly valuable advice when they have specialized experience or when firms have greater advisory needs.

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1. Introduction

The past two decades have witnessed drastic changes to the composition of corporate boards of directors. Several rounds of major corporate governance reforms and the rise of institutional shareholder activism have enhanced director independence, qualifications and accountability.[1] These changes also significantly increased the time demands and responsibilities of independent directors, which undercuts the incentives of active senior corporate executives, the most sought-after candidates, to serve on outside boards.[2] Faced with a reduced supply of willing executives as well as heightened pressure to find qualified independent directors, firms increasingly rely on the pool of older director candidates.[3] As a result, boards of U.S. public corporations have become notably older in recent years. For example, during the period of 1998 to 2014, the median age of independent directors at large U.S. firms rose from 61 to 64. More importantly, the percentage of firms with a majority of independent directors who are 65 or older has nearly doubled from 27% to 50% over this same time period (see Table 1).

The trend in boardroom aging raises the critical issue of whether older independent directors are as effective as younger ones, which indeed is a serious concern for many institutional investors and governance practitioners.[4] Thus, it is important to understand the consequences of this trend for board performance. Unfortunately, director age has rarely been a focal point in studies of corporate boards, so we have very limited and inconclusive evidence on its impacts.[5] In this study, we seek to fill this gap in the literature.

Ex ante it is not clear how older independent directors affect overall board performance because there can be both costs and benefits associated with having them on the board. On the one hand, the presence of older independent directors can undermine board effectiveness for several reasons.

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[1] These reforms and regulations include the 2002 Sarbanes-Oxley Act, the 2003 NYSE/Nasdaq listing standards change, the 2009 SEC rule on proxy disclosure enhancements, and the 2010 Dodd-Frank Act.

[2] According to Spencer Stuart, only about 1/3 of active CEOs in S&P 500 companies sit on any outside boards in 2017, compared to about 50% ten years earlier, and the percentage of new independent directors who are active CEOs, board chairs, presidents, COOs, and vice board chairs, declined from 41% in 2002 to 18% in 2017.

[3] This is reflected in firms' recruitment and retention of older directors. For example, the percentage of newly appointed independent directors who are at least 65 years old doubled from 10% in 1998 to 20% in 2014 (based on the authors' analysis of S&P 1500 firms; see Figure 3). The mandatory retirement age for directors has also been rising, with 42% of S&P 500 companies setting it at 75 or older, compared to only 11% in 2007 (Spencer Stuart).

[4] See, e.g., "The One Place It's OK to Be Old Is in the Boardroom," August 21, 2015, Bloomberg.com.

[5] Please see our discussion of the related literature on pages 6–7.

Specifically, long-standing research in psychology documents that as people age, their energy, physical health, and mental acumen gradually decline (Horn (1968), Fair (1994, 2004), Salthouse (2000), and Schroeder and Salthouse (2004)). Aging also adversely affects memory and attention spans, leading to erosion in general intelligence (Lindenberger and Baltes (1994), Baltes and Lindenberger (1997), Rönnlund, Nyberg, Bäckman, and Nilsson (2005), and Schaie (2005)). Additionally, older individuals are less effective in processing and integrating new information (Spaniol and Bayen (2005)). While older independent directors may well be in the upper tail of their age group in terms of physical health or intellectual ability, these general physiological factors can nonetheless hinder their ability to meet the heavy demands of boardroom duties, especially those requiring the acquisition and analysis of new information.

In addition, from an incentive perspective, older directors can expect fewer opportunities in the directorial labor market as they approach the retirement age for directors, so their expected payoff from future directorships may no longer outweigh the costs they must incur to build and maintain their reputation. Thus, older directors may have greater incentives to either enjoy the quiet life or seek to maximize current incomes by accepting additional board seats without expending much incremental effort to fulfill their director duties. These incentives can weaken board effectiveness as well.[6]

On the other hand, older independent directors can be valuable assets to firms and their frequency on boards suggests that they may be highly valued. The knowledge and experience they have accumulated over their long careers can give them an advantage in analyzing and advising the board about rare, complex and unexpected crises and opportunities faced by firms and making informed judgements and recommendations. They are also likely to have developed extensive networks of connections, which can provide access to information or advice. As a result, they may be able to play a more effective advisory role on boards. In fact, such reasoning is reportedly behind some companies' decisions to retain older directors on their boards and to lift or waive the mandatory retirement age requirements for directors. In addition, because older directors likely no longer hold full-time executive

[6] A counter argument could be that directors approaching the end of their careers in the directorial labor market may work harder to protect their legacy. It is ultimately an empirical question how directors' career horizons affect their incentives.

positions, they may have more time to devote to their board duties.

Of course, the same physical and mental challenges that impede older independent directors' monitoring capability can also negatively affect their advisory function. A crucial factor that may enable them to be more effective in their advising role than in their monitoring role is firm management's incentives (or disincentive) to share information with boards. The difficulties that older independent directors face in acquiring and analyzing information and keeping up with major changes or developments at firms present more of a challenge for their monitoring role than for their advisory role, because firm management have different incentives in supplying information to the board for performing these two distinct roles. On the one hand, when managers need board advice, they are more willing to share pertinent information with the board in order to obtain their valuable counsel on important firm decisions. Equipped with information provided by firm management, older independent directors can leverage their own knowledge, experience, and connections to enhance firm value through their advisory function. On the other hand, managers have much less incentive to furnish information to the board for performing its monitoring role. As a result, the board needs to proactively and independently gather information about firm and industry conditions, evaluate management performance, and if necessary, intervene in managerial decision making. These tasks will be especially challenging for older independent directors given their diminished physical and mental capacity and lower career-concern incentives.

To shed new light on the potential costs and benefits associated with boardroom aging, we examine the behavior of older independent directors at the individual level and then relate their prominence on boards to key corporate policies and overall firm performance. We define an independent director as an "older independent director" (OID) if he or she is at least 65 years old.[7] To measure the extent of boardroom aging, we construct a variable, *OID %*, as the fraction of all independent directors who are OIDs. Unlike the average director age measure used in most of the prior literature, our measure is less influenced by outliers, and more importantly, it directly captures the right tail of the director age distribution, which is much more affected by recent boardroom aging trends.

[7] We explain the rationale for using age 65 as our primary cut-off point in Section 2.

Our first line of investigation evaluates individual director performance by comparing board meeting attendance records, major board committee responsibilities, and shareholder support in board elections between older and younger independent directors. Controlling for a battery of director and firm characteristics as well as director, year, and industry fixed effects, we find that OIDs exhibit poorer board attendance records and are less likely to serve as a member or a chair of more important and time-consuming board committees. These results suggest that OIDs are either less able or less willing to fulfill their board duties. Consistent with this interpretation, we find that OIDs are more likely to receive a negative recommendation from the Institutional Shareholders Services (ISS) and garner significantly less shareholder support at annual board elections than other independent directors at the same firm.

Next, we undertake three separate event studies to assess the shareholder value impact of OIDs. Specifically, we focus on firm announcements of OID appointments, OID deaths, and mandatory director retirement age changes. The event study approach has the advantage of concentrating on very short periods in time during which new information about OID representation on the board is released and shareholder reactions are observable. We find that the stock market reacts negatively to firms appointing OIDs and increasing the mandatory director retirement age, while it reacts positively to OID deaths. All these results indicate that on average shareholders view OIDs skeptically.

We then conduct firm-level analysis of how OIDs affect a number of major corporate policies. The results are more nuanced. On the one hand, we find evidence consistent with OIDs displaying weaker monitoring effectiveness. Specifically, firms with a larger proportion of OIDs on their boards exhibit stronger empire building tendencies in that they make less profitable acquisitions that generate lower shareholder returns. We also find that OIDs are associated with significantly lower CEO turnover-performance sensitivity, suggesting that OIDs are more lenient or less willing to discipline poorly performing CEOs. Furthermore, as the percentage of OIDs on compensation committees rises, we find that the equity-based portion of CEO pay decreases, accompanied by evidence of higher total CEO pay. Finally, a greater proportion of OIDs on audit committees is associated with lower financial reporting quality, measured by the likelihood of financial statement misrepresentation.

Consistent with the above evidence of monitoring deficiencies, we find that on average, firm

performance is significantly lower when firms have a greater fraction of OIDs on their boards. We also confirm that this relation is not driven by reverse causality, i.e., poorly performing firms appointing disproportionally more OIDs to their boards or major shareholders proposing OID appointments to turn around poorly performing firms.

Counterbalancing some of these results, we uncover evidence that OIDs provide valuable advisory services to some firms. In particular, we find in acquisitions that when acquirer OIDs have prior general acquisition experience or work experience in the target's industry, the relation between OIDs and acquirer announcement returns becomes non-negative. The previously documented negative relation between OIDs and acquirer returns is confined to OIDs without either type of experience. In addition, we find in a separate subsample of firms with high advisory needs that the relation between OIDs and firm performance is no longer significantly negative. Together, these results suggest that at key board decision points, OIDs experience and networks can provide valuable counsel to senior management.

Identification is an important consideration in our empirical analysis. We undertake a number of strategies to address this issue in addition to the event study approach mentioned earlier. First, we control for a wide array of director, CEO, and firm characteristics, including (i) director busyness, tenure, equity ownership, co-option, professional directors, gender and ethnic diversity,[8] (ii) CEO and top management team age, and (iii) firm age and growth opportunities, etc. This is to ensure that our results are not the artifact of other board attributes, a trend towards more diversity on corporate boards over our sample period, aging of the CEO and management team, or the endogenous matching between directors and firms at different stages of their life cycles.

Second, we include firm and director-fixed effects wherever applicable to control for unobservable time-invariant firm and director attributes. Third, we employ an instrumental variable regression approach where we instrument for the presence of OIDs on a firm's board by a measure of the local supply of younger director candidates in the firm's headquarters state. The motivation for the instrument

[8] Our results are robust to controlling for board ethnic diversity, which is defined as the Herfindahl index of director ethnicity, However, it is not included in the reported model specifications because information on the variable is missing for about 30% of our sample. Our results are also robust to controlling for an aggregate board diversity index that is equal to the average of standardized gender diversity and ethnic diversity measures.

is that firms are likely to have more OIDs on their boards when they face a shortage of younger director candidates located nearby. Fourth, we exploit a regulatory shock to firms' board composition created by the 2003 revisions to the NYSE/Nasdaq listing standards, which require firms' boards to have a majority of independent directors. Firms non-compliant with the new rule have greater demand for independent directors and may need to seek out a new supply of candidates such as older and retired executives. Indeed, we find that these firms experienced a significantly larger increase in the percentage of OIDs over the 2001-2005 period than compliant firms. A major reason for the difference is that noncompliant firms appointed more OIDs to comply with the new listing standards.[9] Using a firm's noncompliance status as an instrument for the change in the percentage of OIDs on the firm's board, we find that firm performance deteriorates after noncompliant firms increase OID board representation.

Despite our multi-pronged approach to tackling the endogeneity issue, we acknowledge that it is virtually impossible to completely rule out the possibility that any firm outcome and performance results can be driven at least partially by some omitted variables. For example, managers who are incompetent, poorly governed, or intent on extracting large private benefits may choose to keep or install more OIDs on their boards. Yet, even these alternative explanations are predicated on the notion that managers believe that OIDs on average are weaker monitors. It is also worth noting that our analysis of individual director behavior and shareholder voting outcomes is not subject to similar omitted variable concerns.

Our research provides the first investigation of the recent trend in boardroom aging at large U.S. corporations and its impacts on director behavior and board effectiveness. We present the first comprehensive set of evidence on both the costs and benefits associated with OIDs. Despite the pronounced pattern of boardroom aging in recent years, director age has rarely been a focal point in studies of corporate boards. Even those studies that do touch upon it have not subjected it to rigorous econometric treatment needed for drawing causal inferences. Furthermore, in contrast to our study, the evidence in the extant literature is both fragmented in terms of board effectiveness measures studied and decidedly mixed in its conclusions.

Prior research by Core, Holthausen, and Larcker (1999) analyzes a sample of 495 observations for

[9] This issue is discussed in more detail in Section 5.6.2.

205 U.S. firms from 1982 to 1984 and document a positive relation between CEO compensation and the proportion of older outside (independent and gray) directors on a board. In a more recent and larger sample of S&P 1500 firms from 1998 to 2013, Dou, Sahgal, and Zhang (2015) find no significant relation between mean independent director age and CEO compensation, the probability of financial restatements, or acquisition returns. In other work, Minnick and Zhao (2009) show that the mean age of independent director is associated with a higher likelihood of option backdating, while Cai and Sevilir (2012) find that the mean age of acquirer directors is positively related to acquirer announcement returns. With respect to firm performance, Faleye (2007) finds that mean director age has a negative relation with Tobin's Q, but Francis, Hasan, and Wu (2012) report that it has a positive relation with firm stock returns. Further complicating the interpretation of these mixed findings, some prior studies construct their average age measure using all directors (Faleye (2007), Cai and Sevilir (2012), and Francis et al. (2012)), while other studies focus on either outside directors (Core et al. (1999)) or independent directors (Minnick and Zhao (2009) and Dou et al. (2015)).[10]

We differ from these prior studies in several key dimensions. First, we construct a measure that more effectively captures the presence of OIDs on corporate boards by focusing on the right tail of the director age distribution. Second, we examine a broader set of corporate policies and outcome variables. This dual approach allows us to portray a more complete picture of the consequences of the growing phenomenon of boardroom aging at large U.S. corporations. Third, we develop our hypotheses while recognizing that boardroom aging can have both costs and benefits, which can vary across directors and across firms. Fourth, we present the first empirical evidence on the types of OIDs who should be especially valuable advisors to firms and the types of firms that can especially benefit from the presence of OIDs. Finally, we subject our results concerning the impact of OIDs to multiple identification strategies, which bolsters our confidence in the study's causal inferences.

As the debate over director age limits continues in the news media and among activist shareholders and regulators, our findings offer important and timely policy guidance. Specifically, for companies

[10] As we discuss in Section 2, some prior evidence on director age may be contaminated by errors in the director age information in the widely used ISS (formerly IRRC or RiskMetrics) database.

considering lifting or waiving mandatory director retirement age requirements to lower the burden of recruiting and retaining experienced independent directors, our evidence should give them pause. Similarly, while recent corporate governance reforms and the rise in shareholder activism have made boards, and especially independent directors, more accountable for managerial decisions and firm performance, these changes may have created an unintended consequence of raising the burdens on independent directors and thus shrinking the supply of willing independent director candidates who are active managers. This has led firms to tap deeper into the pool of older director candidates, which our analysis shows can undermine the very objectives that corporate governance reforms seek to attain. Interestingly, in more recent years boardroom aging appears to have slowed down or even reversed, as more firms respond to institutional investors' call for reinvigorating the board by appointing diverse or first-time directors with non-CEO experience, who tend to be younger. In particular, both the average and median OID percentage on firm boards have declined (the average decreased from 46.6% in 2014 to 44.1% in 2020; the median declined from 45.5% to 42.9% over the same period). Moreover, the percentage of firms where OIDs represent greater than 50% of independent directors declined from 49.4% to 44.7%. In addition, among newly appointed independent directors, the percentage of OIDs dropped from a peak of 19.7% in 2014 to an average of 15.7% between 2015 and 2020. These trends are consistent with institutional investors and firms recognizing the patterns we uncover regarding the monitoring deficiencies of OIDs.

2. Sample Construction

Our initial sample includes the universe of firms in the Institutional Shareholder Services (ISS, formerly RiskMetrics or IRRC) database during the 1998-2014 period.[11] The sample period begins in 1998 because prior to 1998 important director information such as director shareholdings and the number of outside board seats held is largely missing from ISS. We then merge the ISS sample with the COMPUSTAT and CRSP databases to obtain financial and stock returns data. We remove dual class firms where board monitoring is unlikely to matter given insiders' disproportionate control of voting

[11] Firms in the ISS database are current and past members of the S&P 1500 index.

rights.[12] We also remove observations with incomplete data on key financial or governance variables.

While analyzing the ISS database, we discovered pervasive errors in director age information starting from year 2006. What alerted us to these errors is that from 2005 to 2006 the median director age rose by three years based on the ISS information, but from 2006 to 2007, it did not increase at all. We also noticed that for directors who entered the database in 2006 or later, their age in the ISS database is often different from the firm's proxy statement, with the difference typically ranging from one to three years. We manually checked the director age information for a random sample of firms prior to 2006 and did not discover any errors. Therefore, for the 2006-2014 period, we verified and corrected all directors' age information in the ISS database based on firm proxy statements. For directors who entered the ISS database prior to 2006, we used their pre-2006 age information to determine their correct age in the later years. All of our analysis is based on corrected director age information.

We define an independent director as an "older independent director" (OID) if she is at least 65 years old. Our choice is based on two considerations. First, the Federal Interagency Forum on Aging-Related Statistics (https://agingstats.gov) defines older Americans as those age 65 or above. Second, the cognitive aging literature shows that declines in physical and cognitive functions are commonly detected among older adults, especially after age 65. For example, studies using longitudinal data provide evidence that episodic and semantic memory performance remains relatively stable until about 60–65 and after that, it declines sharply (Rönnlund et al. (2005) and Schaie (2005)).[13]

Figure 1 shows the overall time trend for the percentage of OIDs. To examine whether the trend of board aging over our sample period is due to changing firm composition, we also separately report the change in the board's OID percentage for firms that are incumbent members of S&P 1500 index as of the beginning of our sample period and new entrants to the index. We observe that both incumbent firms and new entrant firms exhibit a similar trend over time towards older boards. Figure 2 further shows that over our sample period, independent directors are also older at the time of their initial board appointments. The average (median) age of independent directors at their initial appointments increased

[12] Our results are robust to excluding firms with insider equity ownership above 50%.
[13] We obtain similar results using alternative age cutoffs, such as 66 and 67, to define OIDs.

from 55 in 1998 to 59 in 2014. Similarly, Figure 3 shows that the percentage of newly appointed independent directors who are at least 65 years old doubled over our sample period, rising from 10% in 1998 to 20% in 2014. These patterns clearly indicate that the board aging trend is not simply due to directors growing older as firms age.

Next, we compare the personal attributes of older and younger independent directors in Panel A of Table 2. We find that OIDs are older at their initial appointment dates, more likely to be retired, and less likely to be a sitting CEO or senior executive of another firm. They hold more board seats,[14] have longer tenure, and are less likely to be co-opted, i.e., initially appointed under the current CEO. They are less likely to be blockholders and more likely to be former firm employees, but these differences, albeit statistically significant, are quite small in size. OIDs are also less likely to be female and more likely to be professional directors, defined as independent directors without concurrent employment.

Panel B of Table 2 presents summary statistics of key financial, governance and outcome variables of our sample firms. All continuous variables are winsorized at their 1st and 99th percentiles to reduce the influence of outliers. Alongside director age, a closely related issue that has also triggered debate is director tenure. Longer-serving board members may accumulate more experience and knowledge about the firms, but they can also become less independent from firm management.[15] As director age and tenure are often positively correlated, it is important that we isolate the effects of director age. For this purpose, we control for an independent director's tenure in director-level analyses and the average tenure of independent directors and the percentage of independent directors with at least 15 years of board tenure in firm-level analyses.[16] We further control for CEO age and firm age (as a proxy for a firm's life cycle) in our analysis given that they may also be related to director age.[17]

3. Analysis of Board Meeting Attendance, Board Committee Service, and Director Elections

[14] This can be an indicator of either greater director busyness or more connections and experience.
[15] Dou, Sahgal, and Zhang (2015) find that independent directors with extended tenure are associated with stronger monitoring and better governance outcomes. Huang and Gillary (2018) find an inverted U-shaped relation between board tenure and firm performance and governance outcomes.
[16] Results are robust to replacing the 15-year cutoff with a 10-year cutoff.
[17] Our results are robust to controlling for the average age of named executives in Execucomp, in place of CEO age.

In this section, we conduct director-level tests to assess whether OIDs actively participate in the governance of firms and contribute to more effective boards. Specifically, we compare board meeting attendance records of older and younger independent directors, their frequency of serving on time-consuming committees and taking on time-intensive committee chair positions, and the extent of shareholder support they receive in director elections.

3.1. Board Meeting Attendance

Board behavior is largely unobservable, but publicly listed firms in the U.S. are required to disclose a director's board meeting attendance record in their annual proxy filings. The level of disclosure is limited to whether a director attended less than 75% of board meetings during a fiscal year. We obtain the board meeting attendance information from the ISS database for all independent directors.

We estimate a linear probability model where the dependent variable, *Attend_less75_pct*, is equal to one if an independent director attended less than 75% of a firm's board meetings in a given year, and zero otherwise. The key explanatory variable is an indicator variable that equals to one if a director is 65 or older and is zero otherwise. We control for a large array of director attributes and firm financial and governance characteristics as well as director, year, and industry (Fama-French 48) fixed effects.[18] Standard errors are adjusted for heteroscedasticity and director-level clustering.

This model specification focuses on within-director variations and sharpens the identification of our analysis. The coefficient on the *OID* indicator can be interpreted as capturing the change, if any, in a director's board meeting attendance behavior when she reaches the age-65 threshold. Given that only 1.2% of director-firm-year observations in our sample are associated with poor attendance, within-director variation in board meeting attendance behavior is even more limited, which should bias against our finding any significant evidence.

Column (1) of Table 3 presents the regression results. We find that the coefficient on the *OID* indicator is positive and significant, suggesting that older directors have significantly worse board meeting attendance records compared to when they are younger. Economically, the coefficient implies

[18] The very large number of director fixed effects necessitates the use of the linear probability model.

that the probability of an independent director aged 65 or older missing more than 25% of board meetings is 0.3 percentage points higher than that of the same independent director aged 64 or younger. This effect is economically meaningful given the unconditional probability (1.2%) of a director missing more than 25% of board meetings in a year in our sample. For the director-level controls, we observe that independent directors who have a higher level of ownership stake in the firm are less likely to miss board meetings, while those who are current CEOs of other firms are significantly more likely to miss board meetings. For the firm-level controls, we find that directors in smaller firms or firms with higher Tobin's Q, larger boards, or higher board independence are more likely to miss board meetings. Given the importance of board meetings as a mechanism for outside directors to participate in a firm's governance, our results indicate that older independent directors exhibit deficiencies in fulfilling their duties and contribute to weaker board effectiveness.

3.2. Board Committee Services

Another measure of a director's contribution of time and energy to board duties is her involvement in major board committees. Therefore, we investigate whether there are any differences between older and younger independent directors with respect to their membership and chair position on major committees overseeing matters related to audit, compensation, nominating and governance. Toward that end, we construct two measures at the director-firm-year level. One is a count variable equal to the number of these major committees a director serves on in a given firm-year, and the other is a binary variable that is equal to one if a director chairs at least one of these major committees in a given firm-year. Since the audit and compensation committees are generally considered to involve more time-consuming duties, we create two more variables based on a director's membership and chair position on these two committees.

We regress these four variables against the *OID* indicator while controlling for a number of director and firm characteristics as well as director, industry, and year fixed effects. The coefficient estimates are reported in columns (2) - (5) of Table 3. We find that the coefficient on the *OID* indicator is insignificant in column (2) and significantly negative in columns (3), (4), and (5). These results suggest

that once directors turn 65, while they do not reduce the overall number of committees they sit on, they become less likely to serve on the audit and compensation committees. They are also less likely to chair any committee, especially the more time-intensive audit and compensation committees. In terms of economic significance, the coefficient of *OID* in column (5) is -0.020, which represents a 7.7% decrease in the probability of being a chair of either the audit or compensation committee. This magnitude is economically meaningful given the unconditional probability is 26% for our sample. Taken together, the results in Table 3 are consistent with OIDs being less likely to hold committee chair positions or serve on the relatively time-intensive audit and compensation committees.

3.3. Shareholder voting at director elections

Given the above evidence on OIDs' board meeting attendance and committee services, a natural question is how shareholders perceive their contribution to corporate governance. We examine this issue by analyzing the extent to which shareholders support older versus younger independent directors at annual board elections. Toward that end, we construct a variable, *%Withheld*, for each director candidate that is equal to (shares voted against + shares voted abstain)/(shares voted for + shares voted against + shares voted abstain). To control for factors that can lead to shareholder dissent at the firm-year level, we follow Aggarwal, Dahiya, and Prabhala (2019) and de-mean *%Withheld* by subtracting the average value of *%Withheld* across all director candidates up for election in each firm-year. The key explanatory variable is the *OID* indicator. The control variables include director characteristics used in the board meeting attendance and committee service regressions. We also control for Institutional Shareholder Services (ISS) voting recommendations for or against director candidates. Specifically, we construct a variable *ISS against* that is equal to one if ISS recommends a "withhold", "against", or "no" vote for the director, and zero otherwise.

We estimate OLS regressions of the de-meaned *%Withheld* and report the results in Table 4. In columns (1)-(3), we find that the *OID* indicator has significantly positive coefficients, suggesting that all else being equal, OIDs receive significantly less shareholder support than their younger counterparts at the same firm in the same year. Results are robust even with controls for director fixed effects. In

columns (4)-(6), we augment the regressions by controlling for ISS recommendations. The percentage of dissenting votes for a director is significantly higher with a negative ISS recommendation. More importantly for our purpose, the coefficient on the *OID* indicator remains positive and significant, suggesting that OIDs facing higher dissenting votes does not merely reflect shareholders' passive adherence to ISS recommendations. In term of economic significance, the percentage of dissenting votes for OIDs is about 0.3% higher than that for non-OIDs (column 6). While this is not a large number in absolute terms, it is substantial considering the small cross-sectional variation in dissenting votes typically received by directors, where the mean (median) *%Withheld* is only 4.7% (2.2%) in our sample.

As an alternative approach for assessing investor attitudes toward OIDs, we examine determinants of ISS voting recommendations against a director candidate in columns (7)-(9). The dependent variable is *Excess ISS against*, defined as the *ISS against* for the director minus the average *ISS against* for all the firm's directors in the year. We find a significantly positive coefficient for the *OID* indicator. This implies that ISS is significantly more likely to recommend a shareholders vote against OIDs. Overall, our findings in this section show that both shareholders and proxy advisory services on average view OIDs as less effective board members, which is consistent with our earlier evidence that OIDs have poorer board meeting attendance and are less likely to serve as a chair or member of key board committees.

4. Event Studies of OID Appointments, OID Deaths, and Director Retirement Policy Changes

We start the analysis of OIDs' impact on firm value by first using a model-free approach. Specifically, we conduct three separate event studies to gauge the stock price reactions to the announcements of (1) firms appointing OIDs, and (2) the deaths of OIDs, and (3) firms changing their director retirement policies.

4.1. Announcements of OID Appointments

To construct the sample of OID appointment announcements, we gather information from the ISS database on independent directors who were 65 or older when they joined the board. We then identify

the first public disclosure dates of these appointments by manually searching news articles in Factiva. If the announcement dates cannot be located in Factiva, we use the dates recorded in the Capital IQ Key Development Database. The sample construction is described in Table A2 of the Appendix. There are 1,127 appointments in total. We remove director appointments that coincide with annual shareholder meetings because these director announcements are contaminated by other information disclosed in proxy statements. We further remove appointments contaminated by confounding events such as multiple appointments of directors, executive turnovers, and announcements of dividends, repurchases, earnings, and mergers and acquisitions (see Table A2 in the appendix for a complete list of these events). Our final sample contains 676 uncontaminated appointment announcements.

We estimate appointing firms' cumulative abnormal returns (CAR) over a 3-day event window centered on the appointment announcement date and report the results in Panel A of Table 5. We find that mean and median CARs are -0.20% and -0.22%, both statistically significant.[19] These estimates suggest that the stock market holds a skeptical view of OIDs and reacts negatively to their appointments. The effect is equivalent to a $21.7 - $23.9 million loss in shareholder value for the average appointing firm in our sample. While we recognize that OID appointments are likely to be endogenous firm decisions, this evidence is consistent with a broad set of other OID findings we uncover.

4.2. Announcements of OID Deaths

OID deaths afford a relatively exogenous setting to study the shareholder value impact of OIDs. We begin by undertaking keyword searches in Capital IQ and Factiva for director deaths.[20] We only retain the deaths of independent directors by using the information from ISS and Audit Analytics to identify inside and gray directors. We then search Factiva, FactSet, and Edgar for the earliest news releases of independent director deaths and excluded announcements contaminated by material firm news releases. We find that most initial announcements overlap with firm 8-K filings about director

[19] We obtain similarly significant results when we limit our analysis to 232 OID appointments without other director exits from the board in the same year.
[20] We also consult Table C1 in Fedaseyeu, Linck, and Wagner (2018). We wish to thank Hannes Wagner and his co-authors for sharing their director deaths data with us to check for missing independent director deaths.

deaths and that abnormal daily trading volume is also concentrated in the two trading days following the 8-K filing dates. Director deaths most frequently occur the day before the 8-K filings. We obtain 106 OID death announcements and 27 non-OID death announcements that are free of confounding events in our sample.[21] The sample construction is described in Table A3 of the Appendix.

Panel B of Table 5 reports the stock market reactions to announcements of independent director deaths. We find that the announcements of OID deaths generate significantly positive abnormal stock returns. The mean and median CARs over a 3-day event window beginning on the date of the firm's 8-K filing announcing a director's death are 1.41% and 0.54% (*p*-values: 0.04 and 0.02). In contrast, the mean and median CARs around the announcements of non-OID deaths are negative, albeit insignificant, which is consistent with the finding on independent director deaths by Nguyen and Nielsen (2010). The differences in announcement CARs between OID and non-OID deaths are statistically significant at the 5% level.[22] These results indicate that investors react favorably to these unexpected departures of OIDs and are consistent with our earlier findings of negative stock market reactions to OID appointments.

4.3. Announcements of Director Retirement Policy Changes

To construct the sample for this analysis, we gather information on director retirement policy changes from the Capital IQ Key Development Database. Specifically, we conduct a keyword search on "Age", "Director" and "Retire". The search returns 208 news articles. We read each article and remove irrelevant news, duplicate news, news where we cannot identify the direction of the change in retirement age, and news about companies that do not have stock return data available from CRSP. We confirm the changes in bylaws by checking firms' SEC filings. We identify 91 retirement policy changes that can potentially increase a board's OID representation. After removing contaminated announcements, the "clean" sample contains 59 retirement policy change announcements.[23] Table A4 in the Appendix provides details on the full and clean samples.

[21] Very few director death announcements include the naming of replacement directors and our results are invariant to including these cases.
[22] We find qualitatively similar results using the earliest news date of director deaths and their board affiliations.
[23] We exclude announcements contaminated by events such as the annual general meetings, director appointments, earnings announcements, dividend declaration and other bylaws changes.

We measure the announcement-period cumulative abnormal returns (CAR) over a 3-day event window (-1, 1) with event date 0 being the announcement date. The results are reported in Panel C of Table 5. The mean CAR is -0.62% and the median is -0.69%, both statistically significant. The effect is equivalent to a $44.1 - $48.7 million loss in shareholder value for the average event firm in our sample. This suggests that on average shareholders view director mandatory retirement age increases as value destroying.

During our keyword and news search, we uncover 5 events that decrease the mandatory retirement age, 2 events that impose a mandatory retirement age, and 1 event that eliminates the board's discretion to waive the mandatory retirement age. Although the number of these events is too small for formal statistical testing, it is worth noting that the stock market reacts positively to these 8 director-age-decreasing events, with an average CAR of 0.98%. The effect is equivalent to a $91.3 million gain in shareholder value for the average event firm in our sample.

5. Older Independent Directors and Corporate Policies and Performance

To shed more light on the impact of OIDs on board effectiveness, we relate their presence to major corporate decisions in several key areas, including mergers and acquisitions, CEO turnovers, CEO compensation, and financial reporting. We also evaluate the overall effect of OIDs on firm performance, measured by return on assets (ROA) and Tobin's Q. A potential concern with these lines of analysis is the issue of endogeneity. More specifically, the presence of OIDs is likely to be determined by factors related to both demand for and supply of OIDs and these factors could also be related to the outcome variables we examine.

We take multiple approaches to address the endogeneity concerns. First, we include an exhaustive set of control variables in our regressions, including many important aspects of corporate governance, managerial incentives, CEO age, and CEO quality, as well as a firm's growth opportunities and age as proxies for a firm's life cycle.[24] To account for time-invariant unobservable firm characteristics that

[24] We use a logarithmic transformation of firm age since the coefficient of raw firm age cannot be estimated in regressions with both year and firm fixed effects due to multicollinearity. Our results are robust to including firm age squared as an additional control variable.

could drive the relation between OIDs and corporate outcome measures, we also control for firm-fixed effects wherever feasible. Second, we use a two-stage least square (2SLS) framework in which we instrument for the presence of OIDs with the supply of younger director candidates in a firm's headquarters state. Third, we exploit a quasi-natural experiment that produces a plausibly exogenous shock to some firms' demand for OIDs and relate the resulting change in OID presence on boards to changes in firm performance around the shock.

5.1. Analysis of Corporate Acquisition Decisions

Acquisitions are among the largest corporate investments and boards play a major role in devising, evaluating, and ultimately approving firm acquisition strategies. While acquisitions can generate shareholder value by combining firms with potential synergies, a nontrivial proportion of them are value destroying and appear to be manifestations of agency problems (e.g., Moeller, Schlingemann, and Stulz (2005), Harford and Li (2007), and Masulis, Wang, and Xie (2007)). We hypothesize that the monitoring deficiency of OIDs allows managers to engage in more empire-building acquisitions at the expense of shareholders. To test this conjecture, we assess the performance of firm acquisition decisions in relation to the presence of OIDs.

We obtain 3,116 acquisitions made by firms in our sample during the sample period drawn from the SDC database. For each acquisition, we require that (i) the deal is completed, (ii) the disclosed deal value is above $1 million and represents at least 1% of the acquirer's equity market capitalization, as measured on the 11th trading day prior to the announcement date, (iii) the acquirer controls less than 50% of target shares prior to transaction and owns 100% of target shares afterwards, and (iv) the acquirer has financial data available from COMPUSTAT, governance data available from ISS for the year prior to the acquisition announcement, and stock return data available from CRSP for the period from the 210th trading day prior to deal announcement to the 2nd trading day after the deal announcement.

We measure a firm's acquisition performance by its stock's cumulative abnormal return (CAR) over the 5-day window (-2, 2), where day 0 is the announcement date obtained from the SDC. The CAR is computed based on a standard one-factor market model, whose coefficients are estimated using daily

stock returns over the period (-210, -11) with the daily market return represented by the CRSP value-weighted return. The average 5-day CAR for acquirers is 0.6% and the median is 0.4%.

We next regress acquirer CARs against the percentage of OIDs on its board, while controlling for a battery of firm financial and governance variables and deal characteristics. The results reported in Table 6 show that the *OID %* coefficient is negative and statistically significant across both model specifications, even after we include firm fixed effects to control for time-invariant firm attributes. Depending on the model used, a one-standard-deviation increase in the *OID %* is associated with a decline in acquirer CAR of 0.25 to 0.69 percentage points, equivalent to a $7–19 million loss in shareholder value for our average acquirer. Our findings indicate that firms with greater OID board representation tend to make acquisitions that generate lower shareholder value,[25] which supports our conjecture that boards with more OIDs are less effective at reining in CEO empire building activities.

5.2. Analysis of CEO Turnover Decisions

CEO retention or replacement is another major board decision that indicates monitoring effectiveness. A board's ability to stay informed about managerial decision making and its readiness to replace managers when necessary provide powerful ex ante incentives for CEOs to act in shareholders' best interests. We examine whether the presence of OIDs affects a board's effectiveness in disciplining poorly performing managers.

We obtain data on forced CEO turnovers during the period of 1998 to 2007 from Jenter and Kanaan (2015). Merging these data with our sample yields a total of 247 forced CEO turnovers, which translate into a 2.5% unconditional probability of forced CEO turnover in a given firm-year. We estimate a linear probability model where the dependent variable is equal to one if a firm experiences a forced CEO turnover in the year and zero otherwise. There are two key explanatory variables. One is firm performance, and the other is an interaction term between firm performance and the *OID %*. We use a firm's industry-adjusted return on assets (ROA) as our primary performance measure. We control for a

[25] Dou et al. (2015) use the average age of independent directors as a control variable and find no significant relation to acquirer announcements returns.

number of other corporate governance variables as well as their interaction terms with firm performance. In addition, some model specifications include firm fixed effects to focus on within-firm time-series variation.

We present the regression results for forced CEO turnovers in Table 7, where we control for the interaction terms between all governance variables and firm performance in columns (2) and (4) and firm fixed effects in columns (3) and (4). Across all model specifications, the coefficient on firm performance is significantly negative, indicating that CEOs are more likely to be terminated following poorer firm performance. More importantly, we find that the coefficient of the interaction term between firm performance and *OID %* is always positive and statistically significant, suggesting that the forced CEO turnover-performance sensitivity is weaker when firms have a higher percentage of OIDs on their boards. To evaluate the economic impact, we calculate the change in the implied probability of CEO forced turnovers when firm performance changes from the 25th percentile to the 75th percentile level (the interquartile range). Using column (3) as an example, if all independent directors on the board are under 65, i.e., the *OID %* is equal to zero, the change in the estimated probability of forced CEO turnover is 2.0%. When all the independent directors are aged 65 or above, i.e., the *OID %* is equal to one, the change in the estimated probability of CEO forced turnover declines to only 0.5%. The difference between the probability changes is economically meaningful given the unconditional probability of forced CEO turnover is 2.5%. Overall, the evidence in this section is consistent with the interpretation that OIDs reduce board effectiveness in disciplining poorly performing managers.

5.3. Analysis of CEO Compensation

Setting CEO pay is one of the most important decisions a board makes. To the extent that ineffective monitoring by OIDs allows for more self-serving managerial behavior, we expect firms with more OIDs to pay CEOs more, but at the same time, require less CEO risk bearing in terms of pay sensitivity to shareholder wealth. To test this proposition, we obtain CEO compensation data from ExecuComp. We remove firm-year observations in which CEOs are in office for under one year, since the compensation received by these CEOs is for a partial fiscal year. Given that CEO pay is under the direct purview of

compensation committees, we focus particularly on the compensation committee's composition. We construct a variable, *Compensation committee OID %*, that is the percentage of OIDs on the compensation committee.

Table 8 presents the regression results. The dependent variables are the level of CEO total compensation in columns (1)-(2), the percentage of cash in CEO total pay (cash intensity) in columns (3)-(4), and the percentage of equity in CEO total pay (equity intensity) in columns (5)-(6). In columns (1), (3) and (5), which control for industry and year fixed effects, we find that the coefficient on *Compensation committee OID %* is significantly positive in columns (1) and (3) and significantly negative in column (5). These results suggest that CEOs receive significantly higher compensation at firms with a higher proportion of OIDs on their compensation committees and that the higher compensation is accompanied by a pay structure composed of more cash and less equity. When we replace industry fixed effects with firm fixed effects in columns (2), (4), and (6), all the coefficients on *Compensation committee OID %* retain their original signs, but only the one in column (6) remains statistically significant. Overall, the evidence in this section is consistent with OIDs undermining board effectiveness in incentivizing CEOs to maximize shareholder wealth.[26]

5.4. Analysis of Financial Restatements

Boards are responsible for overseeing and ensuring the quality of firm financial reporting. In this section, we examine the relation between OIDs and a firm's propensity to manipulate earnings. To the extent that OIDs are associated with monitoring deficiencies, we expect their presence to be associated with less reliable financial reporting. Given the importance of the audit committee in monitoring a firm's financial reporting, we construct a variable, *Audit committee OID %*, that is the percentage of

[26] One could argue that the negative relation between OIDs and CEO equity-based compensation may reflect OIDs' greater risk aversion and their attempt to limit younger CEOs' risk taking. To examine this possibility, we interact *Compensation committee OID %* with an *Old CEO* indicator and a *Young CEO* indicator, respectively. We define old and young CEOs based on two CEO age cutoffs: 65 (the same as how we define OID) and 55 (the median CEO age in our sample). We re-estimate the *Equity Intensity* regression with the two newly created interaction terms as the key explanatory variables. We do not find that the negative effect of OIDs on CEO equity compensation is stronger for young CEOs. In fact, there is some evidence that the effect is stronger for old CEOs. To the extent that younger CEOs tend to take more risk than older CEOs, these results do not support the conjecture that OIDs constrain younger CEOs' risk-taking by awarding them lower equity-based compensation.

OIDs on the audit committee.

We obtain a sample of restatements from two sources. The first source is two reports issued by the U.S. General Accounting Office (GAO) in 2003 and 2007, which include a list of firms that restated their financial statements during the period from January 1997 to June 2006. The second source is the Audit Analytics (AA) restatements database, which covers all SEC registrants who disclose a financial restatement in their electronic filings. The AA database defines a restatement as a revision of a previously filed financial statement due to an error, fraud, or GAAP principle misapplication. Revisions due to mergers and acquisitions or accounting principle changes such as the adoption of SFAS 123 are omitted in the AA database. If multiple filings are related to the same underlying misstatement, we consider them as a single restatement observation. Following Hennes, Leone, and Miller (2008), we classify restatements as irregularities (intentional misreporting) or accounting errors (unintentional misreporting).[27] We use the GAO sample for earlier years covered by the GAO reports (1998-2005) and the AA sample for more recent years (2006-2014).

We regress the restatement and irregularity indicators against the proportion of OIDs and report the results in Table 9. We find that firms with a higher percentage of OIDs on their audit committees are associated with a significantly higher likelihood of restatements (columns 1) or irregularities (column 3). These results continue to hold when we control for firm fixed effects (columns 2 and 4). The average marginal effect of *Audit committee OID %* in column (4) is 0.037, suggesting that a one-standard-deviation increase in the OID percentage on the audit committee is associated with an increase of 1% in the probability of intentional misreporting. This is an economically meaningful magnitude given that the unconditional probability of intentional misreporting for our sample is only 1.3%. Overall, the evidence in this section suggests that OIDs on audit committees weaken board oversight of a firm's financial reporting, allowing managers to engage in more aggressive earnings manipulations.

[27] Hennes et al. (2008) classify a restatement as irregularity driven if it satisfies one of the following three criteria: (i) variants of the words "irregularity" or "fraud" were explicitly used in restatement announcements or relevant filings in the four years around the restatement; (ii) the misstatements led to a SEC or DOJ investigation; or (iii) independent investigations were launched by boards of directors of the restating firms. We use three variables from the AA database that correspond to the above three criteria.

5.5. Analysis of Firm Performance

The collective results up to this point portray a consistent picture that OIDs provide inadequate management oversight and contribute to poorer managerial incentives and greater agency problems. We next examine how the presence of OIDs is related to overall firm performance. Based on the evidence in our earlier event studies and the analysis of specific corporate policies, we expect a negative relation between firm performance and the proportion of OIDs on boards. We test this prediction by estimating regressions of firm performance, measured by either a firm's industry-adjusted ROA or Tobin's Q.

Table 10 presents the regression results. Consistent with our expectation, the associations between *OID %* and the two performance measures are negative and statistically significant, even when we control for firm fixed effects. Using the coefficient estimates from column (2) and (4), we find that a one-standard-deviation increase in *OID %* is associated with a 0.15 percentage point decline in industry-adjusted ROA and a 0.04 decline in Tobin's Q. With respect to other governance variables, consistent with prior literature, we find that firms with larger and busier boards are associated with worse firm performance (Yermack (1996) and Fich and Shivdasani (2006)), and director ownership has an inverse U-shaped relation with firm performance (Morck, Shleifer, and Vishny (1988) and Kim and Lu (2011)).

While a firm fixed effects specification ensures that the negative relation between OIDs and firm performance is not driven by unobservable time-invariant firm characteristics, another endogeneity related concern is reverse causality. For instance, as part of their turnaround efforts, poorly performing firms could appoint more OIDs (either voluntarily or at the behest of activist shareholders) to tap into their potentially greater experience, networks or reputation. In this scenario, poor performance leads to a high percentage of OIDs on boards rather than the other way around.

To address this reverse causality possibility, we examine new independent director appointments of firms stratified by prior firm performance. We define good (poor) performers as firms whose ROA is in the top (bottom) tercile of each industry-year cohort. In unreported results, we find that compared to good performers, poor performers are more likely to appoint more independent directors in the next year, but they are equally likely to appoint a larger number of younger and older independent directors. Therefore, the negative relation between OID presence and firm performance is unlikely to be driven

by poorly performing firms subsequently appointing disproportionately more OIDs.

In a related test, we examine OID equity ownership in firms to gauge the extent to which they are appointed to boards of poorly performing firms to act as representatives of major shareholders to monitor managers and engineer corporate turnaround. Examining the aggregate equity ownership of all OIDs at a firm, we find that it averages 0.48% in our sample. At the individual director level, only 2.3% or 0.5% of OIDs hold more than 1% or 5% of a firm's equity ownership, respectively. Given their typically minimal equity ownership level, an overwhelming majority of OIDs are not blockholders. Our results are also robust to removing OIDs with at least 1% or 5% equity ownership.

5.6. Additional Identification Strategies

So far, we have relied on firm-fixed effect regressions to control for time-invariant firm attributes to mitigate concerns about omitted variables. However, this approach does not account for the influence of time-varying omitted variables. Therefore, we use several additional identification strategies to further alleviate such endogeneity concerns.

5.6.1. The Instrumental Variable Approach

We first employ a two stage least squares (2SLS) regression framework in which we instrument for the presence of OIDs on a firm's board by the supply of younger director candidates in the firm's local director labor market. Knyazeva, Knyazeva, and Masulis (2013) argue and show that because of the higher board participation costs faced by candidates located further away from firms, the local supply of directors significantly affects a firm's ability to hire qualified independent directors. Therefore, we posit that firms are more likely to tap into the pool of older directors when there is a lower supply of younger candidates locally. Since a firm's headquarters location is generally determined early in its life and rarely changes (Pirinsky and Wang (2006)), we consider the supply of younger directors in the vicinity of a firm as a plausibly exogenous source of variation.[28] We recognize that no formal

[28] Information on firms' historical headquarters state is from the WRDS's SEC Analytics Suite database, which records the location of firms' historical headquarters based on their 10-K filings. Our results are robust to excluding firms that changed their headquarters state during the sample period.

econometric tests exist for testing the validity of the exclusion restriction. However, to the extent that younger director candidates are more diverse in gender or ethnicity, we do control for board gender diversity, which can help minimize other potential channels through which a younger local director pool might affect firm outcomes. To measure the local supply of younger director candidates, we use the number of directors and executives aged below 65 from firms headquartered in the same state as the focal firm scaled by the number of firms in the state.

We estimate 2SLS regressions of firm performance and present results of the first- and second-stage estimation in Table 11, Panel A. In the first stage estimation, the dependent variable is the percentage of OIDs on a firm's board, and the key explanatory variable is the instrument, the local supply of younger director candidates. Consistent with our expectation, the coefficient of the local supply of younger directors is negative and statistically significant at the 1% level, supporting the instrument's strength and relevance. The Cragg-Donald Wald F-statistic is around 45, rejecting the null hypothesis of a weak instrument. In the second-stage estimation, the coefficient of *OID %* remains significantly negative. Thus, we conclude that our findings are robust to an endogeneity correction based on this instrumental variable approach.[29]

To further ensure the validity of our instrumental variable approach, we augment the above regression models by including a number of additional control variables, including the average quality of the independent directors on the board of the focal firm, various characteristics of other firms headquartered in the same state, and the economic conditions of the focal firm's headquarters state. We obtain the director quality measure from Bhattarai, Serfling, and Woidtke (2023), who estimate a director-specific quality (DSQ) measure that encompasses transferrable value-relevant attributes unique to a director. They show that directors with higher DSQ receive more shareholder support at elections, elicit favorable investor reactions upon initial appointment to boards, and are associated with better firm decision making in multiple dimensions. The characteristics of same-state firms include their average R&D intensity, the percentage of these firms that are in the same industry as the focal firm, the percentage of the focal firm's

[29] To the extent that large firms tend to have high national or international visibility and are less constrained by the local director labor market in their director recruitment, we exclude from our analysis firms in the top quartile or decile based on their market capitalization as a robustness check. We find that our results continue to hold.

primary industry peers that are headquartered in the same state, the percentage of same-state firms that are in the focal firm's related (upstream or downstream) industries,[30] and the percentage of firms in the focal firm's related industries that are headquartered in the same state as the focal firm. We measure a state's economic conditions by the state's per capita income and GDP growth rate. The results from our instrumental variable estimations continue to hold and in fact become statistically more significant with all these additional controls (see Panel B of Table 11).

5.6.2. A Quasi-Natural Experiment

To further establish a causal relationship between OIDs and firm performance, we exploit changes to the NYSE and Nasdaq listing rules in 2003 as a quasi-natural experiment. Exogenous shocks to the composition of corporate boards rarely exist, but the NYSE and Nasdaq rule changes provide an ideal setting. Previous studies have used the same regulatory shock to examine the effect of board independence on CEO compensation (Chhaochharia and Grinstein (2009)), corporate transparency (Armstrong, Core, and Guay (2014)), and CEO monitoring (Guo and Masulis (2015)).

Responding to a number of major U.S. corporate governance scandals, the United States Congress passed the Sarbanes-Oxley Act in 2002 and concurrently the NYSE and Nasdaq made major listing rule changes in 2003, with the intent of strengthening the independent oversight of corporate boards. In particular, the NYSE and Nasdaq issued a regulation in 2003 that required listed firms to have a majority of independent directors on their boards. Firms compliant with the regulation prior to its issuance were not affected. Only noncompliant firms were forced to increase their percentage of independent directors. Noncompliant firms could meet the requirements by recruiting new directors to the boards. To the extent that there was a shortage of qualified candidates due to the exogenous sudden increase in aggregate demand for independent directors, noncompliant firms were likely to view recently retired officers and directors of other firms as an attractive source of director talent. Therefore, they are likely to experience an increase in OID representation on their boards. Our empirical strategy is to use a firm's noncompliant

[30] Using the Bureau of Economic Analysis's (BEA) Input-Output tables, we classify two industries as related if the maximum of the input requirement coefficients between them exceeds 5%.

status to instrument for the change in the percentage of OIDs on the firm's board and then relate the instrumented change in the OID percentage to the change in firm performance.

Following Chhaochharia and Grinstein (2009) and Guo and Masulis (2015), we use the period between 2001 and 2005 as our event window. We choose 2001 as the benchmark year to ensure that our event window begins before the new regulation could be reasonably anticipated. We choose 2005 as the end of our event window as firms must comply with the new listing rule by that year-end.[31] We define compliant firms as those that had a majority of independent directors on their boards in 2001. Firms that do not satisfy the above criteria are classified as noncompliant. For robustness, to ensure that the compliant and non-compliant firms are similar, we match each compliant firm with a non-compliant firm from the same industry and with the closest firm size (measured by the market value of equity). Our results continue to hold.

To assess the impact of this regulatory shock, we estimate the change in *OID %* separately for compliant firms and noncompliant firms. In a univariate comparison, we find that noncompliant firms and compliant firms had similar levels of *OID %* in 2001 (34% for noncompliant firms and 30% for compliant firms). However, noncompliant firms increased their *OID %* by 3 percentage points (9% on a relative scale) over the event window, while compliant firms experienced a much smaller increase of 1 percentage points (4% on a relative scale). A major reason behind the larger rise in *OID %* at noncompliant firms is that they appointed significantly more OIDs during this period to comply with the new listing standards. Indeed, the percentage of OIDs among newly appointed independent directors at non-compliant firms increased from 13% to 18%, while it held steady at about 9% at compliant firms.

We next proceed to estimate 2SLS regressions of firm performance using a firm's noncompliance status to predict the change in its OID percentage. We use model specifications similar to those in Table 10, except that we measure all variables as changes over the event window 2001-2005. We instrument for *Change in OID %* with *Noncompliance,* an indicator variable that equals one if the firm's board

[31] Specifically, firms with unitary boards were required to comply with the regulation by the earlier of: (1) the firm's first annual shareholder meeting after January 15, 2004; or (2) October 31, 2004. Firms with classified boards were required to comply with the regulation by their first annual meeting after January 15, 2005, but no later than December 31, 2005 (Chhaochharia and Grinstein (2009) and Armstrong et al. (2014)).

structure was not complaint with the new rule in 2001 and zero otherwise.

Table 12 presents the first- and second-stage estimation results. In the first stage estimation reported in columns (1) and (3), the coefficient on *Noncompliance* is positive and statistically significant at the 5% level. In the second-stage estimation, the dependent variable is *Change in industry-adjusted ROA* in column (2) and *Change in Tobin's Q* in column (4). The instrumented version of *Change in OID %* has a negative and statistically significant coefficient in both columns.[32] These results reinforce our findings in Tables 10 and 11 that firm performance decreases with the percentage of OIDs on the board.

5.7. Separating Director Age from Tenure and Obsolete Experience

5.7.1. Age vs. Tenure

In this section we conduct several additional analyses to further separate the effect of age from tenure. First, we augment our baseline specification by adding a logarithmic transformation and a squared term of average director tenure as additional controls. Our results remain robust. Second, we examine whether OIDs behavior changes from the first few years after initial appointment to later years on the board. Specifically, we re-run the regressions reported in Table 3 by focusing only on OIDs who are aged 65 or above at initial appointment. We find little change in these OIDs' board meeting attendance records and their total number of committee memberships or audit/compensation committee memberships from the first 2 (or 3) years to later years on the board. The only difference we find is that these OIDs are less like to serve as committee chair in their first few years on the board compared to later years, which makes sense because it is uncommon for new board members to chair committees, especially important and time-consuming committees, such as the audit and compensation committees. Third, we compare the performance of OIDs who are in the first few (3 or 5) years of their tenure on the board vis-à-vis younger IDs with similarly short tenure. Given the large number of firm outcome variables we examine, we choose to focus on firm performance (ROA and Tobin's Q) as a summary measure of board and director efficacy. We find that OIDs with short tenures have significantly negative

[32] To the extent that large firms face fewer constraints in their recruitment of independent directors to comply with the new regulation, we exclude them from our analysis and find that our results continue to hold.

effects on firm performance, whereas younger IDs with short tenure exhibit mostly insignificant effects. The difference is especially pronounced when we measure firm performance by Tobin's Q and when we focus on directors with no more than 5 years of tenure. Overall, these additional results lend further support that age has distinctly different effects on director effectiveness than tenure.

5.7.2. Age vs. Obsolete Experience

One potential alternative explanation for the ineffectiveness of OIDs is that they may have retired from active employment for a long time and as a result, their experience and knowledge have become obsolete. To evaluate this possibility, we identify OIDs with obsolete knowledge or experience based on the number of years since their retirement from active employment as an executive. ISS does not have a variable that directly indicates director retirement status. Thus, we identify retired directors using information from several variables, such as employment categories and primary employers. These variables sometimes have the label "retired". We define the retirement year as the first year when the director is identified as retired.

We first repeat the director-level analysis of board meeting attendance, committee membership and committee chair positions while including an additional control variable "*Retired*", which is equal to one for directors who are retired and thus more likely to possess obsolete knowledge. We find that even with this additional control, all of our previous results on OIDs continue to hold.

At the firm level, we separate OIDs into non-retired, newly retired (for no more than 3 years), and long retired (for more than 3 years). The 3-year cutoff roughly splits retired OIDs into two equal halves. We again choose firm performance as a summary measure of board effectiveness and regress firm performance measures against the percentages of the above three groups of OIDs on a firm's board. We find that non-retired OIDs, who are unlikely to have obsolete knowledge, still have significant and negative effects on firm performance, suggesting that our results are not entirely driven by knowledge or experience obsolescence. For robustness, we also combine non-retired OIDs and OIDs who retired within the past 3 years and find that these OIDs are also negatively and significantly related to firm performance.

6. Advisory Benefits of Older Independent Directors

In this section, we go beyond the average negative effect of OIDs documented above and explore whether at least some OIDs can provide valuable advisory benefits to firms. We focus primarily on OID expertise and on economic settings where firms have greater need for board expertise and advice.

First, we differentiate among OIDs by whether they have specialized experience pertinent to firms' acquisition decisions. In particular, we identify OIDs with prior acquisition experience or work experience in a target's industry. OIDs with such experiences should be able to provide more valuable counsel on these M&A transactions and help acquirers generate higher shareholder value. We define an OID as having acquisition experience if she has participated in at least one acquisition made by another public company where she served as a director or a senior executive during the prior 10 years. We defined an OID as having target industry experience if she previously served as a director or a senior executive at another firm in the same three-digit SIC industry as the target over the prior 10 years. We obtain director experience from ISS and executive experience from ExecuComp.

We find that compared to their younger counterparts, OIDs have more M&A experience and target industry experience at both extensive and intensive margins.[33] These experiences are more important for OIDs because they may have greater difficulty in acquiring and analyzing new information about acquisitions given their declining physical and mental states. This can be compounded by their weaker career incentives in the director labor market.

We re-estimate acquirer return regressions after decomposing *OID %* into two separate variables, *Inexperienced OID %* and *Experienced OID %*, based on an OID's prior acquisition experience or target industry experience. Panel A of Table 13 presents the results. We find that OIDs with prior acquisition experience or target industry experience are unrelated to acquirer returns, possibly because the benefits of their better advice offset the costs from their poorer monitoring. On the other hand, OIDs with neither type of experience continue to exhibit a significantly negative association with acquirer returns.[34]

[33] For example, 29.4% of OIDs have M&A experience and 8.2% have target industry experience, compared to 23.7% and 6.7% respectively among younger independent directors.

[34] In untabulated analysis, we examine whether OIDs with a larger network of connections are able to play a more

Next, we investigate the possibility that firms under certain circumstances may benefit from OIDs. To the extent that OIDs are more experienced and can provide more seasoned opinions and advice to management, they may be able to make positive contributions to firms that are in greater need of board advice. We exploit import tariff cuts as a quasi-natural experiment that substantially heightens the product market competition of our sample firms. Import tariff cuts lower the cost of foreign rivals entering U.S. product markets, and as a result, increase the competitive pressure on U.S. firms in affected industries. The experience and advice from OIDs may be especially valuable to firms as they adapt to a different and more challenging industry landscape.

We use the U.S. import tariff data compiled by Feenstra (1996), Feenstra, Romalis, and Schott (2002), and Schott (2010).[35] The tariff data are only available for manufacturing industries from 1998 to 2005 in our sample period. For each year and each three-digit SIC industry, we compute the tariff rate as the duties collected by U.S. Customs divided by the custom value of imports. Similar to prior studies, e.g., Fresard (2010) and Valta (2012), we define a tariff cut in terms of the deviations of the yearly changes in industry tariffs from their median level. Specifically, a tariff cut occurs in an industry-year when the industry experiences a negative tariff change that is three times larger than the median change of the industry's tariff during the sample period. We exclude tariff cuts followed by equivalent tariff raises over the subsequent two years. We then construct an indicator *Tariff Cut*, which is equal to one if a firm's industry experiences a tariff cut in the prior five years and zero otherwise. We repeat the firm performance regressions with the inclusion of *Tariff Cut* and its interaction term with the *OID %*.

Panel B of Table 13 presents the results. Consistent with prior research on tariff cuts, the coefficient on *Tariff Cut* is negative in both the *ROA* and *Tobin's Q* regressions, suggesting that following tariff cuts, firm performance deteriorates due to increased product market competition. More importantly, the

valuable advisory role. We focus on a director's network comprised of his/her prior board connections at other firms. First, we find that OIDs have a larger number of director connections than their younger counterparts, and the difference is significant at both the mean and the median. We then re-estimate the acquirer returns regressions by separating OIDs into those with higher and lower numbers of connections relative to the median. We find that the significantly negative relation previously documented between OIDs and acquirer announcement returns is concentrated in OIDs with fewer connections. This is consistent with more connections allowing OIDs to play a more effective advisory role, which offsets any negative effect due to their age.

[35] The tariff data are available at http://faculty.som.yale.edu/peterschott/sub_international.htm.

coefficient on the interaction term between *OID %* and *Tariff Cut* is positive and statistically significant for both firm performance measures when we control for firm fixed effects (columns 2 and 4), indicating that the presence of OIDs is beneficial when firms face more intense product market competition.[36] This finding is consistent with OIDs using their experience to help firms better cope with heightened challenges in their competitive environment.

We also explore whether firms with certain characteristics benefit more from the OIDs' advisory services. Following Coles, Daniel, and Naveen (2008) and Field, Lowry, and Mkrtchyan (2013), we consider several types of firms that potentially have greater needs for board advice: firms operating in highly volatile industries, younger firms, firms with higher sales growth, and firms with multiple business segments. Our rationale is that firms in highly volatile industries need to contend with unpredictable operating environments, and decision making is made more difficult by rapidly evolving industry landscapes. Similarly, young, fast growing firms often face uncertain futures and changing business conditions, and their managers may be inexperienced in dealing with many of these challenges and therefore they can greatly benefit from OID advice. Firms operating in multiple industry sectors usually have more complex business operations and could benefit from OIDs' extensive experience.

While firms with the above characteristics can present challenges to OIDs in gathering information and staying abreast of major developments and technological advances, OIDs can rely on information from firm management to perform their advisory role. Because managers at these firms are in greater need of board advice to compete and survive, they will be more willing to share pertinent information with the board in order to receive higher-quality advice. Equipped with such information, OIDs can leverage their knowledge, experience, and connections to add more value through their advisory function. On the other hand, managers have much less incentive to furnish information to the board for performing its monitoring role. This will compound the challenges facing OIDs given their diminished physical and mental capacity and lower career-concern incentives, especially at firms that are young, fast growing, and operate in volatile environments. However, the potential negative effects stemming

[36] The results are qualitative similar if we define a tariff cut in alternative ways, such as using two times the median change as the cutoff, or using two (or three) times the median reduction as the cutoff.

from OIDs' weaker monitoring may be limited at these firms because agency problems between managers and shareholders are likely to be less severe given these firms' abundant growth opportunities and their need to raise capital, compete and survive in a challenging business environment. Based on these arguments, we expect the advisory benefits of OIDs to offset, if not outweigh, the costs of their monitoring deficiency at these high-advisory-needs firms.

For each industry, we compute *Industry volatility* as the average standard deviation of annual stock returns of all firms in the industry. We define *Firm age* as the number of years that a firm exists in Compustat and *Sales growth* as the annual growth rate of sales. We obtain a firm's number of business segments from Compustat and construct *Multiple-segment* as an indicator variable equal to one for firms with more than one business segment reported in Compustat. Using these variables, we construct two indicators, *Low advisory need* and *High advisory need*. The indicator *High advisory need* is equal to one if *Advisory need* is above the annual median, where *Advisory need* is the average of standardized *Industry volatility*, negative one times *Firm age*, *Sales growth*, and *Multiple-segment*. The four variables are standardized to have a zero mean and a standard deviation of one. The *Low advisory need* indicator is equal to one minus *High advisory need*. We re-estimate firm performance regressions and separately interact *OID %* with these two indicators. We control for a firm's advisory needs in these regressions.[37]

Panel C of Table 13 reports the results. We find a significantly negative relation between OID presence and firm performance only in firms with low advisory needs. For firms with high advisory needs, no significant relation between firm performance and OID presence exists in most specifications. The difference in the coefficient estimates of the two interactions is generally statistically significant.

Finally, we differentiate between busy and non-busy OIDs, where an OID is defined as busy if she holds three or more directorships (Fich and Shivdasani (2006)).[38] Having multiple board seats can be an indicator of higher-quality directors, who can potentially provide greater advisory benefits to firms. However, serving on multiple boards also limits the time and resources that directors have to meet their responsibilities on each board, which could exacerbate the monitoring deficiencies of OIDs.

[37] The variables *Sales growth* and *Multiple-segment* are included in the regressions while *Industry volatility* is absorbed by industry fixed effects.

[38] The results remain qualitatively the same if we use two or four directorships to define busy directors.

We re-estimate the firm performance regressions after decomposing the key variable *OID %* into two components: *Busy OID %* and *Non-busy OID %*.[39] Panel D of Table 13 presents the regression results. We find that while the coefficient on *Busy OID %* is negative and highly significant across all columns, the coefficient on *Non-busy OID %* is significantly negative in two out of four columns. Moreover, the coefficients of *Busy OID %* are significantly more negative than those of *Non-busy OID %*. This evidence does not support the view that busy OIDs are on average of higher quality and thus, provide more valuable advisory services. Instead, it suggests that the deficiencies associated with OIDs are compounded when they become overly busy.

In sum, the analysis in this section uncovers interesting cross-sectional variations in the relation between OIDs and firm performance. While the presence of OIDs on average has a negative impact due to their monitoring deficiencies, it is important to recognize that the adverse effect is most clearly observable when OIDs do not have the requisite expertise or firms have less need for board advising. When OIDs have specialized experience for specific firm decisions or are on the boards of firms with greater advisory needs, they are able to provide valuable advisory benefits that offset their monitoring deficiencies.

7. Conclusion

We explore the implications of older independent directors for board effectiveness and corporate governance. Our director and firm level analyses reveal that OIDs are associated with both monitoring deficiencies and advisory benefits. With respect to the former, we find that OIDs are more likely to miss board meetings, less likely to be a member or chair of important board committees, and less likely to receive strong shareholder support at annual board elections. Investors tend to react negatively to firm policy changes that increase the mandatory director retirement age and firm appointments of OIDs, while the deaths of OIDs generate positive stock market reactions. The presence of OIDs on corporate boards or key committees is associated with worse acquisition decisions, lower CEO turnover-

[39] Given that the variable *Busy OID %* is highly correlated with the existing control variable *Busy board*, we remove *Busy board* from the regressions. The results are robust if we control for the busyness of younger directors, measured as the percentage of below-65 independent directors who hold three or more directorships.

performance sensitivity, a lower percentage of equity-based CEO compensation, and poorer financial disclosure. On average, a greater representation of OIDs on corporate boards is negatively associated with firm performance. On the other hand, we also find evidence suggestive of OIDs' advisory value. For example, when OIDs have prior acquisition experience or professional experience in the target's industry, their presence on the acquirer's board is no longer negatively related to acquirer returns. In addition, unlike in firms with low advertising need, the negative relation between OIDs and firm performance no longer holds when managers are in greater need of board advice.

In sum, our study sheds light on the recent board aging phenomenon in the U.S. and its impact on boards' ability to fulfill their monitoring and advising functions. As such, it carries important economic messages for both firms' director recruitment efforts and any future governance reforms and regulations that may alter the availability and characteristics of qualified director candidates.

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Figure 1. Overall Time Trend of Older Independent Directors

This figure shows the average percentage of older independent directors (*OID %*) for our sample firms by year. OIDs are defined as independent directors who are at least 65 years old. *OID %* is defined as the percentage of a firm's independent directors who are at least 65 years old. In addition to the full sample, we separately examine firms that are incumbent members of the S&P 1500 indices and firms that are new entrants to the indices. We define new entrant firms as firms that appeared in the sample for no more than two years.

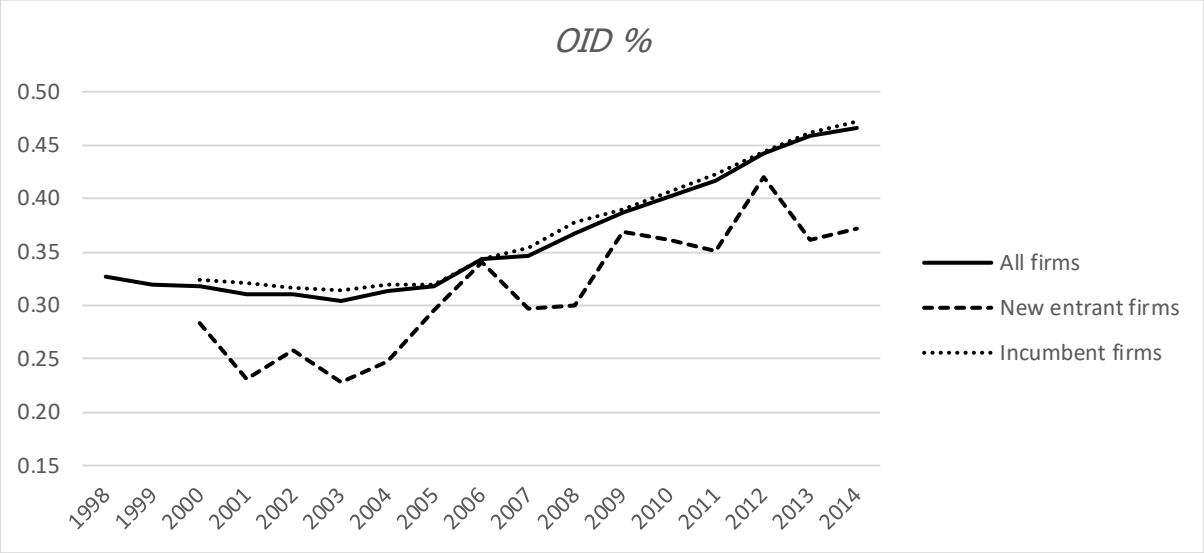

Figure 2. Time Trend of Independent Director Age at Initial Appointment

This figure shows the average and median age of independent directors at the time of their initial appointments by year. The sample includes all new appointments of independent directors.

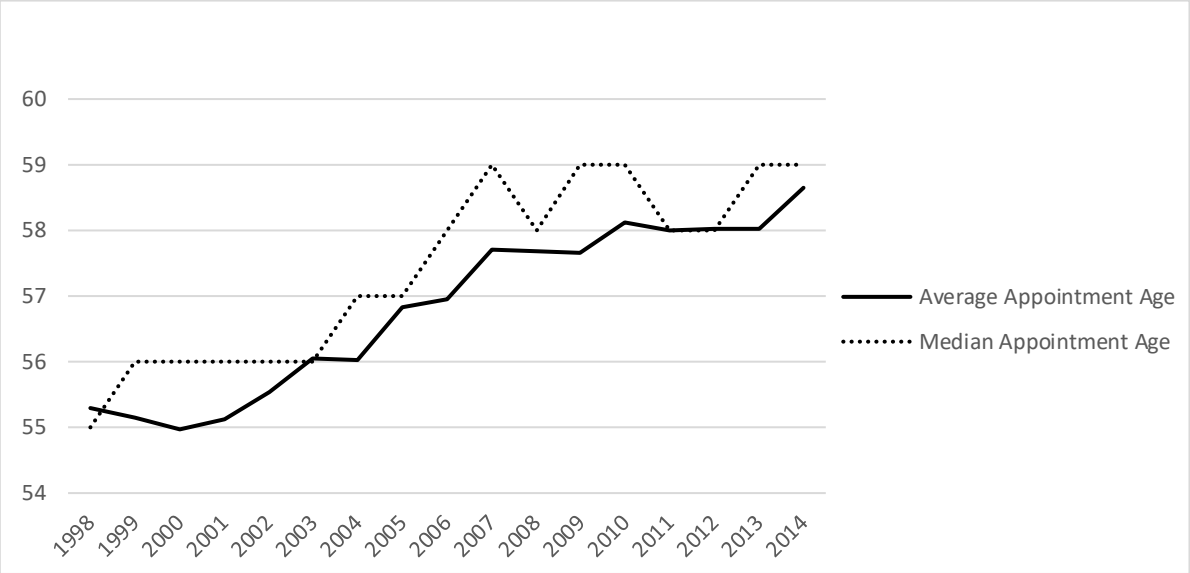

Figure 3. Time Trend of the Percentage of Older Independent Directors at Appointments

This figure shows the percentage of independent directors who are at least 65 years old at their initial appointments by year. The sample includes all new appointments of independent directors.

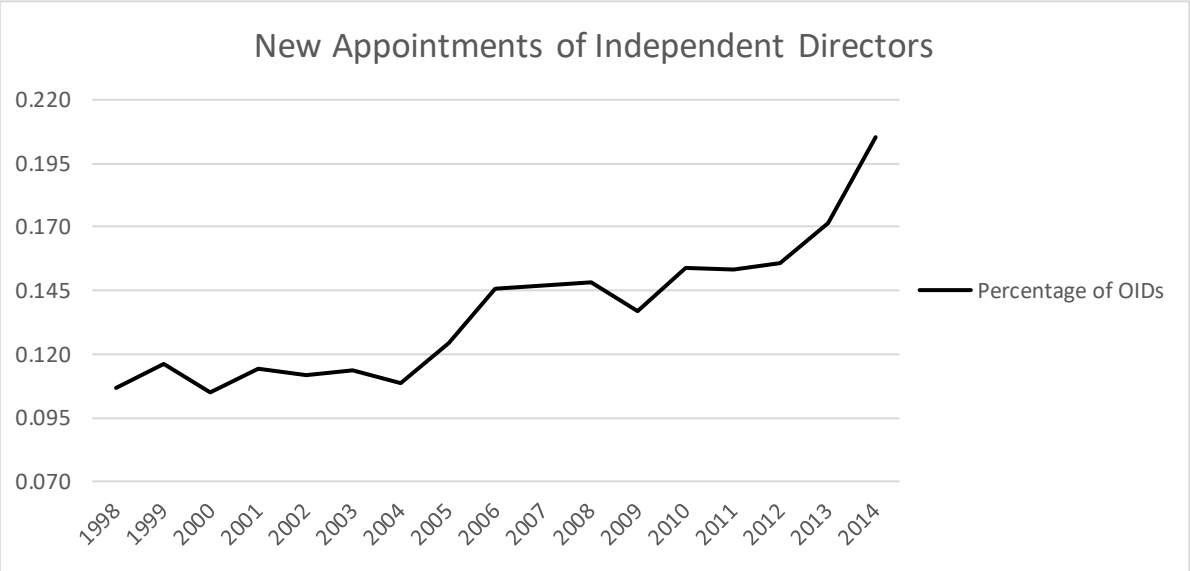

Table 1. Time Trends of Independent Director Age and the Frequency of Older Independent Directors

This table reports the annual mean and median of *independent director age* at the director level, and the percentage of older independent directors (*OID %*) and the instance of *OID majority* at the firm level. OIDs are defined as independent directors who are at least 65 years old. *OID %* is defined as the percentage of a firm's independent directors who are at least 65 years old. *OID Majority* is an indicator variable equal to one if at least 50% of a firm's independent directors are 65 or older, and zero otherwise.

	Independent director age				*OID %*		*OID Majority (0/1)*	
Year	N (# of directors)	Mean	Median	N (# of firms)	Mean	Median	Mean	Median
1998	5,683	60.10	61	999	0.327	0.333	0.267	0
1999	6,368	60.11	60	1079	0.319	0.333	0.256	0
2000	6,715	60.02	60	1135	0.318	0.300	0.262	0
2001	7,101	60.07	60	1163	0.310	0.286	0.251	0
2002	7,275	60.18	60	1182	0.310	0.286	0.244	0
2003	7,628	60.27	61	1202	0.304	0.286	0.237	0
2004	8,000	60.36	61	1230	0.313	0.286	0.239	0
2005	8,063	60.60	61	1206	0.318	0.300	0.245	0
2006	8,077	61.08	62	1194	0.343	0.333	0.281	0
2007	7,358	61.12	62	1058	0.347	0.333	0.283	0
2008	9,093	61.34	62	1247	0.367	0.375	0.319	0
2009	9,312	61.75	62	1291	0.387	0.375	0.349	0
2010	9,548	62.07	63	1301	0.402	0.400	0.380	0
2011	9,432	62.37	63	1284	0.417	0.400	0.407	0
2012	9,404	62.63	63	1273	0.442	0.429	0.455	0
2013	9,546	62.81	64	1283	0.458	0.444	0.479	0
2014	8,035	63.12	64	1260	0.466	0.455	0.495	0
Total	136,638	61.18	62	20,387	0.362	0.350	0.320	0

Table 2. Summary Statistics of Independent Director Attributes and Firm Characteristics

Panel A reports the summary statistics (mean values) of independent director attributes, with column (1) for independent directors aged 65 or above (OIDs) and column (2) for independent directors below 65 years old (non-OIDs). Column (3) presents the simple mean-comparison tests between the two groups of independent directors. Superscripts ***, **, and * denote significance at 1%, 5%, and 10%, respectively. Panel B reports the summary statistics for key firm characteristics, governance characteristics and outcome variables. Detailed definitions of all variables are in Appendix Table A1.

Panel A. Summary Statistics (mean values) of Independent Directors			
	(1) OIDs	(2) Non-OIDs	(3) = (1) – (2)
Age	68.390	56.040	12.350***
Retired	0.379	0.161	0.218***
Age at appointment	58.020	50.210	7.810***
Tenure	10.340	5.836	4.504***
Coopted	0.335	0.348	-0.013***
Ownership	0.002	0.002	0.000
Blockholder	0.005	0.007	-0.002***
No. of board seats	1.652	1.586	0.066***
Financial expertise	0.240	0.234	0.006
Former employee	0.004	0.002	0.002***
CEO of other firms	0.044	0.163	-0.119***
Executive of other firms	0.079	0.207	-0.128***
Female	0.067	0.196	-0.129***
Professional ID	0.452	0.218	0.234***

Panel B. Summary Statistics						
Variable	N	Mean	Std.	P25	Median	P75
Firm characteristics						
Log market cap	20,387	7.754	1.547	6.659	7.618	8.751
Stock return	20,176	0.128	0.418	-0.118	0.094	0.319
R&D	20,387	0.037	0.074	0.000	0.000	0.033
Volatility	20,387	0.116	0.052	0.080	0.106	0.140
Firm age	20,387	28.010	16.920	14.000	23.000	43.000
CEO quality	20,387	0.496	1.881	-0.080	0.266	0.784
CEO age	20,387	55.890	7.015	51.000	56.000	60.000
Ave executive age	20,368	52.490	4.212	49.800	52.500	55.170
Governance characteristics						
OID %	20,387	0.364	0.230	0.200	0.333	0.500
E-index	20,387	2.928	1.334	2.000	3.000	4.000
Board size	20,387	9.430	2.520	8.000	9.000	11.000
Board independence	20,387	0.736	0.149	0.667	0.769	0.857
Board ownership	20,387	0.067	0.103	0.010	0.026	0.073
Duality	20,387	0.563	0.496	0.000	1.000	1.000
Busy board	20,387	0.251	0.219	0.000	0.222	0.400
ID-blockholder	20,387	0.040	0.196	0.000	0.000	0.000
Ave ID tenure	20,387	7.974	17.300	5.455	7.400	9.625
Long-tenured ID %	20,387	0.142	0.175	0.000	0.100	0.250
Cooption	20,387	0.512	0.361	0.200	0.500	0.875
Gender diversity	20,387	0.110	0.094	0.000	0.111	0.167
Professional ID %	20,387	0.295	0.221	0.125	0.286	0.429
Outcome variables						
Attend_less75_pct	112,157	0.012	0.110	0.000	0.000	0.000
Number of committee memberships	112,157	1.959	1.079	1.000	2.000	3.000
Committee chair	112,157	0.338	0.473	0.000	0.000	1.000
Audit and compensation committee member	112,157	0.180	0.384	0.000	0.000	0.000
Audit or compensation committee chair	112,157	0.261	0.439	0.000	0.000	1.000
%Withheld	43,293	0.047	0.077	0.010	0.022	0.047
ISS against	43,617	0.049	0.216	0.000	0.000	0.000
Acquirer CAR	3,116	0.006	0.068	-0.026	0.004	0.037
Forced turnover	9,956	0.025	0.156	0.000	0.000	0.000
Total compensation	14,833	8.201	0.985	7.531	8.253	8.894
Cash intensity	14,054	0.345	0.249	0.153	0.266	0.468
Equity intensity	14,054	0.470	0.256	0.311	0.514	0.661
Restatement	16,929	0.072	0.258	0.000	0.000	0.000
Irregularity	16,929	0.013	0.112	0.000	0.000	0.000
ROA	18,152	0.128	0.088	0.076	0.122	0.176
Tobin's Q	18,174	1.835	1.103	1.133	1.461	2.098

Table 3. Regressions of Independent Directors' Board Meeting Attendance, Committee Membership and Chair

This table reports regression analysis of board meeting attendance, board committee membership and chair. The sample is restricted to independent directors. Each observation is a director-firm-year. The dependent variable for column (1) is *Attend_less75_pct*, an indicator equal to one if an independent director attended less than 75% of a firm's board meetings in a year, and zero otherwise. The dependent variable for column (2) is the number of committee memberships on the audit committee, compensation committee, nominating committee and governance committee. The dependent variable for column (3) is an indicator variable equal to one if a director is the chair of any committee, and zero otherwise. The dependent variable for column (4) is an indicator variable equal to one if a director sits on both the audit and compensation committees, and zero otherwise. The dependent variable for column (5) is an indicator variable equal to one if a director is the chair of the audit or compensation committee, and zero otherwise. Column (2) estimates a Poisson count regression. Columns (1) and (3)-(5) estimate a linear probability model. In parentheses are *t*-statistics based on standard errors adjusted for heteroskedasticity and director-level clustering. Superscripts ***, **, and * denote significance at 1%, 5%, and 10%.

	(1) *Attend_less75_pct*	(2) *Number of committee memberships*	(3) *Committee chair*	(4) *Audit and compensation committee member*	(5) *Audit or compensation committee chair*
Director characteristics					
OID	0.003**	0.004	-0.014**	-0.008*	-0.020***
	(2.01)	(0.53)	(-2.01)	(-1.72)	(-3.24)
Number of board seats	0.001	0.006*	0.007**	0.003	0.009***
	(1.45)	(1.70)	(2.32)	(1.32)	(2.71)
CEO director	0.005***	0.035***	-0.020**	-0.001	-0.022***
	(2.62)	(4.13)	(-2.49)	(-0.25)	(-3.03)
Ownership	-0.144*	0.212	0.495	-0.358	0.222
	(-1.84)	(0.44)	(1.14)	(-1.16)	(0.51)
Tenure	-0.000	0.007***	0.015***	0.001	0.010***
	(-0.14)	(5.71)	(14.73)	(0.88)	(10.22)
Coopted	-0.001	-0.005	0.001	-0.004	0.001
	(-0.60)	(-0.64)	(0.15)	(-0.73)	(0.17)
Professional ID	-0.001	-0.002	0.019***	0.002	0.019***
	(-0.75)	(-0.27)	(3.02)	(0.52)	(3.41)
Firm characteristics					
Log market cap	-0.004***	-0.019***	-0.004	-0.002	-0.001
	(-5.91)	(-3.82)	(-0.98)	(-0.43)	(-0.13)
ROA	-0.006	0.102**	0.090**	-0.001	0.082**
	(-0.65)	(2.37)	(2.15)	(-0.03)	(2.07)
Stock return	0.000	-0.007**	-0.000	-0.008***	-0.001
	(0.40)	(-2.00)	(-0.09)	(-3.11)	(-0.46)
Tobin's Q	0.002**	0.008**	-0.007**	0.009***	-0.007**
	(2.46)	(2.05)	(-1.98)	(2.66)	(-2.03)
R&D	-0.001	-0.003*	-0.001	-0.001	-0.000
	(-1.27)	(-1.90)	(-1.31)	(-0.51)	(-0.60)

Volatility	-0.020	-0.018	-0.082	0.088	-0.031
	(-1.56)	(-0.21)	(-0.97)	(1.36)	(-0.40)
Log firm age	0.001	-0.015	-0.016	0.014*	-0.003
	(0.38)	(-1.26)	(-1.62)	(1.66)	(-0.32)
Log CEO age	-0.005	0.082***	-0.000	0.106***	0.017
	(-0.88)	(2.63)	(-0.01)	(4.55)	(0.67)
CEO quality	-0.000	-0.003***	-0.001	-0.000	-0.001
	(-0.99)	(-3.35)	(-0.94)	(-0.21)	(-1.53)
E-index	-0.000	0.001	0.003	-0.004*	0.000
	(-0.28)	(0.17)	(1.01)	(-1.92)	(0.10)
Board size	0.001***	-0.027***	-0.014***	-0.018***	-0.013***
	(4.16)	(-14.10)	(-9.57)	(-14.77)	(-9.09)
Board independence	0.013**	-0.242***	-0.162***	-0.290***	-0.158***
	(2.37)	(-8.76)	(-6.60)	(-13.90)	(-6.80)
Board ownership	0.010	-0.026	-0.009	0.009	0.020
	(1.10)	(-0.49)	(-0.20)	(0.23)	(0.48)
Duality	-0.001	0.008	-0.011**	-0.008*	-0.005
	(-0.96)	(1.37)	(-2.11)	(-1.84)	(-0.92)
Busy board	0.000	0.042***	-0.040***	0.015	-0.024*
	(0.12)	(2.66)	(-2.83)	(1.24)	(-1.78)
ID-blockholder	-0.003	0.040**	0.035**	0.017	0.030**
	(-1.04)	(2.42)	(2.28)	(1.34)	(2.09)
Ave ID tenure	0.000	-0.000	-0.000	-0.000	-0.000*
	(1.48)	(-0.02)	(-1.41)	(-0.61)	(-1.65)
Long-tenured ID %	0.001	-0.034*	-0.073***	-0.017	-0.045***
	(0.37)	(-1.69)	(-3.96)	(-1.13)	(-2.66)
Cooption	0.001	-0.028**	0.019*	-0.008	0.007
	(0.73)	(-2.42)	(1.85)	(-0.98)	(0.71)
Gender diversity	0.002	-0.077*	0.035	-0.047	0.019
	(0.24)	(-1.77)	(0.92)	(-1.48)	(0.53)
Professional ID %	0.000	-0.030**	-0.084***	-0.022**	-0.072***
	(0.02)	(-2.01)	(-5.98)	(-1.98)	(-5.47)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Director fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
N	109,631	108,236	109,631	109,631	109,631
Adjusted R^2	0.102		0.456	0.496	0.483

Table 4. Regressions of Shareholder Votes in Independent Director Elections

This table reports regression analysis of shareholder votes in director elections. The sample is restricted to independent directors. Each observation is a director-firm-year. The dependent variable for columns (1)–(6) is *Excess %Withheld*, defined as *%Withheld* in excess of the average *%Withheld* across all directors in each firm-year. *%Withheld* is the sum of shares voted against and shares voted abstain, scaled by all shares voted. The dependent variable for columns (7)–(9) is *Excess ISS against*, defined as *ISS against* in excess of the average *ISS against* across all directors in each firm-year. *ISS against* is an indicator equal to one if ISS recommends a withhold, against, or no vote for the director, and zero otherwise. In parentheses are *t*-statistics based on standard errors adjusted for heteroskedasticity and director-level clustering. Superscripts ***, **, and * denote significance at 1%, 5%, and 10%.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			Excess %Withheld					*Excess ISS against*	
OID	0.004***	0.001**	0.001*	0.004***	0.001**	0.003***	0.002*	0.003**	0.006**
	(6.68)	(2.52)	(1.73)	(7.07)	(2.03)	(3.79)	(1.65)	(2.08)	(2.38)
ISS against				0.088***	0.085***	0.089***			
				(37.12)	(35.42)	(34.59)			
Number of board seats		0.003***	0.001		0.004***	0.001		0.002**	-0.001
		(8.00)	(0.95)		(8.87)	(0.95)		(2.16)	(-0.43)
CEO director		0.007***	0.003*		0.003***	-0.000		0.026***	0.017***
		(5.34)	(1.90)		(2.91)	(-0.29)		(5.02)	(3.40)
Ownership		0.099***	0.005		0.080***	-0.007		0.030	0.067
		(2.84)	(0.06)		(2.66)	(-0.09)		(0.31)	(0.31)
Tenure		0.001***	0.001***		0.001***	0.001***		0.000**	0.001***
		(15.47)	(8.39)		(15.83)	(11.06)		(2.51)	(3.58)
Coopted		0.001	-0.001		-0.001	-0.001**		-0.000	-0.001
		(1.14)	(-1.36)		(-1.31)	(-2.04)		(-0.24)	(-0.22)
Professional ID		-0.002***	-0.002***		-0.002***	-0.002**		-0.003*	-0.002
		(-3.50)	(-2.65)		(-3.03)	(-2.21)		(-1.88)	(-0.94)
Director fixed effects	No	No	Yes	No	No	Yes	No	No	Yes
N	47,297	46,831	43,212	47,297	46,831	43,212	47,634	47,162	43,543
Adjusted R^2	0.002	0.018	0.181	0.198	0.200	0.349	0.000	0.003	0.095

Table 5. Event Studies

This table presents three event studies. Panel A reports the announcement returns of old independent director appointments. The detailed construction of the OID appointment announcement sample is described in Appendix Table A2. Panel B reports the announcement returns of independent director deaths based on 8-K filing dates. Observations are excluded if the interval between the filing date and the director death date exceeds 20 trading days. The detailed construction of the independent director death sample is described in Appendix Table A3. Panel C reports the announcement returns of firms' director retirement policy changes. The details of the retirement policy change sample are described in Appendix Table A4. Mean and median CARs are based on 3-day announcement-period cumulative abnormal returns with event date 0 being the announcement date. Abnormal returns are computed based on the coefficients of a standard one-factor market model estimated using daily stock returns over the 200-day window (-210, -11) and the CRSP value-weighted return as the market return. *P*-values are based on *t*-statistics for mean CARs and Wilcoxon signed-rank tests for median CARs.

Panel A: Announcement Effects of Old Independent Director Appointments			
	Full sample	Non-proxy sample	Clean sample
Mean CAR	-0.205%**	-0.187%*	-0.197%*
p-value	(0.023)	(0.065)	(0.078)
Median CAR	-0.229%***	-0.212%**	-0.217%**
p-value	(0.008)	(0.035)	(0.042)
N	1,127	973	676
Panel B: Announcement Effects of Independent Director Deaths			
	OID sample	Non-OID sample	Difference
Mean CAR	1.409%**	-1.909%	3.318%**
p-value	(0.036)	(0.184)	(0.028)
Median CAR	0.541%**	-1.260%	1.800%**
p-value	(0.024)	(0.195)	(0.042)
N	106	27	
Panel C: Announcement Effects of Director Retirement Policy Changes			
	Full sample	Clean sample	
Mean CAR	-0.907%***	-0.620%**	
p-value	(0.001)	(0.023)	
Median CAR	-0.764%***	-0.685%***	
p-value	(0.001)	(0.001)	
N	91	59	

Table 6. Regressions of Acquirer Announcement Returns

This table reports the OLS regression analysis of acquirer returns. The dependent variable is the cumulative abnormal returns over the 5-day window (-2, 2), where day 0 is the announcement date of the acquisition. In parentheses are *t*-statistics based on standard errors adjusted for heteroskedasticity and industry-level clustering. Superscripts ***, **, and * denote significance at 1%, 5%, and 10%.

	(1)	(2)
OID %	-0.011**	-0.030***
	(-2.31)	(-2.96)
Relative deal size	-0.008	-0.006
	(-0.87)	(-0.49)
Public target	-0.019***	-0.021***
	(-6.10)	(-4.95)
Private target	-0.006*	-0.003
	(-1.73)	(-0.72)
% Deal value paid by cash	0.000	0.000*
	(1.54)	(1.81)
Tender offer	0.004	0.008
	(0.92)	(0.87)
Hostile deal	-0.014	-0.008
	(-1.20)	(-0.61)
Diversifying deal	-0.004	0.002
	(-1.38)	(0.43)
Log market cap	-0.004***	-0.004
	(-4.23)	(-1.23)
ROA	-0.025	0.021
	(-1.36)	(0.49)
Stock return	0.008	0.010
	(1.49)	(1.64)
Tobin's Q	0.002	0.004
	(0.91)	(1.26)
R&D	-0.066***	0.032
	(-3.99)	(0.53)
Volatility	0.043	0.113
	(1.17)	(1.47)
Log firm age	0.004	-0.007
	(1.25)	(-0.41)
Log CEO age	0.003	0.025
	(0.21)	(0.93)
CEO quality	-0.000	0.001
	(-0.34)	(0.93)
E-index	-0.001	-0.001
	(-0.70)	(-0.59)
Board size	-0.000	0.002
	(-0.03)	(1.02)
Board independence	0.006	0.013

	(0.50)	(0.46)
Board ownership	0.021	-0.003
	(0.88)	(-0.05)
Duality	-0.002	-0.004
	(-1.05)	(-0.88)
Busy board	0.007	0.013
	(0.89)	(0.94)
ID-blockholder	-0.007	-0.000
	(-1.13)	(-0.03)
Ave ID tenure	-0.000	0.001
	(-0.26)	(0.52)
Long-tenured ID %	0.014	0.007
	(1.42)	(0.35)
Cooption	0.004	-0.010
	(0.91)	(-0.98)
Gender diversity	-0.004	0.000
	(-0.21)	(0.00)
Professional ID %	-0.003	-0.001
	(-0.36)	(-0.07)
Industry fixed effects	Yes	No
Firm fixed effects	No	Yes
Year fixed effects	Yes	Yes
N	3,116	3,116
Adjusted R^2	0.054	0.155

Table 7. Regressions of Forced CEO Turnovers

This table reports the regression analysis of CEO turnover. The dependent variable is *Forced turnover*, an indicator equal to one if a firm experiences a forced CEO turnover, and zero otherwise. *Performance* is measured by industry-adjusted *ROA*. In parentheses are *t*-statistics based on standard errors adjusted for heteroskedasticity and firm-level clustering. Superscripts ***, **, and * denote significance at 1%, 5%, and 10%.

	(1)	(2)	(3)	(4)
Performance	-0.292***	-1.939**	-0.364***	-2.942**
	(-4.92)	(-2.01)	(-4.55)	(-2.24)
OID %	-0.012	-0.014*	0.006	-0.002
	(-1.57)	(-1.91)	(0.49)	(-0.15)
*OID % * Performance*	0.192*	0.332***	0.271*	0.399**
	(1.84)	(2.64)	(1.73)	(2.24)
Log market cap	0.003*	0.004**	0.022***	0.026***
	(1.76)	(2.20)	(3.97)	(4.65)
Tobin's Q	0.001	-0.001	-0.008***	-0.011***
	(0.53)	(-0.65)	(-2.59)	(-3.70)
R&D	-0.085***	-0.056*	-0.120	-0.056
	(-2.82)	(-1.94)	(-1.56)	(-0.69)
Volatility	-0.005	-0.010	-0.276***	-0.258***
	(-0.11)	(-0.23)	(-2.99)	(-2.87)
Log firm age	-0.004	-0.004	-0.035	-0.034
	(-1.18)	(-1.20)	(-1.27)	(-1.19)
Log CEO age	-0.014	-0.018	-0.060*	-0.071**
	(-1.09)	(-1.30)	(-1.95)	(-2.23)
CEO quality	0.001*	0.001*	0.002	0.002*
	(1.79)	(1.89)	(1.62)	(1.65)
E-index	0.001	0.001	-0.002	-0.002
	(0.41)	(0.43)	(-0.46)	(-0.46)
Board size	0.001	0.001	0.003*	0.003**
	(1.20)	(1.04)	(1.90)	(2.07)
Board independence	0.038***	0.036***	0.013	0.013
	(3.10)	(2.85)	(0.62)	(0.61)
Board ownership	0.001	0.002	0.048	0.050
	(0.07)	(0.13)	(1.13)	(1.14)
Duality	-0.002	-0.002	0.005	0.004
	(-0.53)	(-0.57)	(0.97)	(0.82)
Busy board	-0.010	-0.010	-0.018	-0.018
	(-1.28)	(-1.21)	(-1.40)	(-1.32)
ID-blockholder	0.007	0.007	-0.003	-0.001
	(0.59)	(0.57)	(-0.23)	(-0.10)
Ave ID tenure	-0.000	0.000	0.000	0.001
	(-1.21)	(0.07)	(0.79)	(1.44)
Long-tenured ID %	-0.004	-0.002	0.020	0.005
	(-0.44)	(-0.20)	(1.35)	(0.28)
Cooption	-0.026***	-0.027***	0.023**	0.026**

	(-5.20)	(-5.21)	(2.27)	(2.47)
Gender diversity	-0.027	-0.031	-0.069	-0.073
	(-1.22)	(-1.38)	(-1.57)	(-1.63)
Professional ID %	-0.006	-0.004	-0.003	-0.000
	(-0.75)	(-0.45)	(-0.32)	(-0.04)
All control variables * *Performance*	No	Yes	No	Yes
Industry fixed effects	Yes	Yes	No	No
Year fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects	No	No	Yes	Yes
N	9,752	9,752	9,626	9,626
Adjusted R^2	0.018	0.022	0.032	0.036

Table 8. Regressions of CEO Compensation

This table reports the OLS regression analysis of CEO compensation. The dependent variable for columns (1)-(2) is *Total compensation*, the natural logarithm of the dollar value of the CEO's total annual compensation. The dependent variable for columns (3)-(4) is *Cash intensity*, the proportion of total annual CEO compensation that comes from cash. The dependent variable for columns (5)-(6) is *Equity intensity*, the proportion of total annual CEO compensation that comes from option grants and stocks. In parentheses are *t*-statistics based on standard errors adjusted for heteroskedasticity and firm-level clustering. Superscripts ***, **, and * denote significance at 1%, 5%, and 10%.

	(1)	(2)	(3)	(4)	(5)	(6)
	Total compensation		*Cash intensity*		*Equity intensity*	
Compensation committee OID %	0.070**	0.009	0.019**	0.010	-0.030***	-0.020**
	(2.02)	(0.32)	(2.07)	(1.12)	(-2.92)	(-2.05)
Log market cap	0.441***	0.315***	-0.062***	-0.061***	0.060***	0.059***
	(32.91)	(14.58)	(-16.40)	(-9.44)	(15.74)	(8.36)
ROA	0.163	0.677***	0.043	0.060	-0.165***	-0.282***
	(0.93)	(4.61)	(0.92)	(1.24)	(-2.93)	(-5.33)
Stock return	0.319***	0.271***	-0.034***	-0.027***	-0.008	-0.011*
	(15.94)	(14.80)	(-5.91)	(-4.65)	(-1.24)	(-1.71)
Tobin's Q	-0.084***	0.019	-0.000	-0.007*	0.007	0.011**
	(-5.75)	(1.36)	(-0.02)	(-1.76)	(1.54)	(2.48)
R&D	0.113	-0.167	-0.207***	-0.186**	0.290***	0.119
	(0.49)	(-0.60)	(-3.40)	(-2.15)	(4.16)	(1.13)
Volatility	1.921***	0.365	-0.469***	-0.295***	0.463***	0.231**
	(7.40)	(1.33)	(-6.56)	(-3.60)	(6.20)	(2.49)
Log firm age	0.023	0.068	0.012**	0.062***	-0.030***	-0.101***
	(1.21)	(1.00)	(2.19)	(2.78)	(-4.88)	(-3.96)
Log CEO age	-0.026	-0.112	0.054**	0.049	-0.125***	-0.155***
	(-0.25)	(-1.13)	(2.14)	(1.36)	(-4.08)	(-3.91)
CEO quality	-0.001	-0.003	0.001	0.002	-0.000	-0.001
	(-0.12)	(-0.89)	(0.55)	(1.33)	(-0.17)	(-0.53)
E-index	0.049***	0.025***	-0.015***	-0.004	0.011***	-0.001
	(5.10)	(2.60)	(-5.81)	(-1.34)	(3.88)	(-0.23)
Board size	0.011*	-0.005	-0.001	0.001	0.001	-0.001
	(1.82)	(-0.95)	(-0.37)	(0.38)	(0.43)	(-0.36)
Board independence	0.358***	0.252***	-0.114***	-0.056**	0.087***	0.029
	(3.94)	(2.91)	(-4.52)	(-2.00)	(3.07)	(0.98)
Board ownership	-0.916***	-0.512***	0.201***	0.157***	-0.237***	-0.133**
	(-4.93)	(-2.99)	(4.46)	(2.76)	(-4.80)	(-2.30)
Duality	0.096***	0.023	-0.015**	-0.003	0.006	0.000
	(4.43)	(1.25)	(-2.42)	(-0.45)	(0.82)	(0.01)
Busy board	0.157***	0.035	-0.037***	-0.025*	0.019	0.009
	(3.37)	(0.84)	(-2.78)	(-1.72)	(1.30)	(0.55)
ID-blockholder	0.089*	0.037	-0.014	-0.016	0.031*	0.018
	(1.70)	(0.85)	(-0.88)	(-0.95)	(1.74)	(1.12)
Ave ID tenure	0.001**	0.001***	-0.000***	0.000	0.000***	-0.000
	(2.26)	(7.51)	(-5.73)	(0.22)	(4.72)	(-0.99)

Long-tenured ID %	-0.175***	-0.053	0.048**	0.025	-0.022	-0.032
	(-2.61)	(-0.99)	(2.34)	(1.23)	(-1.03)	(-1.47)
Cooption	-0.024	0.065**	0.015*	0.003	-0.021**	-0.017
	(-0.77)	(2.14)	(1.73)	(0.29)	(-2.12)	(-1.47)
Gender diversity	0.087	-0.008	0.006	0.012	-0.006	-0.035
	(0.72)	(-0.07)	(0.19)	(0.30)	(-0.16)	(-0.79)
Professional ID %	0.027	0.002	-0.012	0.004	0.019	0.016
	(0.56)	(0.04)	(-0.95)	(0.30)	(1.36)	(1.12)
Industry fixed effects	Yes	No	Yes	No	Yes	No
Firm fixed effects	No	Yes	No	Yes	No	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
N	14,522	14,386	13,808	13,644	13,808	13,644
Adjusted R^2	0.558	0.742	0.341	0.517	0.202	0.407

Table 9. Regressions of Financial Restatements

This table reports the regression analysis of earnings management and restatements. The dependent variable for columns (1)-(2) is *Restatement*, an indicator equal to 1 if the firm subsequently restated the financial statements for that fiscal year. The dependent variable for columns (3)-(4) is *Irregularity*, an indicator equal to 1 if the firm subsequently restated the financial statements for that fiscal year and the restatement is classified as irregularity. Columns (1) and (3) estimate a Probit regression and columns (2) and (4) estimate a conditional Logit regression. In parentheses are *t*-statistics based on standard errors adjusted for heteroskedasticity and firm-level clustering. Superscripts ***, **, and * denote significance at 1%, 5%, and 10%.

	(1)	(2)	(3)	(4)
	Restatement		*Irregularity*	
Audit committee OID %	0.167***	0.507***	0.203**	1.135**
	(2.86)	(2.70)	(1.97)	(2.46)
Log market cap	-0.004	0.156	-0.029	0.328
	(-0.25)	(1.27)	(-1.01)	(1.26)
ROA	-1.243***	-2.575***	-1.352***	-3.043
	(-4.86)	(-2.92)	(-3.28)	(-1.49)
Stock return	-0.036	-0.213**	-0.185**	-0.684***
	(-0.86)	(-2.15)	(-2.08)	(-2.70)
Tobin's Q	-0.061***	-0.063	0.012	-0.003
	(-2.81)	(-0.73)	(0.33)	(-0.02)
R&D	-1.077***	-5.269**	-1.751***	-11.796***
	(-3.48)	(-2.33)	(-3.15)	(-2.58)
Volatility	0.288	-0.722	1.024	1.825
	(0.73)	(-0.47)	(1.55)	(0.53)
Log firm age	0.009	0.728	-0.039	3.001**
	(0.29)	(1.27)	(-0.65)	(2.29)
Log CEO age	-0.089	-1.355**	-0.305	-4.715***
	(-0.67)	(-2.26)	(-1.27)	(-3.37)
CEO quality	-0.001	-0.022	-0.014	-0.042
	(-0.11)	(-1.00)	(-0.97)	(-0.85)
E-index	-0.022*	-0.097	-0.074***	-0.413***
	(-1.69)	(-1.52)	(-3.07)	(-2.82)
Board size	-0.003	0.065*	0.011	-0.005
	(-0.29)	(1.73)	(0.63)	(-0.06)
Board independence	-0.136	-0.724	-0.316	-2.727**
	(-1.03)	(-1.35)	(-1.28)	(-2.28)
Board ownership	0.050	-1.372	-0.105	-0.644
	(0.30)	(-1.54)	(-0.35)	(-0.30)
Duality	0.024	0.217*	0.097	0.560**
	(0.70)	(1.84)	(1.56)	(1.96)
Busy board	-0.157*	-0.520	-0.334**	-1.315*
	(-1.95)	(-1.59)	(-2.00)	(-1.68)
ID-blockholder	-0.086	0.128	0.192	0.172
	(-1.02)	(0.43)	(1.54)	(0.29)
Ave ID tenure	-0.017**	-0.010	-0.017	-0.026
	(-1.98)	(-0.35)	(-1.09)	(-0.36)

Long-tenured ID %	-0.044	-0.412	-0.303	-1.581
	(-0.29)	(-0.89)	(-1.01)	(-1.44)
Cooption	-0.012	0.192	-0.162*	0.665
	(-0.24)	(0.97)	(-1.82)	(1.29)
Gender diversity	0.223	-0.919	-0.249	-3.749**
	(1.19)	(-1.08)	(-0.70)	(-2.15)
Professional ID %	0.004	-0.243	0.030	-0.884
	(0.05)	(-0.95)	(0.24)	(-1.42)
Industry fixed effects	Yes	No	Yes	No
Firm fixed effects	No	Yes	No	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	16,721	7,117	14,545	1,322

Table 10. Regressions of Firm Performance

This table reports the OLS regression analysis of firm performance. The dependent variable is a firm's industry-adjusted *ROA* in columns (1) and (2) and *Tobin's Q* in columns (3) and (4). In parentheses are *t*-statistics based on standard errors adjusted for heteroskedasticity and firm-level clustering. Superscripts ***, **, and * denote significance at 1%, 5%, and 10%.

	(1)	(2)	(3)	(4)
	Industry-adjusted ROA		*Tobin's Q*	
OID %	-0.014***	-0.007*	-0.140**	-0.184***
	(-2.86)	(-1.86)	(-2.05)	(-3.32)
Log market cap	0.017***	0.024***	0.283***	0.271***
	(15.48)	(15.54)	(18.69)	(12.90)
R&D	-0.276***	-0.194***	1.639***	-1.203*
	(-10.50)	(-5.72)	(4.57)	(-1.96)
Volatility	-0.236***	0.017	-0.774**	1.701***
	(-8.36)	(0.70)	(-1.98)	(4.45)
Log firm age	-0.013***	-0.012*	-0.228***	-0.519***
	(-5.25)	(-1.90)	(-6.69)	(-4.98)
Log CEO age	-0.003	0.011	-0.261**	0.129
	(-0.33)	(1.35)	(-2.05)	(1.05)
CEO quality	0.002***	0.000	0.026***	0.004
	(4.81)	(0.51)	(3.86)	(0.72)
E-index	-0.000	0.000	-0.022*	-0.018
	(-0.28)	(0.05)	(-1.72)	(-1.52)
Board size	-0.005***	-0.001***	-0.081***	-0.039***
	(-9.00)	(-3.38)	(-10.76)	(-5.84)
Board independence	-0.009	-0.005	-0.159	-0.139
	(-1.01)	(-0.78)	(-1.29)	(-1.50)
Board ownership	0.076**	0.026	1.644***	0.466
	(2.14)	(0.92)	(3.50)	(1.09)
Board ownership^2	-0.119*	-0.050	-2.609***	-0.782
	(-1.77)	(-0.99)	(-2.64)	(-1.06)
Duality	-0.006***	-0.003*	-0.071**	-0.040*
	(-2.73)	(-1.95)	(-2.52)	(-1.86)
Busy board	-0.025***	-0.008**	-0.294***	-0.077
	(-4.79)	(-2.12)	(-4.12)	(-1.36)
ID-blockholder	0.013*	0.006	0.134*	0.090*
	(1.94)	(1.54)	(1.75)	(1.91)
Ave ID tenure	0.000***	0.000***	0.001***	-0.000
	(4.75)	(7.72)	(3.55)	(-0.78)
Long-tenured ID %	0.022***	-0.001	0.368***	0.015
	(3.04)	(-0.25)	(3.42)	(0.19)
Cooption	0.000	-0.002	0.052	-0.037
	(0.01)	(-1.01)	(1.25)	(-1.06)
Gender diversity	-0.006	0.008	-0.106	-0.045
	(-0.42)	(0.70)	(-0.57)	(-0.28)

Professional ID %	-0.002	0.007**	0.060	0.153***
	(-0.39)	(2.49)	(0.98)	(3.10)
Industry fixed effects	Yes	No	Yes	No
Year fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects	No	Yes	No	Yes
N	18152	18035	18,174	18,055
Adjusted R^2	0.165	0.653	0.321	0.697

Table 11. Regressions with Instrumental Variable for Younger Local Director Candidates

This table presents the results of 2SLS regressions of firm performance. Columns (1) and (2) report the first- and second-stage estimation results for industry-adjusted *ROA*. Columns (3) and (4) report the first and second-stage estimation results for the regression of *Tobin's Q*. We instrument *OID %* with *Local pool of younger directors*, the number of directors and executives aged below 65 from firms headquartered in the same state as the sample firm scaled by the number of firms in the state. The null hypothesis of weak instruments is rejected. In parentheses are *t*-statistics based on standard errors adjusted for heteroskedasticity and firm-level clustering. Superscripts ***, **, and * denote significance at 1%, 5%, and 10%. Regression models in Panel A include the same set of control variables as in the OLS regressions in Table 10, while those in Panel B include a number of additional control variables, including the average quality of the independent directors on the board of the focal firm, the characteristics of other firms headquartered in the same state, and the economic conditions of the focal firm's headquarters state.

Panel A: Standard set of control variables				
	(1)	(2)	(3)	(4)
	Industry-adjusted ROA		*Tobin's Q*	
	First-stage	Second-stage	First-stage	Second-stage
Local pool of younger directors	-0.019***		-0.019***	
	(-3.44)		(-3.47)	
OID %		-0.254**		-3.300*
		(-1.98)		(-1.80)
Log market cap	0.001	0.018***	0.001	0.299***
	(0.23)	(13.30)	(0.23)	(16.37)
R&D	-0.191***	-0.313***	-0.192***	1.172**
	(-2.99)	(-8.38)	(-2.99)	(2.14)
Volatility	-0.156**	-0.271***	-0.159**	-1.248**
	(-2.03)	(-6.85)	(-2.08)	(-2.33)
Log firm age	-0.001	-0.013***	-0.001	-0.232***
	(-0.12)	(-4.59)	(-0.11)	(-5.76)
Log CEO age	0.257***	0.056	0.257***	0.544
	(9.33)	(1.56)	(9.33)	(1.08)
CEO quality	-0.000	0.002***	-0.000	0.024***
	(-0.42)	(4.03)	(-0.38)	(3.05)
E-index	0.002	0.000	0.002	-0.014
	(0.71)	(0.26)	(0.68)	(-0.94)
Board size	0.002	-0.005***	0.002	-0.080***
	(1.13)	(-6.58)	(1.10)	(-8.38)
Board independence	-0.049*	-0.022*	-0.049*	-0.315*
	(-1.78)	(-1.71)	(-1.79)	(-1.72)
Board ownership	0.187*	0.125**	0.190*	2.373***
	(1.92)	(2.44)	(1.94)	(3.36)
Board ownership^2	-0.184	-0.179**	-0.187	-3.583***
	(-0.96)	(-1.96)	(-0.97)	(-2.59)
Duality	0.003	-0.006**	0.003	-0.065*
	(0.51)	(-2.16)	(0.48)	(-1.79)
Busy board	0.065***	-0.008	0.065***	-0.079
	(4.31)	(-0.75)	(4.30)	(-0.52)
ID-blockholder	-0.021	0.007	-0.021	0.060
	(-1.26)	(0.87)	(-1.27)	(0.57)
Ave ID tenure	0.000	0.000	0.000	0.002*
	(0.74)	(1.57)	(0.74)	(1.73)
Long-tenured ID %	0.297***	0.094**	0.297***	1.340**
	(14.25)	(2.38)	(14.24)	(2.34)
Cooption	-0.050***	-0.011	-0.050***	-0.106
	(-5.24)	(-1.50)	(-5.26)	(-0.98)
Gender diversity	-0.352***	-0.086*	-0.351***	-1.205*
	(-9.29)	(-1.77)	(-9.26)	(-1.76)
Professional ID %	0.248***	0.060*	0.247***	0.855*

	(17.63)	(1.87)	(17.59)	(1.88)
Cragg-Donald Wald *F*-stat (Weak identification test)	45.51		46.76	
Stock-Yogo critical values (10% maximal IV size)	16.38		16.38	
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	16,676	16,676	16,697	16,697

Panel B: Augmented set of control variables

	(1)	(2)	(3)	(4)
	Industry-adjusted ROA		*Tobin's Q*	
	First-stage	Second-stage	First-stage	Second-stage
Local pool of younger directors	-0.034***		-0.034***	
	(-4.93)		(-4.92)	
OID %		-0.172**		-2.778**
		(-2.17)		(-2.42)
Control variables	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	12,459	12,459	12,462	12,462

Table 12. 2SLS Regressions of Firm Performance: Evidence from a Regulatory Shock

This table presents the results of 2SLS regressions of firm performance around the NYSE and Nasdaq regulation issuance in 2003. The sample is restricted to firms that are listed on NYSE or Nasdaq. The specifications are similar to those in the firm performance regressions in Table 10 except that all the variables are measured as changes over the event period 2001-2005. We define compliant firms as firms that had a majority of independent directors on the board in 2001 and noncompliant firms as the rest of firms. We instrument *Change in OID %* with *Noncompliance,* an indicator variable that equals one if the firm was noncompliant and zero otherwise. Columns (1) and (2) report the first- and second-stage estimation results for the regression of the change in industry-adjusted *ROA*. Columns (3) and (4) report the first- and second-stage estimation results for the regression on the change in *Tobin's Q*. In parentheses are *t*-statistics based on standard errors adjusted for heteroskedasticity. Superscripts ***, **, and * denote significance at 1%, 5%, and 10%.

	(1)	(2)	(3)	(4)
	Change in industry-adjusted ROA		*Change in Tobin's Q*	
	First-stage	Second-stage	First-stage	Second-stage
Noncompliance	0.061**		0.061**	
	(2.48)		(2.48)	
Change in OID %		-0.358**		-3.294*
		(-2.00)		(-1.70)
Change in Log market cap	-0.001	0.045***	-0.001	0.879***
	(-0.06)	(4.88)	(-0.06)	(11.02)
Change in R&D	0.066	-0.608***	0.066	-0.145
	(0.36)	(-4.95)	(0.36)	(-0.11)
Change in Volatility	-0.088	0.143	-0.088	2.146*
	(-0.36)	(0.87)	(-0.36)	(1.75)
Change in Log firm age	-0.144**	0.006	-0.144**	-0.934**
	(-2.16)	(0.13)	(-2.16)	(-2.38)
Change in Log CEO age	0.323***	0.096	0.323***	0.668
	(4.42)	(1.44)	(4.42)	(1.01)
Change in CEO quality	0.001	0.000	0.001	-0.026
	(0.47)	(0.20)	(0.47)	(-1.38)
Change in E-index	0.038***	0.010	0.038***	0.139
	(3.06)	(1.03)	(3.06)	(1.42)
Change in Board size	0.007	0.001	0.007	-0.004
	(1.56)	(0.29)	(1.56)	(-0.14)
Change in Board independence	0.017	0.086**	0.017	0.336
	(0.25)	(2.51)	(0.25)	(1.10)
Change in Board ownership	-0.325	-0.033	-0.325	0.006
	(-1.12)	(-0.22)	(-1.12)	(0.00)
Change in Board ownership^2	0.049	-0.028	0.049	-1.015
	(0.09)	(-0.11)	(0.09)	(-0.41)
Change in Duality	0.014	-0.001	0.014	-0.035
	(0.93)	(-0.11)	(0.93)	(-0.41)
Change in Busy board	0.027	0.008	0.027	0.102
	(0.80)	(0.43)	(0.80)	(0.60)
Change in ID-blockholder	0.007	-0.010	0.007	-0.150
	(0.14)	(-0.51)	(0.14)	(-0.73)
Change in Long-tenured ID %	0.030***	0.012**	0.030***	0.077
	(9.08)	(2.06)	(9.08)	(1.25)
Change in Cooption	-0.141**	-0.084**	-0.141**	-0.185
	(-2.18)	(-2.15)	(-2.18)	(-0.46)
Change in Gender diversity	-0.067***	-0.017	-0.067***	-0.186
	(-2.69)	(-0.95)	(-2.69)	(-1.05)
Change in Professional ID %	-0.284***	-0.135*	-0.284***	-0.318
	(-2.62)	(-1.90)	(-2.62)	(-0.46)
Industry fixed effects	Yes	Yes	Yes	Yes
N	845	845	845	845

Table 13. Advisory Benefits of Old Independent Directors

This table reports analysis of the advisory benefits of OIDs. In Panel A, an OID is defined as having acquisition experience if she has participated in at least one acquisition made by another firm where she served as a director or an executive during the previous 10 years. An OID is defined as having target industry experience if she has previously served as a director or an executive at another firm in the same 3-digit SIC industry as the acquisition target. In Panel B, *Tariff Cut* is an indicator equal to one if a firm's industry experiences a tariff cut during the past five years and zero otherwise. In Panel C, the indicator *High advisory need* is equal to one if *Advisory need* is above the annual median, where *Advisory need* is the average of *Industry volatility* (the average standard deviation of annual stock returns for all firms in the industry), negative one times *Firm age* (the number of years that a firm exists in Compustat), *Sales growth* (the annual growth rate of sales), and *Multiple-segment* (an indicator variable equal to one for firms with more than one business segment reported in Compustat). The four variables are standardized to have a mean of zero and a standard deviation of one. The *Low advisory need* indicator is equal to one minus *High advisory need*. In Panel D, an OID is defined as busy if she holds 3 or more directorships in public firms. In Panels B–D, the dependent variable is either industry-adjusted *ROA* or *Tobin's Q*. In parentheses are *t*-statistics based on standard errors adjusted for heteroskedasticity and firm-level clustering. Superscripts ***, **, and * denote significance at 1%, 5%, and 10%.

Panel A. Regressions of Acquirer Returns: OID Experience		
Definition of experience:	Acquisition experience	Target industry experience
Inexperienced OID %	-0.014***	-0.012***
	(-3.17)	(-2.97)
Experienced OID %	0.001	0.009
	(0.13)	(0.72)
Difference in coefficients	-0.015*	-0.021*
	(-1.73)	(-1.79)
Control variables	Yes	Yes
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
N	3,088	3,088
Adjusted R^2	0.054	0.054

Panel B. Regressions of Firm Performance: Import Tariff Cuts				
	Industry-adjusted ROA		*Tobin's Q*	
OID %	-0.016*	-0.014	-0.087	-0.333**
	(-1.77)	(-1.44)	(-0.55)	(-2.05)
Tariff Cut	-0.018**	-0.017**	-0.177	-0.192
	(-1.98)	(-2.05)	(-1.34)	(-1.55)
*OID % * Tariff Cut*	0.046*	0.066***	0.519	0.687**
	(1.83)	(3.43)	(1.29)	(2.28)
Control variables	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	No	Yes	No
Firm fixed effects	No	Yes	No	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	3,338	3,282	3,338	3,283
Adjusted R^2	0.314	0.685	0.385	0.691

Panel C. Regressions of Firm Performance: Firms' Advisory Need				
	Industry-adjusted ROA		*Tobin's Q*	
*OID % * Low advisory need*	-0.018***	-0.009**	-0.237***	-0.212***
	(-3.35)	(-2.22)	(-3.32)	(-3.82)
*OID % * High advisory need*	-0.008	-0.005	0.001	-0.112*
	(-1.44)	(-1.19)	(0.01)	(-1.70)
Difference in coefficients	-0.010**	-0.004	-0.238***	-0.100*
	(1.96)	(1.03)	(3.38)	(1.91)
Control variables	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	No	Yes	No
Firm fixed effects	No	Yes	No	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	16,348	16,204	16,363	16,218
Adjusted R^2	0.177	0.669	0.334	0.724
Panel D. Regressions of Firm Performance: OID Busyness				
	Industry-adjusted ROA		*Tobin's Q*	
Busy OID %	-0.039***	-0.027***	-0.508***	-0.317***
	(-3.83)	(-3.28)	(-3.84)	(-3.03)
Non-busy OID %	-0.013**	-0.004	-0.119	-0.159***
	(-2.48)	(-1.11)	(-1.64)	(-2.70)
Difference in coefficients	-0.026**	-0.023***	-0.389***	-0.158
	(-2.56)	(-2.87)	(-2.98)	(-1.52)
Control variables	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	No	Yes	No
Firm fixed effects	No	Yes	No	Yes
Year fixed effects	Yes	Yes	Yes	Yes
N	18,152	18,035	18,174	18,055
Adjusted R^2	0.162	0.653	0.320	0.697

Appendices

Table A1. Variable Definitions

Variable	Definition
Firm characteristics	
Log market cap	The natural logarithm of the market value of equity. (source: Compustat)
Stock return	The stock return over the year. (source: CRSP)
R&D	Ratio of research and development expenses to net sales. (source: Compustat)
Volatility	Standard deviation of monthly stock returns during the last five fiscal years. (source: CRSP)
Firm age	The number of years that a firm exists in Compustat. (source: Compustat)
CEO quality	Industry-adjusted operating income growth over the 3 years. (source: Compustat)
CEO age	The age of the CEO. (source: Execucomp)
Ave executive age	The average age of the executive team. (source: Execucomp)
Governance characteristics	
OID %	The number of independent directors aged 65 or above divided by the total number of independent directors. (source: ISS)
Local pool of younger directors	the number of directors and executives aged below 65 from firms headquartered in the same state as the sample firm scaled by the number of firms in the state. (source: Execucomp and ISS)
E-index	The Bebchuk et al. (2009) entrenchment index of six takeover defenses. (source: ISS)
Board size	The number of directors sitting on the board. (source: ISS)
Board independence	The percentage of directors who are independent. (source: ISS)
Board ownership	The aggregate percentage of shares owned by all directors. (source: ISS)
Duality	An indicator equal to one if CEO is also the board chair, and 0 otherwise. (source: ISS)
Busy board	The percentage of independent directors who hold 3 or more directorships of public firms. (source: ISS)
ID-blockholder	An indicator equal to one if at least one independent director is a blockholder and 0 otherwise. Blockholders are investors with at least 5% share ownership in the firm. (source: ISS)
Ave ID tenure	The average tenure of independent directors. (source: ISS)
Long-tenured ID %	The percentage of independent directors who have at least 15 years of tenure. Tenure is measured as the number of years between current year and the year when the director's board service began. (source: ISS)
Cooption	The percentage of independent directors who are appointed after the current CEO assumes office. (source: Execucomp and ISS)
Gender diversity	The percentage of female directors on the board. (source: ISS)
Professional ID %	The percentage of professional independent directors, who are defined as independent directors without concurrent employment. (source: ISS)
Outcome variables	
Attend_less75_pct	An indicator equal to one if an independent director attended less than 75% of a firm's board meetings, and zero otherwise. (source: ISS)
Number of committee memberships	The number of committee memberships on the audit committee, compensation committee, nominating committee and governance committee. (source: ISS)
Committee chair	An indicator variable equal to one if a director is the chair of any committee, and zero otherwise. (source: ISS)
Audit and compensation committee member	An indicator variable equal to one if a director sits on both the audit committee and the compensation committee, and zero otherwise. (source: ISS)
Audit or compensation committee chair	An indicator variable equal to one if a director is the chair of the audit committee or the compensation committee, and zero otherwise. (source: ISS)
%Withheld	The sum of shares voted against and shares voted abstain, scaled by all shares voted. (source: ISS)
ISS against	An indicator equal to one if ISS recommends a withhold, against, or no vote for

	the director, and zero otherwise. (source: ISS)
Acquirer CAR	Cumulative abnormal returns over the 5–day window (-2, 2), where day 0 is the announcement date. To calculate expected returns, we estimate a market model using the value-weighted market return over the 200-day period (-11, -210). (source: SDC and CRSP)
Forced turnover	An indicator equal to one if a firm experiences a forced CEO turnover, and zero otherwise. (source: Factiva)
Total compensation	The natural logarithm of the dollar value of the CEO's total annual compensation. (source: Execucomp)
Cash intensity	The proportion of total annual CEO compensation that comes from cash. This is the amount of total current compensation (salary and bonus) scaled by total compensation. (source: Execucomp)
Equity intensity	The proportion of total annual CEO compensation that comes from option grants and stocks. This is the value of annual option awards plus the value of annual stock grants scaled by total compensation. (source: Execucomp)
Restatement	An indicator equal to 1 if the firm subsequently restated the financial statements for that fiscal year, and 0 otherwise. (source: GAO and Audit Analytics)
Irregularity	An indicator equal to 1 if the firm subsequently restated the financial statements for that fiscal year and the restatement is classified as irregularity, and 0 otherwise. (source: GAO and Audit Analytics)
ROA	Ratio of operating income before depreciation to total assets. (source: Compustat)
Tobin's Q	Ratio of market value of assets to book value of assets. (source: Compustat)

Table A2. Details of Sample Construction for Older Independent Director Appointment Announcements

Directors 65 or older at first appearance on a firm's board in ISS	**2,213**
- Appointment news is unavailable in the Factiva database	747
- Appointments by dual class firms	178
- Appointment news occurs several years earlier than first appearance in ISS (probably appointment age below 65) or later than first appearance in ISS (probably reelection of incumbent directors)	39
- Director age is in fact slightly below 65 based on news articles around initial board appointments	86
- Data around appointments are unavailable in CRSP/ISS/COMPUSTAT	36
Full sample	**1,127**
- Directors are elected at annual shareholder meetings	154
Non-proxy sample	**973**
- Multiple appointments of directors	200
- Dividend/repurchase/stock split	36
- Top officer turnover (CEO/CFO/Chair/President/Vice President)	22
- Merger/acquisition/spinoff	15
- Earnings announcement	13
- Proxy contest	5
- Executive pay	2
- Raising capital	1
- Strategic plan to cut expenses	1
- Separation of CEO and Board Chair titles	1
- Moving headquarters	1
Clean sample	**676**

Table A3. Details of Sample Construction for Independent Director Deaths

Director death events found	**172**
- Data are unavailable in CRSP	9
- Director age information is missing	1
- Filing date is missing or filing date is over 20 trading days after date of death	16
- Confounded by simultaneous announcement of a replacement director	7
- Confounded by material firm news releases	6
Clean sample	**133**

Table A4. Details of Sample of Firm Director Retirement Policy Changes

Event type	**Full sample**	**Clean sample**
1. Increase mandatory retirement age	51	35
2. Remove mandatory retirement age	21	9
3. Extend the exact retirement date (e.g. from "upon 72th birthday" to "upon the next annual meeting following 72th birthday"	11	8
4. Waive mandatory retirement age for certain directors	4	3
5. Grant the board the discretion to waive mandatory retirement age	2	2
6. Allow the board to appoint emeritus directors beyond mandatory retirement age	2	2
Total number of events	91	59

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