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How Valuable are Independent Directors? Evidence from External Distractions

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Abstract

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Keywords: Independent directors, director incentives, director distraction, corporate performance

JEL Classification: G34

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How valuable are independent directors? Evidence from external distractions*

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September 8, 2018§

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Abstract

We provide new evidence on the value of independent directors by exploiting exogenous events that seriously distract independent directors. Approximately 20% of independent directors are significantly distracted in a typical year. They attend fewer meetings, trade less frequently in the firm's stock, and resign from the board more frequently, indicating declining firm-specific knowledge and a reduced board commitment. Firms with more preoccupied independent directors have declining firm valuation and operating performance and exhibit weaker merger and acquisition (M&A) profitability and accounting quality. These effects are stronger when distracted independent directors play key board monitoring roles and when firms require greater director attention.

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1. Introduction

Agency theory views boards of directors as a key corporate governance mechanism for protecting shareholder interests, and independent directors are particularly important for the effective functioning of the board (Fama and Jensen, 1983). Yet, empirical assessments of the value of independent directors are decidedly mixed, leaving the value of independent directors an important unsettled question in the literature (Bhagat and Black, 1999; Gordon, 2007; Adams, Hermalin, and Weisbach, 2010). While some studies find a positive relation between board independence and corporate outcomes (e.g., Byrd and Hickman, 1992; Cotter, Shivdasani, and Zenner, 1997; Dahya, Dimitrov, and McConnell, 2008; Aggarwal, Erel, Stulz, and Williamson, 2009), others find no relation (Baysinger and Butler, 1985; Bhagat and Black, 2002) or changing relations depending on a firm's information cost environment (Duchin, Matsusaka, and Ozbas, 2010). Mixed results are also found in earlier studies that examine the value of all outside directors.[1]

Recently, several studies have questioned the usefulness of independence as a primary director characteristic, with alternative director traits being proposed as superior measures of board quality (such as director co-option in Coles, Daniel, and Naveen, 2014) and certain independent directors being reported to be ineffective (such as busy independent directors). While some studies find that busy outside directors hurt firm value (e.g., Core, Holthausen, and Larcker, 1999; Fich and Shivdasani, 2006), other studies fail to find a significant effect (e.g., Ferris, Jagannathan, and Pritchard, 2003) or find the direction of the impact of busyness to vary with firm age (Field, Lowry, and Mkrtchyan, 2013). Nevertheless, the Institutional Shareholder Services (ISS) and the National

[1] Earlier research finds the association between the proportion of outside directors and corporate outcomes to be positive (Weisbach, 1988; Brickley, Coles, and Terry, 1994; Borokhovich, Parrino, and Trapani, 1996), contingent on high R&D intensity (Coles, Daniel, and Naveen, 2008), varying with model specification (Yermack, 1996), negative (Agrawal and Knoeber, 1996), and insignificant (Hermalin and Weisbach, 1991).

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Association of Corporate Directors (NACD), among others, recommend placing limits on the number of board seats held by an individual director. Approximately three quarters of the boards of S&P 500 firms place limits on directors sitting on multiple boards, according to the 2016 Spencer Stuart Board Index.

Hermalin and Weisbach (2003) conclude from these conflicting empirical results that sharper experimental designs largely free of endogeneity concerns are needed. This study's goal is to improve the identification of independent director effects by exploiting major external distractions that individual independent directors can face.[2] External director distractions provide a sharp experimental setting to isolate the value of independent directors for several reasons. First, they are exogenously triggered, temporary, and can occur more than once. These features help to rule out alternative explanations for our findings. Second, a distracted independent director simply stops supplying the same level of advising and monitoring services previously provided, yet she is usually not replaced. This rules out alternative explanations related to expectations about the characteristics of replacement directors. Third, director distractions are economically important, and the severity of a distraction's impact varies with its duration and the relative importance of a director's roles. This allows us to undertake additional tests in the cross-section to further validate and isolate the roles and benefits of independent directors.

The external distractions we study fall into two fundamental categories, namely personal and professional. Personal distractions include major illness/injuries as well as winning major national or international awards. Professional distractions include challenges faced at another firm where the independent director concurrently sits on the board. These firm-level challenges include

[2] The intuition behind our approach is that distracting events demand additional director attention. According to the theoretical paper of Holmstrom and Milgrom (1991) on multi-tasking, if the marginal value of attention allocated elsewhere rises, then an agent will reallocate away from the current task.

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both events that reflect negatively about board performance (i.e., declines in industry-adjusted firm performance, financial misconduct investigations, and financial distress) and events that generally have no negative performance implications (i.e., M&As, divestitures, CEO illness/injuries, and CEO turnover). To minimize endogeneity issues, we require that the distraction event firm has no major economic connection with the firm in question, and that the independent director plays an important role at the event firm where the professional distraction occurs. We treat the roles of the director at the event firm to be important if (1) the independent director is an officer-director at the event firm, (2) the independent director is a committee chair with oversight responsibilities for the corporate event at the event firm, or (3) the event firm experiencing the distracting corporate event is prestigious compared to other firms where the director concurrently sits on the board.

Our initial sample consists of S&P 1500 firms over the 2000–2013 period. BoardEx is the primary source of director information. If the distraction period overlaps with the majority of the firm's fiscal year (or at least a quarter of the fiscal year in the case of a major illness/injury), we consider this director-year as "preoccupied" (or just "distracted" hereafter). About 21.9% of independent directors are preoccupied in a typical sample year by a combination of distracting events, and a typical independent director-firm observation is preoccupied about once every 4.5 years. Thus, director distractions represent a common economic phenomenon.

As a first step in our analysis, we test whether our selected exogenous distractions shift an independent director's attention away from their normal board responsibilities. We find that distracted independent directors exhibit a 1.2 percentage point higher probability of missing at least 25% of board meetings, a lower trading frequency in the firm's stock, and a higher likelihood of unexpectedly leaving the board within the next two years. These findings indicate that our selected distractions represent serious negative shocks to a director's board commitments.

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We next exploit these negative exogenous shocks to director attention to assess the value of independent directors to a firm. We find that a one standard deviation increase in the fraction of independent directors who are distracted reduces a firm's median return on assets (*ROA*) and Ln(*Tobin's Q*) by 2.9% and 3.76%, respectively. Firm operating efficiency, accounting quality, and M&A profitability also suffer significantly when more independent directors are distracted. We find that the negative effects of distracted independent directors are stronger when these directors are non-co-opted (following the Coles, Daniel, and Naveen, 2014 definition) and when the firms in question require more director attention. We find that accounting quality suffers mainly when distracted independent directors sit on the audit committee, while acquisition profitability suffers primarily when distracted independent directors have prior acquisition experience. These key findings hold using the full sample and in a matched sample formed by pairing firms with and without a distracted independent director by industry, year, and a 5% radius of their propensity scores. These findings show that independent directors are valuable firm monitors and advisors, especially when they play key board roles or have critical expertise.

We conduct a variety of robustness tests, two of which are particularly important. First, we evaluate spillover effects of director distractions, where other directors on the same board or the same committee take up the slack caused by a distracted director and intensify their own board commitments and in turn become distracted at their other boards (an issue first studied by Falato, Kadyrzhanova, and Lel, 2014). We define an independent director to be distracted due to a spillover effect if she sits on a second board where another independent director becomes sick, injured, or departs from the same board nomination or compensation committee (which are particularly busy committees according to Laws, 2007). We find evidence that this type of

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distraction matters, but that it provides relatively weaker results compared to our primary director distractions.

Second, we evaluate the possibility that our results are driven by macro-level shocks that broadly affect all firms in an industry or in the economy. To test this conjecture, we separately examine distractions due to illnesses/injuries and major awards, which have no relation to events occurring at other firms in the industry or the overall economy. We also exclude economic recessions, which can raise earnings correlations and yield non-representative findings. Our results are robust to these sensitivity tests, indicating that our results are not driven by macro-level shocks.

As further robustness tests, we decompose the impacts of distractions by event and strength and conduct a matched difference-in-difference analysis. Importantly, we find consistent results when we limit our analysis to personal distractions and professional distractions unrelated to poor performance, which avoid endogeneity concerns due to a common badly performing director at both firms. We further find that a distraction's effect rises with its persistence, the number of events simultaneously distracting a director and the relative importance of other directorships.

This study makes several important contributions to the literature. First, we exploit director distractions as an exogenous shock to the level of monitoring and advising supplied by independent directors. Under this clean experimental setting, we find persuasive evidence that board independence increases shareholder wealth. Our findings highlight the fact that not all independent directors are fully engaged, and only non-distracted independent directors consistently add value. This may be a major reason why many prior studies of board independence yield insignificant or contradictory results, despite the clear prediction of agency theory (Fama and Jensen, 1983).

Second, this study contributes to the literature on busy directors. While several papers find busy directors or busy boards are associated with worse firm value and corporate outcomes (e.g.,

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Core, Holthausen, and Larcker, 1999; Fich and Shivdasani, 2006), others do not (e.g., Ferris, Jagannathan, and Pritchard, 2003). Taking the middle ground, Field, Lowry, and Mkrtchyan (2013) find the effect of busy directors to vary with firm characteristics. More recently, Falato, Kadyrzhanova, and Lel (2014) use deaths of directors and CEOs as a natural experiment to generate exogenous variation in the attention of independent directors who sit on multiple boards. Our study substantially expands the range of distractions that exogenously reduce a director's time and attention. The broad set of director distractions we examine include distractions to directors who sit on a single board. All the types of distractions we study also directly demand more attention from directors. And we provide new evidence that when independent directors face such external distractions, their firms experience more negative corporate outcomes.

Third, our study contributes to the literature studying the link between director independence and information cost. Duchin, Matsusaka, and Ozbas (2010) find that when firm-level information cost is high, having more independent directors lowers firm performance. In our study, distractions serve as a shock that temporarily increases the information acquisition cost of a particular director and thereby makes her more reliant on information provided by management. We find that a rise in director-level information costs leads to negative corporate outcomes.

Fourth, we take into account that firm outcomes can be affected by the duration of a distraction, the relative importance of the other firm to the distracted directors (to capture an independent director's incentives to reallocate attention), the importance of the roles these independent directors play at the firm in question, and the fraction of the board they represent. That is, it is not simply the occurrence of a distraction that matters: the relative importance and persistence of the distraction also matter. Furthermore, not only do the characteristics of a

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distraction matter, but a distracted director's influence on board decisions and the importance of their monitoring and advisory roles at the firm also matter.

Fifth, as a falsification test, we assess firm-level effects of distractions to affiliated (i.e., gray) outside directors. We find that distractions to affiliated directors do not have significant effects on firm value or other key corporate outcomes. These results further support the conclusion that it is primarily independent directors, not all outside directors, who are effective monitors. Byrd and Hickman (1992) also draw a similar conclusion when comparing independent and affiliated directors in the context of tender offer bids. Affiliated outside directors also enable us to isolate the effects of director advisory services, given that affiliated directors cannot provide credible monitoring services. The insignificant effects of distractions to affiliated directors suggests that for an average firm, the advisory services of these directors are not particularly valuable, which is consistent with the complementary nature of independent directors' advisory and monitoring activities. Thus, independent directors and affiliated outside directors should not generally be aggregated or treated as having equivalent effects as a number of recent studies have done.

Lastly, we highlight the time-varying nature of independent director attention. We find that independent directors are not equally effective over time at the various boards on which they sit. Although board memberships may remain constant, the allocation of a director's time and attention can still vary substantially when distractions occur, which in turn reduces director effectiveness.

2. Existing literature and our contribution

This study is closely related to three streams of literature. The first stream examines the value of independent directors. Despite the importance of directors (especially independent ones) predicted by agency theories (Fama and Jensen, 1983), prior literature has delivered conflicting

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results on the relation between corporate outcomes and board independence. Some research finds evidence that supports the value of board independence (e.g., Byrd and Hickman, 1992; Cotter, Shivdasani, and Zenner, 1997; Dahya, Dimitrov, and McConnell, 2008; Aggarwal, Erel, Stulz, and Williamson, 2009). This also includes some recent studies that attempt to establish causality using shocks (e.g., sudden deaths in Nguyen and Nielsen, 2010 and Fahlenbrach, Low, and Stulz, 2017; the 2003 NYSE and Nasdaq listing rules in Guo and Masulis, 2015) and supply-based instrumental variables (e.g., local director pools in Knyazeva, Knyazeva, and Masulis, 2013). Other studies in contrast find the overall relationship between independent directors and firm performance is insignificant (Baysinger and Butler, 1985; Bhagat and Black, 2002) or varies with a firm's information asymmetry level (Duchin, Matsusaka, and Ozbas, 2010).

Researchers also found mixed results when using a broader definition of outside directors. For example, some studies find that under outsider-dominated boards, shareholders benefit more from poison pill adoptions (Brickley, Coles, and Terry, 1994) and targeted tender offers (Cotter, Shivdasani, and Zenner, 1997), and there is a stronger association between firm performance and CEO resignations (Weisbach, 1988). Also, the percentage of outside directors and the frequency of outside CEO successions are positively correlated (Borokhovich, Parrino, and Trapani, 1996). In contrast, other studies find the relation between outside directors and corporate outcomes to be insignificant (Hermalin and Weisbach, 1991; Huson, Parrino, and Starks (2001), negative (Agrawal and Knoeber, 1996), nonlinear (Byrd and Hickman, 1992), or conditional on firm complexity (Coles, Daniel, and Naveen, 2008).

The second stream of literature challenges the importance of board independence by focusing on different types of directors. For example, Coles, Daniel, and Naveen (2014) show that co-opted directors are not effective in monitoring, and this effect of co-option is primarily driven

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by co-opted independent directors. They also conclude that "[I]f there were a statistical horse race between *Co-option* and *Independence*, *Co-option* would appear to be more successful" (Coles, Daniel, and Naveen, 2014, p. 1753). Besides co-opted independent directors, earlier studies find that other classes of independent directors also appear to be less than fully independent, such as directors who are socially connected to the CEO (Hwang and Kim, 2009; Fracassi and Tate, 2012) and who have a prior overly positive assessments of the firm as sell side analysts (Cohen, Frazzini, and Malloy, 2012).

Finally, this study is related to the literature examining the value of busy independent directors. This issue is closely related to the value of independent directors, given that the actual independence of busy directors has been challenged and their value to shareholders is especially controversial. While some studies find that busy directors are value-destroying (e.g., Core, Holthausen, and Larcker, 1999; Fich and Shivdasani, 2006), others do not (e.g., Ferris, Jagannathan, and Pritchard, 2003). More recently, Field, Lowry, and Mkrtchyan (2013) show that the costs and benefits of director busyness depend on a firm's relative advising versus monitoring needs (which vary with firm age).[3] This mixed evidence is not surprising, given that the number of directorships held by an individual director (which is used as a proxy for director busyness) is also correlated with director talent and reputation (Adams, Hermalin, and Weisbach, 2010). To overcome this endogeneity issue, Falato, Kadyrzhanova, and Lel (2014) use sudden deaths of board committee members as an exogenous shock that reduces an independent director's attention at other firms where they also serve on the board (i.e., making the independent director busier) without changing her number of directorships. Hauser (2018) studies directors on multiple boards

[3] Field, Lowry, and Mkrtchyan (2013) include both private and public firms in counting a director's board seats, while other busy director studies only count public firms, which are generally much larger. Field, Lowry, and Mkrtchyan (2013) conclude that the positive impact of busy directors in IPO firms is due to their advisory services, since busy directors are not expected to closely monitor.

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who lose a directorship after a merger, making them less busy. Both studies conclude that director busyness destroys shareholder value. Stein and Zhao (2017) and Wang and Verwijmeren (2017) each study a professional distraction to independent directors, namely poor stock performance of their primary employers and unusually high return volatility in unrelated industries where they hold directorships, respectively. Bennedsen, Perez-Gonzalez, and Wolfenzon (2010) study CEOs distracted by deaths of family members and find their firms experience negative outcomes. Malmendier and Tate (2009) find that firms where CEOs win prestigious awards subsequently underperform. Relatedly, Chen and Guay (2017) find that although busy directors receive lower shareholder voting support than non-busy directors, this voting support substantially weakens as an individual director's other time constraints rise.

Considering the compelling theoretical support for the value of independent directors (Fama and Jensen, 1983), the prior mixed evidence suggests a need for an improved experimental design for assessing independent directors (Hermalin and Weisbach, 2003). We thus examine a broad set of exogenous personal and career-related distractions that either directly raise the external workloads of independent directors or reduce their work capacity, which thereby lower their effectiveness at the firms-in-question. The distractions we study are exogenous, temporary, repeatable and usually do not cause changes in board membership. Our selected distractions also include a large number of non-negative events. Moreover, we take into account the severity (based on the direction's relative importance to the director) and duration of the distractions.

3. Independent director distractions

We analyze two major forms of director distractions that are exogenously triggered, namely personal and professional. Personal distractions include major health problems and winners of

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major national/international awards. Professional distractions are major events occurring at another S&P 1500 firm where the director also sits on the board. These events at another firm include CEO illness/injury, CEO turnover, declining industry-adjusted firm performance (measured by *ROA* and stock return), significant restructuring activity (including M&As and divestitures), financial misconduct investigations, and financial distress (including credit ratings downgrades, Chapter 11 filings, and exchange delistings). Appendix A.1 provides detailed definitions, justifications, and data sources for each distracting event.

We require all professional events to satisfy two conditions. First, the firm-level events must demand substantial board attention so that a director's workload at the event firm increases. In Table 3.3 of the online Internet Appendix, we show that the number of board meetings is significantly positively correlated with the occurrence of these events. Second, the directorships where these distracting events occur are relatively important for the independent director, or the director is highly involved with responding to the event. That is, (1) the independent director is an officer-director at the event firm, (2) the independent director is the chair of the event-related committee (i.e., nomination committee in cases of CEO illness/injury and CEO turnover, audit committee in cases of financial misconduct, and investment committee in cases of restructuring events) at the event firm, or (3) the firm experiencing the event is at least 10% larger than the smallest directorship the director holds. Masulis and Mobbs (2014) find that directors with multiple directorships allocate their attention based on the relative firm size. Thus, a director is unlikely to shift attention away from the firm in question to address problems at a relatively unimportant event firm, even if the problems themselves are important.

We collect the beginning and ending dates of each distraction event and capture their overlap with the firm in question's fiscal years so that we have a measure of the proportion of the

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fiscal year that an independent director is distracted. A director is treated as preoccupied for the year if she is distracted for at least 50% of the fiscal year (25% of the year in the case of illness/injury, which is likely to have more severe impacts). Definitions of the beginning and ending dates of each distraction event are provided in Appendix A.1.

Both the personal and professional distractions we study should be exogenous. The personal distractions (in the form of illness/injury and awards of independent directors) are exogenous because an individual is unlikely to be severely sick/injured or to win prestigious awards for her activities as an independent director. To minimize potential endogeneity of professional distractions, we require the firm in question does not have a significant economic or financial connection with the event firm where the same director concurrently sits on the board. The Clayton Antitrust Act 1914 makes directors sitting on competitors' boards vulnerable to criminal prosecution for anti-competitive behavior. We also exclude distractions that occur at major customer or supplier firms since they could significantly affect the firm in question through their business relationships. We obtain major customer/supplier relationship information from the Compustat Customer Segment data, which reports public customers that account for at least 10% of a public firm's sales. We find that eliminating distractions due to major customer/supplier firms only reduces the proportion of distracted independent directors by 1% of the S&P 1500 sample. This suggests directors are reluctant to sit on the boards of customers or suppliers, possibly because this can be viewed as creating a conflict of interest. Lastly, we exclude cases where a distracted independent director is a commercial banker who may offer financial services to the firm.

The non-negative distractions are especially unlikely to create endogenous links between poor performance at the event firm and at the firm in question due to poor performance of the common director. With respect to declining firm performance and credit ratings downgrades that

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are performance-related negative distractions, it is important to note that their definitions include mild performance declines or downgrades. Since mildly negative events are less likely to reflect poor board performance, they are less prone to endogeneity concerns associated with having a poorly performing director on both boards. To summarize, the director distractions that we analyze must be outside the current firm's control.

We jointly assess the effects of multiple director distractions by observing whether all distractions collectively distract a director for the majority of a fiscal year. Because it is the combined effect of all distractions faced by an individual director that determines whether the director is significantly distracted, focusing on a single distraction can yield misleading inferences. We analyze the impacts of each type of distraction separately in Section 9.3.

4. Data, sample, and regression specification

4.1. Data

We use BoardEx as the primary source of director information. BoardEx classifies independent directors based on a company's disclosures in U.S. Securities and Exchange Commission (SEC) filings. We then reclassify interlocked independent directors as affiliated. Two directors are treated as interlocking if they are inside directors on each other's board within the BoardEx universe. Approximately 0.8% of directors are classified as interlocked directors, and 1.2% of otherwise independent directors fall into the interlocked category and therefore are reclassified as affiliated directors.

To obtain insider trading and meeting attendance records of directors, we match Thomson Reuters Insider Filings Data and RiskMetrics to BoardEx by firm, director name, and year. BoardEx uses firm annual reports as its primary data source that are backward-looking, while

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RiskMetrics data are from proxy filings that are forward-looking. We take this timing difference into account when matching. We also use matching algorithms developed by Sen and Tumarkin (2015) that take into account the possibility of misspelling, incorrect name order, nick names, and omissions (of middle name, for example) and give extra weight to phonetic structures that appear infrequently. To insure accuracy of the matches, we compare Committee on Uniform Security Identification Procedures (*CUSIP*) numbers and director birth years, and we manually go through all machine-matched pairs to uncover errors. To account for company name changes, we manually search Edgar for all the company's historical names where director names match, but company names do not. We then match BoardEx with Compustat and Center for Research in Security Prices (CRSP), using Central Index Key (CIK), International Securities Identification Number (ISIN) (from which a firm's *CUSIP* is extracted) and company names. Appendix A.2 provides further information on our director name matching and data cleaning procedures for the RiskMetrics and BoardEx databases. Appendix A.3 provides further details on sources and definitions of all the variables that we analyze.

4.2. Sample

Our sample covers fiscal years 2000-2013. We restrict our sample to S&P 1500 firms for two main reasons. First, it strengthens the exogeneity of distracting events occurring at other firms where the independent director concurrently serves as a director. Since regulators scrutinize larger firms more closely for anti-competitive behavior, these directors are likely to treat Clayton Antitrust Act liability seriously and avoid sitting on the board of a competing firm. Second, we define a distraction due to declining firm performance relative to the industry median and measure industry performance within the S&P 1500 to ensure more accurate identification of this event.

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S&P 1500 firms generally benchmark their own performance against other S&P 1500 firms. Throughout this study, we define an "industry" by its Fama-French 48 industry classification.

Table 1 provides summary statistics for distracting events. Panel A presents the correlation of independent directors being preoccupied by different types of distractions in a given year. The correlations are strongly statistically significant, but the magnitudes are substantially below one. Thus, we include all these distraction events in our analysis. Panel B summarizes the durations of distraction events faced by an independent director as a fraction of the firm's fiscal year. Among all events, declining stock performance is most prevalent and affects 17,169 out of 93,665 independent director-firm-year observations in our sample. Taking all distraction events into account, a total of 24,210 independent director-firm-year observations experience at least one distraction, and these distracted directors are, on average, preoccupied by a combination of these events for 83.8% of a fiscal year. For a director, the periods of different distractions can overlap, but overlapping periods are counted only once per director-firm-fiscal-year.[4]

Panel C summarizes the frequency of an independent director being distracted for a majority of a year by event type, by a combination of all distraction events and by more than one event, respectively. Columns 1-3 of Panel C are based on independent director-firm-year-level data, whereas Columns 4-6 are based on independent director-firm level data. Columns 1-3 summarize the proportion of independent director-firm-year observations that are preoccupied for a majority of a year. Columns 4-6 show the frequencies of distractions occurring to the same independent director-firm, by calculating the proportions of preoccupied years within each director-firm group and summarizes the frequencies at the director-firm level. The most frequent

[4] For robustness, we exclude observations where an independent director is distracted by a combination of distracting events for a majority of each year during the three-year period. We do not find stronger results, which suggests that long-term distractions remain consequential at the director level.

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distraction is declining stock performance and, on average, it occurs once every seven (=1/0.137) years. An independent director (more precisely, an independent director-firm combination) is likely to be preoccupied about once every five (=1/0.219) years due to a combination of distracting events and every nine (=1/0.112) years due to more than one event. Overall, the results suggest that preoccupation happens widely but not all the time. They are also temporary and yet account for a non-negligible fraction of total director-firm-fiscal-years.

For director-level analysis, we exclude financial and utility firms. This leaves 93,665 independent director-firm-years. Table 2 reports summary statistics for key variables at the director level. According to Panel A, about 21.9% of independent directors are preoccupied in a typical year by a combination of distracting events. Thus, distractions represent an important economic phenomenon. Only 20,466 independent director-firm-year observations in our sample have traded in their own firm's stock, and these directors trade about five times a year. Only 2.4% of independent directors attend less than 75% of board meetings. The mean (median) number of directorships held by an independent director is 1.9 (2). We generate this variable by counting a director's number of directorships within the S&P 1500 index. We do not consider all directorships, as board positions at smaller firms are likely to be much less important to a director (i.e., non-S&P 1500) and thus are unlikely to strongly affect her commitment to an S&P 1500 board. The mean (median) director age is 61.5 (62). The mean (median) board tenure of independent directors is 7.6 (6) years. An average independent director owns 0.3% of a firm's outstanding shares. Almost all independent directors are on at least one major board committee (i.e., audit, nomination, or compensation). Panel B further restricts the sample to independent director-firm-year observations experiencing a major distraction. Compared to all independent directors reported in Panel A, distracted independent directors trade less, miss more meetings, and sit on one more board.

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For firm-level analysis, we also exclude firms with dual class shares or a controlling director defined as a director holding more than 50% of a firm's shares. This is because independent directors in these firms have much less influence over board decisions. The director-level analysis includes these firms because a director can still be distracted and thus provide less advice, regardless of firm ownership structure. That is, independent directors of these firms can be weak monitors compared to those in other firms, but it does not mean they cannot become worse monitors and advisors (compared to themselves) when they are distracted. The final firm-level sample contains 12,524 firm years.

Table 3 reports summary statistics of key variables at the firm level. Panel A shows that, on average, 20.1% of independent directors on a corporate board are distracted, and 59.8% of a typical board are independent and non-distracted directors. An average board has nine directors, of which seven (=9*75.5%) are independent. An average firm controls $7.2 billion in total assets. Panel B further restricts the sample to firm-year observations with distracted independent directors. For firms in this subsample, distracted independent directors on average account for 29.7% of all independent directors on these boards (with a median of 25%). Compared to all firm years, firms with distracted independent directors are larger in size and are more apt to have a board where most independent directors hold at least three directorships. Thus, in much of our analysis we match these treatment firms to control firms that have similar characteristics to maintain covariate balance. The matching procedures are detailed in the next section.

4.3. Regression specification

We construct the key explanatory variables based on whether an independent director is preoccupied (for director-level analysis) and the proportion of preoccupied and non-preoccupied

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independent directors (for firm-level analysis). These shock-based key explanatory variables ensure that the regressions are largely free from endogeneity concerns (Atanasov and Black, 2016). Since the impact of a distraction is often immediate and can often be quickly reversed once the distraction ends, we do not lag these key explanatory variables. However, we do use lagged controls since controls need to be unaffected by the exogenous shock to avoid introducing bias in the regression estimates (Angrist and Pischke, 2008).[5]

To ensure that our findings are not driven by selection bias, we tabulate our results relative to a matched sample as well as for the full sample. For the matched sample, we match firms with and without a distracted independent director by Fama-French 48 industry, fiscal year, and propensity scores within a 5% radius of each other while allowing matches with replacement. We compute propensity scores using total assets, average number of board seats held by independent directors, board size, and fraction of independent directors holding three or more directorships.

We also make use of various fixed effects to isolate the effect of a distraction to the same individual or firm. For director-level analysis, we include director and year fixed effects because we are interested in knowing how the same individual's behavior changes before and after a distraction. For firm-level analysis, we rely on firm and year fixed effects. Firm fixed effects are necessary because we aim to capture the time-series changes in how the same firm's outcomes evolve over time as its independent directors' distraction status changes.

Finally, using a nonlinear logit specification and a large number of fixed effects together may create an incidental parameters problem, which can bias the parameter estimates and standard errors (Greene, 2004). Given this concern, when a regression has many fixed effects (i.e., industry

[5] We obtain consistent results if we only lag performance-related control variables (i.e., *ROA* and *Tobin's Q*) that are especially affected by a distraction shock. We also find weaker results when we lag the distraction variables especially at the director level, suggesting that the impacts of distractions are mainly in the current year.

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by year, firm and year, or director and year) as well as a dependent variable that is binary or constrained within a limited range (i.e., regressions of board meeting absence, trading frequency, and lost directorships), we employ a linear probability model. As Angrist (2001) and Angrist and Pischke (2008) point out, while nonlinear models may provide a better fit, the marginal effects and *t*-statistics calculated using ordinary least squares (OLS) are generally sufficiently accurate.

5. Are preoccupied independent directors less active?

To validate the relevance of our exogenous shocks, we start our analysis at the director level and assess whether preoccupied independent directors behave differently. For all regressions in this section, the results are robust to inclusion of industry and year fixed effects. For brevity, we leave these models untabulated.

5.1. Board meeting absences

We first use independent directors' board meeting attendance to infer her commitment to the firm. Table 4 presents linear probability model estimates where the dependent variable equals one if the director attended less than 75% of board meetings in the year and is zero otherwise. The standard errors are robust and clustered by director. The data are at the director-firm-year level. In all models with either industry by year fixed effects or firm and year fixed effects, the distracted independent director indicator is positive and statistically significant at the 1% level. When director and year fixed effects are included, this key coefficient becomes less significant but remains economically and statistically significant. Model 6 suggests that an independent director has a 1.2 percentage point higher probability of missing at least 25% of board meetings when distracted. This result is economically significant, given that only 2.4% of independent director-

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firm-years miss at least 25% of board meetings (see Table 2, Panel A). Reduced board attendance decreases a director's access to firm information, thus weakening her monitoring capability. It also provides direct evidence of a distracted director's lower commitment to her board responsibilities.

Examining control variables, we find that the number of directorships also has a statistically significant and positive coefficient, although with a smaller magnitude than the distraction indicator. Directors who are older, serve at larger firms, sit on major board committees, or serve in the post-Sarbanes-Oxley Act (SOX) period have fewer absences. Directors who sit on larger boards or serve at high growth firms (as measured by *Tobin's Q*) have more absences. One explanation for the negative and statistically significant (at a 5% level) coefficient on the number of board meetings in Model 4 under industry by year fixed effects is that relative to industry peers, firms that schedule more board meetings may have a corporate culture that places greater importance on board attendance.

5.2. Personal trading activity in the firm's stock

An independent director's insider trading behavior should reflect a director's level of knowledge about the firm (see, e.g., Cao, Dhaliwal, Li, and Yang, 2014), which in turn is likely to be positively related to a director's monitoring intensity and negatively related to director distractions. That is, an independent director who monitors the firm more closely should have more firm-specific knowledge and thus is more likely to actively trade in the firm's stock. We measure trading frequency by the number of independent director trades in the firm's stock in a given year. We follow Ravina and Sapienza (2010) in restricting the analysis to open-market sales and purchases that are not mechanically generated by option grants and hence are more likely to be information driven. All regressions control for a director's total stock holdings.

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Table 5 presents OLS regressions of trading frequencies by independent directors. The sample used in Models 1 to 3 covers all independent directors, including those who do not trade in their own firm's stock. Since most independent directors do not trade (see Table 2, Panel A), we also analyze the subsample of independent directors who trade in Models 4-6 of Table 5. To capture time series changes in trading frequencies, we add either director and year fixed effects or firm and year fixed effects. Standard errors are robust and clustered by director.

Examining the key explanatory variable that is the indicator of being distracted, we find that it has an economically and statistically significant negative coefficient in all the regressions. The reduction in trading frequency is larger in the subsample of independent directors who trade when they are distracted. For example, using firm and year fixed effects, Model 5 suggests that when an independent director who trades in the firm's stock becomes distracted, her trading in the stock falls by 0.82 trades. Compared to the median trading level of two trades per year among independent directors who actively trade in the firm's stock (see Table 2 Panel A), a reduction of 0.82 trades is economically significant. Significantly less trading in the firm's stock is consistent with distracted independent directors having less firm-specific information or having an inability to fully assess and exploit board level information.

5.3. Director departures from the board

Another indication of an independent director's commitment to a firm is her decision to leave the board. A higher likelihood of departure suggests that a director is less motivated to put in the time and energy necessary to meet her board responsibilities. One challenge to analyzing director turnover is that both the supply and demand for a director's services changes when she is distracted. This means that a director's willingness to remain on the board falls (i.e., a supply

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effect), but a board's demand for the director's service can also decline. Thus, we need to first control for the predicted demand for a director's services before we can conclude that a higher frequency of board departures reflects a lower director commitment to a firm.[6]

To minimize the demand side effects, we focus on unexpected director turnovers that exclude likely cases in which boards are unwilling to renominate poorly performing directors. This approach is in the spirit of Fahlenbrach, Low, and Stulz (2017) who also model unexpected director departures. We consider a director's departure to be expected if she reaches the normal board retirement age (i.e., 70 years old or above) in the year of departure, receives a negative ISS voting recommendation for the annual meeting at the beginning of the fiscal year of departure, or misses at least 25% of board meetings in the year prior to her departure. The intuition behind this approach is that a board generally cannot renominate a director beyond her mandatory retirement age and is unlikely to renominate a director who is underperforming (which can be reflected in negative ISS recommendations or poor board meeting attendance) in the prior year. We treat an ISS voting recommendation of "abstain", "against", "do not vote", or "withhold" as a negative vote of confidence in a director, where this data is taken from Voting Analytics database. We further exclude director departures due to sudden deaths since these are involuntary departures.

Table 6 presents estimates of the likelihood of independent director departures, conditional on firm performance. We measure firm performance by *Annual stock return* and *ROA*. The dependent variable is an indicator that equals one if the director unexpectedly leaves her current directorship within the subsequent two years. Among 93,665 independent director-year

[6] Two prior studies separate supply and demand effects of corporate directors. Fahlenbrach, Low, and Stulz (2017) use sudden deaths as an instrument for exogenous unexpected director departures to identify director supply effects. Brickley, Linck, and Coles (1999) identify demand for directors (based on prior performance) through director retirement from their day jobs.

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observations, 12,011 directorships are lost within the subsequent two years. And 7,164 of them are classified as unexpected.

The key explanatory variables are the interactions of the director distraction indicator and a firm performance measure. Models 1-3 and 4-6 of Table 6 respectively measure firm performance using *Annual stock return* and *ROA*. The coefficients of both firm performance measures are negative and significant in all the models. This suggests that when there is no distraction, a director is more likely to relinquish a directorship if firm performance is relatively weak. The coefficients of the interactions of firm performance and director distraction are negative and statistically significant, at the 1% level for *Annual stock return*, and at the 5% to 10% level for *ROA*. This suggests that distraction amplifies the negative relationship between firm performance and independent director turnover. For example, Model 3 shows that for non-distracted independent directors, a one standard deviation decline in firm stock performance (i.e., by 0.691) generates a 0.4837 (=0.007*0.691*100) percentage point increase in the probability of director turnover. For distracted independent directors, the same decline in performance raises the probability of director turnover by 1.382 (=(0.007+0.013)*0.691*100) percentage points. Similarly, Model 6 suggests that as *ROA* declines by one standard deviation (i.e., by 0.16), the likelihood of a departure of a distracted independent director rises by 0.832 (=0.052*0.16*100) percentage points more than a non-distracted independent director. These impacts are economically significant considering that unexpected turnover only occurs in 7.649% (=7,164/93,665) of independent director years.

The estimated coefficients of the control variables have their expected signs. Directors at larger firms or serving in the post-SOX period are less likely to depart. Directors who are older, have more directorships, have longer board tenure, or serve on larger boards are more likely to

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leave their board seats. These results are consistent with preoccupied directors being less committed to their board responsibilities.

To enhance our understanding, we perform two additional forms of analysis. First, we separately analyze the distractions of M&As, divestitures, and CEO turnovers in Section 9.3. This helps minimizing the demand side effects, because a firm is less likely to renominate a director facing negative professional distractions at another firm for which she could be partially responsible. The results remain consistent with our prior findings. Second, we find that independent directors who have longer periods of past distractions are less likely to join new boards in the future, even if they are not currently distracted.

6. Firm-level outcomes

The results in the prior section confirm that external distractions tangibly affect independent director behavior. We next move to a firm-level analysis, which constitutes our primary evidence on the value of independent directors. According to agency theory, boards of directors are an important corporate governance mechanism to protect and maximize shareholder wealth (Fama and Jensen, 1983). We expect that when firms have seriously distracted independent directors due to external causes, they will experience more negative corporate outcomes. Furthermore, distracted independent directors with varying board responsibilities are unlikely to be equally detrimental to a firm. We formalize these predictions in the following hypotheses:

Hypothesis I. Distraction of independent directors has negative firm-level effects.

Hypothesis II. Distraction of more influential independent directors has stronger effects.

In firm-level analysis, our key explanatory variables are the proportion of non-distracted independent directors on the board and the proportion of independent directors who are distracted.

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They account for the fact that a distraction's impact is contingent on board size, which affects a director's relative influence. We obtain similar results when we use as our main explanatory variable, an indicator variable for whether a majority of directors is independent and non-distracted. Following Gormley and Matsa (2014), we do not demean continuous dependent variables with respect to any group but instead use fixed effects to control for unobserved group heterogeneity.

6.1. Firm performance and value

To test *Hypotheses I* and *II*, we first evaluate firm valuation and performance effects of independent director distractions in Table 7. All regressions include firm and year fixed effects, and standard errors are robust and clustered by firm. Models 1-4 (5-8) tabulate the results using the full (matched) sample. We measure firm performance by *ROA* in Models 1-2 and 5-6 and firm value by the natural logarithm of *Tobin's Q* in Models 3-4 and 7-8. We control for the fraction of busy independent directors who hold three or more directorships as well as other controls found in prior research to influence firm value and performance (e.g., Anderson and Reeb, 2003; Fich and Shivdasani, 2006; Coles, Daniel, and Naveen, 2008; Masulis and Mobbs, 2014).

In Models 1, 3, 5, and 7 of Table 7, the key explanatory variable is the fraction of non-distracted independent directors on the board. The coefficients of this key explanatory variable are all positive and statistically significant at the 1% or 5% level, which indicates that as fewer distracted independent directors sit on the board, both firm value and operating performance improves. According to Table 3, Panel A, a typical board has an average of nine directors. Thus, if one independent director becomes distracted, this is equivalent to an 11% (=1/9) fall in the proportion of non-distracted independent directors. The coefficient estimates in Models 5 and 7 based on a matched sample indicate that an independent director moving from a distracted to non-

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distracted state yields a 0.005 (=0.041*0.11) higher *ROA* level and a 0.020 (=0.179*0.11) rise in *Ln(Tobin's Q*). These impacts represent a 2.9% (=0.005/0.157) and 3.8% (=0.020/ln(1.688)) rise in the median *ROA* and *Ln(Tobin's Q)*, respectively, where medians of *ROA* and *Ln(Tobin's Q)* are taken from Table 3, Panel A. Finally, Models 2, 4, 6, and 8 present results using the fraction of independent directors who are distracted as the key explanatory variable, which is negative and significant at the 1% level in all these models.

To test *Hypothesis II*, we first split each key independent variable into two categories, more and less reliable independent directors. Then we consider three dimensions that reflect the importance of an independent director: expertise, committee membership, and the degree of independence, measured by co-option. Independent directors with longer tenure than their CEOs (i.e., non-co-opted directors) should be better monitors (Coles, Daniel, and Naveen, 2014; Dou, Sahgal, and Zhang, 2015), which can reflect their greater independence from the CEOs and greater firm-specific knowledge. This leads to the following prediction:

Hypothesis IIA. Distraction of non-co-opted independent directors has stronger effects.

Table 8 presents the results from testing *Hypothesis IIA*. Comparing the coefficients of the two key explanatory variables (co-opted and non-co-opted) in the same regression allows us to distinguish potential differences in the impact of distracted independent directors based on their co-option status. We find that distractions to non-co-opted independent directors have a stronger effect, both economically and statistically than to co-opted independent directors. For example, in Model 6 a one standard deviation rise in *Distracted non-co-opted IDs* and *Distracted co-opted IDs* (i.e., 0.159 and 0.13, respectively) lowers *ROA* by 0.007 (=0.042*0.159) and 0.003 (=0.025*0.13), respectively. Also, the coefficient of *Distracted non-co-opted IDs* is statistically significant at the 1% level, while the coefficient of *Distracted co-opted IDs* is statistically insignificant.

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We conclude from the above evidence that having distracted non-co-opted independent directors is more detrimental to firm performance than having distracted co-opted independent directors. This implies that co-option of independent directors matters more than co-option of other types of directors. This evidence supports the Coles, Daniel, and Naveen (2014) finding that not all independent directors are equally valuable, and co-opted independent directors are not necessarily fully independent. These results imply that further refinements to the definition of independent directors are needed. Unlike Coles, Daniel, and Naveen (2014), who find that only non-co-opted independent directors are effective monitors (by analyzing CEO turnover sensitivity, CEO pay level, CEO pay sensitivity, and tangible asset investment intensity), we find that co-opted independent directors are also valuable to a firm, albeit significantly less valuable than non-co-opted independent directors.

To further our understanding, we pursue two additional lines of inquiry. First, we calculate the proportions of busy (i.e., holding three or more directorships) and non-busy independent directors who are distracted. Then, we include both measures in the same regressions of firm value and operating performance. We find the fraction of non-busy (busy) independent directors who are distracted has stronger (weaker) economic and statistical significance. This suggests that distractions of non-busy independent directors are more consequential to shareholders than distractions of busy independent directors. Second, we find more supportive evidence in the subsample of large boards with at least 11 directors than in small boards with no more than seven directors. One explanation for this finding is that large boards generally produce less efficient board governance (see, e.g., Lipton and Lorsch, 1992; Jensen, 1993; Yermack, 1996; Eisenberg, Sundgren, and Wells, 1998), and independent director effectiveness is more important in such firms.

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6.2. Operating efficiency

To better understand the mechanisms behind our prior findings on firm performance and value, we investigate the relation between distracted directors and operating efficiency. We follow Dybvig and Warachka (2015) in measuring operating efficiency by a firm's profit margin and its operating expense ratio.

Table 9 shows that firms with more distracted independent directors (or fewer non-distracted independent directors) have lower profit margins and higher operating expense ratios. All the regressions have the predicted signs for the fraction of non-distracted independent directors, namely positive for gross margins and negative for operating expense ratios and vice versa for distracted independent directors. The key coefficients in six of the eight models are also statistically significant, and these results are economically important. For example, profit margin declines by 0.015 (=(0.045*(0.333-0), based on Model 6), and operating expense ratio rises by 0.009 (=(0.026*(0.333-0), based on Model 8) as *Distracted IDs* increases from its first quartile to the third quartile. These effects are economically important, given that the medians of profit margin and operating expense ratios are 0.370 and 0.223, respectively.

Table 10 separately analyzes co-opted and non-co-opted directors. We find the results are primarily driven by distractions to non-co-opted independent directors. The results in Tables 7-10 are robust to including either industry plus year or industry by year fixed effects in the regressions.

6.3. Acquisition announcement returns

If one or more independent directors are preoccupied, they are less likely to carefully review M&A transactions proposed by management (which involves reviewing an extensive array

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of legal and financial documents) or to closely monitor and advise on deal negotiation and integration. Thus, the acquisition bids that a board approves are less likely to be carefully reviewed and less likely to be profitable. To test this hypothesis, we examine the relationship between director distraction and acquisition announcement returns.

Our analysis is at the deal level. The dependent variable is three-day cumulative abnormal returns (*CAR* -1, 1), based on a one-factor market model around the bid announcement date.[7] We construct the key explanatory variables in the tables of this sub-section using rolling windows over the 365 days prior to the acquisition announcement. For an acquisition to be included in the analysis, we require that the takeover bid is completed; the acquirer owns less than 50% of target shares prior to the bid and owns 100% of target shares at deal completion; and the purchase price exceeds $1 million and represents at least 1% of the acquirer's equity capitalization (as in Masulis, Wang, and Xie, 2007). We include the following M&A deal types in our analysis: purchase of assets, tender offers, purchases of stock, mergers as well as hostile and non-hostile takeovers. We exclude internal restructuring transactions and deals announced within a (-2, +2) day window of earnings releases or other major company news, based on 8-K, 10-K, 10-Q, Form 3, Form 4, and Form 5 filings. These criteria yield a sample of 2,659 acquisitions.

The key explanatory variable in Table 11 Models 1-2 and 5-6 is the fraction of non-distracted independent directors on the board. It is consistently positive and significant at the 1% or 5% level. In Models 3-4 and 7-8, we use the fraction of distracted independent directors as the key explanatory variable, and it is consistently negative and significant at the 5% or 10% levels. In economic terms, as the fraction of directors who are independent and non-distracted decreases or the fraction of independent directors who are distracted increases by one standard deviation (i.e.,

[7] As robustness, we use buy-and-hold returns over (-60, 2) as the dependent variable following Humphery-Jenner, Masulis, and Swan (2017). The results are consistent with Tables 11-12 and are generally significant at a 10% level.

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by 0.152 and 0.133, respectively), the *% CAR* decreases by 0.8100.1 (=5.326*0.152) and 0.527 (=3.963*0.133), respectively (based on Models 6 and 8). These impacts are economically significant, relative to the median *% CAR* of 0.579. Thus, distraction of independent directors leads to significantly lower acquisition announcement returns, which can reflect lower acquisition quality or overbidding or both. Since most targets in M&A deals are unlisted (making their market values unobservable), it is not possible to separately measure M&A synergies and the extent of overbidding. Overall, the above findings indicate that distracted independent directors provide fewer advisory services to their boards pertaining to acquisition decisions.

In terms of control variables, we generally find consistent results with the prior literature. Bidder size is negatively related to a bidder's announcement *CAR*, and cash payment is positively related to *CAR*. Non-diversifying deals generally yield a higher bidder *CAR*, although the relation is insignificant. Similar to Masulis, Wang, and Xie (2007), but contrary to Byrd and Hickman (1992), we find board independence is not significantly related to deal profitability.

Acquisitions also allow us to compare directors with and without crucial expertise. We conjecture that independent directors with acquisition expertise are more critical around acquisition decisions and make the following second prediction associated with *Hypothesis II*:

Hypothesis IIB. Distraction of independent directors with critical experience has stronger effects.

To test this hypothesis, we define a director to have critical expertise if she has acquisition experience as a director in the prior five years. We count both value-creating and value-destroying acquisitions following Harford and Schonlau (2013). In Table 12, Models 1, 2, 5, and 6 use the fractions of acquisition-experienced and non-acquisition-experienced directors who are independent and non-distracted as the key explanatory variables in the same regressions. Models

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3, 4, 7, and 8 compare the fractions of acquisition-experienced and non-acquisition-experienced independent directors who are distracted in the same regressions.

We find acquisition-experienced independent directors have more influence on acquisition performance than non-acquisition-experienced independent directors. For example, Model 6 suggests that as the fraction of acquisition-experienced directors who are independent and non-distracted (*Acq (Non-distracted IDs)*$_{(-365, -1)}$) increases from the first quartile to the third quartile (i.e., from 0.4 to 0.75), the *% CAR* increases by 0.899 (=2.569*(0.75-0.4)). Model 8 shows that as the fraction of acquisition-experienced independent directors who are distracted (*Acq (Distracted IDs)*$_{(-365, -1)}$) increases from the first quartile to the third quartile (i.e., from 0 to 0.458), the *% CAR* declines by 1.238 (=2.702*(0.458-0)). These coefficients are also statistically significant at the 5% level. In contrast, the fractions of non-acquisition-experienced independent directors (i.e., *Non-acq (Non-distracted IDs)*$_{(-365, -1)}$ and *Non-acq (Distracted IDs)*$_{(-365, -1)}$) are much less significant economically and statistically insignificant. This evidence suggests that directors with acquisition expertise play a more critical role in the acquisition selection and execution processes.

In Table 3.1 of the online Internet Appendix, we compare the effects of having more versus less reliable directors, based on the Coles, Daniel, and Naveen (2014) co-option measure. The coefficients of the proportions of non-distracted and distracted independent directors are larger economically and statistically when independent directors are non-co-opted. These results support the conclusion that non-co-opted independent directors have a more pronounced impact on M&A profitability. Thus, when a non-co-opted director is distracted, the impact on M&A performance is more negative.

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7. Monitoring outcomes: accounting quality

The committee responsibilities of independent directors can be especially important for particular firm outcomes. For example, directors on the audit committee are primarily responsible for audit-related issues. We therefore make the following prediction:

Hypothesis IIC. Distraction of independent directors on a major board committee has stronger effects on firm outcomes for which this committee has oversight responsibility.

Following this prediction, we next test whether accounting quality suffer more severely when independent directors on the audit committees are preoccupied. We quantify accounting quality using unexplained audit fees (*UAF*). Following Hribar, Kravet, and Wilson (2014), we define *UAF* as the residual from a model of audit fees on factors affecting audit complexity, a firm's inherent risks (i.e., operating performance and negative income before extraordinary items and discontinued operations), the importance of the firm to an auditor, litigation risk, and industry fixed effects. The model is estimated by year and size decile. Larger residuals are indicative of lower accounting quality. Hribar, Kravet, and Wilson (2014) find that *UAF* is positively correlated with other measures of accounting quality but is incrementally predictive of fraud, restatements, and SEC comment letters, after controlling for these other accounting quality measures. Other accounting quality measures include accruals quality developed by Dechow and Dichev (2002) and earnings smoothness defined as the ratio of the standard deviation of net income before extraordinary items divided by the standard deviation of cash flow from operations over years *t-4* through *t* (Francis, LaFond, Olsson, and Schipper, 2004).[8] Another advantage of *UAF* is that the conventional measure of (absolute) discretionary accruals only captures accruals earnings management, whereas suspiciously high audit fees can also indicate real earnings management or

[8] We find qualitatively similar results using these two measures instead of *UAF* as the dependent variable.

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classification shifting (i.e., misclassification income statement items), which are two other major forms of earnings management.

Table 13 presents OLS regressions of *UAF* on distraction measures and controls. Models 1, 3, and 5 (2, 4, and 6) include industry by year (firm and year) fixed effects. All models employ robust standard errors clustered by firm. For brevity, we only tabulate results from the matched sample, which are similar to using the full sample. Models 1-2 suggests that having more non-distracted independent directors leads to higher accounting quality (i.e., lower *UAF*), although this relation is statistically insignificant. To the extent that board monitoring is primarily a shared responsibility of independent directors, Models 3-4 provide stronger tests by focusing on the fraction of independent directors who are distracted (i.e., *Distracted IDs*). The results indicate that higher values of *Distracted IDs* lead to higher *UAF* and thus lower accounting quality. The results are both economically and statistically significant (at the 1% or 5% level). For example, raising a firm's fraction of distracted independent directors from the first to third quartile (i.e., from 0 to 0.333 in Table 3, Panel A) in Model 4 raises *UAF* by 0.022 (=0.067*(0.333-0)). Compared to the median *UAF* of 0.011, this rise in *UAF* is economically large. Based on the Hribar, Kravet, and Wilson (2014) estimates, the probabilities of restatements, fraud, and SEC comment letters rise from 63.34%, 41.99%, and 49.73% to 63.52%, 42.29%, and 49.96%, respectively, as *UAF* rises by 0.022 from its median of 0.011 to 0.033.[9] Overall, these findings are consistent with the expectation that distracted independent directors adversely affect firm accounting quality.

To further our understanding of the role of a board's audit committee on accounting quality, we compare the impacts of distractions to audit committee members and non-audit committee

[9] Table 3.5 of the Online Appendix provides detailed calculation of these probabilities. More specifically, we use the coefficient estimates of conditional logit regressions from Table 4 of Hribar, Kravet, and Wilson (2014). The authors have provided the matched sample means in private correspondence, which we use in calculating the probabilities.

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members. In Models 5-6 of Table 13, we include both the fractions of audit and non-audit committee members who are independent and non-distracted. Model 5 suggests that as the fraction of non-distracted independent audit committee members (*Audit (Non-distracted IDs))* rises from the first to third quartile (i.e., from 0.667 to 1), *UAF* falls by 0.035 (=0.105*(1-0.667), and this relation is statistically significant at the 1% level. A fall in *UAF* of 0.035 implies probabilities of a restatement, a fraudulent restatement, and an SEC comment letter are reduced by 1.51% (=43.190%*0.035), 2.66% (=76.121%*0.035), and 1.83% (=52.196%*0.035), respectively. Model 6 shows that as the fraction of independent audit committee members who are distracted (*Audit (Distracted IDs*) rises from the first to third quartile (i.e., from 0 to 0.333), *UAF* rises by 0.026 (=0.079*(0.333-0)), and this relation is statistically significant at the 5% level. In contrast, distractions to non-audit committee independent directors (captured by *Non-audit (Non-distracted IDs*) and *Non-audit (Distracted IDs*)) have less significant economic and statistical impacts. These results are robust to industry by year fixed effects but are weaker for firm and year fixed effects. One possible reason is that all individual director distractions in a firm, when aggregated, can cover multiple years, which firm fixed effects can partially absorb. Overall, we find that independent directors on the audit committee play a more important role in determining accounting quality.

8. Firm-level outcomes and firms' needs for director attention

Intuitively, if a firm relies more on its directors for monitoring and advisory services, we expect more negative corporate outcomes when directors cannot work effectively due to major distractions. We formally state this hypothesis as follows.

Hypothesis III. Distraction of independent directors has stronger effects when the firm requires more intensive monitoring and advisory services from its directors.

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We use firm opaqueness to capture a firm's needs for greater attention from independent directors. Our *Opaqueness* measure combines variables that reflect information asymmetry and organizational complexity using factor analysis. These variables include *Analyst following*, *Analyst forecast dispersion*, *Analyst forecast error*, *Firm age*, stock return volatility (*Volatility*), the number of geographic and business segments in natural logs (*Ln(# of Geo seg)* and *Ln(# of Bus seg)*), property, plant and equipment (*PPE*), and unexplained audit fees (*UAF*).[10] Earlier research uses these characteristics to capture firm opaqueness (e.g., Masulis and Mobbs, 2011 and Krishnaswami, Spindt, and Subramaniam, 1999). We extract data on analyst forecasts from Institutional Broker's Estimate System (IBES) database. We follow Diether, Malloy, and Scherbina (2002) and Zhang (2006) to calculate earnings forecast statistics based on raw detailed analyst forecast data unadjusted for stock splits.

In Table 14, we separately interact *Opaqueness* with the fraction of directors who are independent and non-distracted (*Non-distracted IDs*) and the fraction of independent directors who are distracted (*Distracted IDs*). In Models 1-2 where dependent variable is *ROA*, only the interaction between *Non-distracted IDs* and *Opaqueness* is positive and weakly significant. Models 3-4 report a similar analysis of *Ln(Tobin's Q)*. Model 3 suggests that as firm *Opaqueness* rises from the first to the third quartile, the positive impact on *Ln(Tobin's Q*) of more *Non-distracted IDs* (increasing from the first to the third quartile) rises by 0.021 (=0.257*(0.714-0.5)*(0.195-(-0.178))). Similarly, Model 4 shows that as *Opaqueness* rises from its first to the third quartile (i.e., from -0.178 to 0.195), the negative impact on *Ln(Tobin's Q*) of more *Distracted IDs* (increasing from the first to the third quartile) rises by 0.026 (=0.211*(0.333-0)*(0.195-(-0.178))).

[10] The Kaiser-Meyer-Olkin (KMO) statistics of sampling adequacy are below 0.60 for *Analyst following* and *Unexplained audit fees*, and above 0.65 for all other variables. In robustness, we exclude these two variables and find that the opaqueness measure's economic and statistical significance remain qualitatively unchanged.

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These relations are statistically significant at the 5% level. Models 5-6 examine accounting quality measured by *UAF*, so we exclude *UAF* as a factor in the revised firm opacity variable (i.e., *Opaqueness-UAF*). The results suggest that at a less transparent firm, accounting quality declines more (i.e., *UAF* rises more) as more independent directors become distracted. Overall, opaque firms suffer more from having distracted independent directors, which supports Hypothesis 3.

9. Robustness

9.1. Director monitoring versus advising

We make use of two experiments to potentially differentiate the values of director monitoring and advising. The first experiment analyzes the effects of distracted affiliated outside directors. Since affiliated directors cannot be relied on for monitoring the firm's management, they offer an opportunity to isolate the effects of a director's advisory services. We fail to find any significant effects of distracted affiliated outside directors (see Table 15 for details). This evidence suggests that, on average, the pure advisory services of affiliated outside directors are not particularly valuable. This finding supports the separation of affiliated outside directors and independent directors in future empirical studies.

The second experiment is a subsample analysis of firms where the board is dominated by insiders (namely, dual class firms and firms with a controlling shareholder). In these firms, the ability of independent directors to discipline managers is limited, so the benefits of independent director monitoring are greatly reduced. Since any monitoring that they do perform is unlikely to be influential, these independent directors have weak incentives to closely monitor management. Thus, firm-level analysis of this subsample of firms should isolate the value of the advisory services of these independent directors. We find consistent, but statistically weaker results. The

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lower statistical significance of director distractions may be due to the smaller firm-level sample size (of 1,120 observations). However, it is also consistent with the advisory services of independent directors in closely controlled firms having less value than the combined monitoring and advising services of these directors in widely held firms.

9.2. Spillover effects across directors on a board

When a director is distracted, other board members may pick up some of the director's duties. To the extent that a spillover effect exists, our results are conservative. Further, since we still find that firms suffer when independent directors are distracted, this director spillover effect is clearly not a first order effect. This is sensible, given that these directors are unlikely to fully offset the loss of a distracted director's services given the other high demands on their own time.

We also directly test the significance of spillover effects among committee members. That is to say, a director could be distracted because she is shouldering some of the responsibilities of another ailing director on the same committee. We define illness/injury and turnover of independent directors at other firms to be another relevant distraction if the directors both serve on the same busy committee (i.e., nomination or compensation based on Laws, 2007) at another firm and the board has not appointed a new director to the committee to replace the departing director (i.e., the committee size falls after the departure). We find this type of distraction provides weak results in both our director and firm-level analysis (see Table 1.1 of the online Internet Appendix). Due to its lack of strength, we exclude it from the distractions that we study in our main analysis. The sample construction method in analyzing each specific director distractions (which applies to distractions due to spillover effects) is described in Section 9.3.

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9.3. Macro shocks and industry shocks

One alternative explanation for our results is that when there is an economy-wide or industry-wide negative shock, all firms in the economy or industry are negatively affected, including both treatment firms and other industry members. Our results are unlikely to be driven by these shocks for several reasons. First, our results hold under industry and year as well as industry by year fixed effects. Industry is also a dimension used in matching firm-level samples. If there is an industry-wide shock hitting all firms within the industry, then the matched samples should at least understate the distraction effect. Second, almost all directors only hold one directorship in a specific industry at any point in time (see Table 3.4 of the Online Appendix). This suggests that other firms with the same distracted director are unlikely to be in the same industry.

Third, we separately examine personal distractions due to illness/injury and awards, which are not conditional on corporate events at other firms. At the director level, the impacts of these two events are economically larger than the average effects of a combined sample of all our distractions. The effects on director meeting attendance and trading frequency are also statistically significant at the 10% and 1% levels, respectively. At the firm level, their economic impacts on M&A announcement returns are larger than the average economic impact of all distractions in combination. The impacts of these personal distractions on the other firm outcomes that we study (including negative firm performance and valuation effects) are of similar economic magnitude to those of all distractions in combination. The impacts of these personal distractions are less statistically significant compared to our main results, potentially because of their small sample size. Overall, these results show that personal distractions significantly reduce the effectiveness of independent directors. These results are tabulated in Table 1.2 of the online Internet Appendix. Section 9.3 describes the sample construction of individual classes of distractions.

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Fourth, we control for the effects of economic contractions by excluding firm-years where a majority of the year is categorized as a recession period. We define economic recession periods as March 2001–November 2001 and November 2007–June 2009, based on the US Business Cycle Expansions and Contractions data provided by the National Bureau of Economic Research (NBER). We find qualitatively similar results when we exclude firm-fiscal years where a majority of the year is included in a recession period. Thus, we confirm that our results are not caused by other broader based macroeconomic shocks.

9.4. Decomposition of director distractions

Besides analyzing personal distractions in Section 9.2, we also separately analyze the impacts of various professional distractions. The director-level sample includes independent directors preoccupied by a specific type of distraction and independent directors not preoccupied by any distractions in combination. The firm-level sample includes firms with independent directors preoccupied by a specific type of distraction and firms without independent directors preoccupied by any distractions in combination. We match these two groups following the procedures described in Section 4.3. We find that distractions at other firms caused by declining firm performance and significant restructuring activity seem to provide slightly stronger results. The fact that the results also hold for non-negative events, such as large acquisitions, further confirms that the observed underperformance of the firm in question is likely to be driven by distracted independent directors rather than by other explanations (including endogeneity concerns that poor performance at another firm is caused by the common director's poor performance). To address this form of endogeneity more comprehensively, we also restrict our analysis to personal and professional distractions unrelated to poor firm performance (by excluding distractions of firm

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underperformance, financial distress, and financial misconduct investigations at other firms). We report these results in Tables 1.3-1.8 of the online Internet Appendix.

9.5. Strengths of distractions and their impacts

Stronger independent director distractions should be more influential. We perform several additional experiments to assess whether this is the case. First, we investigate what happens when independent directors are more severely distracted, measured by longer distraction durations and multiple distractions overlapping in time. We find that 16.96% of independent director-firm-years face distractions that encompass the entire fiscal year, and 11.2% independent director-firm-years face multiple distractions that each encompasses a majority of the fiscal year. These two alternative distraction subsamples both yield results that are economically more significant and statistically similar to our tabulated results.

Second, we use independent directors' board positions at other firms to help categorize the importance of director distractions that occur to other firms. We start by expanding the distraction sample to include distractions from less prestigious directorships, approximated by firms 10% smaller in size than the largest firm where the director also serves on the board. We find the results become weaker but remain marginally significant. We next examine the effects of professional distractions limited to problems occurring at other firms where the independent director is both on the board and is the CEO, CFO, or COO. This represents 3.87% of the independent director-firm-year observations. While they show larger economic impacts at the director level (compared to the tabulated results), the impacts are less significant statistically both at the director level and firm level. The results are also weaker when we analyze distractions for any executive director position (i.e., not restricted to CEO, CFO and COO roles, which represent 4.43% of independent director-

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firm-year observations). These last two sets of weaker results can be partially due to the small samples associated with these particular distractions.

9.6. Difference-in-difference analysis

In this section, we analyze the impacts of director distractions using a difference-in-difference framework. At the director level, a treatment director is preoccupied in year t but not in year $t-1$. The remaining independent directors who are not preoccupied and sit on the same board with the treatment director in both years are control directors. Both treatment and control directors must hold the same number of directorships, which must remain constant during the two years. There are 2,312 treatment directors and 3,775 control directors.

A treatment firm has a distracted independent director in year t but not in the prior three years, $t-2$, $t-1$, and t. Control firms have no distracted independent directors in this four-year period. They are matched on the same dimensions as in Section 4.3. Because the impacts of independent director distractions can persist beyond the distraction period, we include years $t-2$, $t-1$, t, and $t+1$ in the analysis. There are 209 treatment firms and 338 control firms, and 137 (77) have distracted non-co-opted (co-opted) independent directors. The results are in Tables 2.1-2.2 of the online Internet Appendix A.1 and they confirm that distracted independent directors (and especially when non-co-opted) are harmful to shareholder wealth.

We also assess the covariate balance between treatment and control samples along observable dimensions other than the forcing and forced variables (see Table 2.3 of the online Internet Appendix). The P-values for these t-tests suggest that the treatment and control groups are similar in most dimensions. The normalized differences are all within the range of (-0.25, +0.25)

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for all reported variables. These results indicate that the covariate balance and overlap conditions are met.

Finally, we test the parallel trend assumption underlying the difference-in-difference analysis. We first graph the fitted pre-treatment trends of # *Trade* (at the director level) and Ln(*Tobin's Q*) (at the firm level) for the treatment and control samples and find they follow similar pre-treatment trends (see Table 2.4 of the online Internet Appendix). As a falsification test, we repeat our regression analysis in the pre-treatment period for placebo shocks in years $t-1$, $t-2$, and $t-3$, respectively, and obtain statistically insignificant results. Thus, we fail to uncover evidence of significant differences in pre-treatment trends in the treatment and control groups. The insignificant placebo shocks also suggest that after including the control variables, the likelihood of treatment is approximately random, which is consistent with the confoundedness assumption.

10. Conclusions

To conclude, we have identified a sample of independent directors, which we term distracted independent directors, who have their attention shifted elsewhere so that they become less effective in monitoring and advising the firm. Apart from independent directors' illness/injury and major awards, we utilize events at other firms where the same director contemporaneously sits on the board to determine whether and when an independent director is preoccupied. Our empirical design reflects the dynamic nature of director independence and busyness, and it takes into account the relative priority a director assigns to each directorship.

We find that distracted independent directors miss more board meetings, undertake less trading in their firm's stock, and exhibit a higher likelihood of leaving the current directorship conditional on firm performance, even after focusing on unexpected director turnover. At the firm

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level, having a higher proportion of distracted independent directors (or a lower proportion of non-distracted independent directors) causes lower operating performance and firm value, weaker operating efficiency, worse M&A performance, and lower accounting quality. We find that the negative effects of having such distracted independent directors on the board are stronger when these directors are not co-opted, serve on a relevant board committee having auditing oversight or bring relevant experience to the board in terms of the specific corporate outcomes studied (i.e., acquisition quality and accounting quality), and when the firms are less transparent. These findings represent causal evidence that independent directors on average enhance shareholder value. In contrast, we fail to find any statistically significant evidence that affiliated (gray) directors on average benefit shareholders.

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Appendix

A.1. Definitions, justifications, durations, and data sources of distracting events

Illness/Injury: Distraction due to illness/injury includes illness/injury of the director herself or the CEO of another firm where the director serves on the board. We hand collect directors' illness/injury from Factiva, LexisNexis, and SEC 8-K filings by searching for the following keywords: accident, attack, battle, cancer, cardiac arrest, cerebral, coronary, crash, deceased, "diagnosed", "diagnosis", "died", "ill", "killed", "leave of absence", "medical", "passed away", "sick", "stroke", "surgery" and "temporary leave". If these information sources do not fully cover the details of a director's health problems (e.g., recovery from an illness/injury is not found), we manually search company websites and google for this information.[1]

After obtaining the publicly disclosed health concerns of all directors, we then match and extrapolate them within the BoardEx universe. Determining independent director health concerns from other data sources is necessary because the health concerns of independent directors are rarely reported by a firm.

If not specified by the data source, we assume the beginning date of an illness/injury to be the earliest date when it is publicly reported. If neither news of death, nor of full recovery is available, we assume an illness/injury ends 330 days later. We set the threshold of 330 days based on the relationship between independent directors' board participation and the time elapsed after an illness/injury disclosure as shown in Fig 3.1 of the online Internet Appendix. The figure shows that directors' board participation starts recovering about 230 days after the disclosure and reaches its initial level upon disclosure in about 330 days.

[1] We thank Warwick Schneller for his help on collecting this data.

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Award: We treat a director as distracted by an award if she becomes the overall winner of a national or global award. There are two benefits of focusing on such prestigious awards. First, winning such prestigious awards is likely to make a director much more visible and demanded externally, increasing her likelihood of becoming distracted afterwards. Second, independent directors are likely to receive such prestigious awards for their important external activities (e.g., being a good CEO at another firm). This avoids endogeneity due to an award being made for accomplishments as an independent director.

We assume an award-induced director distraction starts on the award's announcement and ends two years later. This is based on Malmendier and Tate (2009) who find that ROA declines continuously over years (0, +2), where year 0 is the CEO award year. This suggests that award-winning CEOs are distracted for up to two years after the award. Table 3.2 of the online Internet Appendix shows that major award winners tend to have more directorships afterwards (during the award distraction periods that we define), which is consistent with Malmendier and Tate (2009).

We collect prestigious awards from various publications, organizations and government entities. These include Best Manager, Best Entrepreneur, Top Entrepreneur, and Top 25 Managers of the Year from Business Week; CEO of the Year from Chief Executive; Best Performing Bosses, Best Bosses, and Best Bosses for the Buck from Forbes; CEO of the Year from Industry Week; CEO of the Year from Morningstar.com; Person of the Year and Time 100 from Time; 25 Most Influential Executives from Time/CNN; Entrepreneur of the Year and World Entrepreneur of the Year from Ernst & Young; Best Performing CEOs in the World from Harvard Business Review; 50 Who Matter Now from Business 2.0; and Presidential Citizens Medal from the president of the United States. Strictly speaking, the "Time 100" award is more about influence and not necessarily about achievement. For example, Bernie Madoff was included in the 2009 Time 100 due to the

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impact of his financial fraud. However, we include this as a source of distraction since it takes time to deal with bad exposure too. Most of these awards are also studied in Malmendier and Tate (2009).

CEO Turnover: A CEO turnover occurs if the CEO of a firm in the prior year is no longer the CEO in the current year. We identify the CEO of a firm using data from BoardEx and Execucomp. We include all CEO turnovers regardless of their causes, since they all generally require substantial incremental director effort. We define the beginning and ending dates of CEO turnover as the beginning and ending dates of the fiscal year within which a CEO turnover occurs.

Declining firm performance: We define declining ROA (stock) performance as lower industry median-adjusted ROA (stock return) than the prior year. We focus on industry-adjusted (rather than raw) annual performance because a firm is more likely to compare itself with industry peers. Also, we use declines (rather than levels) of industry-adjusted performance to capture attention-drawing underperformance because changes are more likely to cause attention shifting by directors. We calculate ROA using Compustat data, and stock return is from CRSP. We define the beginning and ending dates of declining firm performance as the beginning and ending dates of the fiscal year experiencing declining firm performance.

Significant restructuring activity: This includes M&As and divestitures. We treat M&A deals as distractions for acquirer directors if the transaction size is at least 10% of the acquirer's equity market value and distracting for target directors, regardless of deal size. We also treat

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divestitures of at least 10% of firm value as a director distraction.[2] Announcements of M&As and divestitures are from SDC Platinum.

For M&A deals and divestitures, we assume directors of the bidder become particularly busy from 1 year (6 months) prior to the initial M&A announcement date until 1.5 years (1 year) after the deal completion date for a (non-)diversifying M&A transactions. The shorter period for Non-diversifying deals reflects the lower amount of monitoring that within-industry deals are likely to require. We assume that directors of target firms, who often initiate mergers (see e.g., Masulis and Simsir, 2017) in a friendly deal and may work to block the deal in a hostile one, become busy six months prior to an initial bid announcement until deal completion. Our definition of attention periods reflects the average time involved in acquisitions including subsequent integration and takes into account that Non-diversifying bids are more time-consuming than diversifying bids (Bell. 2016).[3]

Financial misconduct: We obtain financial misconduct events from the Federal Securities Regulation Actions Database, which is constructed and analyzed by Karpoff, Koester, Lee, and Martin (2017). Public news of financial misconducts is likely to be preceded by SEC investigations.

Among the cases covered in the Federal Securities Regulation Actions Database, all of them are violations of Securities Exchange Act of 1934 where SEC initiated an enforcement action for financial misrepresentation, 99% of them involve judicial proceedings by SEC, and 75% and are violations of securities fraud statutes under the Securities Act of 1933 or the Securities Exchange Act of 1934.

[2] For robustness, we have applied an alternative cutoff of 5% instead of 10%. We find similar results.
[3] Bell, B. J., 2016. The acquisition of control of a United States public company. Morrison Foerster. http://media.mofo.com/files/Uploads/Images/1302-The-Acquisition-of-Control-of-a-United-States-Public-Company.pdf.

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We assume that directors become engaged in an SEC investigation (of the financial misconduct) seven calendar days before the earliest of the following event dates: the inquiry date, investigation date, violation ending date, trigger date, restatement date, or start date of regulatory proceedings, because directors are usually aware of the problem before any formal actions are taken (Fons, Eth, Haims, and Loewenson, 2014).[4] The ending date of an SEC investigation is the regulatory proceedings ending date. These dates identify the period during that directors are most like to be working toward resolution of the problem.

Financial distress: We define financial distress to include credit ratings downgrades (from Compustat), Chapter 11 filings (from UCLA-LoPucki Bankruptcy Research Database), and exchange delistings. We intentionally exclude filings of Chapter 7, where firms stop all operations and go out of business. The delistings in our sample are due to a stock price decline below a prescribed minimum level, having insufficient capital, surplus and/or equity, having insufficient (or non-compliance with rules of) float or assets, SEC filing delinquencies or delays, non-payment of listing fees, or not otherwise meeting exchange's financial guidelines for continued listing (from CRSP) in the year. We define the beginning and ending dates of declining firm performance as the beginning and ending dates of the fiscal year within which the financial distress occurs.

[4] Fons, R. J., Eth, J., Haims, J. C., Loewenson, C. H., 2014. A primer on SEC investigations and enforcement actions related to financial reporting and accounting cases Morrison Foerster. http://media.mofo.com/files/Uploads/Images/140122-SEC-Investigation-Handbook.pdf.

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Appendix A.2 Additional information on our director name matching and cleaning procedures for the RiskMetrics and BoardEx data

We follow Coles, Daniel, and Naveen (2014) in cleaning the RiskMetrics database. Besides matching RiskMetrics with BoardEx by both company name and director name, we have alternatively matched by director name only, conditional on the same *GVKEY*. This is to account for the possibility that some firms change their names over time, and there are some discrepancies between RiskMetrics and BoardEx as to which firm name each of them uses. We obtain RiskMetrics *GVKEY* used in Coles, Daniel, and Naveen (2014) from Lalitha Naveen. We obtain BoardEx *GVKEY* by matching BoardEx with Compustat by *CIK*, *CUSIP*, and company name sequentially.

Directors changing name over time is not a problem also because BoardEx provides an accurate director identifier. After extrapolating our matches using the director identifier, the same firm-directors that are matched once are also matched to their alternative firm and director names in the database. Where company names differ, but director names seem to be referring to the same person, we manually search on Edgar to see if one company name is the former company name of the other.

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A.3. Variable definitions

Variable	Definition
Director characteristics	
Distracted	Indicator variable: equals one if the director has been distracted by a combination of events for at least 50% (or 25% if distracted by illness/injury) of the fiscal year. A detailed description of the distracting events, distraction periods, and requirements on the relative importance of a directorship related to the distracting events is given in Section 3.
# Trade	The number of times that a director trades in his own firm's stock (in the form of open market sales and purchases) in a fiscal year. Source: Thomson Reuters Insiders Filing-Table 1 stock transactions.
Attended < 75% of meetings	Indicator variable: equals one if the director attended less than 75% of the meetings during the year. Source: RiskMetrics.
Director age	Director age. Source: BoardEx.
Director tenure	The number of years a director has served on the board. Source: BoardEx.
Director ownership	The fraction of common shares outstanding held by the director, including stock options. Missing values are replaced with the value of the former year, if the former year value is non-missing. Source: BoardEx.
Unexpected departure	Indicator variable: equals one if the director unexpectedly leaves the current directorship within the subsequent two years. We consider a director's departure to be expected if the director is at least 70 years old or receives negative ISS voting recommendations in the year of departure or misses at least 25% board meetings in the year prior to the departure. Source: BoardEx, Voting Analytics, RiskMetrics.
Committee member	Indicator variable: equals one if the director is a nomination, audit, compensation, or corporate governance committee member. Source: BoardEx.
# of Directorships	Number of directorships a director holds concurrently. Source: BoardEx.
CEO characteristics	
CEO age	Age of the CEO. Source: Execucomp, BoardEx
CEO tenure	The number of years the CEO has served as the CEO. Source: BoardEx.
CEO ownership	The percentage of common shares outstanding held by the CEO at year end, including stock options. Source: Execucomp, BoardEx.
CEO duality	Indicator variable: equals one if the CEO is also the chairperson and is zero otherwise. Source: BoardEx.
PPS	(1%*# of shares held by the CEO + 1%*delta * # of options held by the CEO) / total shares outstanding. Source: Execucomp, BoardEx.
Board characteristics	
Non-distracted IDs	The fraction of directors on the board who are independent and non-distracted (i.e., scaling by the board size).
Distracted IDs	The fraction of all independent directors who are distracted (i.e., scaling by the number of independent directors).
Non-distracted co-opted IDs	The fraction of directors on the board who are independent, non-distracted, and co-opted (i.e., scaling by the board size). We define a co-opted director as being appointed after the current CEO assumes office.
Non-distracted non-co-opted IDs	The fraction of directors on the board who are independent, non-distracted, and non-co-opted (i.e., scaling by the board size). We define a co-opted director as being appointed after the current CEO assumes office.
Distracted & co-opted IDs	The fraction of all independent directors who are distracted and co-opted (i.e., scaling by the number of independent directors). We define co-option as the appointment of an independent director after the current CEO assumes office.
Distracted & non-co-opted IDs	The fraction of all independent directors who are distracted and non-co-opted (i.e., scaling by the number of independent directors). We define co-option as the appointment of an independent director after the current CEO assumes office.

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Audit (Non-distracted IDs)	The fraction of audit committee members who are independent and non-distracted (i.e., scaling by the number of directors on the audit committee).
Non-audit (Non-distracted IDs)	The fraction of non-audit committee members who are independent and non-distracted (i.e., scaling by the number of directors not on the audit committee).
Audit (Distracted IDs)	The fraction of independent audit committee members who are distracted (i.e., scaling by the number of independent directors on the audit committee).
Non-audit (Distracted IDs)	The fraction of independent non-audit committee members who are distracted (i.e., scaling by the number of independent directors not on the audit committee).
Comp (Non-distracted IDs)	The fraction of compensation committee members who are independent and non-distracted (i.e., scaling by the number of directors on the compensation committee).
Non-comp (Non-distracted IDs)	The fraction of non-compensation committee members who are independent and non-distracted (i.e., scaling by the number of directors not on the compensation committee).
Comp (Distracted IDs)	The fraction of independent compensation committee members who are distracted (i.e., scaling by the number of independent directors on the compensation committee).
Non-comp (Distracted IDs)	The fraction of independent non-compensation committee members who are distracted (i.e., scaling by the number of independent directors not on the compensation committee).
Acq (Non-distracted IDs)	The fraction of acquisition-experienced directors who are independent and non-distracted (i.e., scaling by the number of directors who have acquisition experience). We consider an independent director to have acquisition-experience if the director is on the board of a public firm that makes one or more acquisitions of at least 1% of the bidder's market value in the past five years.
Non-Acq (Non-distracted IDs)	The fraction of non-acquisition-experienced directors who are independent and non-distracted (i.e., scaling by the number of directors who do not have acquisition experience). We consider an independent director to have acquisition experience if the director is on the board of a public firm that makes one or more acquisitions of at least 1% of the bidder's market value in the past five years.
Acq (Distracted IDs)	The fraction of acquisition-experienced independent directors who are distracted (i.e., scaling by the number of independent directors who have acquisition experience). We consider an independent director to have acquisition experience if the director is on the board of a public firm that makes one or more acquisitions of at least 1% of the bidder's market value in the past five years.
Non-acq (Distracted IDs)	The fraction of non-acquisition-experienced independent directors who are distracted (i.e., scaling by the number of independent directors who do not have acquisition experience). We consider an independent director to have acquisition experience if the director is on the board of a public firm that makes one or more acquisitions of at least 1% of the bidder's market value in the past five years.
Distracted gray dir	The fraction of all affiliated/gray directors who are distracted (i.e., scaling by the number of gray directors).
# of Meetings	The number of board meetings during the year. We treat values lower than 0 or higher than 24 as missing. Source: Execucomp (until 2006), GMI Ratings (since 2001).
Annual director retainer	The annual cash retained paid to directors. Source: Execucomp for fiscal years up to 2006.
Board size	The number of directors on the board at year end. Source: BoardEx.
Busy board	Indicator variable: equals one if more than 50% of independent directors each holds three or more directorships and is zero otherwise. Source: BoardEx.
Busy IDs	The fraction of independent directors who hold three or more directorships. Source: BoardEx.

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Director meeting fee	Meeting attendance fee received by all directors. Source: Execucomp for fiscal years up to 2006.
ID ownership	Percentage of common shares outstanding held by all independent directors of the board at year end, including stock options. Source: RiskMetrics.
Independent board	Indicator variable: equals one if more than 50% of directors are independent and is zero otherwise.
Firm characteristics	
Analyst following	The number of analysts who posted forecasts about the firm in a given year. We count forecasts from the same I/B/E/S analyst identifier and the same brokerage house as a single analyst. Because the number of analysts is strongly correlated with firm size, and firm size is correlated with performance, we use the residuals from a regression of the number of analysts on firm size. We follow Krishnaswami, Spindt, and Subramaniam (1999) and Duchin, Matsusaka, and Ozbas (2010) in defining this measure.
Analyst forecast dispersion	The standard deviation of earnings forecasts across analysts prior to a quarterly earnings announcement, normalized by the firm's total book assets, and averaged across the four quarters of a given year. We follow Krishnaswami, Spindt, and Subramaniam (1999) and Duchin, Matsusaka, and Ozbas (2010) in defining this measure.
Analyst forecast error	The absolute difference between the mean analyst earnings forecast prior to a quarterly earnings announcement and the actual earnings, normalized by the firm's total book assets, and averaged across four quarters in a given year. We follow Krishnaswami, Spindt, and Subramaniam (1999) and Duchin, Matsusaka, and Ozbas (2010) in defining this measure.
Annual stock return	Effective annual return computed using monthly return of 12 months before the fiscal year ending date. Source: CRSP.
Assets	Year-end total assets: item6. Source: Compustat.
Capex	Capital expenditures (set missing values to zero as in Masulis et al., 2009): max(item128,0). Source: Compustat.
Depreciation	Depreciation expense: item14. Source: Compustat.
Dual class	A firm with two classes of common stock with unequal voting rights.
E-Index	The number of anti-takeover provisions as in Bebchuk, Cohen, and Ferrell (2009). We use the most recent E-Index for missing years, unless otherwise noted. We set missing values to the state-wide average, because the six key anti-takeover provisions are enforced and therefore mostly determined by state laws. Source: RiskMetrics.
Firm age	Number of years since initial public offering (IPO). Source: Compustat.
Gross margin / Assets	(Total revenue - cost of goods sold) / total assets: (item12 – item41) / item6. Source: Compustat.
Growth(Assets)	Growth rate in total assets from prior year to current year.
Herfindahl index	Calculated using sample firms for each of the Fama-French 48 industry and fiscal year using the formula of $\sum_i (Sales_i / Industry\ sales)^2$, where i is the number of firms in the industry. Source: Compustat.
Institution own	A firm's proportion of ownership from institutional shareholders in a fiscal year. Source: Thomson Reuters Institutional (13F) Holdings (Stock Ownership Summary)
Leverage	(Short-term debt + long-term debt) / total assets: (item 34 + item9) / item6. All values are year end. Source: Compustat.
# of Bus seg	The number of business segments. Source: Compustat.
# of Geo seg	The number of geographic segments. Source: Compustat.
Opaqueness	The predicted score from factor analysis using Analyst following, Analyst forecast dispersion, Analyst forecast error, Firm age, Volatility, Ln(# of Geo seg), Ln(# of Bus seg) and PPE.
Operating cash flow	Annual cash flow from operations) / beginning-year total assets: item308 / lag(item6). Source: Compustat.

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Operating expenses / Assets	(Advertising expense + selling, general, and administrative expense + rental expense) / total assets: (item45 + item132 + item47) / item6. Source: Compustat.
PPE	Total gross value of property, plant, and equipment: item7. Source: Compustat.
Post-SOX	Indicator variable: equals one if the observations occurs in fiscal year 2001 or later and is zero otherwise.
R&D	Research and development expense (set missing values to 0 as in Masulis et al., 2009) / sales/turnover (net): max(item46,0). Source: Compustat.
ROA	Operating income before depreciation / beginning-year total assets: item13 / lag(item6). Source: Compustat.
Sales	Sales/turnover (net): item12. Source: Compustat.
Tobin's *Q*	(Total assets – book equity + market value of equity) / total assets: (item6 – item60 + item199 * item25) / item6. All values are year end. Source: Compustat.
UAF	Unexplained audit fee is a measure of accounting quality developed by Hribar, Kravet, and Wilson (2014). It is the residual from a model of the natural logarithm of audit fees on proxies for and factors affecting the complexity of the audit, inherent risks, the importance of the client to the audit firm, litigation risk, and industry fixed effects. We estimate the model by year and size decile. Larger values of the residual indicate lower accounting quality. Source: Audit Analytics, Compustat, SDC Platinum.
Volatility	Annualized standard deviation of monthly stock return during the latest 60 months starting retrospectively from the fiscal year end date. If less than 60 months of return data is available, we use the actual number of months available with a minimum requirement of 12 months. If fewer than 12 months are available, then the average volatility of the S&P 1500 is used. Source: CRSP.
M&A deal characteristics	
% CAR (-1,+1)	Cumulative abnormal returns (%) for the event window (−1, 1) of acquisition announcement, calculated using the market model benchmark method. Benchmark parameters are estimated using value-weighted CRSP index as a proxy for market returns over days (-210, -11). Source: CRSP.
Stock runup	Buy-and-hold returns (%) of the acquiring firm's stock from day -211 to -10 of the acquisition announcement date times 100. Source: CRSP.
Relative deal size	Deal value from SDC scaled by the market capitalization of the acquirer 11 days prior to the announcement. Source: SDC.
% Cash financed	The percentage of the deal financed with cash. Source: SDC.
Non-diversifying bid	Indicator variable: equals one if the target is in the same Fama-French industry with the acquirer. Source: SDC.

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Table 1 Distracting Events

This table analyses the occurrence, persistency, and frequency of each distracting events and their combinations for fiscal years 2000 to 2013. The data includes director-firm-year observations from S&P 1500 firms and exclude those from financial and utility firms. Panel A presents the correlation of being preoccupied by different distracting events. Panel B shows for how long a director tends to be distracted by each event and a combination of all events. Panel C summarizes the frequency of an independent director being distracted for the majority of a year by an event, by a combination of all events, and by more than one event, respectively. The data in Columns 1-3 of Panel C is at the independent director-firm-year level, whereas the data in Columns 4-6 is at the independent director-firm level. Columns 1-3 summarize the proportion of independent director-firm-year observations that are preoccupied for the majority of the year. Columns 4-6 show the frequencies of distractions occurring to the same independent director-firm, by calculating the proportions of years that are preoccupied for the majority of the time within each director-firm group and summarizing the frequencies at the director-firm level. Section 3 provides a detailed description of the distracting events, distraction periods, and requirements on the relative importance of a directorship related to the distracting events.

Panel A: Correlation of distracting events

		[1] ROA	[2] Stock return	[3] Misconduct	[4] M&A	[5] Divestiture	[6] CEO turnover	[7] Distress	[8] Illness/ Injury	[9] Awards
[1]	ROA	1								
[2]	Stock return	0.537***	1							
[3]	Misconduct	0.161***	0.166***	1						
[4]	M&A	0.307***	0.310***	0.104***	1					
[5]	Divestiture	0.184***	0.180***	0.0833***	0.606***	1				
[6]	CEO turnover	0.224***	0.221***	0.110***	0.156***	0.0988***	1			
[7]	Distress	0.0683***	0.0698***	0.0348***	0.0575***	0.0361***	0.0357***	1		
[8]	Illness/Injury	0.0394***	0.0506***	0.0344***	0.0269***	0.0254***	0.0613***	0.00963***	1	
[9]	Awards	0.0264***	0.0292***	0.00584*	0.00604*	-0.000373	0.0106***	0.00600*	-0.00407	1

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Panel B: Lengths of distracting events as a percentage of fiscal years of the current firm (subsample with occurrence)

		N	Mean	Median	SD	25th Percentile	75th Percentile
[1]	ROA	15864	0.767	1	0.32	0.503	1
[2]	Stock return	17169	0.739	0.918	0.331	0.496	1
[3]	Misconduct	2259	0.768	1	0.344	0.541	1
[4]	M&A	7115	0.636	0.681	0.335	0.335	1
[5]	Divestiture	3005	0.58	0.593	0.328	0.283	0.918
[6]	CEO turnover	5851	0.667	0.75	0.337	0.409	1
[7]	Distress	3007	0.179	0.085	0.219	0.082	0.168
[8]	Illness/Injury	422	0.469	0.456	0.277	0.23	0.72
[9]	Awards	565	0.695	0.948	0.364	0.393	1
[10]	Combination	24210	0.838	1	0.292	0.832	1

Panel C: Frequency of a director being distracted by a distracting event for the majority of a year

		[1]	[2]	[3]	[4]	[5]	[6]
		N	Mean	SD	N	Mean	SD
[1]	ROA	93665	0.131	0.337	13323	0.131	0.249
[2]	Stock return	93665	0.137	0.343	13323	0.137	0.248
[3]	Misconduct	93665	0.019	0.135	13323	0.016	0.093
[4]	M&A	93665	0.049	0.216	13323	0.049	0.144
[5]	Divestiture	93665	0.019	0.135	13323	0.02	0.089
[6]	CEO turnover	93665	0.042	0.2	13323	0.04	0.105
[7]	Distress	93665	0.003	0.053	13323	0.003	0.034
[8]	Illness/Injury	93665	0.004	0.063	13323	0.004	0.031
[9]	Awards	93665	0.004	0.064	13323	0.004	0.043
[10]	Combination	93665	0.219	0.414	13323	0.22	0.348
[11]	More than one event	93665	0.112	0.315	13323	0.111	0.228

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Table 2 Summary statistics at the director level

This table presents summary statistics for director-level variables for fiscal years 2000 to 2013. The data in Panel A include independent director-firm-year observations from S&P 1500 firms and exclude those from financial and utility industries. Panel B further restricts the data to independent director-firm-year observations that are distracted. *Distracted* is an indicator that equals one if the independent director is distracted for at least 50% (or 25% if distracted by illness/injury) of the fiscal year, and zero otherwise. Section 3 provides a detailed description of the distracting events, distraction periods, and requirements on the relative importance of a directorship related to the distracting events. All variable definitions are reported in Appendix A.3.

Panel A: Full sample

	N	Mean	Median	SD	25th Percentile	75th Percentile
Distracted	93665	0.219	0	0.414	0	0
# Trade (>0)	20466	5.256	2	20.672	1	4
# Trade	93665	1.148	0	9.904	0	0
Attended <75% of meetings	74756	0.024	0	0.154	0	0
# of Directorships	93665	1.891	2	1.143	1	2
Director age	93565	61.505	62	8.36	56	67
Director tenure	93665	7.63	6	5.93	3	10.3
Director ownership	74883	0.003	0	0.023	0	0.001
Committee member	93665	0.916	1	0.277	1	1

Panel B: Subsample of independent director-firm-year observations that are distracted

	N	Mean	Median	SD	25th Percentile	75th Percentile
Distracted	20554	1	1	0	1	1
# Trade (>0)	3422	4.361	2	14.982	1	3
# Trade	20554	0.726	0	6.325	0	0
Attended <75% of meetings	16965	0.049	0	0.216	0	0
# of Directorships	20554	3.057	3	1.114	2	4
Director age	20554	62.092	63	6.899	58	67
Director tenure	20554	7.117	6	5.081	3	10
Director ownership	17844	0.003	0	0.022	0	0.001
Committee member	20554	0.924	1	0.265	1	1

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Table 3 Summary statistics at the firm level

This table presents summary statistics for firm-level variables for fiscal years 2000 to 2013. The data in Panel A include S&P 1500 firms and exclude financial and utility firms, dual class firms, and firms with a dominating insider shareholder. Panel B further restricts the data to firm-year observations with distracted independent directors. *Distracted IDs* is the fraction of all independent directors who are distracted. *Non-distracted IDs* is the fraction of directors on the board who are independent and non-distracted. *Busy board* is an indicator variable that equals one if more than 50% of independent directors each hold three or more directorships and is 0 otherwise. Section 3 provides a detailed description of the distracting events, distraction periods, and requirements on the relative importance of a directorship related to the distracting events. Appendix A.3 provides all the variable definitions.

Panel A: Full sample

	N	Mean	Median	SD	25th Percentile	75th Percentile
Distracted IDs	12518	0.201	0.167	0.188	0	0.333
Non-distracted IDs	12523	0.598	0.6	0.168	0.5	0.714
Busy Board	12518	0.075	0	0.263	0	0
ROA	12467	0.17	0.157	0.16	0.107	0.223
Tobin's Q	12342	2.127	1.688	1.434	1.293	2.43
Board Size	12524	9.104	9	2.303	7	11
% ID	12523	0.755	0.778	0.143	0.667	0.875
Assets ($ million)	12514	7160.117	1517.684	20267.76	539.9	4890.346

Panel B: Subsample of firm-year observations with distracted independent directors

	N	Mean	Median	SD	25th Percentile	75th Percentile
Distracted IDs	8490	0.297	0.25	0.155	0.167	0.4
Non-distracted IDs	8490	0.553	0.571	0.153	0.444	0.667
Busy board	8490	0.104	0	0.305	0	0
ROA	8472	0.167	0.154	0.116	0.106	0.213
Tobin's *Q*	8419	2.039	1.658	1.287	1.283	2.318
Board size	8490	9.631	9	2.23	8	11
% ID	8490	0.784	0.818	0.125	0.714	0.889
Assets ($ million)	8488	9441.564	2136.977	23955.92	757.923	7042.73

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Table 4 Board meeting absences

This table presents results from linear probability models analyzing board meeting absence of independent directors, for fiscal years 2000 to 2013. The data includes independent director-firm-year observations from S&P 1500 firms and exclude those from financial and utility industries. The dependent variable is one if the director attended less than 75% of the meetings for the year, and zero otherwise. *Distracted* is an indicator that equals one if the independent director is distracted for at least 50% (or 25% if distracted by illness/injury) of the fiscal year, and zero otherwise. *Major committee* is an indicator variable that equals one if the director is a nomination, audit, compensation, or corporate governance committee member, and zero otherwise. Table 2 provides summary statistics at the director level. Appendix A.3 provides all the variable definitions. Standard errors are robust to heterosckedasticity and are clustered by director with *p*-values in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable: Attended <75% of meetings	Model 1 LPM	Model 2 LPM	Model 3 LPM	Model 4 LPM	Model 5 LPM	Model 6 LPM
Distracted ID	0.008***	0.007***	0.003	0.014***	0.014***	0.012**
	(0.000)	(0.000)	(0.272)	(0.001)	(0.000)	(0.031)
# of Directorships$_{t-1}$	0.002***	0.003***	0.000	0.002	0.001	0.001
	(0.003)	(0.001)	(0.959)	(0.302)	(0.329)	(0.774)
Director tenure$_{t-1}$	-0.000	-0.000	0.001**	-0.000	-0.000	0.000
	(0.754)	(0.984)	(0.016)	(0.839)	(0.691)	(0.666)
Board size$_{t-1}$	0.001**	0.001	0.001	0.002**	0.002**	0.002
	(0.016)	(0.144)	(0.191)	(0.028)	(0.047)	(0.220)
Director age$_{t-1}$	-0.000***	-0.000**	0.005	-0.000	-0.000	0.009
	(0.007)	(0.030)	(0.269)	(0.106)	(0.672)	(0.448)
Director ownership$_{t-1}$	-0.007	-0.005	0.001	-0.048	-0.043	-0.147
	(0.764)	(0.834)	(0.991)	(0.298)	(0.420)	(0.664)
Post-SOX$_{t-1}$		-0.011***	-0.072		0.004	-0.029
		(0.000)	(0.127)		(0.568)	(0.444)
Ln(Assets)$_{t-1}$	-0.001*	-0.005**	-0.004**	-0.002	-0.009	-0.005
	(0.066)	(0.033)	(0.032)	(0.175)	(0.234)	(0.286)
ROA$_{t-1}$	-0.015*	-0.015	-0.017	-0.007	-0.009	0.004
	(0.096)	(0.168)	(0.153)	(0.653)	(0.650)	(0.885)
Ln(Tobin's *Q*)$_{t-1}$	0.003	-0.002	-0.003	0.008*	-0.002	-0.008
	(0.156)	(0.563)	(0.395)	(0.091)	(0.704)	(0.355)
Committee member$_{t-1}$	-0.011***	-0.010***	-0.003	-0.010*	-0.010*	-0.005
	(0.001)	(0.001)	(0.630)	(0.092)	(0.055)	(0.629)
Annual director retainer$_{t-1}$				0.000	0.000	0.000
				(0.244)	(0.925)	(0.400)
Director meeting fee$_{t-1}$				-0.002	-0.001	0.001
				(0.211)	(0.667)	(0.863)
# of Meetings$_{t-1}$	-0.000	0.000	0.000	-0.001**	0.000	-0.000
	(0.732)	(0.601)	(0.244)	(0.023)	(0.389)	(0.622)
Observations	58,751	58,751	58,751	17,055	17,055	17,055
Industry * Year FE	Y	N	N	Y	N	N
Firm & Year FE	N	Y	N	N	Y	N
Director & Year FE	N	N	Y	N	N	Y
Adjusted *R*-squared	0.013	0.031	0.100	0.012	0.081	0.176

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Table 5 Personal trading frequency in the firm's stock

This table presents results from multivariate regression analysis of trading frequency of independent directors, for fiscal years 2000 to 2013. The data includes independent director-firm-year observations from S&P 1500 firms and exclude those from financial and utility industries. The dependent variable is the number of times an independent director trades in his own firm's stock (in the form of open market sales and purchases) within a fiscal year. *Distracted* is an indicator that equals one if the independent director is distracted for at least 50% (or 25% if distracted by illness/injury) of the fiscal year, and zero otherwise. *Major committee* is an indicator variable that equals one if the director is a nomination, audit, compensation, or corporate governance committee member, and zero otherwise. Table 2 provides summary statistics at the director level. Appendix A.3 provides all the variable definitions. Standard errors are robust to heterosckedasticity and are clustered by director with *p*-values in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable: # Trade	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
		All			*# Trade* >0	
Distracted ID	-0.352***	-0.285***	-0.174**	-0.916**	-0.818**	-0.420*
	(0.000)	(0.000)	(0.014)	(0.018)	(0.024)	(0.051)
# of Directorships$_{t-1}$	-0.076**	-0.038	0.094	-0.048	0.110	0.380
	(0.038)	(0.316)	(0.105)	(0.750)	(0.472)	(0.298)
Director tenure$_{t-1}$	0.075***	0.074***	0.012	0.119***	0.124***	-0.094
	(0.000)	(0.000)	(0.388)	(0.008)	(0.003)	(0.234)
Board size$_{t-1}$	-0.063**	-0.019	-0.022	-0.067	-0.001	-0.152
	(0.018)	(0.584)	(0.536)	(0.541)	(0.995)	(0.484)
Director age$_{t-1}$	-0.000	-0.002	0.076	-0.019	-0.035	0.561
	(0.999)	(0.771)	(0.652)	(0.459)	(0.117)	(0.440)
Director ownership$_{t-1}$	17.625***	19.832***	1.582	59.704***	64.106***	-13.676
	(0.000)	(0.000)	(0.836)	(0.000)	(0.000)	(0.790)
Post-SOX$_{t-1}$		-0.514*	-0.544		-3.077*	-5.852
		(0.072)	(0.748)		(0.073)	(0.423)
Ln(Assets)$_{t-1}$	0.045	0.075	0.109	0.284	0.566	0.470
	(0.428)	(0.697)	(0.216)	(0.249)	(0.527)	(0.413)
ROA$_{t-1}$	-0.860	1.045	0.871	-1.134	1.939	2.025
	(0.332)	(0.250)	(0.335)	(0.690)	(0.512)	(0.597)
Ln(Tobin's *Q*)$_{t-1}$	0.940***	0.724**	0.703**	1.090	0.187	1.117
	(0.001)	(0.047)	(0.025)	(0.218)	(0.876)	(0.438)
Observations	65,089	65,089	65,089	14,974	14,974	14,974
Industry * Year FE	Y	N	N	Y	N	N
Firm & Year FE	N	Y	N	N	Y	N
Director & Year FE	N	N	Y	N	N	Y
Adjusted *R*-squared	0.010	0.028	0.092	0.015	0.037	0.085

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Table 6 Unexpected departures from the board within the following two years and firm performance

This table presents results from linear probability models analyzing the likelihood of an independent director losing the current directorship unexpectedly within the next two years conditioning on firm performance and other variables, for fiscal years 2000 to 2013. The data includes independent director-firm-year observations from S&P 1500 firms and exclude those from financial and utility industries. The dependent variable is an indicator equal to one if the director unexpectedly leaves the current directorship within the subsequent two years and is zero otherwise. We consider a director's departure to be expected if the director is at least 70 years old or receives negative ISS voting recommendations in the year of departure or miss at least 25% board meetings in the year prior to the departure. *Distracted* is an indicator that equals one if the independent director is distracted for at least 50% (or 25% if distracted by illness/injury) of the fiscal years and zero otherwise. Table 2 provides summary statistics at the director level. Appendix A.3 provides all the variable definitions. Standard errors are robust to heterosckedasticity and are clustered by director with *p*-values in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable: Unexpected departure	Model 1 LPM	Model 2 LPM	Model 3 LPM	Model 4 LPM	Model 5 LPM	Model 6 LPM
Distracted ID X Annual stock return	-0.012***	-0.012***	-0.013***			
	(0.001)	(0.000)	(0.000)			
Distracted ID X ROA				-0.010*	-0.014*	-0.052**
				(0.073)	(0.061)	(0.026)
Distracted ID	0.008**	0.008**	0.018***	0.008	0.008	0.026***
	(0.029)	(0.025)	(0.000)	(0.184)	(0.149)	(0.000)
Annual stock return$_{t-1}$	-0.009***	-0.007***	-0.007***			
	(0.000)	(0.000)	(0.000)			
ROA$_{t-1}$				-0.036**	-0.018**	-0.001
				(0.011)	(0.027)	(0.160)
# of Directorships$_{t-1}$	0.001	0.001	0.017***	0.001	0.001	0.021***
	(0.461)	(0.474)	(0.000)	(0.473)	(0.608)	(0.000)
Director tenure$_{t-1}$	-0.000	0.001**	0.005***	-0.000**	0.000	0.005***
	(0.324)	(0.013)	(0.000)	(0.048)	(0.343)	(0.000)
Board size$_{t-1}$	0.000	0.007***	0.002	0.000	0.005***	0.001
	(0.552)	(0.000)	(0.177)	(0.971)	(0.000)	(0.550)
Independent board$_{t-1}$	-0.004	-0.006	-0.007	-0.004	-0.002	-0.008
	(0.457)	(0.297)	(0.282)	(0.518)	(0.717)	(0.257)
Director age$_{t-1}$	0.005***	0.005***	0.005	0.005***	0.005***	0.015
	(0.000)	(0.000)	(0.601)	(0.000)	(0.000)	(0.104)
Director ownership$_{t-1}$	0.150**	0.148**	0.028	0.170**	0.173**	0.090
	(0.023)	(0.033)	(0.672)	(0.015)	(0.018)	(0.258)
Post-SOX$_{t-1}$		-0.054*	0.055		0.016**	0.189**
		(0.097)	(0.536)		(0.019)	(0.045)
Ln(Assets)$_{t-1}$	-0.003**	-0.001	-0.004	-0.006***	-0.001	-0.001
	(0.025)	(0.721)	(0.235)	(0.000)	(0.745)	(0.824)
Observations	64,118	64,118	64,118	64,135	64,135	64,135
Industry * Year FE	Y	N	N	Y	N	N
Firm & Year FE	N	Y	N	N	Y	N
Director & Year FE	N	N	Y	N	N	Y
Adjusted *R*-squared	0.036	0.068	0.309	0.038	0.080	0.330

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Table 7 Impacts of distractions on firm performance and value

This table presents results from a multivariate regression analysis of firm performance and value for fiscal years 2000 to 2013. In Models 1-6, the data includes S&P 1500 firms and exclude financial and utility firms, dual class firms, and firms with a dominating insider shareholder. In Models 7-10, we further match the firms with and without preoccupied independent directors together, by Fama-French 48 Industry, year, and 5% radius on propensity score with replacement. We compute propensity scores using total assets, the average number of directorships held by independent directors, board size, and the fraction of independent directors that hold three or more directorships. *ROA* is operating income before depreciation scaled by assets. *Ln(Tobin's Q)* is the natural logarithm of the market-to-book approximation of Tobin's Q. *Non-distracted IDs* is the fraction of directors on the board who are independent and non-distracted (i.e., scaling by the board size). *Distracted IDs* is the fraction of all independent directors who are distracted (i.e., scaling by the number of independent directors). Table 3 provides summary statistics at the firm level. Appendix A.3 provides all the variable definitions. Standard errors are robust to heterosckedasticity and are clustered by firm with *p*-values in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Sample:	Full sample				Matched sample			
Dependent variable:	ROA		Ln(Tobin's *Q*)		ROA		Ln(Tobin's *Q*)	
Non-distracted IDs	0.026***		0.175***		0.041**		0.179***	
	(0.005)		(0.000)		(0.026)		(0.001)	
Distracted IDs		-0.030***		-0.166***		-0.036***		-0.170***
		(0.000)		(0.000)		(0.008)		(0.000)
Ln(Assets)$_{t-1}$	-0.058***	-0.053***	-0.194***	-0.193***	-0.051***	-0.051***	-0.203***	-0.204***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R&D / Sales$_{t-1}$	-0.004***	-0.006***	-0.005***	-0.005***	-0.005***	-0.005***	-0.017***	-0.018***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Busy ID$_{t-1}$	-0.000	-0.000	0.023	0.034	0.003	0.005	0.083	0.093*
	(0.988)	(0.988)	(0.500)	(0.306)	(0.837)	(0.760)	(0.111)	(0.081)
Independent board$_{t-1}$	-0.005	0.001	-0.003	0.015	-0.001	0.003	0.013	0.030
	(0.397)	(0.881)	(0.902)	(0.457)	(0.895)	(0.778)	(0.669)	(0.330)
Board size$_{t-1}$	-0.000	-0.001	-0.008**	-0.009**	-0.001	-0.001	-0.009	-0.010
	(0.725)	(0.205)	(0.029)	(0.020)	(0.608)	(0.540)	(0.145)	(0.114)
ID ownership$_{t-1}$	-0.025	-0.064***	-0.069	-0.057	-0.029	-0.027	-0.156	-0.145
	(0.287)	(0.005)	(0.368)	(0.461)	(0.342)	(0.377)	(0.310)	(0.347)
CEO ownership$_{t-1}$	0.050*	0.008	-0.735	-0.777	0.057	0.060	-0.588	-0.608
	(0.096)	(0.441)	(0.129)	(0.122)	(0.246)	(0.231)	(0.205)	(0.196)
CEO ownership$^2_{t-1}$	-0.109	-0.016	1.558	1.622	-0.191	-0.188	1.555	1.544
	(0.140)	(0.452)	(0.129)	(0.115)	(0.159)	(0.164)	(0.235)	(0.243)
Ln (1+Firm age)$_{t-1}$	0.005	0.001	-0.007	-0.007	-0.024	-0.025	-0.004	-0.007
	(0.722)	(0.942)	(0.893)	(0.896)	(0.414)	(0.400)	(0.963)	(0.931)
Ln(# of Bus seg)$_{t-1}$	-0.006*	-0.006	-0.038***	-0.037***	-0.006	-0.006	-0.037*	-0.036*
	(0.085)	(0.132)	(0.001)	(0.001)	(0.355)	(0.366)	(0.058)	(0.062)
Volatility$_{t-1}$	-0.072***	-0.091***			-0.134***	-0.134***		
	(0.000)	(0.000)			(0.000)	(0.000)		
Depreciation / Sales$_{t-1}$	-0.024	-0.041**			-0.034	-0.034*		
	(0.169)	(0.018)			(0.101)	(0.092)		
Operating cash flow$_{t-1}$			0.537***	0.533***			0.431**	0.430**
			(0.000)	(0.000)			(0.011)	(0.010)
Operating cash flow$_{t-2}$			0.237***	0.237***			0.239***	0.239***
			(0.000)	(0.000)			(0.000)	(0.000)
Operating cash flow$_{t-3}$			-0.007	-0.006			-0.010**	-0.008*
			(0.483)	(0.532)			(0.041)	(0.067)
Capex / Sales$_{t-1}$			-0.000	-0.000			0.066***	0.066***
			(0.168)	(0.198)			(0.002)	(0.001)
Observations	10,185	10,185	10,048	10,048	4,280	4,280	4,225	4,225
Firm & Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Adjusted *R*-squared	0.593	0.586	0.761	0.761	0.589	0.589	0.778	0.778

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Table 8 Impacts of distractions on firm performance and value: role of non-co-opted and co-opted independent directors

This table presents results from a multivariate regression analysis of firm performance and value for fiscal years 2000 to 2013. In Models 1-6, the data includes S&P 1500 firms and exclude financial and utility firms, dual class firms, and firms with a dominating insider shareholder. In Models 7-10, we further match the firms with and without preoccupied independent directors together, by Fama-French 48 Industry, year, and 5% radius on propensity score with replacement. We compute propensity scores using total assets, the average number of directorships held by independent directors, board size, and the fraction of independent directors that hold three or more directorships. *ROA* is operating income before depreciation scaled by assets. *Ln(Tobin's Q)* is the natural logarithm of the market-to-book approximation of Tobin's *Q*. *Non-distracted Non-co-opted IDs* is the fraction of directors on the board who are independent, non-distracted, and non-co-opted (i.e., scaling by the board size). *Non-distracted Coopted IDs* is fraction of directors on the board who are independent, non-distracted, and co-opted (i.e., scaling by the board size). *Distracted non-co-opted IDs* is the fraction of all independent directors who are non-co-opted and distracted (i.e., scaling by the number of independent directors). *Distracted co-opted IDs* is the fraction of all independent directors who are distracted and co-opted (i.e., scaling by the number of independent directors). Table 3 provides summary statistics at the firm level. Appendix A.3 provides all the variable definitions. Standard errors are robust to heterosckedasticity and are clustered by firm with *p*-values in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Sample	Full sample				Matched sample			
Dependent variable:	ROA		Ln(Tobin's *Q*)		ROA		Ln(Tobin's *Q*)	
Non-distracted non-co-opted IDs	0.028***		0.199***		0.040**		0.204***	
	(0.007)		(0.000)		(0.033)		(0.001)	
Non-distracted co-opted IDs	0.024**		0.146***		0.041**		0.152**	
	(0.020)		(0.000)		(0.040)		(0.012)	
Distracted non-co-opted IDs		-0.040***		-0.189***		-0.042***		-0.164***
		(0.000)		(0.000)		(0.009)		(0.002)
Distracted co-opted IDs		-0.016		-0.131***		-0.025		-0.181***
		(0.121)		(0.001)		(0.159)		(0.006)
Ln(Assets)$_{t-1}$	-0.058***	-0.053***	-0.192***	-0.194***	-0.051***	-0.051***	-0.201***	-0.204***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R&D / Sales$_{t-1}$	-0.004***	-0.006***	-0.004***	-0.005***	-0.005***	-0.005***	-0.017***	-0.018***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Busy IDs$_{t-1}$	-0.000	0.000	0.023	0.035	0.003	0.005	0.084	0.093*
	(0.991)	(0.971)	(0.495)	(0.288)	(0.837)	(0.754)	(0.105)	(0.081)
Independent board$_{t-1}$	-0.005	0.001	-0.002	0.016	-0.001	0.003	0.014	0.030
	(0.400)	(0.878)	(0.917)	(0.452)	(0.895)	(0.778)	(0.659)	(0.330)
Board size$_{t-1}$	-0.000	-0.001	-0.008**	-0.008**	-0.001	-0.001	-0.009	-0.010
	(0.717)	(0.230)	(0.025)	(0.023)	(0.610)	(0.559)	(0.138)	(0.113)
ID ownership$_{t-1}$	-0.025	-0.065***	-0.064	-0.059	-0.029	-0.027	-0.151	-0.144
	(0.294)	(0.004)	(0.402)	(0.442)	(0.345)	(0.368)	(0.327)	(0.350)
CEO ownership$_{t-1}$	0.044	0.023	-0.653	-0.815	0.057	0.070	-0.517	-0.599
	(0.147)	(0.334)	(0.152)	(0.116)	(0.250)	(0.192)	(0.268)	(0.205)
CEO ownership$^2_{t-1}$	-0.097	-0.053	1.375	1.720	-0.192	-0.208	1.399	1.524
	(0.184)	(0.340)	(0.186)	(0.194)	(0.163)	(0.132)	(0.284)	(0.250)
Ln (1+Firm age)$_{t-1}$	0.006	0.001	-0.006	-0.009	-0.024	-0.025	-0.003	-0.007
	(0.715)	(0.972)	(0.917)	(0.874)	(0.414)	(0.399)	(0.966)	(0.932)
Ln(# of Bus seg)$_{t-1}$	-0.006*	-0.006	-0.037***	-0.038***	-0.006	-0.006	-0.037*	-0.036*
	(0.086)	(0.124)	(0.001)	(0.001)	(0.355)	(0.365)	(0.058)	(0.062)
Volatility$_{t-1}$	-0.072***	-0.091***			-0.134***	-0.134***		
	(0.000)	(0.000)			(0.000)	(0.000)		
Depreciation / Sales$_{t-1}$	-0.024	-0.041**			-0.034	-0.035*		
	(0.175)	(0.018)			(0.101)	(0.090)		
Operating cash flow$_{t-1}$			0.538***	0.532***			0.431**	0.430**
			(0.000)	(0.000)			(0.011)	(0.011)
Operating cash flow$_{t-2}$			0.235***	0.237***			0.236***	0.239***
			(0.000)	(0.000)			(0.000)	(0.000)
Operating cash flow$_{t-3}$			-0.008	-0.006			-0.010**	-0.008*
			(0.460)	(0.552)			(0.032)	(0.064)
Capex / Sales$_{t-1}$			-0.000	-0.000			0.064***	0.066***
			(0.262)	(0.186)			(0.002)	(0.001)
Observations	10,185	10,185	10,048	10,048	4,280	4,280	4,225	4,225
Firm & Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Adjusted *R*-squared	0.593	0.586	0.761	0.761	0.589	0.590	0.778	0.778

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Table 9 Impacts of distractions on operating efficiency

This table represents results from a multivariate regression analysis of operating efficiency for fiscal years 2000 to 2013. In Models 1-6, the data includes S&P 1500 firms and exclude financial and utility firms, dual class firms, and firms with a dominating insider shareholder. In Models 7-10, we further match the firms with and without preoccupied independent directors together, by Fama-French 48 Industry, year, and 5% radius on propensity score with replacement. We compute propensity scores using total assets, the average number of directorships held by independent directors, board size, and the fraction of independent directors that hold three or more directorships. *Gross margin / Assets* is gross margin scaled by assets. *Operating expense / Assets* is operating expense scaled by assets. *Non-distracted IDs* is the fraction of directors on the board who are independent and non-distracted (i.e., scaling by the board size). *Distracted IDs* is the fraction of all independent directors who are distracted (i.e., scaling by the number of independent directors). Table 3 provides summary statistics at the firm level. Appendix A.3 provides all the variable definitions. Standard errors are robust to heterosckedasticity and are clustered by firm with *p*-values in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Sample:	Full sample				Matched sample			
Dependent variable:	Gross margin / Assets		Operating expense / Assets		Gross margin / Assets		Operating expense / Assets	
Non-distracted IDs	0.035**		-0.015		0.065***		-0.016	
	(0.018)		(0.100)		(0.009)		(0.191)	
Distracted IDs		-0.035***		0.027***		-0.045**		0.026*
		(0.005)		(0.003)		(0.020)		(0.056)
Ln(Assets)$_{t-1}$	-0.157***	-0.157***	-0.030***	-0.030***	-0.151***	-0.151***	-0.031***	-0.031***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R&D / Sales$_{t-1}$	-0.010***	-0.010***	0.001***	0.001***	-0.009***	-0.009***	0.001	0.001*
	(0.000)	(0.000)	(0.002)	(0.002)	(0.000)	(0.000)	(0.107)	(0.096)
Busy IDs$_{t-1}$	0.009	0.012	0.012	0.008	0.018	0.018	0.018	0.015
	(0.546)	(0.426)	(0.219)	(0.428)	(0.418)	(0.429)	(0.196)	(0.278)
Independent board$_{t-1}$	-0.002	0.001	0.014**	0.013**	-0.002	0.005	0.020**	0.018**
	(0.791)	(0.893)	(0.031)	(0.048)	(0.903)	(0.744)	(0.037)	(0.045)
Board size$_{t-1}$	0.001	0.001	0.002*	0.002*	0.002	0.001	0.000	0.000
	(0.424)	(0.466)	(0.088)	(0.082)	(0.534)	(0.610)	(0.875)	(0.846)
ID ownership$_{t-1}$	-0.105***	-0.103***	0.016	0.015	-0.080*	-0.078*	0.005	0.002
	(0.001)	(0.001)	(0.413)	(0.461)	(0.080)	(0.086)	(0.879)	(0.943)
CEO ownership$_{t-1}$	0.176	0.168	0.250**	0.256**	0.210	0.207	0.377***	0.382***
	(0.281)	(0.303)	(0.025)	(0.022)	(0.371)	(0.380)	(0.008)	(0.007)
CEO ownership$^2_{t-1}$	-0.431	-0.421	-0.502	-0.511	-0.394	-0.402	-0.752*	-0.755*
	(0.295)	(0.305)	(0.111)	(0.105)	(0.518)	(0.509)	(0.079)	(0.079)
Ln (1+Firm age)$_{t-1}$	0.012	0.012	0.005	0.006	-0.004	-0.005	0.004	0.004
	(0.557)	(0.563)	(0.684)	(0.666)	(0.917)	(0.896)	(0.816)	(0.797)
Ln(# of Bus seg)$_{t-1}$	0.001	0.001	0.001	0.001	0.004	0.005	0.005	0.005
	(0.887)	(0.880)	(0.745)	(0.743)	(0.628)	(0.609)	(0.407)	(0.411)
Volatility$_{t-1}$	-0.131***	-0.131***	-0.022	-0.021	-0.179***	-0.179***	-0.022	-0.022
	(0.000)	(0.000)	(0.417)	(0.427)	(0.000)	(0.000)	(0.268)	(0.273)
Depreciation /	-0.049	-0.049*	0.026**	0.026**	-0.037	-0.037	0.024*	0.024*
Sales$_{t-1}$	(0.102)	(0.099)	(0.026)	(0.023)	(0.266)	(0.254)	(0.073)	(0.065)
Observations	10,187	10,187	9,466	9, 466	4,280	4,280	4,009	4,009
Firm & Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Adjusted *R*-squared	0.852	0.852	0.914	0.914	0.841	0.841	0.919	0.919

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Table 10 Impacts of distractions on operating efficiency: role of non-co-opted and co-opted independent directors

This table represents results from a multivariate regression analysis of operating efficiency for fiscal years 2000 to 2013. In Models 1-6, the data includes S&P 1500 firms and exclude financial and utility firms, dual class firms, and firms with a dominating insider shareholder. In Models 7-10, we further match the firms with and without preoccupied independent directors together, by Fama-French 48 Industry, year, and 5% radius on propensity score with replacement. We compute propensity scores using total assets, the average number of directorships held by independent directors, board size, and the fraction of independent directors that hold three or more directorships. *Gross margin / Assets* is gross margin scaled by assets. *Operating expense / Assets* is operating expense scaled by assets. *Non-distracted non-co-opted IDs* is the fraction of directors on the board who are independent, non-distracted, and non-co-opted (i.e., scaling by the board size). *Non-distracted co-opted IDs* is fraction of directors on the board who are independent, non-distracted, and co-opted (i.e., scaling by the board size). *Distracted non-co-opted IDs* is the fraction of all independent directors who are non-co-opted and distracted (i.e., scaling by the number of independent directors). *Distracted co-opted IDs* is the fraction of all independent directors who are distracted and co-opted (i.e., scaling by the number of independent directors). Table 3 provides summary statistics at the firm level. Appendix A.3 provides all the variable definitions. Standard errors are robust to heterosckedasticity and are clustered by firm with *p*-values in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Sample:	Full sample				Matched sample			
Dependent variable:	Gross margin / Assets		Operating expense / Assets		Gross margin / Assets		Operating expense / Assets	
Non-distracted non-co-opted IDs	0.033**		-0.001		0.062**		-0.016	
	(0.032)		(0.142)		(0.024)		(0.251)	
Non-distracted co-opted IDs	0.025		-0.014		0.068**		-0.001	
	(0.115)		(0.413)		(0.011)		(0.479)	
Distracted non-co-opted IDs		-0.048***		0.026**		-0.055**		0.027*
		(0.002)		(0.012)		(0.025)		(0.066)
Distracted co-opted IDs		-0.014		0.006		-0.028		0.025
		(0.340)		(0.582)		(0.306)		(0.246)
Ln(Assets)$_{t-1}$	-0.131***	-0.157***	-0.059***	-0.059***	-0.151***	-0.151***	-0.050***	-0.031***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R&D / Sales$_{t-1}$	-0.005***	-0.010***	0.002*	0.002*	-0.009***	-0.009***	0.002*	0.001*
	(0.000)	(0.000)	(0.080)	(0.065)	(0.000)	(0.000)	(0.053)	(0.096)
Busy IDs$_{t-1}$	0.009	0.013	0.017*	0.012	0.018	0.018	0.016	0.015
	(0.509)	(0.398)	(0.087)	(0.203)	(0.423)	(0.425)	(0.262)	(0.278)
Independent board$_{t-1}$	0.002	0.001	0.008	0.007	-0.002	0.005	0.008	0.018**
	(0.844)	(0.891)	(0.239)	(0.273)	(0.898)	(0.741)	(0.459)	(0.045)
Board size$_{t-1}$	0.001	0.001	0.003***	0.003***	0.002	0.002	0.003*	0.000
	(0.457)	(0.432)	(0.005)	(0.005)	(0.532)	(0.593)	(0.094)	(0.848)
ID ownership$_{t-1}$	-0.037	-0.104***	0.028	0.027	-0.081*	-0.079*	0.027	0.002
	(0.216)	(0.001)	(0.311)	(0.328)	(0.078)	(0.083)	(0.456)	(0.942)
CEO ownership$_{t-1}$	0.067	0.147	0.216**	0.209*	0.202	0.192	0.394***	0.383***
	(0.666)	(0.371)	(0.046)	(0.055)	(0.402)	(0.416)	(0.008)	(0.007)
CEO ownership$^2_{t-1}$	-0.101	-0.368	-0.434	-0.419	-0.376	-0.369	-0.828*	-0.758*
	(0.806)	(0.371)	(0.161)	(0.178)	(0.543)	(0.542)	(0.068)	(0.080)
Ln (1+Firm age)$_{t-1}$	0.013	0.011	0.010	0.010	-0.004	-0.005	0.005	0.004
	(0.497)	(0.593)	(0.497)	(0.484)	(0.914)	(0.892)	(0.786)	(0.797)
Ln(# of Bus seg)$_{t-1}$	-0.005	0.001	0.003	0.003	0.004	0.005	0.010*	0.005
	(0.358)	(0.907)	(0.457)	(0.443)	(0.627)	(0.610)	(0.098)	(0.411)
Volatility$_{t-1}$	-0.115***	-0.132***	-0.015	-0.015	-0.179***	-0.179***	-0.010	-0.022
	(0.000)	(0.000)	(0.605)	(0.614)	(0.000)	(0.000)	(0.693)	(0.273)
Depreciation / Sales$_{t-1}$	-0.024	-0.049*	0.037	0.037	-0.037	-0.038	0.026	0.024*
	(0.421)	(0.096)	(0.161)	(0.170)	(0.260)	(0.250)	(0.419)	(0.064)
Observations	10, 187	10,187	9,466	9,466	4,280	4,280	4,009	4,009
Firm & Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Adjusted *R*-squared	0.850	0.852	0.910	0.910	0.841	0.841	0.911	0.919

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Table 11 Impacts of distractions on acquisition profitability

This table presents results from a multivariate OLS analysis of acquisition performance measured as cumulative abnormal returns around announcement for fiscal years 2000 to 2013. In Models 1-4, the data includes 2,659 acquisitions made by S&P 1500 firms, excluding those made by financial and utility firms, dual class firms, and firms with a dominating insider shareholder. In Models 5-8, we further match the firms with and without preoccupied independent directors together, by Fama-French 48 Industry, year, and 5% radius on propensity score with replacement. We compute propensity scores using total assets, the average number of directorships held by independent directors, board size, and the fraction of independent directors that hold three or more directorships. *Non-distracted IDs* is the fraction of directors on the board who are independent and non-distracted (i.e., scaling by the board size). *Distracted IDs* is the fraction of all independent directors who are distracted (i.e., scaling by the number of independent directors). We measure distraction over the window of (-365, -1) where date 0 is the acquisition announcement date (i.e., in terms of whether an independent director is distracted for the majority of the last 365 days prior to the acquisition). Table 3 provides summary statistics at the firm level. Appendix A.3 provides all the variable definitions. Standard errors are robust to heterosckedasticity and are clustered by firm with *p*-values in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable:	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
% CAR (-1,+1)		Full sample				Matched sample		
Non-distracted IDs$_{(-365, -1)}$	1.226**	0.949**			6.039***	5.326**		
	(0.026)	(0.044)			(0.002)	(0.015)		
Distracted IDs$_{(-365, -1)}$			-0.267*	-0.101*			-4.787**	-3.963*
			(0.079)	(0.092)			(0.014)	(0.065)
Ln(Assets)$_{t-1}$	-0.525***	-0.538***	-0.530***	-0.540***	-0.624***	-0.634***	-0.570***	-0.587***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.002)	(0.006)
Leverage$_{t-1}$	0.634	0.722	0.713	0.759	0.557	0.227	0.414	0.064
	(0.585)	(0.498)	(0.537)	(0.476)	(0.736)	(0.903)	(0.806)	(0.972)
Ln(Tobin's Q)$_{t-1}$	-0.538	-0.751	-0.544	-0.761	-0.737	-1.131	-0.735	-1.111
	(0.221)	(0.124)	(0.216)	(0.119)	(0.325)	(0.141)	(0.324)	(0.145)
R&D / Sales$_{t-1}$	-0.336*	-0.368**	-0.331*	-0.362**	-6.750**	-6.681**	-7.015**	-7.084**
	(0.064)	(0.024)	(0.067)	(0.026)	(0.039)	(0.039)	(0.031)	(0.027)
Busy IDs$_{t-1}$	0.749	0.878	0.499	0.703	2.109	1.954	2.113	1.977
	(0.335)	(0.330)	(0.532)	(0.454)	(0.174)	(0.292)	(0.175)	(0.291)
Independent board$_{t-1}$	-0.366	-0.150	-0.110	0.045	-0.769	0.427	0.239	1.157
	(0.638)	(0.873)	(0.881)	(0.961)	(0.623)	(0.813)	(0.868)	(0.499)
E-Index$_{t-1}$	-0.041	-0.170	-0.030	-0.161	0.005	0.100	0.039	0.140
	(0.769)	(0.268)	(0.831)	(0.290)	(0.985)	(0.736)	(0.877)	(0.627)
Stock runup	-0.013**	-0.012*	-0.014**	-0.012*	-0.007	-0.013	-0.007	-0.013
	(0.034)	(0.076)	(0.029)	(0.072)	(0.460)	(0.231)	(0.490)	(0.247)
Relative deal size	0.671	0.248	0.635	0.237	-2.718	-3.549	-2.790	-3.632
	(0.479)	(0.836)	(0.501)	(0.843)	(0.261)	(0.172)	(0.253)	(0.165)
% Cash financed	0.006**	0.006	0.006**	0.005	0.009	0.009	0.009	0.009
	(0.049)	(0.143)	(0.049)	(0.147)	(0.141)	(0.185)	(0.129)	(0.176)
Non-diversifying bid	0.361	0.214	0.366	0.212	0.142	-0.066	0.056	-0.116
	(0.266)	(0.560)	(0.259)	(0.563)	(0.800)	(0.919)	(0.920)	(0.858)
Observations	2,595	2,595	2,595	2,595	608	608	608	608
Industry & Year FE	Y	N	Y	N	Y	N	Y	N
Industry * Year FE	N	Y	N	Y	N	Y	N	Y
Adjusted R-squared	0.056	0.082	0.056	0.082	0.062	0.066	0.057	0.062

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Table 12 Impacts of distractions on acquisition profitability: role of independent directors with and without acquisition experience

This table presents results from a multivariate OLS analysis of acquisition performance measured as cumulative abnormal returns around announcement for fiscal years 2000 to 2013. In Models 1-4, the data include 2,659 acquisitions made by S&P 1500 firms, excluding those made by financial and utility firms, dual class firms, and firms with a dominating insider shareholder. In Models 5-8, we further match the firms with and without preoccupied independent directors together, by Fama-French 48 Industry, year, and 5% radius on propensity score with replacement. We compute propensity scores using total assets, the average number of directorships held by independent directors, board size, and the fraction of independent directors that hold three or more directorships. *Acq (Non-distracted IDs)* is the fraction of acquisition-experienced directors who are independent and non-distracted (i.e., scaling by the number of directors who have acquisition experience). *Non-acq (Non-distracted IDs)* is the fraction of non-acquisition-experienced directors who are independent and non-distracted (i.e., scaling by the number of directors who do not have acquisition experience). *Acq (Distracted IDs)* is the fraction of acquisition-experienced independent directors who are distracted (i.e., scaling by the number of independent directors who have acquisition experience). *Non-acq (Distracted IDs)* is the fraction of non-acquisition-experienced independent directors who are distracted (i.e., scaling by the number of independent directors who do not have acquisition experience). We consider an independent director to be acquisition experienced if she has acquisition experience as a board of director in the past five years. We measure distraction over the window of (-365, -1) where date 0 is the acquisition announcement date (i.e., in terms of whether an independent director is distracted for the majority of the last 365 days prior to the acquisition). Table 3 provides summary statistics at the firm level. Appendix A.3 provides all the variable definitions. Standard errors are robust to heterosckedasticity and are clustered by firm with *p*-values in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable: % CAR(-1,+1)	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
	Full sample				Matched sample			
Acq (Non-distracted IDs)$_{(-365,\ -1)}$	1.011*	1.145			2.680**	2.569**		
	(0.085)	(0.102)			(0.011)	(0.047)		
Non-acq (Non-distracted IDs)$_{(-365,\ -1)}$	0.289	-0.099			0.544	0.702		
	(0.701)	(0.883)			(0.565)	(0.598)		
Acq (Distracted IDs)$_{(-365,\ -1)}$			-1.112**	-1.509**			-2.701**	-2.702**
			(0.041)	(0.034)			(0.011)	(0.037)
Non-acq (Distracted IDs)$_{(-365,\ -1)}$			0.033	-0.210			-1.399	-1.732
			(0.961)	(0.775)			(0.286)	(0.414)
Ln(Assets)$_{t-1}$	-0.459***	-0.412***	-0.526***	-0.444***	-0.821***	-0.995***	-0.789***	-0.876***
	(0.001)	(0.004)	(0.000)	(0.001)	(0.000)	(0.001)	(0.003)	(0.008)
Leverage$_{t-1}$	1.261	1.937	2.186	2.157	-0.514	-2.000	-0.992	-2.722
	(0.467)	(0.162)	(0.120)	(0.148)	(0.807)	(0.409)	(0.699)	(0.382)
Ln(Tobin's Q)$_{t-1}$	-0.445	-0.465	-0.837	-0.503	-0.833	-1.447	-0.911	-1.706*
	(0.401)	(0.364)	(0.109)	(0.346)	(0.346)	(0.114)	(0.310)	(0.071)
R&D / Sales$_{t-1}$	-7.435***	-6.787***	-7.040***	-6.426***	-12.604***	-12.844***	-11.578***	-10.726**
	(0.000)	(0.005)	(0.000)	(0.007)	(0.004)	(0.007)	(0.010)	(0.028)
Busy IDs$_{t-1}$	0.370	-0.468	0.744	0.585	2.215	4.399	2.073	4.328
	(0.752)	(0.696)	(0.510)	(0.640)	(0.271)	(0.104)	(0.387)	(0.156)
Independent board$_{t-1}$	0.132	0.100	-0.880	-0.975	0.053	1.345	0.494	1.028
	(0.889)	(0.931)	(0.322)	(0.397)	(0.979)	(0.619)	(0.797)	(0.665)
E-Index$_{t-1}$	0.138	-0.004	0.029	-0.059	-0.042	-0.415	0.028	-0.515
	(0.460)	(0.984)	(0.878)	(0.768)	(0.910)	(0.362)	(0.943)	(0.288)
Stock runup	-0.012	-0.018**	-0.017**	-0.021**	0.002	-0.006	0.001	-0.009
	(0.147)	(0.028)	(0.029)	(0.013)	(0.869)	(0.734)	(0.937)	(0.601)
Relative deal size	0.755	0.736	0.610	0.459	0.119	0.280	-0.598	-0.090
	(0.463)	(0.510)	(0.588)	(0.722)	(0.969)	(0.944)	(0.856)	(0.984)
% Cash financed	0.008*	0.005	0.009*	0.006	0.017**	0.016	0.017*	0.017
	(0.065)	(0.380)	(0.053)	(0.259)	(0.045)	(0.152)	(0.089)	(0.226)
Non-diversifying bid	0.528	0.414	0.353	0.448	0.461	1.086	1.034	1.681
	(0.255)	(0.399)	(0.354)	(0.311)	(0.561)	(0.270)	(0.212)	(0.116)
Observations	1,366	1,366	1,223	1,223	356	356	309	309
Industry & Year FE	Y	N	Y	N	Y	N	Y	N
Industry * Year FE	N	Y	N	Y	N	Y	N	Y
Adjusted R-squared	0.054	0.136	0.074	0.156	0.056	0.059	0.050	0.047

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Table 13 Impacts of distractions on accounting quality

This table presents results from a multivariate regression analysis of the unexplained audit fees as a measure of accounting quality for fiscal years 2000 to 2013. The data include S&P 1500 firms and exclude financial and utility firms, dual class firms, and firms with a dominating insider shareholder. We further match the firms with and without preoccupied independent directors together, by Fama-French 48 Industry, year, and 5% radius on propensity score with replacement. We compute propensity scores using total assets, the average number of directorships held by independent directors, board size, and the fraction of independent directors that hold three or more directorships. *UAF* is a measure of accounting quality developed by Hribar et al. (2014). It is the residual from a model of the natural logarithm of audit fees on proxies for and factors affecting the complexity of the audit, inherent risks, the importance of the client to the audit firm, litigation risk, and industry fixed effects. We measure the model by year and size decile. Larger values of the residual indicate lower accounting quality. *Non-distracted IDs* is the fraction of directors on the board who are independent and non-distracted (i.e., scaling by the board size). *Distracted IDs* is the fraction of all independent directors who are distracted (i.e., scaling by the number of independent directors). *Audit (Non-distracted IDs)* is the fraction of audit committee members who are independent and non-distracted (i.e., scaling by the number of directors on the audit committee). *Non-audit (Non-distracted IDs)* is the fraction of non-audit committee members who are independent and non-distracted (i.e., scaling by the number of directors not on the audit committee). *Audit (Distracted IDs)* is the fraction of independent audit committee members who are distracted (i.e., scaling by the number of independent directors on the audit committee). *Non-audit (Distracted IDs)* is the fraction of independent non-audit committee members who are distracted (i.e., scaling by the number of independent directors not on the audit committee). Table 3 provides summary statistics at the firm level. Appendix A.3 provides all the variable definitions. Standard errors are robust to heterosckedasticity and are clustered by firm with *p*-values in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable: UAF	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Non-distracted IDs	-0.046	-0.035				
	(0.408)	(0.352)				
Distracted IDs			0.150***	0.067**		
			(0.004)	(0.040)		
Audit (Non-distracted IDs)					-0.105***	
					(0.003)	
Non-audit (Non-distracted IDs)					0.071*	
					(0.076)	
Audit (Distracted IDs)						0.079**
						(0.028)
Non-audit (Distracted IDs)						0.051
						(0.117)
Ln(Assets)$_{t-1}$	-0.019*	-0.043***	-0.021**	-0.044***	-0.020**	-0.019**
	(0.051)	(0.008)	(0.027)	(0.007)	(0.035)	(0.049)
Leverage$_{t-1}$	0.097*	0.076	0.095*	0.075	0.092*	0.097*
	(0.055)	(0.110)	(0.061)	(0.114)	(0.068)	(0.056)
ROA $_{t-1}$	-0.065	-0.002	-0.062	-0.000	-0.055	-0.050
	(0.308)	(0.958)	(0.328)	(0.995)	(0.386)	(0.462)
Board size$_{t-1}$	0.016***	0.001	0.015***	0.001	0.013**	0.011*
	(0.004)	(0.821)	(0.008)	(0.794)	(0.015)	(0.054)
ID ownership$_{t-1}$	0.013	-0.020	0.004	-0.024	-0.001	-0.021
	(0.671)	(0.350)	(0.892)	(0.273)	(0.984)	(0.491)
Busy IDs$_{t-1}$	0.016	-0.002	-0.007	-0.005	0.013	-0.005
	(0.533)	(0.910)	(0.763)	(0.766)	(0.601)	(0.831)
CEO duality$_{t-1}$	0.026	0.005	0.024	0.005	0.026	0.034*
	(0.163)	(0.704)	(0.185)	(0.688)	(0.167)	(0.075)
Institution ownership$_{t-1}$	0.138**	-0.054	0.132**	-0.055	0.122**	0.125**
	(0.019)	(0.196)	(0.024)	(0.183)	(0.038)	(0.040)
Hirfindahal Index$_{t-1}$	0.069	0.112	0.077	0.113	0.061	0.114
	(0.625)	(0.199)	(0.586)	(0.195)	(0.663)	(0.429)
Ln(# of Bus seg)$_{t-1}$	0.009	-0.015	0.009	-0.015	0.011	0.011
	(0.536)	(0.264)	(0.522)	(0.268)	(0.456)	(0.441)
Observations	4,448	4,448	4,448	4,448	4,445	4,419
Industry * Year FE	Y	N	Y	N	Y	Y
Firm & Year FE	N	Y	N	Y	N	N
Adjusted *R*-squared	0.006	0.610	0.010	0.610	0.010	0.004

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Table 14 Impacts of distractions on firm outcomes under varying firm needs for director monitoring and advising

This table represents results from a multivariate regression analysis of the incremental effects of attention needs of firms on firm performance and value for fiscal years 2000 to 2013. The data include S&P 1500 firms and exclude financial and utility firms, dual class firms, and firms with a dominating insider shareholder. We further match the firms with and without preoccupied independent directors together, by Fama-French 48 Industry, year, and 5% radius on propensity score with replacement. We compute propensity scores using total assets, the average number of directorships held by independent directors, board size, and the fraction of independent directors that hold three or more directorships. *ROA* is operating income before depreciation scaled by assets. *Ln(Tobin's Q)* is the natural logarithm of the market-to-book approximation of Tobin's *Q*. *UAF* is a measure of accounting quality developed by Hribar et al. (2014). It is the residual from a model of the natural logarithm of audit fees on proxies for and factors affecting the complexity of the audit, inherent risks, the importance of the client to the audit firm, litigation risk, and industry fixed effects. We estimate the model by year and size decile. Larger values of the residual indicate lower accounting quality. *Non-distracted IDs* is the fraction of directors on the board who are independent and non-distracted (i.e., scaling by the board size). *Distracted IDs* is the fraction of all independent directors who are distracted (i.e., scaling by the number of independent directors). *Opaqueness* is the predicted score from factor analysis using *Analyst following*, *Analyst forecast dispersion*, *Analyst forecast error*, *Firm age*, *Volatility*, *Ln(# of Geo seg)*, *Ln(# of Bus seg)*, *PPE*, and *UAF*. *Opaqueness-UAF* excludes *UAF* from the factor analysis. Table 3 provides summary statistics at the firm level. Appendix A.3 provides all the variable definitions. Standard errors are robust to heterosckedasticity and are clustered by firm with *p*-values in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Dependent variable:	ROA		Ln(Tobin's *Q*)		UAF	
Non-distracted IDs: (1)	0.042**		0.210***		-0.027	
	(0.033)		(0.000)		(0.669)	
Distracted IDs: (2)		-0.044***		-0.200***		0.082
		(0.003)		(0.000)		(0.132)
Opaqueness	-0.077***	-0.072***	-0.229***	-0.038		
	(0.003)	(0.000)	(0.001)	(0.402)		
Opaqueness-UAF					0.188***	0.014
					(0.006)	(0.507)
(1) X Opaqueness	0.002*		0.257**			
	(0.089)		(0.012)			
(1) X Opaqueness-UAF					-0.238**	
					(0.013)	
(2) X Opaqueness		-0.036		-0.211**		
		(0.335)		(0.047)		
(2) X Opaqueness-UAF						0.167*
						(0.061)
Observations	3,902	3,902	3,854	3,854	4,275	4,275
Controls	Same as Model 1 of Table 7		Same as Model 4 of Table 7		Same as Table 13	
Firm & Year FE	Y	Y	Y	Y	Y	Y
Adjusted *R*-squared	0.625	0.626	0.780	0.780	0.599	0.598

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Table 15 Impacts of distractions of affiliated (gray) directors

This table presents OLS models that test firm-level impacts of distraction of gray directors (i.e., affiliated directors who are neither classified as independent nor inside). The sample includes firms with gray directors preoccupied by illness/injury and awards, and firms without gray directors preoccupied by any events in combination. We match these two groups of firms together by Fama-French 48 Industry, year, and 5% radius on propensity score with replacement. We compute propensity scores using total assets, the average number of directorships held by independent directors, board size, and the fraction of independent directors that hold three or more directorships. *Distracted gray dir* is the fraction of all gray directors who are distracted (i.e., scaling by the number of gray directors). Table 3 provides summary statistics at the firm level. Appendix A.3 reports all the variable definitions. Standard errors are robust to heterosckedasticity and are clustered by firm with *p*-values in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dependent variable:	ROA		Ln(Tobin's *Q*)		Gross margin / Assets		Op. exp. / Assets		UAF		% CAR(-1,+1)	
Distracted gray dir	0.002	0.002	0.070*	0.048	0.020	0.015	0.026	0.008	0.007	0.008	0.888	2.382
	(0.847)	(0.845)	(0.096)	(0.148)	(0.461)	(0.320)	(0.175)	(0.470)	(0.903)	(0.858)	(0.712)	(0.502)
Observations	1,731	1,731	1,708	1,708	1,731	1,731	1,590	1,590	1,759	1,759	162	162
Controls	Same as Model 1 of Table 7		Same as Model 3 of Table 7		Table as Table 9				Same as Table 13		Same as Table 11	
Ind * Year FE	Y	N	Y	N	Y	N	Y	N	Y	N	Y	N
Firm & Year FE	N	Y	N	Y	N	Y	N	Y	N	Y	N	Y
Adjusted *R*-squared	0.240	0.670	0.382	0.790	0.414	0.865	0.504	0.936	0.012	0.674	0.064	0.072

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