Journal of Corporate Finance 56 (2019) 199–223

Contents lists available at ScienceDirect

Journal of Corporate Finance

journal homepage: www.elsevier.com/locate/jcorpfin

Independent executive directors: How distraction affects their advisory and monitoring roles☆

Luke C.D. Stein[a], Hong Zhao[b,*]

[a] Department of Finance, W. P. Carey School of Business, Arizona State University, PO Box 873906, Tempe, AZ 85287, USA
[b] Department of Finance, NEOMA Business School, 59 Rue Pierre Taittinger, Reims, 51100, France

ARTICLE INFO

JEL codes:
G34
G32
M12
M41

ABSTRACT

Active corporate executives are a popular source of independent directors. Although their knowledge, expertise, and network can bring value to firms on whose boards they sit, independent executive directors may be more likely to be distracted than other directors due to their outside executive roles. Using newly constructed data linking independent directors to their employers, we identify periods when employers' poor performance may distract them from board service. We find that firms with distracted independent executive directors have lower performance and value, higher CEO compensation, reduced CEO turnover-performance sensitivity, lower earnings quality, and lower M&A performance. These adverse effects are mainly driven by distracted directors who sit on relevant committees, and are stronger for small boards.

1. Introduction

Corporate executives are a major source of candidates for independent directors. They can add value to boards through their knowledge, expertise, and network (Fich, 2005; Fahlenbrach et al., 2010; Faleye, 2011). According to the Spencer and Stuart U.S. Board Index 2018 Report, about one-third of new independent directors appointed by S&P 500 firms in 2018 proxy year are active top executives (CEO, president, COO, CFO, etc) of other firms.[1] Although top executives may be more valuable as independent directors than other, they are also potentially more likely to be distracted. Executive directors presumably give priority to their executive roles, allocating time and effort away from board duties during periods when their primary employer's performance suffers. Consistent with this view, Institutional Shareholder Services (ISS) applies tighter restrictions on outside duties for executive directors, recommending that shareholders vote against CEO directors who sit on more than two outside boards, versus a limit of six outside boards for other types of directors.[2]

☆ We are grateful to participants of the University of Texas at Austin Finance Brownbag, 2016 Arizona Junior Finance Conference, 2017 MFA Annual Meeting, 2018 Annual Conference of the French Finance Association, and 2018 China International Conference in Finance; and Hank Bessembinder, Jeffrey Coles, Maxime Couvert (discussant), Douglas Cumming (the editor), Michael Hertzel, Sima Jannati (discussant), Tao Shu (discussant), Aazam Virani (discussant), Charles C.Y. Wang, and an anonymous referee for useful comments. A previous version of this paper was titled "Distracted Directors: Evidence From Directors' Outside Employment."

* Corresponding author.
E-mail addresses: luke.stein@asu.edu (L.C.D. Stein), hong.zhao@neoma-bs.fr (H. Zhao).

[1] Although the percentage of active top executives as independent directors has declined over the past decade due to increasing pressure on executives taking excessive outside directorships, top executives are still the most popular source of independent directors compared to academics, consultants, investment managers, etc.

[2] ISS has proposed lowering the maximum acceptable number of outside board positions to one for CEO directors and four for other directors.

https://doi.org/10.1016/j.jcorpfin.2019.02.003
Received 26 July 2018; Received in revised form 6 February 2019; Accepted 21 February 2019
Available online 23 February 2019
0929-1199/

Previous research on board distraction almost exclusively focuses on distraction associated with directors' service on multiple boards.[3] Yet, the demands of serving on multiple boards may represent only a small fraction of the competition for directors' time and attention. Despite apparent concern about distraction of executive directors, to date there exists no comprehensive investigation of how events at their employing firms potentially distract executive directors from their board responsibilities, and what the consequences are for the firms on whose boards they sit.

In this paper, we construct a new dataset that links independent directors with their employers, and study how the time-varying distraction of independent executive directors affects board governance effectiveness. Using ISS, Execucomp, BoardEx, and Thomson Reuters Insider Filing, we identify a public company as the primary employer for 39,099 director-years (approximately 20% of all independent director-years in ISS for 1996 to 2016).

We first provide evidence that events associated with poor stock performance at executive directors' employing firms actually distract those directors. Following prior literature (e.g., Adams and Ferreira, 2009, Masulis, Wang, and Xie, 2012), we use consistent board meeting attendance as a measure of directors' attention to their board duties, since board meetings are the key avenue through which independent directors participate in firm governance. We indeed find a strong positive relation between executive directors' employer stock returns and board meeting attendance. A director distracted by events associated with bottom-quintile stock performance at her employer is about 30% more likely to miss more than a quarter of the board meetings held during a year (although such extreme poor attendance is of course rare even among distracted directors). We use an indicator for bottom-quintile employer stock return as our main measure of distraction, but consider robustness to a variety of alternative measures.

We next move to our main analyses on how time-varying director distraction affects board governance effectiveness. Our sample consists of all public firms with available data on ISS, Compustat, CRSP, and Execucomp between 1996 and 2016. The average board has 6.9 independent directors and 1.34 independent executive directors, of whom 0.23 are distracted in any given year under our main definition. 14.9% of the firm-year observations have one distracted directors and 4.2% have two or more.

We use both panel estimation and a difference-in-difference approach to examine the effects of director distraction. In the former, we use the full panel data and our key independent variable is the number of distracted independent executive directors. In the difference-in-difference estimation, we regard each distraction event as a treatment and define a treatment group consisting of firms with at least one distracted director in year *t* (treatment year) but no distracted director in year *t-1* (pre-treatment year). We then match each treatment firm with a control firm (with no distracted director in both year *t* and year *t-1*) based on pre-treatment firm characteristics. In our difference-in-difference regressions, the key independent variable is the interaction between a treatment firm indicator and a treatment year indicator.

We first assess the overall effects of board distraction on firm performance using two measures: return on assets (ROA) and Tobin's Q. We find robust evidence that board distraction results in significantly lower firm performance and firm value. Our panel estimates suggest that the distraction of one independent executive director is associated with a 35 basis point decrease in ROA (2.7% of sample average) and a 0.04 decrease in Tobin's Q (2.2% of sample average). Difference-in-difference estimation yields similar results: firms with distracted directors on average experience a 32 basis point decrease in ROA and a 0.06 decrease in Tobin's Q.

We then assess a variety of channels through which board distraction could affect the firm. Specifically, we look at CEO compensation, CEO turnover, earnings quality, and acquisition decisions, outcomes associated with boards' effectiveness as monitors and advisors.

If executives hope to extract excess compensation particularly when board monitoring is weak, and if director distraction weakens board monitoring, we should observe higher CEO compensation in firms with more distracted directors; empirical evidence supports this hypothesis. All else equal, an additional distracted independent executive director is associated with a 2.0% increase in CEO total compensation. This effect is more pronounced when distracted directors sit on the compensation committee, consistent with distraction leading to weaker board monitoring. The excess compensation comes mainly in the form of equity rather than cash, consistent with the possibility that designing appropriate equity compensation is more complicated than with cash and requires more effort from directors, so CEOs can extract excess compensation more easily in the form of equity when their board is distracted. Higher equity compensation may also help align executives' incentives, substituting for attentive board monitoring.

A key monitoring mechanism through which boards govern is in deciding when to replace senior management. We hypothesize that board distraction leads to lower turnover-performance sensitivity as it impairs the board's ability to monitor the CEO or initiate management changes. Using forced CEO turnovers covered by the Execucomp database, we find evidence consistent with this hypothesis. For non-distracted boards, an interquartile decline in firm performance increases the likelihood of a forced CEO turnover by 95%; when one independent executive director is distracted, the same performance decline increases turnover likelihood by only 73%.

Another monitoring role of the board is to help ensure the quality of a firm's financial disclosures. Executives may have incentives to manage earnings due to career concerns or because the value of their bonus, stocks, and options often depends on reported accounting performance (Burns and Kedia, 2006; Bergstresser and Philippon, 2006). Therefore, earnings management is more likely to occur at firms with weak board monitoring. Consistent with the hypothesis that director distraction weakens board monitoring effectiveness and thereby encourages earnings manipulation, we find that firms with distracted boards have a significantly higher absolute value of discretionary accruals and significantly more financial restatements due to irregularities. The detrimental effects of

[3] Research using cross-sectional variation in the number of boards on which directors sit (e.g., Core, Holthausen, and Larcker, 1999, Ferris et al., 2003, Fich and Shivdasani, 2006, Field et al., 2013) has produced generally mixed results, perhaps because “busy” board members may also be particularly effective ones. Several recent papers considering time-varying distraction shocks that propagate through interlocking board networks have generally documented adverse affects of distracting directors who sit on multiple boards (e.g., Falato et al., 2014, Hauser, 2018, Masulis and Zhang, n.d.).

director distraction on earnings quality are stronger (though not significantly so for restatements) when distracted directors serve on the audit committee.

Besides monitoring the executive team, another important function of the board is advising management. To assess whether director distraction also impairs a board's advisory role, we consider a firm's merger and acquisition (M&A) performance as a measure of a board's advising effectiveness. We identify M&A deals from the Securities Data Corporation, and measure acquirers' M&A performance using cumulative abnormal returns over a five-day window around deal announcement. Consistent with our distraction hypothesis, we find that an additional distracted independent executive director is associated with a five-day announcement return that is 27 basis points lower, all else equal. We also show that the negative effect of distraction on M&A performance is driven mainly by the distraction of directors who are M&A "experts" — those who have successful past M&A experience or work in the same industry as the target firm.

The adverse effects of distraction should be strongest for a director who serves as a particularly important monitor or advisor, or for a director particularly likely to be distracted by negative events at her employing firm. Since smaller boards have fewer members to help cover the responsibilities of a distracted director, the adverse effects of distraction should perhaps be stronger; we indeed find even lower overall firm performance, more excess CEO compensation, further reduced turnover-performance sensitivity, and even lower M&A announcement returns for firms with small boards. We also investigate a set of director characteristics; empirical results suggest that the distraction effects are generally stronger for independent executive directors who are less co-opted by the CEO, who are CEOs at their employing firms, and who have shorter director tenure.

We conduct a set of robustness checks on our empirical findings. We first reexamine our distraction effects using an alternative distraction measure relying only on within-industry-year variation in directors' employer performance. This measure helps address the concern that our estimated distraction effects are driven by performance correlation between a firm's industry and the (perhaps related) industries where its independent executive directors are employed. We also consider two other time-varying measures of business conditions at a director's employing firm that may be associated with distracting events: high volatility and financial distress. Using these alternative distraction measures, we continue to find adverse effects of board distraction on firm overall performance and various specific outcomes associated with board monitoring and advising. Finally, we conduct a placebo test with random performance shocks to address the concern that both poor performance at an independent executive director's employer and adverse firm outcomes are driven by the director's low ability.

Our paper contributes to the literature on the value of executive directors. Despite the decline in the number of executive directors after the Sarbanes-Oxley Act, active corporate executives are still the most popular source of independent directors. Fich (2005) shows that the stock market reacts more positively to the appointment of independent CEO directors than to the appointment of other independent directors, although Fahlenbrach, Low, and Stulz (2010) suggest the market only favors the appointment of a board's first CEO director. (They fail to find, however, evidence confirming that appointing CEO directors leads to better board monitoring or advising effectiveness.) The results in our paper suggest that independent executive directors play an important governance role, but that their effectiveness can suffer in the face of distracting events at their employing firm.

This paper also contributes to the broad literature on how directors' attention affects board governance effectiveness. Cross-sectional empirical evidence is mixed, presumably because the most common measure of director busyness in the literature is the number of outside directorships, which makes it challenging to disentangle attention from ability.[4] We are one of several recent papers to use time-varying distraction shocks to understand the effects of board governance. In contrast with our consideration of distraction associated with executive directors' employment obligations, other researchers have focused on directors who sit on multiple boards, with distraction effects propagating through the interlocking board network.[5] Negative attention shocks are associated with the death of directors and CEOs at interlocking board firms in Falato et al. (2014), and with declining performance and major events at interlocking board firms in Masulis and Zhang (forthcoming)[6]; Hauser (2018) considers positive attention shocks associated with M&A-induced dissolution of an interlocking board. These papers generally document adverse effects of director distraction, either through negative stock market reaction, declining ROA, or lower Tobin's Q. The idea of board distraction can also be applied to private firms, especially in the setting of venture capital investment in start-up firms (as venture capitalists almost always take board seats on portfolio firms). Similar to the reduced monitoring and advising effectiveness of directors with multiple board seats, the increase in portfolio size dilutes the advice that venture capitalists offer to each of the portfolio firm. Kanniainen and Keuschnigg (2003) and Cumming (2006) provide theoretical and empirical evidence that the optimal portfolio size reflects a trade-off between advice intensity and risk diversification, among other things.

The rest of the paper is organized as follows. Section 2 describes the construction of the main analysis sample and the definition of variables. Section 3 examines the relation between an executive director's employing firm's stock performance and the director's board meeting attendance. Section 4 presents the main empirical results on how director distraction affects various aspects of board

[4] Directors with multiple directorships are likely to have less time available to each directorship, but more capable directors are also likely to have multiple directorships. Therefore, it is unsurprising that some studies find busy boards result in deteriorated firm performance, low CEO turnover-performance sensitivity, and excess CEO compensation (Fich and Shivdasani, 2006, Core, Holthausen, and Larcker, 1999), while others find busy boards in general do not harm firm performance (Ferris et al., 2003) or even make positive contribution to certain types of firms (e.g., IPO firms as in Field et al., 2013).

[5] Using a related approach, Kempf et al. (2017) and Liu et al. (2017) consider institutional investors' holdings to document adverse consequences of shareholder distraction for firm monitoring.

[6] Masulis and Zhang (forthcoming) consider several other distraction shocks (a director becoming ill or receiving an award), but these represent < 5% of her sample of distracting events.

governance effectiveness. Section 5 considers heterogeneous effects with respect to various board structure and director characteristics. Section 6 concludes.

2. Data and variables

The main analyses in this paper are based on a sample consisting of public firms that can be matched between 1996 and 2016 across ISS (board characteristics and corporate governance), Compustat (firm-level accounting data), CRSP (stock returns), and Execucomp (CEO characteristics, compensation, and turnover).

Our focus is on independent directors whose primary job is as an executive at an outside firm. These directors presumably give priority to their executive jobs, and thus allocate their time and effort away from their corporate directorships when their primary employer's performance suffers. To measure this time-varying attention shock, we attempt to identify for each year between 1996 and 2016 which public company (if any) is the primary employer of each independent director listed in the ISS database.

To do so, we use five sources in the following order, using the first acceptable match: First, we identify any independent director who is listed in ISS as an inside director of another firm, which we then consider to be her primary employer.[7] Second, we attempt to locate independent directors listed as executives in Execucomp (requiring an exact match on full name and an age difference within two years); if a director is listed as an executive at more than one firm, we use the match where she receives the highest level of compensation. Third, we attempt to locate independent directors in BoardEx (requiring an exact match on full name and an age difference within two years), and record each director's employer for each year as reported in BoardEx's employment history. Fourth, we attempt to locate independent directors who appear as executives reporting insider trades in Thomson Reuters Insider Filing (requiring a unique exact match on full name). Finally, we attempt to match the name of an independent director's primary employer as reported in ISS with the name of a Compustat firm.

We apply the matching procedure described above to 195,601 independent director-years, averaging 7.4 years for each of 26,361 unique independent directors covered by ISS. We identify a public company as the primary employer for 39,099 director-years (19% match rate), covering 8169 unique directors (31%). The unmatched independent director may be retired, unemployed, or employed at a non-public firm; they may of course also result from data errors, non-unique names, or other failures of our matching algorithm. Out of these 39,099 matched director-years, we are able to measure the primary employer's equity return using CRSP for 35,857 director-years.

Table 1, Panel A reports descriptive statistics for our sample of matched (independent executive director-year) observations. All variables are winsorized at the 1% and the 99% percentile levels here and throughout our analyses, and Appendix Table A.1 gives a detailed description of all variables' construction. Matched directors average 57.9 years old, and women and foreign directors account for 12.6% and 1.9% of the sample, respectively. Independent executive directors hold on average 2.2 public firm directorships, and 46% are the CEO of their employing firms. 50% of independent executive directors serve on the compensation committee, and 48% serve on the audit committee. About 2.2% of them are absent from more than one quarter of the board meetings held in a year.

For each observation, we calculate the stock performance of the director's employer during the board firm's fiscal year.[8] The mean annual return for directors' employing firms in our sample is 11.4%. Poor stock performance at the employing firm will serve as the source of distraction under our main measures of director distraction, where we define an independent executive director as distracted if her employer's stock return is in the bottom quintile of the pooled sample.[9]

We aggregate the director-year sample up to the firm-year level at which we conduct our main analyses. Panel B of Table 1 reports descriptive statistics on this aggregated sample, which comprises 27,585 firm-years, averaging 9.2 years for each of 2993 unique firms. The average board consists of 9.5 directors, of whom 6.9 (73%) are independent directors, and 1.3 (14%) are independent executive directors whose employer we can identify.[10] The average board includes 0.23 distracted directors under our main definition. 14.9% of the firm-years in the sample have one distracted director, 3.2% have two, and 1.0% have three or more. One thing worth noting is that an average of 0.23 distracted directors on a board suggest that distraction events do not occur all the time, but it does not necessarily mean that the effect of director distraction is minuscule. The distraction of one director out of a board consisting of 7 independent directors (sample average) can have a meaningful impact on board performance, especially if the distracted director sits on important committee or the board size is small.

We also report several other board characteristics known to affect board effectiveness. We calculate board ownership as the total stock ownership of all independent directors. Following Fich and Shivdasani (2006), we define a board as busy if a majority of its independent non-retired (retired) directors hold three (five) or more directorships. We also calculate the E Index based on Bebchuk et al. (2009). In our sample, independent directors own 1.1% of outstanding shares, on average; 17% of boards are busy, and firms have an average E index of 2.2.

We also report summary statistics on firm characteristics and outcome measures used in our firm-level analysis. As expected, our

[7] In the rare cases where an individual is listed as an inside director of more than one firm, we do not use these matches.

[8] The year variable reported in ISS is the calendar year of the annual shareholders meeting, and the directors listed in ISS are those up for election. We therefore first identify fiscal years by comparing the fiscal year-end month with the annual meeting month, and assign directors on the slate at the annual meeting as the directors for that fiscal year. For example, suppose that Firm *B* ends its fiscal year in October, and ISS lists independent director Dr. *X* (an executive at Firm *E*) as being up for election at the annual meeting held in February 2016; *X* is considered an independent executive director of *B* in fiscal 2016, and we measure the stock performance of *E* between November 2015 and October 2016.

[9] In untabulated estimates, we show that our results are broadly robust to measuring distraction using bottom decile or quartile performance cutoffs.

[10] Approximately one quarter of our firm-year observations have no matched independent executive directors. Our estimation results are substantially unchanged if we drop these observations.

Table 1
Summary statistics

	Mean	Std. Dev.	Median	P25	P75
Panel A. Independent executive director characteristics (35,857 director-years)					
Age	57.88	7.19	58	53	63
Director tenure	5.55	5.10	4	2	8
Number of directorships	2.18	1.13	2	1	3
Primary employer's return (%)	11.35	33.98	10.53	−11.87	32.39
Female director (%)	12.55				
Foreign director (%)	1.89				
CEO director (%)	46.19				
Co-opted director (%)	53.23				
Compensation committee member (%)	50.02				
Audit committee member (%)	48.43				
Attendance < 75% (%)	2.22				
Panel B. Board and firm characteristics (27,585 firm-years)					
Board size	9.47	2.56	9	8	11
Number independent directors	6.90	2.45	7	5	9
Number independent executive directors	1.34	1.35	1	0	2
Number distracted directors	0.23	0.51	0	0	0
Number independent directors on comp committee	3.21	1.49	3	3	4
Number independent directors on audit committee	3.30	1.47	3	3	4
Board ownership (%)	1.09	2.78	0.29	0.08	0.80
Busy board (%)	17.38				
E index	2.15	1.31	2	1	3
Total assets, $B 2000	10.60	30.10	1.94	0.66	6.56
Market value, $B 2000	7.31	17.75	1.72	0.68	5.42
ROA	0.13	0.09	0.12	0.08	0.18
Tobin's Q	1.85	1.17	1.45	1.11	2.11
CEO total compensation, $M 2000	4.59	5.03	2.93	1.44	5.70
CEO equity compensation, $M 2000	3.50	4.46	1.98	0.68	4.51
Discretionary accruals (Balance sheet, abs value, %)	3.25	3.41	2.19	0.95	4.30
Forced CEO turnover (%)	2.39				
Restate (non-irregularity) (%)	4.91				
Restate (irregularity) (%)	2.26				

Panel C. Subsample means for key characteristics	Forced turnover	Irregular restatement	M&A
Number of observations (Firm-years or M&A deals)			
Total	571	231	7389
With a distracted director	138	71	1539
With a distracted director (%)	24.1%	30.7%	20.8%
Board size	9.09	10.28	9.77
Number independent directors	6.58	6.53	7.02
Number independent executive directors	1.40	1.49	1.50
Number distracted directors	0.30	0.38	0.27

Notes: This table reports summary statistics for the director-level full sample (Panel A), firm-level full sample (Panel B), and firm-level subsamples (Panel C) used in the paper. Panel A presents the characteristics of 35,857 independent executive director-years from 1996 to 2016. Independent executive directors are directors who are classified as independent outsiders ("I") by ISS, and who are executives at outside public firms (where directors' primary employers are identified using ISS, Execucomp, BoardEx, Thomson Reuters Insider Filing, and Compustat, as described in Section 2). *Primary employer's return* is the cumulative stock return of the director's primary employer during the fiscal year of the firm where the director sits on board. Panel B presents the characteristics of 27,585 firm-years with available data on Compustat/CRSP/Execucomp/ISS from 1996 to 2016. *Number distracted directors* is the number of independent executive directors whose employer's stock return is in the bottom quintile of the pooled sample. Panel C presents the sample means for key board characteristics for the forced turnover, irregular restatement, and M&A subsamples. All variables are winsorized at the 1st and the 99th percentile levels. See Appendix A for definition of all other variables.

sample firms are fairly large, with average total assets and market capitalization of $10.60 and $7.31 billion, respectively. The average firm earns a 0.13 return on assets (ROA) and has a Tobin's Q of 1.85. CEOs' average total annual compensation is $4.59 million, of which about 75% paid in the form of equity, and they face an annual forced turnover rate of about 2.4%. We also consider several measures of earnings quality. The absolute value of discretionary accruals averages 3.3% of firms' total assets. Between 1997 and 2005, 7.2% of annual earnings announcements were restated (2.3% due to irregularities).

Finally, as we use CEO forced turnovers, irregular restatements, and M&As in the board distraction analyses in Section 4, we report in Panel C the means for key board characteristics of these three subsamples. It is worth noting that for firm-years in the irregular restatement subsample, both the percentage of firm-years with distracted directors and the average number of distracted directors are largely above the statistics of the full sample. This provides preliminary evidence (a univariate test) that director distraction is associated with lower earning quality, reflecting reduced board monitoring effectiveness.

3. Distraction and board meeting attendance

Our assessment of the effects of director distraction will mainly rely on events associated with poor stock performance at independent executive directors' employing firm. We therefore present evidence suggesting that such poor market performance is actually associated with distracted directors. We use board meeting attendance as a direct measure of directors' attention to their board duties, since attending meetings is independent directors' essential responsibility and represents the key avenue through which they participate in firm governance.[11] Firms do not generally report directors' attendance, but are required by the Securities and Exchange Commission to disclose whether a director attended fewer than 75% of the board meetings held during a fiscal year. Given the possible repercussions for a director's reputation of missing board meetings (and the fact that the SEC's reporting requirement allows for attendance by teleconference), it is perhaps unsurprising that only 2.2% of the independent executive directors in our sample had "poor attendance." We of course expect that distracting events can impede effective monitoring and advising even when they do not lead to the (extreme) poor meeting attendance we are able to measure.

Table 2 presents estimation results considering the association between independent executive directors' board meeting attendance, and the stock market returns of her primary employer over the fiscal year. We apply logit models where the dependent variable is an indicator variable equal to one if the director attended fewer than 75% of board meetings during a year. All regressions include industry and year fixed effects, together with a set of director- and firm-level controls, and standard errors are two-way clustered by director and year.[12]

In column 1, we include the stock return of the independent executive director's primary employer. Consistent with poor performance being associated with director distraction and poor attendance, we estimate a negative coefficient on employer's return (statistically significant at the 5% level).

In column 2, we consider whether the association between performance and poor attendance is particularly driven by the distracting effects of poor performance, rather than some ameliorating effect of good performance. To do so, we decompose directors' employers' market performance into a negative component (equal to the return if negative, and zero otherwise) and a positive one (equal to the return if positive, and zero otherwise). We estimate a strong negative relationship between the negative component of returns and attendance problems: more negative performance is associated with a greater likelihood of missing board meetings. In contrast, we estimate a small (and statistically insignificant) coefficient on the positive component of returns, suggesting that once a firm achieves positive returns, a decrease in performance does not necessarily divert its employees from attending to their board duties at other firms.

Given the possibility that the distracting effects of poor performance are concentrated around the worst-performing firms, our main distraction measure identifies directors whose employers perform in the bottom quintile of our pooled sample. Column 3 considers this measure. As expected, the coefficient on the distraction dummy is significantly positive; all else equal, an independent executive director distracted by bottom-quintile performance is about 30% more likely to exhibit poor attendance.[13,14]

Overall, the results on meeting attendance are consistent with the possibility that independent executive directors are distracted from their director role during periods of poor performance at their primary employer. Moreover, the asymmetric effect of distraction rationalizes our use of bottom quintile performance to define our measure of distraction.

4. Distraction and board effectiveness

In this section, we present our main results illustrating that distracted directors reduce the effectiveness of their boards as monitors and advisors. We first examine how board distraction affects overall firm performance and value. Then, we assess a variety of channels through which distraction could have detrimental effects on the firm.

4.1. Overall performance

We expect that firms with distracted boards experience a performance decline, since distracted directors pay less attention to their board duties. Following the literature on board effectiveness (e.g., Fich and Shivdasani, 2006; Coles et al., 2008; Masulis et al., 2012), we use ROA and Tobin's Q as two measures of firm performance.

[11] Several recent papers use directors' meeting attendance as a measure of attention to monitoring and advising; see, for example, Adams and Ferreira (2009), Masulis et al. (2012), Masulis and Mobbs (2014).

[12] We restrict our analysis to the sample of independent executive directors, but the main results remain substantially unchanged if we include *all* independent directors in unreported estimates. (In this case, the non-executive independent directors serve to help identify the coefficients on the control variables other than employer's stock market returns.) Consistent with the possibility that employment at a public company places particular demands on an independent director's attention (relative to retirement, unemployment, or employment at a non-public firm), we find that independent executive directors are significantly more likely to exhibit attendance problems, averaging 2.2% vs. 1.3% (significant at the 1% level).

[13] The predicted probability of a director with sample average characteristics missing > 25% of the meetings in a year is 1.65%. For distracted and non-distracted directors, this predicted probability is 2.04% and 1.56%, respectively. This effect is roughly consistent in magnitude with Masulis and Zhang (forthcoming), who show that distraction affects attendance through interlocking board networks: that is, directors who sit on multiple boards are more likely to miss meetings at one board in the face of distracting events at another firm on whose board they sit.

[14] In an untabulated regression, we decompose returns into an idiosyncratic part and an industry part, and find that both low idiosyncratic return and low industry return significantly increase the probably of executive directors' board meeting absence. This result justifies our use of low total return as the main distraction measure.

Table 2
Primary employer stock performance and board meeting absence.

	(1)	(2)	(3)
Primary employer's return	−0.1923**		
	(0.0857)		
Negative return		−0.6003***	
		(0.1184)	
Positive return		−0.0042	
		(0.0854)	
Return < p20			0.2687***
			(0.0694)
Log(age)	−1.2156***	−1.1983***	−1.2034***
	(0.3567)	(0.3526)	(0.3562)
Busy director	0.0624	0.0625	0.0630
	(0.0944)	(0.0937)	(0.0935)
Female director	−0.3265**	−0.3276**	−0.3260**
	(0.1562)	(0.1555)	(0.1562)
Foreign director	0.8811***	0.8852***	0.8871***
	(0.2759)	(0.2754)	(0.2752)
Board size	0.0593***	0.0611***	0.0608***
	(0.0124)	(0.0122)	(0.0123)
Board independence	−0.4916	−0.4768	−0.4866
	(0.3795)	(0.3792)	(0.3798)
ROA	−0.2288	−0.1853	−0.1928
	(0.6386)	(0.6403)	(0.6385)
Tobin's Q	−0.0200	−0.0221	−0.0224
	(0.0245)	(0.0247)	(0.0247)
Observations	34,388	34,388	34,388
Psuedo R^2	0.0552	0.0558	0.0557

Notes: The table reports the coefficients from logit regressions of independent executive directors' board meeting attendance on their primary employers' contemporaneous stock returns. The sample consists of independent executive directors with available data from 1996 to 2016. The dependent variable is one if the director attended < 75% of board meetings for the year and zero otherwise. *Primary employer's return* is the cumulative stock return of independent executive director's primary employer during the fiscal year of the firm where the director sits on board. *Negative return* (*positive return*) is primary employer's return if the return is negative (positive) and zero otherwise. *Return < p20* is one if primary employer's return is in the bottom quintile of the pooled sample and zero otherwise. See Appendix A for definition of all other variables. Industry (2-digit SIC) and year fixed effects are included in all regressions. Standard errors reported in the parentheses are robust and two-way clustered by director and year. *,**,*** indicate significance at the 10%, 5% and 1% levels, respectively.

To estimate the effects of director distraction on firm performance, we use both panel estimation and a difference-in-difference approach. In the former, we use the full panel data and our key independent variable is *number distracted directors*, which is the number of independent executive directors whose employer's stock return is in the bottom quintile of the pooled sample.[15] As our distraction event is arguably exogenous to the degree that each individual director's distraction is generated from sources outside the firm where she sits on board, we can regard each distraction event as a treatment and use the difference-in-difference method to estimate the distraction effect. Specifically, we define a treatment group consisting of firms with at least one distracted director (with bottom quintile employer return) in year *t* (treatment year) but no distracted director in year *t-1* (pre-treatment year). We find 3046 treatment firms in our sample. Then for the ROA analysis, we match each treatment firm with a control firm that is in the same 1-digit SIC industry, has no distracted director in year *t* and year *t-1*, has total assets within 50% of the treatment firm, and has the closest ROA in year *t-1* compared to the treatment firm. For the Tobin's Q analysis, we apply a similar matching strategy but we choose matching firms with the closest pre-treatment Tobin's Q instead of ROA. We conduct difference-in-difference regressions on a sample consisting of firms in the treatment group and the control group in pre-treatment and treatment years. A dummy variable *treatment* indicates whether the observation is in the treatment group, and a dummy variable *post* indicates whether the observation is in the treatment year. The key variable of interest is the interaction between *treatment* and *post*, which measures how a firm's performance is affected when one or more of its independent executive directors are distracted.

In both panel and difference-in-difference estimations, we control for the number of independent executive directors on a board to make sure our distraction effect is not driven by the potential difference between executive directors and non-executive directors. We also include a set of corporate governance characteristics that are known to have effect on performance including board size, board independence, E index, CEO ownership, and CEO duality, as well as industry and year fixed effects. All standard errors are two-way clustered by firm and year.

Table 3 presents estimates of the effect of board distraction on firm performance. In column 1, we use ROA as the performance measure and conduct panel estimation. Consistent with our distraction hypothesis, the coefficient on board distraction is negative and statistically significant at the 1% level. In terms of economic magnitude, an increase in one independent executive director who is

[15] In untabulated estimates, we show that our results are broadly robust to using the *fraction* of directors (or of independent directors) who are distracted as an alternative measure of board distraction. We also show in Section 5.2 that the effects of a single distracted director are larger at firms with small boards, where the distracted director represents a larger fraction of total board membership.

Table 3
Board distraction and firm performance.

	ROA		Tobin's Q	
	Panel	Diff-in-Diff	Panel	Diff-in-Diff
	(1)	(2)	(3)	(4)
Number distracted directors	−0.0035***		−0.0404**	
	(0.0010)		(0.0159)	
Treatment		0.0007		0.0060
		(0.0006)		(0.0083)
Post		−0.0009		−0.0370
		(0.0025)		(0.0425)
Treatment × post		−0.0032***		−0.0565**
		(0.0011)		(0.0209)
Log(assets)	−0.0022	−0.0013*	−0.0580***	−0.0203
	(0.0014)	(0.0008)	(0.0210)	(0.0228)
Board size	0.0005	−0.0000	−0.0199**	−0.0290***
	(0.0006)	(0.0004)	(0.0090)	(0.0100)
Board independence	−0.0132	−0.0285***	−0.2944**	−0.1720*
	(0.0090)	(0.0083)	(0.1195)	(0.0881)
Number executive directors	0.0052***	0.0039***	0.0525***	0.0275**
	(0.0007)	(0.0005)	(0.0112)	(0.0111)
Board ownership	−0.0317	−0.0209	−0.3077	0.1181
	(0.0451)	(0.0321)	(0.5093)	(0.5149)
Busy board	−0.0013	−0.0012	0.0845**	0.1346***
	(0.0028)	(0.0027)	(0.0404)	(0.0417)
E index	−0.0022*	−0.0011	−0.0803***	−0.0844***
	(0.0011)	(0.0007)	(0.0151)	(0.0141)
CEO ownership	0.0171	−0.0212	0.0172	−0.1912
	(0.0298)	(0.0210)	(0.4794)	(0.2523)
CEO tenure	0.0002	0.0001	0.0079***	0.0104***
	(0.0002)	(0.0001)	(0.0026)	(0.0016)
CEO duality	0.0007	−0.0014	−0.0049	−0.0795***
	(0.0021)	(0.0022)	(0.0270)	(0.0260)
Observations	25,566	11,388	26,316	11,743
Adjusted R^2	0.2156	0.2179	0.2123	0.2260

Notes: The table reports the OLS regressions of firm performance on board distraction. The sample consists of firms with available data from 1996 to 2016. The dependent variable is return on assets (ROA) in columns 1 and 2, and market-to-book approximation of Tobin's Q in columns 3 and 4. Columns 1 and 3 use the full panel sample. *Number distracted directors* is the number of independent executive directors whose primary employer's stock return is in the bottom quintile of the pooled sample. Columns 2 and 4 use the difference-in-difference sample. Treatment group consists of firms with at least one distracted director in year *t* and no distracted director in year *t-1*. For ROA (Tobin's Q) regression, each treatment firm is matched with a control firm (in the same 1-digit SIC industry), which has no distracted director in both years *t* and *t-1*, has total assets within 50% of the treatment, and has the closest ROA (Tobin's Q) in year *t-1* compared to the treatment. The regression sample consists of both the treatment and the control group in years *t* and *t-1*. *Treatment* is one if the firm is in the treatment group and zero otherwise. *Post* is one if it is year *t* and zero otherwise. Industry and year fixed effects are included in all regressions. Standard errors reported in the parentheses are robust and two-way clustered by firm and year. *,**,*** indicate significance at the 10%, 5% and 1% levels, respectively.

distracted is associated with a 35 basis point decrease in ROA, which is about a 2.7% performance decline compared to the sample average.

In column 2, we reestimate the distraction effect on ROA using a difference-in-difference method. Similar to the result in column 1, the coefficient on the key interaction term *treatment* × *post* is significantly negative at the 1% level. Firms with distracted directors on average experience a 32 basis point ROA decline. The coefficients of both *treatment* and *post* are close to zero and statistically insignificant, indicating that the treatment group and the control group have similar pre-treatment performance, and the control group does not experiences performance decline in the treatment year.

In columns 3 and 4, we replace ROA with Tobin's Q as a measure of overall firm performance. Consistent with our results on ROA, we find that board distraction has a significant negative effect on Tobin's Q. This negative effect is detected using both panel and difference-in-difference estimation. Panel estimation in column 3 implies that the distraction of one independent executive director causes a 0.040 decrease in Tobin's Q, representing a loss of $0.42 billion in market value for the average-sized firm.[16] Difference-in-difference estimation in column 4 implies an average of 0.057 decrease in Tobin's Q for firms with one or more distracted directors.

In summary, the evidence presented in Table 3 supports the hypothesis that independent executive directors' distraction is

[16] This decline in Tobin's Q (2.2% of the sample average) is similar to the approximately 2% decline estimated by Hauser (2018) and Masulis and Zhang (forthcoming). Falato, Kadyrzhanova, and Lel (2014) estimate a larger 4.6% to 7.3% negative stock return in the year following the death of a director at another firm with an interlocking board and overlapping committee membership.

associated with lower firm performance and firm value. In the remainder of this section, we investigate different firm outcomes to study how distracted directors weaken firm performance by playing less effective monitoring and advising roles.

4.2. CEO compensation

One key role that boards play is to design executive compensation contracts. In a frictionless principal-agent world, the optimal compensation scheme should only depend on the executive's risk aversion, reservation utility, and disutility from effort; and firm performance and uncertainty (Hölmstrom, 1979). Of course in reality, executives' and shareholders' incentives are not always perfectly aligned, and executives hope to extract excess compensation when board monitoring is weak (Bebchuk and Fried, 2004; Yermack, 2006).

Prior literature has documented a number of board characteristics that affect the efficiency of CEO compensation. Core et al. (1999) show that CEO compensation is higher when the board is larger; the CEO is chairman of the board; and when outside directors are older, busier, or more affiliated with the CEO. Hallock (1997) shows that CEOs receive higher compensation when they have interlocking directorships with their board members, and Faleye (2011) documents similar results when independent directors are the CEOs of outside firms.[17] Masulis et al. (2012) argue that foreign directors are less effective monitors, and find that firms with foreign directors pay their CEOs significantly more. Coles et al. (2014) measure board cooption using the fraction of directors appointed after the CEO assumed the office, and find less efficient CEO compensation schemes under more co-opted boards. Faleye et al. (2011) show that boards with a majority of independent directors serving on multiple committees are better monitors, and that these monitoring-intensive boards are associated with lower excess CEO compensation.

Based on the previous literature and under our hypothesis that board monitoring effectiveness decreases when directors are distracted, we expect to observe higher CEO compensation in firms with distracted boards. To test this hypothesis, we conduct regressions of compensation on board distraction, considering total compensation, as well as cash and equity (including option-based) compensation separately. We take the logarithm of all three compensation measures to alleviate the impact of outliers, and measure board distraction as the number of independent executive directors whose employer's stock return is in the bottom quintile of the pooled sample. Along with a set of controls associated with rational determinants of CEO compensation, we include a set of common firm, board, and CEO characteristics, as well as industry and year fixed effects in all regressions.[18] Standard errors are two-way clustered by firm and year. We consider alternative measures of distraction, as well as alternative estimation strategies as robustness checks in Section 4.6.

Table 4 presents estimates of the effect of board distraction on CEO compensation. We first estimate the distraction effect using the panel data and present the results in columns 1–3. In column 1, we use total compensation as the dependent variable and estimate a coefficient on board distraction that is positive and statistically significant at the 1% level. All else equal, an additional distracted director is associated with a 2.0% increase in total compensation. In columns 2 and 3, we decompose total compensation into cash compensation (salary plus bonus) and equity payments. We find that the excess compensation granted by distracted boards comes mainly in the form of equity: For cash compensation, the positive coefficient on board distraction is small in magnitude and statistically insignificant, while for equity, board distraction has a positive and significant coefficient. An additional distracted independent executive director is associated with CEOs receiving 3.6% more equity. Faleye et al. (2011) document a related pattern: intense board monitoring is associated with significantly less equity compensation but has no impact on cash. One possible explanation is that designing appropriate equity compensation is more complicated than with cash, and so requires more efforts from directors. Therefore, CEOs can extract excess compensation more easily in the form of equity when their board is distracted. It is also possible that additional equity compensation serves as a substitute for board monitoring in aligning executives' incentives.

Similar to the structure of Table 3, we next consider difference-in-difference estimation as an alternative method to assess the director distraction effects. For each firm in the treatment group, we find a control firm that is in the same industry as the treatment firm, has no distracted director in year *t* and year *t-1*, has total assets within 50% of the treatment firm, and has the closest CEO total compensation compared to the treatment firm in the year prior to the treatment. Observations in the treatment and control groups in both pre-treatment and treatment years are included in regressions. Results are presented in columns 4–6. The key variable of interest is the interaction between treatment group and treatment year. Consistent with our expectation and consistent with the results in the panel estimation, we find that the coefficient of the interaction term in the total compensation regression is significantly positive, indicating that firms with distracted directors are more likely to overpay their CEOs, with an excess total compensation of approximately 4%. Moreover, similar to the results in columns 2 and 3, the excess compensation tends to take the form of equity payment rather than cash payment.

Overall, the results in Table 4 support the argument that board monitoring effectiveness decreases with distraction. Firms with distracted directors pay their CEOs significantly more, especially in the form of equity compensation.

4.3. CEO turnover

We study forced CEO turnovers as our second measure of board monitoring effectiveness. The selection and dismissal of CEOs is one major responsibility of boards (Hermalin, 2005). Previous research finds that firms with weak board governance are less likely to

[17] Fahlenbrach et al. (2010) find firms with independent CEO directors grant higher compensation to CEOs in regressions with industry fixed effects, but this relationship disappears in estimates with firm fixed effects.

[18] In untabulated estimates, we show that our results are virtually unchanged if we also include lagged compensation as a control variable.

Table 4
Board distraction and CEO compensation.

	Panel			Diff-in-Diff		
	Total	Cash	Equity	Total	Cash	Equity
	(1)	(2)	(3)	(4)	(5)	(6)
Number distracted directors	0.0204***	0.0072	0.0362**			
	(0.0062)	(0.0119)	(0.0170)			
Treatment				0.0003	−0.0173	0.0449
				(0.0198)	(0.0143)	(0.0438)
Post				0.0215	0.0098	0.0640
				(0.0156)	(0.0092)	(0.0397)
Treatment × post				0.0383**	0.0088	0.0835*
				(0.0193)	(0.0112)	(0.0467)
Log(assets)	0.4418***	0.2107***	0.5684***	0.4539***	0.2285***	0.5844***
	(0.0149)	(0.0190)	(0.0301)	(0.0128)	(0.0085)	(0.0268)
ROA	0.9089***	1.1841***	1.0542***	1.0169***	1.1518***	1.4080***
	(0.1550)	(0.1487)	(0.3022)	(0.1717)	(0.1226)	(0.4037)
Tobin's Q	0.1119***	−0.0336***	0.1554***	0.1183***	−0.0144	0.1754***
	(0.0149)	(0.0114)	(0.0267)	(0.0141)	(0.0095)	(0.0314)
Annual stock ret	0.1036***	0.1716***	0.1348***	0.0980***	0.1665***	0.0947*
	(0.0254)	(0.0252)	(0.0502)	(0.0225)	(0.0156)	(0.0520)
3-year realized volatility	0.4282***	−0.0541	0.6437***	0.6647***	0.0102	0.9469***
	(0.1309)	(0.0619)	(0.2412)	(0.0802)	(0.0578)	(0.1792)
Board size	0.0066	0.0233***	0.0252**	0.0070	0.0162***	0.0318**
	(0.0057)	(0.0052)	(0.0114)	(0.0063)	(0.0048)	(0.0140)
Board independence	0.6583***	0.2547***	1.6886***	0.6327***	0.1909***	1.5523***
	(0.0828)	(0.0582)	(0.1635)	(0.0832)	(0.0635)	(0.1990)
Number executive directors	0.0003	−0.0026	0.0173	−0.0039	−0.0051	−0.0023
	(0.0070)	(0.0063)	(0.0145)	(0.0086)	(0.0066)	(0.0171)
Board ownership	−1.2348***	−0.4660*	−2.2563***	−1.1819***	−0.7113**	−1.9583**
	(0.2834)	(0.2541)	(0.5521)	(0.4545)	(0.3594)	(0.8256)
Busy board	0.0579**	0.0789***	0.1259**	0.0417	0.0501**	0.0928
	(0.0248)	(0.0226)	(0.0579)	(0.0287)	(0.0224)	(0.0573)
E index	0.0468***	0.0202**	0.1236***	0.0449***	0.0212***	0.1105***
	(0.0092)	(0.0093)	(0.0182)	(0.0109)	(0.0079)	(0.0229)
CEO tenure	−0.0029	0.0050***	−0.0196***	−0.0010	0.0058***	−0.0144***
	(0.0019)	(0.0016)	(0.0041)	(0.0020)	(0.0015)	(0.0044)
CEO duality	0.0792***	0.0637***	0.1000***	0.0640***	0.0600***	0.0668
	(0.0189)	(0.0173)	(0.0377)	(0.0222)	(0.0151)	(0.0492)
Observations	25,953	25,953	25,953	11,584	11,584	11,584
Adjusted R^2	0.5414	0.3667	0.3687	0.5926	0.4854	0.4165

Notes: The table reports the OLS regressions of CEO compensation on board distraction. The sample consists of firms with available data from 1996 to 2016. *Total compensation* is the natural logarithm of total CEO compensation (TDC1). *Cash compensation* is the natural logarithm of salary plus bonus (TCC). *Equity compensation* is the natural logarithm of total compensation minus cash compensation (TDC1 − TCC). Columns 1–3 use the full panel sample. *Number distracted directors* is the number of independent executive directors whose primary employer's stock return is in the bottom quintile of the pooled sample. Columns 4–6 use the difference-in-difference sample. Treatment group consists of firms with at least one distracted director in year *t* and no distracted director in year *t-1*. Each treatment firm is matched with a control firm (in the same 1-digit SIC industry), which has no distracted director in both years *t* and *t-1*, has total assets within 50% of the treatment, and has the closest CEO total compensation in year *t-1* compared to the treatment. The regression sample consists of both the treatment and the control group in years *t* and *t-1*. *Treatment* is one if the firm is in the treatment group and zero otherwise. *Post* is one if it is year *t* and zero otherwise. Industry and year fixed effects are included in all regressions. Standard errors reported in the parentheses are robust and two-way clustered by firm and year. *,**,*** indicate significance at the 10%, 5% and 1% levels, respectively.

replace CEOs after poor performance. For example, Weisbach (1988) documents that CEO turnover-performance sensitivity is lower in firms with less independent board; similar results are found in Fich and Shivdasani (2006) and Coles et al. (2014) for busy boards and coopted boards, respectively. We hypothesize that director distraction impairs the ability of boards to monitor the CEO or initiate management changes, leading to a lower sensitivity of CEO turnover to firm performance.

We construct our CEO turnover sample based on the Execucomp database, identifying changes in a firm's CEO. For each such event, we search news articles on Lexis-Nexis to collect information on the reason for the turnover, and its announcement date. Following prior literature (e.g., Parrino, 1997), we classify a turnover as forced if (i) the new article says explicitly that the CEO was fired, forced out, or departed due to policy differences with the board; or (ii) the departing CEO is under 60 years old, did not leave to accept another position or for health reasons, and did not announce a retirement at least six months in advance. We associate forced CEO turnovers with the fiscal year during which they are announced. Our analysis sample consists of 23,932 firm-years, with 571 forced CEO turnovers. As reported in Table 1 Panel C, out of these 571 firm-years with forced turnover, 138 (24.12%) firm-years have distracted directors.

Table 5
Board distraction and CEO turnover.

	Distraction (Panel)			Distraction (Diff-in-Diff)	
	(1)	(2)	(3)	(4)	(5)
Stock performance (industry-adjusted)	−1.7081***	−1.8428***		−1.6625**	−1.6944**
	(0.2411)	(0.2834)		(0.8041)	(0.8137)
Number distracted directors		0.2077***	0.3134***		
		(0.0656)	(0.0641)		
Number distracted directors × performance		0.4094*			
		(0.2213)			
Positive performance			−0.8290***		
			(0.2574)		
Negative performance			−2.7839***		
			(0.3541)		
Number distracted directors × positive performance			−0.0120		
			(0.2494)		
Number distracted directors × negative performance			0.5769*		
			(0.3086)		
Treatment				−0.0449	−0.2926
				(0.2156)	(0.2665)
Post				−0.2263	−0.2745
				(0.2439)	(0.3133)
Treatment × post				0.6170**	0.8190**
				(0.3092)	(0.4161)
Treatment × performance				−0.7676	
				(0.9385)	
Post × performance				−0.5573	
				(0.9154)	
Treatment × post × performance				2.3626**	
				(1.2037)	
Treatment × positive performance					0.5044
					(0.9983)
Treatment × negative performance					−1.6538
					(1.0503)
Post × positive performance					−0.3083
					(1.3248)
Post × negative performance					−0.7301
					(1.1410)
Treatment × post × positive performance					1.1004
					(1.6627)
Treatment × post × negative performance					2.9704*
					(1.5813)
Number executive directors	0.0001	−0.0473	−0.0455	−0.1283*	−0.1257*
	(0.0276)	(0.0342)	(0.0330)	(0.0764)	(0.0759)
Number executive directors × performance		0.0087	−0.0131	−0.2224	−0.1978
		(0.1266)	(0.1048)	(0.2537)	(0.2367)
Other controls	✓	✓	✓	✓	✓
Observations	23,932	23,932	23,932	10,590	10,590
Adjusted (Pseudo) R^2	0.1022	0.1022	0.1073	0.1244	0.1256

Notes: The table reports the coefficients from logit regressions of CEO turnover on board distraction. The sample consists of firms with available data from 1996 to 2016. The dependent variable is equal to one for firms years during which a forced CEO turnover was announced (Parrino, 1997). Columns 1–3 use the full panel sample. *Stock performance (industry-adjusted)* is the cumulative return during the previous fiscal year minus the contemporaneous industry median return. *Negative performance* (*positive performance*) is industry-adjusted stock return if the return is negative (positive) and zero otherwise. *Number distracted directors* is the number of independent executive directors whose primary employer's stock return is in the bottom quintile of the pooled sample. Columns 4 and 5 use the difference-in-difference sample. Treatment group consists of firms with at least one distracted director in year *t* and no distracted director in year *t-1*. Each treatment firm is matched with a control firm (in the same 1-digit SIC industry), which has no distracted director in both years *t* and *t-1*, has total assets within 50% of the treatment, has the same CEO turnover occurrence/non-occurrence as the treatment in year *t-1*, and has the closest stock performance in year *t-1* compared to the treatment. The regression sample consists of both the treatment and the control group in years *t* and *t-1*. *Treatment* is one if the firm is in the treatment group and zero otherwise. *Post* is one if it is year *t* and zero otherwise. Industry and year fixed effects are included in all regressions. Standard errors reported in the parentheses are robust and two-way clustered by firm and year. *,**,*** indicate significance at the 10%, 5% and 1% levels, respectively.

Table 5 presents estimates of turnover-performance sensitivity, and estimates of how this sensitivity changes with the level of board distraction. All results are from logit models, where the dependent variable is an indicator variable equal to one for fiscal years with a forced CEO turnover. We use one-year lagged industry-adjusted stock return as the measure of firm performance. We include controls for CEO characteristics that could affect the probability of turnover (CEO age, tenure, ownership and duality), along with common firm and board characteristics, and industry and year fixed effects. Standard errors are two-way clustered by firm and year.

We consider alternative measures of distraction, as well as alternative estimation strategies as robustness checks in Section 4.6.

Column 1 estimates the relationship between firm performance and CEO turnover without including any measure of board distraction. Consistent with prior literature (e.g., Warner et al., 1988; Kaplan and Minton, 2012), we find that a CEO is more likely to be forced out following poor firm performance. Our estimates suggest that an interquartile decrease in industry-adjusted return almost doubles the predicted probability of a forced turnover, magnitudes similar to those reported by Masulis and Mobbs (2014).

Our key results are presented in columns 2 and 3, which consider how director distraction affects turnover-performance sensitivity. Column 2 adds our distraction measure, along with an interaction effect on distraction with performance. We continue to find a negative and significant coefficient on performance, consistent with CEOs being more likely to be forced out following poor firm performance even the absence of distracted directors. Consistent with the hypothesis that distracted directors are less effective monitors, we estimate a positive coefficient on the interaction term (statistically significant at the 10% level). This positive coefficient means that the negative association between performance and turnover is moderated when directors are distracted. In particular, our estimates suggest that for non-distracted boards, an interquartile decline in firm performance increases the probability of a forced CEO turnover by 95%; the same performance decline increases the turnover likelihood by only 73% when one director is distracted. The coefficient on board distraction itself is significantly positive, presumably because negative market or industry-wide shocks would cause an increase in both CEO turnovers and distracted executive directors.

In column 3, we consider estimates taking into account the fact that forced turnover is likely driven more by variation in poor performance than variation in good performance, since a firm might keep its CEO as long as performance meets some threshold. We decompose industry-adjusted firm performance into positive and negative parts, with positive performance equal to industry-adjusted performance if it is positive (and zero otherwise), and negative performance equal to industry-adjusted performance if it is negative (and zero otherwise). As expected, we find that association between performance and turnover is much larger in magnitude for negative than positive performance. Moreover, the interaction between negative performance and distraction is significantly positive.

In columns 4 and 5, we consider difference-in-difference as an alternative estimation strategy. For each firm in the treatment group, we find a control firm that is in the same industry as the treatment firm, has no distracted director in year *t* and year *t-1*, has total assets within 50% of the treatment firm, has the same CEO turnover occurrence or non-occurrence as the treatment firm in the pre-treatment year, and has the closest industry-adjusted stock return compared to the treatment firm in the pre-treatment year. Observations in the treatment and control groups in both pre-treatment and treatment years are included in the regression. The key variable of interest is the three-way interaction among treatment group, treatment year, and stock performance. Consistent with the result in column 2, we find in column 4 that the coefficient of the three-way interaction term is significantly positive. For firms in the control group in pre-treatment year, an interquartile decline in firm performance increases the probability of a forced CEO turnover by 86%; the same performance decline increases the turnover likelihood by only 29% for firms in the treatment group in treatment year. In column 5, we again decompose performance into positive and negative parts, and find that the three-way interaction among treatment group, treatment year, and negative stock performance is positive and significant at the 10% level.

The results in columns 2–5 together imply that boards with distracted directors monitor CEOs less effectively, allowing them to retain their positions in the face of poor performance, and especially when below-industry-average performance makes forced turnovers particularly likely.

4.4. Earnings quality

Besides setting compensation and dismissing CEOs, another essential board monitoring responsibility is to ensure the quality of a company's financial statements.[19] Executives may have incentives to manipulate earnings due to career concerns, or because the value of their bonus, stock and options often depend on reported accounting performance. Burns and Kedia (2006) find that a firm is more likely to misreport earnings if its CEO's option portfolio is more sensitive to the stock price. Similarly, Bergstresser and Philippon (2006) show that firms where CEOs hold more stock and option are more likely to manipulate earnings through discretionary accruals. Therefore, it is important for boards of directors to help prevent CEOs from encouraging earnings manipulation. Previous literature has shown that the effectiveness of board monitoring on earnings depends on certain board characteristics, such as board independence (Klein, 2002), the presence of financial experts (Xie et al., 2003), and monitoring intensity (Faleye et al., 2011). In this section, we examine whether a firm's earnings quality deteriorates when its independent executive directors are distracted.

We first use the magnitude of discretionary accruals as a proxy of earnings quality. Since the determination of accruals often relies on judgment and estimates, accruals are considered to be a relative easy and low-cost way of manipulating earnings. Even in the absence of earnings manipulation, firms generate accruals, so measuring *discretionary* accruals relies on estimating the level of (non-discretionary) accruals a firm is likely to produce given its operating environment. We estimate discretionary accruals as the residual from a linear regression of total accruals on a set of firm-level controls; following Kothari et al. (2005), we augment the modified Jones model of Dechow et al. (1995) with return-on-assets as a control for firm performance. As is common in this literature, we use the absolute value of discretionary accruals to assess the magnitude (rather than the direction) of earnings management.

Columns 1 and 2 of Table 6 present estimates of the effect of board distraction on the magnitude of discretionary accruals. Both columns estimate OLS regressions that include as control variables firm size, performance, leverage (DeFond and Jiambalvo, 1994), an indicator for negative income in two of more consecutive years (Klein, 2002), board independence, board business, and CEO

[19] Srinivasan (2005) shows that firms restating earnings have abnormally high turnover rates among independent directors, especially those serving on the audit committee.

Table 6
Board distraction and earnings quality.

	Discretionary accruals (OLS)		Restatement (Logit)			
			(non irreg.)	(irreg.)	(non irreg.)	(irreg.)
	(1)	(2)	(3)	(4)	(5)	(6)
Number distracted directors	0.0013***		−0.0670	0.2113**		
	(0.0004)		(0.1307)	(0.0829)		
Treatment		0.0003			0.0003	0.1251
		(0.0005)			(0.2468)	(0.4450)
Post		−0.0010			−0.2477***	0.0685
		(0.0009)			(0.0194)	(0.1436)
Treatment × post		0.0012*			0.0368	0.4617**
		(0.0006)			(0.2148)	(0.2022)
Log(assets)	−0.0034***	−0.0029***	0.1557**	0.2165**	0.0913	0.1838
	(0.0003)	(0.0004)	(0.0664)	(0.1042)	(0.1373)	(0.2708)
ROA	−0.0375***	−0.0470***	−3.0195***	−3.2500***	−4.9400***	−7.0957***
	(0.0070)	(0.0078)	(0.9707)	(1.1988)	(1.3303)	(2.0478)
Tobin's Q	0.0021***	0.0026***	−0.0608	0.0924	0.0678	0.1860
	(0.0004)	(0.0004)	(0.1080)	(0.0850)	(0.1717)	(0.1762)
Leverage	0.0011	0.0025	−0.3266	2.0246***	0.8036	1.9534*
	(0.0022)	(0.0030)	(0.4799)	(0.6228)	(0.8579)	(1.0476)
Neg. NI ≥ 2 years	0.0053***	0.0033*	0.1121	−0.4528	0.0843	−1.3238**
	(0.0013)	(0.0017)	(0.1942)	(0.3737)	(0.3630)	(0.6737)
Board size	−0.0003**	−0.0004*	−0.0302	0.0586	0.0362	0.0847
	(0.0002)	(0.0002)	(0.0373)	(0.0459)	(0.0838)	(0.0964)
Board independence	−0.0003	0.0028	−0.2298	−1.4289**	−2.0682***	0.4628
	(0.0025)	(0.0033)	(0.4763)	(0.6603)	(0.6964)	(1.4578)
Number executive directors	−0.0009***	−0.0006**	−0.0325	−0.0852	−0.0480	−0.2629
	(0.0002)	(0.0003)	(0.0584)	(0.0699)	(0.1189)	(0.1805)
Board ownership	0.0088	0.0016	3.9324	−3.1591	5.2761	−10.4154
	(0.0109)	(0.0146)	(2.4708)	(3.9486)	(4.0393)	(8.9162)
Busy board	0.0007	0.0020	−0.0604	−0.1620	−0.1688	0.6881
	(0.0008)	(0.0014)	(0.1442)	(0.2249)	(0.3786)	(0.5622)
E index	−0.0005*	−0.0012***	−0.0638	−0.1511	−0.0214	−0.1123
	(0.0003)	(0.0004)	(0.0754)	(0.1055)	(0.1502)	(0.1792)
CEO ownership	−0.0023	−0.0052	−1.4256	−3.3958	−3.0865	−4.0833
	(0.0065)	(0.0098)	(1.7139)	(3.2543)	(3.0162)	(5.3380)
CEO tenure	−0.0002***	−0.0001	−0.0082	0.0203	−0.0148	0.0272
	(0.0000)	(0.0001)	(0.0115)	(0.0190)	(0.0195)	(0.0276)
CEO duality	0.0008	−0.0011	−0.0668	0.3318	0.0548	0.3861
	(0.0006)	(0.0014)	(0.1321)	(0.2049)	(0.2688)	(0.4645)
Observations	19,428	8947	8112	8112	2751	2881
Adjusted (Pseudo) R^2	0.1065	0.1070	0.0778	0.1093	0.1175	0.1898

Notes: The table reports the coefficients from OLS/logit regressions of earnings quality on board distraction. The dependent variable in columns 1 and 2 is the absolute value of discretionary accruals estimated from the ROA-augmented modified Jones model (Kothari et al., 2005). The dependent variable in columns 3–6 is a restatement indicator variable which is equal to one for firms years whose financial statements were later restated due to regular reasons or irregularities. The sample in columns 1 and 2 (columns 3–6) consists of firms with available data from 1996 to 2016 (1996 to 2006). Columns 1, 3 and 4 use the full panel sample. *Number distracted directors* is the number of independent executive directors whose primary employer's stock return is in the bottom quintile of the pooled sample. Columns 2, 5 and 6 use the difference-in-difference sample. Treatment group consists of firms with at least one distracted director in year *t* and no distracted director in year *t-1*. Each treatment firm is matched with a control firm (in the same 1-digit SIC industry), which has no distracted director in both years *t* and *t-1*, has total assets within 50% of the treatment, and has the closest discretionary accruals in year *t-1* compared to the treatment. The regression sample consists of both the treatment and the control group in years *t* and *t-1*. *Treatment* is one if the firm is in the treatment group and zero otherwise. *Post* is one if it is year *t* and zero otherwise. Industry and year fixed effects are included in all regressions. Standard errors reported in the parentheses are robust and two-way clustered by firm and year. *,**,*** indicate significance at the 10%, 5% and 1% levels, respectively.

duality (Larcker et al., 2007), together with industry and year fixed effects. All standard errors are two-way clustered by firm and year. We consider alternative measures of distraction, as well as alternative estimation strategies as robustness checks in Section 4.6.

In column 1, we use the full panel data and estimate a coefficient on board distraction that is positive and statistically significant at the 1% level. The estimated coefficient of 0.0013 implies that an additional distracted director is associated with discretionary accruals greater in magnitude by 4% than the sample average.[20] In column 2, we estimate the distraction effect using a difference-in-difference method. Similar to the strategy described in the previous sections, we match each treatment firm with a control firm that is

[20] The estimated coefficients on other control variables suggest that earnings management is more likely to occur in smaller firms and worse-performing firms, but we do not find strong evidence on the effect of board structure.

in the same industry, has no distracted directors in pre-treatment and treatment years, has similar size, and has the closest level of discretionary accruals in the pre-treatment year. Consistent with the result in column 1, the coefficient on the interaction between treatment firm and treatment year indicators is significantly positive at the 10% level.

As an alternative assessment of the role board oversight plays in ensuring earnings quality, we assess the relationship between director distraction and earnings restatements. In 2003 and 2007, the U.S. General Accounting Office (GAO) issued reports on earnings restatements, which included a list of firms that had restated financial statements between January 1997 and June 2006. Several previous papers have used this GAO restatement sample to the study earnings quality (e.g., Burns and Kedia, 2006, Masulis, Wang, and Xie, 2012).

Earnings restatements do not necessarily mean that a firm has been mismanaged; firms might restate earnings due to clerical errors, a misapplication of Generally Accepted Accounting Principles (GAAP), or new SEC guidance on some specific items.[21] Following Hennes et al. (2008), we search for news articles related to each restatement, classifying it as being caused by irregularities if it meets one of the following criteria[22]: (i) variants of the words “irregularity” or “fraud” appeared in the restatement announcement; (ii) the restatement came under investigation initiated by the SEC, the Department of Justice, or another independent third party (e.g., special committee of outside directors); or (iii) a shareholder class action lawsuit was filed after the restatement announcement.[23] We also rely on these news articles to identify the fiscal years for which financial statements were restated, since the GAO reports provide only the calendar years when these restatements were announced.

The 1997–2005 subsample of our main analysis sample includes 10,727 firm-year observations, of which 231 (2.2%) were later restated due to irregularities, and 422 (3.9%) were later restated for other reasons. As reported in Table 1 Panel C, out of the 231 firm-years with irregular restatements, 71 (30.74%) firm-years have distracted directors.

Columns 3–6 of Table 6 present estimates of the effect of board distraction on the likelihood of earnings restatements. All are estimated using logit regressions with the same control variables (including industry and year fixed effects) used in the discretionary accruals regressions reported in columns 1 and 2, and standard errors are again two-way clustered by firm and year. We consider alternative measures of distraction, as well as alternative estimation strategies as robustness checks in Section 4.6.

In column 3, the dependent variable is an indicator variable equal to one if earnings were subsequently restated for reasons other than irregularities. The estimated coefficient is small in magnitude and statistically insignificant, consistent with the fact that restatements for exogenous reasons (such as new accounting guidelines) should be unrelated to board monitoring.

In column 4, we consider restatements due to irregularities. Consistent with distracted directors serving as less effective monitors, we find that firms with distracted boards have significantly more restatements due to irregularities, presumably because they engage in more intentional misreporting. The positive coefficient on distraction estimated in column 4 suggests that all else equal, one distracted director should cause the average firm to increase its likelihood of an irregularity-based restatement by nearly a quarter (from 1.7% from 2.1%).

Finally, in columns 5 and 6, we estimate the effect of board distraction on earning restatements using difference-in-difference strategy. The results are largely consistent with the estimates in columns 3 and 4. Firms in the treatment group in treatment year are significantly more likely to have earnings reports that were subsequently restated due to irregularities.

4.5. M&A performance

In addition to supervising the executive team, boards of directors can also play an important role advising management (see e.g., Adams and Ferreira, 2007; Coles et al., 2008; Adams et al., 2010). One corporate activity where boards' advisory roles may be particularly important is the selection and negotiation of acquisitions, and we follow prior literature (e.g., Fahlenbrach et al., 2010; Faleye et al., 2011; Masulis et al., 2012) in using acquisition performance as a measure of boards' advising effectiveness. We hypothesize that distracted directors may be less effective in advising on M&A, leading to lower returns around the announcement of acquisitions by firms with distracted boards.

We obtain data on mergers and acquisitions completed by firms in our sample from the Securities Data Corporation (SDC) database, limiting attention to deals valued at $1 million or more, and where the acquirer sought to acquire at least 50% of the target's shares. We identify 7389 such deals completed between 1996 and 2016 by 1752 unique acquirers. As reported in Table 1 Panel C, out of these 7389 completed M&A deals, 1539 (20.8%) deals have distracted directors in the acquiring firm. We measure acquisition performance by calculating acquirers' cumulative abnormal return (CAR) over the five-day window starting two days before the deal was announced and ending two days after announcement. Abnormal returns are calculated as realized minus expected returns, where expected returns are the predicted values of a CAPM estimated with daily value-weighted market returns and the acquirer's daily returns during a 200-day window between 250 and 50 days before the announcement. The sample mean and median announcement returns are 0.21% and 0.10%, respectively.

Table 7 presents estimates of the effect of board distraction on acquisition announcement returns, estimated using OLS on the sample of announced acquisitions. We match each deal with the fiscal year during which it was announced, and measure distraction along with other control variables for that fiscal year, including a set of well known deal characteristics that may affect

[21] For example, a 2005 clarification on lease accounting rules caused about 300 firms to restate prior years' financial statements.

[22] We search news articles on Lexis-Nexis based on the name of the restating firm and the date of the announcement as provided by GAO reports.

[23] The announcement of a restatement associated with irregularities is associated with more negative average stock returns (−10%) than announcements of restatements not associated with irregularities (−2%).

announcement returns (cash deals, public/private target, intra-industry acquisition, and tender offer). Industry and year fixed effects are included in all regressions, and standard errors are two-way clustered by firm and year. We consider alternative measures of distraction, as well as alternative estimation strategies as robustness checks in Section 4.6.

In column 1, we present evidence, consistent with our distraction hypothesis, that firms with distracted independent executive directors have lower returns around the announcement of acquisitions. In particular, the statistically significant negative coefficient on distraction suggests that all else equal, an additional distracted independent executive director is associated with a 5-day announcement return that is 27 basis points lower. Estimated coefficients on other control variables are consistent with effects reported in prior studies: acquirers experience higher announcement returns if they are small (Moeller et al., 2004), have higher financial leverage (Maloney et al., 1993), seek target firms in related industries (Morck et al., 1990), or acquire using cash (Travlos, 1987).

In columns 2–6, we examine heterogeneity in the distraction effect. If distracted directors are associated with lower announcement returns because they serve as less effective advisors, we should expect the distraction effect to be largest for those directors who are particularly likely to play an important role advising on acquisitions. We therefore categorize independent executive directors based on their relevant M&A expertise, since management is likely to rely more heavily on advice from expert directors. Each of columns 2–6 is based on a different way of identifying these "expert" directors. In column 2, we consider executive directors' previous M&A experience, identifying as expert those whose primary employer completed at least one M&A deal in the previous three years; 45% of independent executive directors are experts under this definition. In columns 3 and 4, we define expertise based on whether a director's employer's past three years M&A had positive average announcement returns, or if the total relative size of these deals was above the contemporaneous sample median, respectively. In column 5, we combine these definitions, requiring for expertise that a director's employer have earned positive announcement returns on greater-than-average total acquisitions. Finally, in column 6, we define as expert directors those who are employed in the same 1-digit SIC code-based industry as the acquisition target.[24]

Under all five definitions, we find that distraction of independent executive directors with relevant M&A expertise—that is, those most likely to serve as important advisors—is associated with statistically significantly lower announcement returns. Under none of the definitions is the estimated effect of distraction for non-expert directors statistically significant (though the estimated effects are negative, as expected, in all cases), and the difference between the estimated distraction effects for expert and non-expert directors are statistically significant at the 10% level or better under two of the five definitions.

Overall, the results in Table 7 are consistent with the possibility that directors—especially those with relevant expertise—play an important advisory role, and that distraction reduces their effectiveness.

4.6. Robustness checks

In this section, we first consider the potential effect of director ability on the interpretation of our results above. We then check the robustness of our distraction effect estimates to the use of alternative estimation strategies and alternative measures of distraction.

4.6.1. Executive ability

In our analyses above, we use poor performance of an independent executive director's employer as attention shocks to estimate the effects of director distraction. Yet, if poor employer performance is caused by executive directors' low ability, then our attention shocks are no longer exogenous, but rather endogenously determined. This may further imply that it is actually directors' low ability rather than low attention that leads to the adverse consequences of "distracted" boards.

To distinguish the ability channel from the attention channel, we conduct a placebo test on all of our above regressions with a sample of random attention shocks, assuming that ability is time-constant. Specifically, for each independent executive director-employer pair (with multiple-year observations), we generate a set of random attention shocks in a way such that the random shocks occur in years when true shocks do not occur, and the frequency of random shocks is same as the one of true shocks. The logic is that if poor employer performance is caused by executive directors' low ability, then the frequency of shocks should reflect ability, and the frequency itself rather than the timing of the shocks could explain the variation in the performance (ROA, CEO compensation, earnings quality, etc.) of board firms. In other words, if the results in Tables 3–7 are driven by ability, or more generally time-invariant director level characteristics, we would expect similar adverse distraction effects under random and observed true shocks.

We generate 1000 sets of random shocks and rerun the main regressions (both panel and difference-in-difference estimations) from Tables 3–7. Table 8 presents the results. Columns 1 and 4 show the key coefficients based on the true sample. For regressions on ROA, Tobin's Q, CEO compensation, and earnings quality, the key coefficients are *number distracted directors* and *treatment* × *post* for panel and difference-in-difference estimation, respectively. For turnover-to-performance sensitivity regression, the key coefficients are *number distracted directors* × *performance* and *treatment* × *post* × *performance*. For M&A regression, only the coefficient of *number distracted directors* is available and reported. Columns 2, 3, 5, and 6 show the means and standard deviations of the key coefficients based on the 1000 random samples. We find that none of the key coefficients are statistically significant under random shocks, and many of them have opposite signs compared to the coefficients under the true shock. These results suggest that the adverse effects on board efficacy are more likely to be driven by time-varying director distraction instead of time-invariant director low ability.

[24] This definition of expertise is in the spirit of Custódio and Metzger (2013), who show that acquiring CEOs' experience in a target industry is associated with higher announcement returns.

Table 7
Board distraction and acquisition returns.

	Baseline model	Past M&A	Positive return	Large size	Positive & large	Target's industry
	(1)	(2)	(3)	(4)	(5)	(6)
Number distracted directors	−0.0027**					
	(0.0013)					
Number distracted directors w/M&A expertise		−0.0041**	−0.0056**	−0.0065***	−0.0110***	−0.0046*
		(0.0017)	(0.0025)	(0.0024)	(0.0033)	(0.0025)
Number distracted directors w/o M&A expertise		−0.0016	−0.0019	−0.0016	−0.0016	−0.0019
		(0.0020)	(0.0018)	(0.0013)	(0.0014)	(0.0019)
Number bidders	−0.0028	−0.0030	−0.0031	−0.0030	−0.0032	−0.0028
	(0.0069)	(0.0070)	(0.0069)	(0.0070)	(0.0069)	(0.0069)
Cash > 50%	0.0085***	0.0085***	0.0085***	0.0085***	0.0085***	0.0085***
	(0.0018)	(0.0018)	(0.0018)	(0.0018)	(0.0018)	(0.0018)
Target public	−0.0201***	−0.0200***	−0.0200***	−0.0200***	−0.0200***	−0.0201***
	(0.0027)	(0.0026)	(0.0026)	(0.0026)	(0.0026)	(0.0026)
Target private	−0.0055***	−0.0055***	−0.0055***	−0.0055***	−0.0055***	−0.0056***
	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0013)
Same industry	0.0023	0.0023	0.0023	0.0023	0.0023	0.0023
	(0.0016)	(0.0016)	(0.0016)	(0.0016)	(0.0016)	(0.0016)
Tender offer	0.0079*	0.0080*	0.0080*	0.0078*	0.0080*	0.0080*
	(0.0045)	(0.0045)	(0.0045)	(0.0045)	(0.0045)	(0.0045)
Log(assets)	−0.0017***	−0.0017***	−0.0017***	−0.0018***	−0.0018***	−0.0018***
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
ROA	−0.0074	−0.0073	−0.0072	−0.0071	−0.0071	−0.0076
	(0.0127)	(0.0127)	(0.0127)	(0.0128)	(0.0128)	(0.0127)
Tobin's Q	0.0025***	0.0025***	0.0025***	0.0025***	0.0024***	0.0025***
	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0007)
Leverage	0.0146***	0.0146***	0.0145***	0.0145***	0.0143***	0.0145***
	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0050)	(0.0050)
Cash/assets	−0.0255**	−0.0256**	−0.0254**	−0.0257**	−0.0253**	−0.0253**
	(0.0108)	(0.0108)	(0.0108)	(0.0108)	(0.0108)	(0.0108)
Board size	−0.0005	−0.0005	−0.0005	−0.0005	−0.0005	−0.0005
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Board independence	−0.0028	−0.0028	−0.0029	−0.0028	−0.0031	−0.0030
	(0.0058)	(0.0058)	(0.0058)	(0.0058)	(0.0058)	(0.0060)
Number executive directors	0.0011*	0.0010*	0.0010*	0.0010*	0.0010*	0.0011*
	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)	(0.0006)
Board ownership	0.0087	0.0086	0.0084	0.0079	0.0078	0.0096
	(0.0457)	(0.0458)	(0.0460)	(0.0460)	(0.0463)	(0.0452)
Busy board	0.0046**	0.0046**	0.0046**	0.0046**	0.0045**	0.0046**
	(0.0018)	(0.0018)	(0.0018)	(0.0018)	(0.0018)	(0.0018)
E index	−0.0011	−0.0011	−0.0011	−0.0011	−0.0012	−0.0011
	(0.0009)	(0.0009)	(0.0009)	(0.0009)	(0.0009)	(0.0009)
CEO ownership	0.0118	0.0117	0.0120	0.0121	0.0122	0.0117
	(0.0244)	(0.0244)	(0.0244)	(0.0244)	(0.0244)	(0.0245)
CEO tenure	0.0003**	0.0003**	0.0003**	0.0003**	0.0003**	0.0003**
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
CEO duality	−0.0050***	−0.0050***	−0.0050***	−0.0050***	−0.0049***	−0.0050***
	(0.0017)	(0.0017)	(0.0017)	(0.0017)	(0.0017)	(0.0017)
Observations	7389	7389	7389	7389	7389	7389
Adjusted R^2	0.0411	0.0411	0.0411	0.0413	0.0416	0.0411
p-value ($\beta_{\text{expert}} \geq \beta_{\text{non-expert}}$)	–	0.18	0.14	0.01	0.00	0.23

Notes: The table reports the OLS regressions of acquisition returns on board distraction. The sample consists of merges and acquisitions by firms with available data from 1996 to 2016. The dependent variable is cumulative abnormal returns (CAR) over the five day event window $[-2, +2]$, where day zero is the announcement day. All firm level independent variables are characteristics of acquirers in the fiscal year during which acquisitions occurred. *Number distracted directors* is the number of independent executive directors whose primary employer's stock return is in the bottom quintile of the pooled sample. Distracted directors are classified into directors *with M&A expertise* and directors *without M&A expertise* based on different expertise definitions in columns 2–6. In column 2, a director is defined as an expert if her employer has made at least one M&As during the last three years (45% of all distracted directors). In column 3, a director is defined as an expert if the average M&A announcement return of her employer during the last three years is above zero (25%). In column 4, a director is defined as an expert if the sum of M&A relative size (deal value/lagged acquirer's market capitalization) of her employer during the last three years is above the contemporaneous sample average (23%). In column 5, a director is defined as an expert if the average M&A return is above zero and the sum of M&A relative size is above the contemporaneous sample average (12%). In column 6, a director is defined as an expert if her primary employer is in the same 1-digit SIC industry as the target firm (30%). See Appendix A for definition of all other variables. Industry and year fixed effects are included in all regressions. Standard errors reported in the parentheses are robust and two-way clustered by firm and year. *,**,*** indicate significance at the 10%, 5% and 1% levels, respectively. The last row shows the p-value for the statistical test that the coefficients on *Number distracted directors without M&A expertise* is no larger than the coefficients on *Number distracted directors with M&A expertise*.

Table 8
Placebo test on executive ability.

	Source	Panel estimation			Difference-in-Difference estimation		
		True shocks	Random shocks		True shocks	Random shocks	
		Estimate	Mean	Std. Dev.	Estimate	Mean	Std. Dev.
		(1)	(2)	(3)	(4)	(5)	(6)
ROA	Table 3, col. 1/2	−0.0035	−0.0009	0.0008	−0.0032	−0.0005	0.0010
Tobin's Q	Table 3, col. 3/4	−0.0404	0.0097	0.0104	−0.0565	0.0179	0.0113
Compensation	Table 4, col. 1/4	0.0204	0.0051	0.0062	0.0383	0.0124	0.0135
Turnover	Table 5, col. 2/4	0.4094	−0.2495	0.2780	2.3626	−0.7706	1.0075
Accruals	Table 6, col. 1/2	0.0013	−0.0000	0.0003	0.0012	−0.0010	0.0008
Restatement	Table 6, col. 4/6	0.2113	0.0584	0.1103	0.4617	−0.1097	0.2431
M&A	Table 7, col. 1	−0.0027	−0.0002	0.0010	–	–	–

Notes: The table presents the results for the placebo test on executive ability based on 1000 samples of random attention shocks. For each independent executive director-employer pair (with multiple-year observations), a set of random attention shocks is generated in a way such that the random shocks occur in years when true shocks do not occur, and the frequency of random shocks is same as the one of true shocks. All main regressions in Tables 3–7 are re-estimated using the samples of random shocks. Restatement refers to restatement due to irregularities. Columns 1 and 4 show the key coefficients based on the true samples. Columns 2, 3, 5, and 6 show the mean and standard deviation of the key coefficients based on the random samples.

4.6.2. Alternative estimation specifications

In all of our estimations above, we include industry and year fixed effects to control for time-invariant industry characteristics and year effects. To check whether our results are subject to endogeneity caused by unobserved firm characteristics or industry-wide performance shocks, we can attempt to exploit within-firm or within-industry-year variation in board distraction. Specifically, we rerun all of our panel estimations in Tables 3 to 7 with the inclusion of either firm fixed effects or industry-by-year fixed effects, and we again find results supporting our director distraction hypothesis. We report these results and provide a detailed discussion in Appendix B.

4.6.3. Alternative distraction measures

So far, we have focused on distraction associated with extreme poor stock returns (below a fixed cutoff) at an independent executive director's employer. We consider three alternative time-varying measures of distraction. We first consider an idiosyncratic return measure, treating as distracted only those directors whose employers have bottom-quintile returns *within their industry-year*. Using this idiosyncratic performance-based measure helps ensure that we are not estimating the association between a set of poor-performing firms and poor performance in a related industry from which they may disproportionately draw their directors. We then consider two (non-return based) business conditions at a director's employer that may be associated with distracting events: high volatility and financial distress. Similar to our return-based measure, we calculate director-year indicator variables equal to one if the director's employer has annual stock return volatility in the top quintile, or the financial distress z-score in the bottom quintile, of the corresponding industry-year group.[25] We then aggregate distraction to the firm-year level by counting the number of distracted independent executive directors on each board. We report the regression results in Appendix Table B.2. Broadly speaking, the pattern of distraction effects estimated in prior sections of the paper appear in response to the idiosyncratic return measure and two alternative sources of distraction. We take this as evidence that distracted directors are indeed less effective in executing their monitoring and advising duties.

5. Heterogeneous effects

In this section, we examine whether our estimated board distraction effects in Section 4 are heterogeneous with respect to several characteristics that might reasonably exacerbate the adverse effects of director distraction. We present results on differential effects across directors' committee membership and across board size; results relying on a variety of other director characteristics are discussed in Appendix C.

5.1. Heterogeneity by director committee membership

We first explore heterogeneity with respect to distracted directors' board committee membership. As certain board duties are mainly executed by directors on relevant committees, we expect the distraction effects to be stronger if distracted directors serve on

[25] We measure volatility using standard deviation of daily stock returns, and financial distress using Altman's (1968) z-score. We use industry-by-year cutoffs rather than pooled sample cutoff to define volatility-based and z-score-based distraction because these variables vary significantly across industries. The results in Table B.2 remain qualitatively similar if we measure director distraction using pooled sample cutoffs on volatility and z-score.

Table 9
Heterogeneity by board committee.

	Compensation			Earnings quality	
	Total	Cash	Equity	Accruals	Restatement
	(1)	(2)	(3)	(4)	(5)
Number distracted directors on comp cmte	0.0337**	0.0073	0.0695**		
	(0.0138)	(0.0204)	(0.0334)		
Number distracted directors not on comp cmte	0.0083	0.0072	0.0059		
	(0.0130)	(0.0099)	(0.0250)		
Number distracted directors on audit cmte				0.0020***	0.2704*
				(0.0007)	(0.1437)
Number distracted directors not on audit cmte				0.0006	0.1602*
				(0.0004)	(0.0869)
Other controls as in:	Table 4	Table 4	Table 4	Table 6	Table 6
	column 1	column 2	column 3	column 1	column 4
p-value ($\beta_{\text{committee}} \geq \beta_{\text{non-committee}}$)	0.14	0.50	0.09	0.02	0.25

Notes: The table presents the results for the heterogeneous effects of board distraction on CEO compensation and firm earnings quality by distracted directors' board committee membership. *Number distracted directors (not) on comp (audit) cmte* is the number of independent executive directors whose primary employer's stock return is in the bottom quintile of the pooled sample and who are (not) on the compensation (audit) committee. For restatement regression, the dependent variable is restatement due to irregularities and coefficients from logit model are reported. All control variables in the original models are included. Standard errors reported in the parentheses are robust and two-way clustered by firm and year. *,**,*** indicate significance at the 10%, 5% and 1% levels, respectively. The last row shows the *p*-value for the statistical test that the coefficients on *Number distracted directors not on comp (audit) cmte* is no smaller than the coefficients on *Number distracted directors on comp (audit) cmte*.

these committees. Specifically, we examine distracted directors' membership on compensation committee and audit committee.

Table 9 presents the results. In columns 1–3, we categorize distracted directors based on whether or not they serve on the firm's compensation committee. To the degree that CEO compensation is largely set by the compensation committee—that is, members of the committee should be particularly important monitors in this area—we expect to find stronger effects of board distraction on CEO excess compensation when compensation committee members are distracted.[26] Consistent with our expectation, the coefficients on the number of distracted directors on the compensation committee are significantly positive for total and equity compensation. These estimates suggest that CEOs receive 3.4% more total compensation and 7.0% more equity when an additional compensation committee members is distracted. The effects of distraction among directors who are not members of the compensation committee are not statistically significant; a *t*-test shows that for equity compensation, the distraction effect for compensation committee members is significantly higher than for non-members at the 10% level.

We examine heterogeneity with respect to distracted directors' audit committee membership in columns 4 and 5. We find that the distraction of audit committee directors significantly increases the magnitude of discretionary accruals, while the distraction of non-members has no significant effect. A *t*-test shows that the distraction effect of audit committee members is significantly larger at the 5% level. For restatement, we find significant positive effects of distraction on irregularity-based restatements for both audit committee members and non-members; although the magnitude is somewhat larger for committee members (as expected), the difference is not statistically significant. Perhaps intentional misreporting is sufficiently serious that all independent directors play a monitoring role important in constraining this misbehavior.

5.2. Heterogeneity by board size

Our board distraction hypothesis is that independent executive directors who are distracted by events (associated with poor performance) at their primary employer shirk board responsibilities and thus weaken the monitoring and advising effectiveness of the entire board. Based on this logic, the distraction of a single director may matter more for smaller boards, because there are fewer other members to take on the responsibilities of the distracted one. In Table 10, we consider whether the effects of distraction differ systematically with board size.

In Panel A, we categorize firm-years based on whether the board has fewer than nine members (the median board size, which stays nearly constant over the sample). We reestimate our main distraction effects, adding an indicator variable equal to one for small boards, and interactions of this small-board indicator with the key independent variables (distraction, and the distraction-performance interaction in the turnover estimates). All of the control variables in the original models are included, though not reported.

Columns 1 and 2 show the results on overall firm performance. As expected, the interaction coefficients between the number of distracted independent executive directors and the small-board indicator is significantly negative. This suggests that the distraction of a director has a larger adverse effect at firms with small boards (ROA lower by 84 bp vs. 17 bp; Tobin's Q lower by 0.091 vs. 0.023),

[26] Distraction of directors who are *not* members of the committee can of course also affect CEO compensation, both because the overall board plays a role in determining compensation, and because committee members may allocate effort away from monitoring compensation to other board duties.

Table 10
Heterogeneity by board size.

	ROA	Tobin's Q	Compensation	Turnover	Accruals	Restatement	M&A
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A. Board size							
Number distracted directors	−0.0017**	−0.0227	0.0060	0.2635***	0.0011***	0.2179	−0.0014
	(0.0007)	(0.0186)	(0.0079)	(0.0635)	(0.0004)	(0.1332)	(0.0011)
Number distracted directors × small board	−0.0067***	−0.0678**	0.0549**	−0.0815	0.0006	−0.0293	−0.0049**
	(0.0023)	(0.0287)	(0.0224)	(0.1535)	(0.0009)	(0.2662)	(0.0024)
Number distracted directors × performance				−0.0641			
				(0.3248)			
Number distracted directors × performance × small board				0.6377**			
				(0.2716)			
Small board	−0.0027	0.1074**	−0.0052	0.0637	0.0010	−0.3815	0.0035*
	(0.0028)	(0.0424)	(0.0225)	(0.1331)	(0.0008)	(0.2637)	(0.0019)
Panel B. Number of independent directors							
Number distracted directors	−0.0005	−0.0122	0.0073	0.2151***	0.0014***	0.2836***	−0.0012
	(0.0006)	(0.0182)	(0.0069)	(0.0673)	(0.0004)	(0.1100)	(0.0010)
Number distracted directors × small board	−0.0103***	−0.0991***	0.0464***	0.0826	−0.0004	−0.2273	−0.0055*
	(0.0025)	(0.0272)	(0.0168)	(0.1448)	(0.0007)	(0.2495)	(0.0032)
Number distracted directors × performance				0.0730			
				(0.3875)			
Number distracted directors × performance × small board				0.3854			
				(0.2944)			
Small board	−0.0014	0.0772**	−0.0285	0.1666	0.0021***	−0.0477	0.0052*
	(0.0026)	(0.0326)	(0.0221)	(0.1413)	(0.0008)	(0.3263)	(0.0030)
Other controls as in:	Table 3	Table 3	Table 4	Table 5	Table 6	Table 6	Table 7
	column 1	column 3	column 1	column 2	column 1	column 4	column 1

Notes: The table presents the results for the heterogeneous effects of board distraction on a set of firm outcomes by board size.In Panel A, small board is equal to one if the board size is smaller than the pooled sample median (9) and zero otherwise. In Panel B, small board is equal to one if the number of independent directors is smaller than the pooled sample median (7) and zero otherwise. *Number distracted directors* is the number of independent executive directors whose primary employer's stock return is in the bottom quintile of the pooled sample. All control variables in the original models are included in both panels. Standard errors reported in the parentheses are robust and two-way clustered by firm and year. *,**,*** indicate significance at the 10%, 5% and 1% levels, respectively.

consistent with those firms' boards being less able to get effective monitoring and advising from their undistracted directors.

In columns 3–7, we reexamine our other, specific firm outcomes. We find that the association of board distraction with excess CEO compensation, reduced turnover-performance sensitivity, and lower M&A announcement returns are more pronounced for firms with small boards. The results for earnings quality are statistically insignificant, and in different directions for discretionary accruals and restatements.

In Panel B, we consider an alternative definition of “small” boards based on the number of independent directors rather than the total. In particular, we categorize firm-years based on whether the board has fewer than seven independent directors (the sample median), and again find that the adverse effects of distraction on overall performance are significantly stronger for firms with small boards. The heterogeneous effects are not generally significant for the specific firm outcomes.

5.3. Heterogeneity by director characteristics

Finally, we investigate whether the effects of director distraction are heterogeneous with respect to a variety of director characteristics. Analogous to our interpretation of heterogeneous effects across committee membership, relevant expertise, and board size, we can think of these estimates as capturing differential effects related to directors' likelihood of serving as particularly important monitors or advisors. An alternative interpretation of these heterogeneous effects is based on the fact that we are of course not measuring distraction directly, but rather measuring poor stock returns at a director's employer. To the degree that certain directors may be particularly distracted by the events associated with these poor returns, heterogeneous effects may be driven by different *levels* of distraction associated with the same poor stock market performance, rather than different *effects* of the same level of distraction.[27] We report detailed results in Appendix Table C.1. Broadly speaking, we find the adverse distraction effects to be stronger for non-coopted directors, CEO directors, and directors with short tenure. We find mixed results for “busy” directors who serve on three or more boards.

[27] However, we find (in untabulated results) no statistically significant difference in the effect of poor employer stock market returns on the likelihood of extreme meeting attendance problems across the dimensions of director-level heterogeneity that we consider below. This is consistent with differences in the effect of distraction on firm outcomes being driven by directors' importance, rather than their distractibility.

6. Conclusion

We study whether events at the employing firm distract independent executive directors from their board responsibilities and thereby impair board governance effectiveness. Using a newly constructed data that matches directors to their employers, we measure an executive director's distraction based on the stock performance at her employing firm. Empirical results show that executive directors are more likely to miss board meetings during periods when their employer's performance suffers. Consequently, boards with distracted directors exhibit lower monitoring and advisory effectiveness, in terms of lower overall firm performance, more excess CEO compensation, lower CEO turnover-performance sensitivity, lower earnings quality, and lower M&A returns. These findings suggest that director distraction is detrimental to firms.

Our results may also have some implications for the optimal board structure. The finding that small boards suffer more from director distraction suggests that one advantage of a large board is that it can better withstand the adverse effect of a potential distracted director. Also, since the performance of firms within the same industry or of related industries is often correlated, firms may consider a more diversified board as it can minimize the possibility that multiple independent executive directors are distracted at the same time, or independent executive directors are distracted when the appointing firm also experiences performance shock and thus needs efforts from the board.

A. Variable definitions

This Appendix defines the variables used in the paper. The data items taken from Compustat are denoted as data variables. All returns data come from CRSP. All compensation related data come from Execucomp. Board data and governance data come from RiskMetrics. Data on earnings restatements and CEO turnovers are hand-collected based on news articles covered by the Lexis-Nexis database.

Table A.1
Data sources and variable definitions.

Variable	Definition
Firm characteristics	
Total assets	Total assets; AT
Log(assets)	Logarithm of toal assets
Market value	Market capitalization; $CSHO \times PRCC\_F$
ROA	Ratio of operating income before depreciation to total asset; $OIBDP/AT$
Tobin's Q	Market value of asset to book value; $(AT - CEQ + CSHO \times PRCC\_F - TXDB)/AT$
Annual stock return	Cumulative return 12 months before the current fiscal year end
Leverage	Financial leverage; $(DLTT + DLC)/AT$
Neg. NI $\geq$2 years	Consecutive negative net income for the last two years or more
E-Index	Bebchuk, Cohen, and Ferrell (2009) index of corporate governance; similar to existing work, gap years are filled in with adjoining years
Discretionary accruals	Discretionary accrual is equal to total accrual (TA) minus non-discretionary accrual; TA is measured based on balance sheet items, where $TA_{i,t} = (\Delta ACT_{i,t} - \Delta LCT_{i,t} - \Delta CHE_{i,t} + \Delta DLC_{i,t} - DP_{i,t})/AT_{i,t-1}$; non-discretionary accrual is estimated as the predicted value from the following estimation within each firm (at least 10-observations are required): $TA_{i,t} = \beta_0 + \beta_1(1/AT_{i,t-1}) + \beta_2((\Delta REVT_{i,t} - \Delta RECT_{i,t})/AT_{i,t-1}) + \beta_3(PPENT_{i,t}/AT_{i,t-1}) + \beta_4 ROA_{i,t-1} + \varepsilon_{i,t}$; total accrual and all independent variables in the regression are winsorized at 0.5% and 99.5%
Restate (irregularity)	Financial report restatement meets one of the following criteria: (i) variants of the words "irregularity" or "frauds" appear in the restatement announcement; (ii) the restatement comes under investigation initated by SEC, Department of Justice (DOJ), or other independent third party (e.g. special committee of outside directors); (iii) a shareholder class action lawsuit is filed after the restatement announcement
Restate (non-irregularity)	Financial report restatement due to non-irregular reasons
Volatility	Annualized standard deviation of daily stock returns
Z-score	Financial distress z-score; z-score $= 3.3 \times (NI/AT) + SALE/AT + 1.4 \times (RE/AT) + 1.2 \times (WCAP/AT) + 0.6 \times (CSHO \times PRCC\_F/LT)$
Board characteristics	
Number distracted directors	Number of independent executive directors whose primary employer's stock return (during the board firm's fiscal year) is in the bottom quintile of the pooled sample; the pooled sample includes all independent executive directors in all years where director primary employer's return data is available
Number executive directors	Number of independent directors who are executives in their primary employers
Board size	Number of directors on the board
Small board	Board size is below sample median (board size $\leq$ 8)
Board independence	Percent of independent directors on the board
Board ownership	Percent ownership stake of all independent directors
Busy board	Fifty percent or more independent directors are busy
CEO and director characteristics	
CEO age	Current age of CEO
CEO total compensation	CEO's total compensation (TDC1)

(*continued on next page*)

Table A.1 (*continued*)

Variable	Definition
CEO equity compensation	CEO's total compensation minus cash compensation (TDC1 − TCC)
CEO duality	CEO is chairman of the board
CEO tenure	Current year minus the first year that the executive flagged as CEO in Execucomp
CEO ownership	Percent ownership stake of the CEO in the firm
Forced CEO turnover	Report says that the CEO was fired, forced out, or departed due to policy differences; or the departing CEO is under age of 60, did not announce the retirement at least six months in advance, and did not leave for health reasons or acceptance of another position (Parrino, 1997)
Independent director	Director is classified as an independent outsider ("I") by ISS
Independent executive director	Independent director whose primary position is an executive in an outside firm
Female director	Director is female
Foreign director	Director primary employer's country is not USA
CEO director	Director is CEO at primary employer
Busy director	Director holds positions in three or more boards (five or more if she is retired)
Director tenure	Number of years since the date of board service at current firm
Attendance < 75%	Attended < 75% of board meetings
Primary employer's return	Director primary employer's stock return during the board firm's fiscal year
M&A deal characteristics	
Number bidder	Number of bidders
Cash > 50%	Percentage of the deal value paid in cash is > 50%
Target public	Target firm is public
Target private	Target firm is private
Same industry	Target and acquirer are in the same SIC-2 industry

B. Alternative estimation specifications and distraction measures

In this Appendix, we report detailed results of robustness checks on alternative estimation specifications and distraction measures.

We first check whether the director distraction effects documented in Section 4 are subject to endogeneity caused by unobserved firm characteristics or industry-wide performance shocks. To do so, we consider estimation specifications with firm fixed effects and industry-by-year fixed effects. Results are reported in Table B.1. For the ease of comparison, Panel A reproduces the main results from Tables 3–7. Although we only report the estimated coefficients on the key independent variables (distraction, and the distraction-performance interaction in the turnover estimates), all of the control variables in the original models are included in all regressions.

In Panel B, we replace industry fixed effects with firm fixed effects, and all effects are estimated using OLS. Since our distraction measure depends on directors' employers' returns, which vary significantly over time, we should have enough within-firm time-series variation in board distraction to identify its impact. Consistent with our baseline results, distracted directors have a significantly negative impact on overall firm performance. A distracted director is associated with a 13 basis point decrease in ROA and a 0.039 decrease in Tobin's Q. Regarding specific firm outcomes, we continue to find that coefficients on board distraction are significantly positive for compensation, significantly positive for restatements, and significantly negative for M&A announcement returns. For CEO turnover-performance sensitivity and discretionary accruals, the key coefficients have the expected signs but lose statistical significance.

In Panel C, we replace industry and year fixed effects with industry-by-year fixed effects, absorbing time-varying industry-level shocks. (As in Panel B, all outcomes are estimated using OLS). The key coefficients again have the expected signs for all outcomes, and are statistically significant at the 5% level or better for ROA, Tobin's Q, compensation, discretionary accruals, and restatements.

Next, we consider three alternative measures of director distraction: distraction caused by director primary employer's low idiosyncratic return (bottom quintile stock return in the industry-year group), high stock volatility (top quintile volatility), and high financial distress (bottom quintile z-score). Table B.2. shows the results.

Panel A presents estimates of the effect of director distraction using the idiosyncratic return-based distraction measure. In column 1, we estimate the effect of distraction on poor attendance using our director-year-level sample, analogous to the results of Section 3. Consistent with the distraction hypothesis, the coefficient on the indicator of poor idiosyncratic performance is significantly positive at the 1% level. In columns 2–8, we estimate the effects of distraction on firm-level outcomes using our firm-year sample. The results are consistent with our baseline model. Using the idiosyncratic performance measure, we find that the distraction of one executive director reduces a firm's ROA by 38 basis points (2.9% compared to the sample average) and Tobin's Q by 0.051 (2.7% compared to the sample average). For firm outcomes reflecting specific board advisoring and monitoring channels, we find that the results on CEO turnover and earnings quality are similar to the baseline results in both magnitude and statistical significance, though the results on CEO compensation and M&A performance are smaller in magnitude and lose significance.

Panel B shows the results with the volatility-based distraction measure. We find that independent executive directors whose employer exhibits high volatility are significantly (at the 10% level) more likely to have poor board meeting attendance. For firm level outcomes, we find the key distraction coefficient is significantly negative in the ROA regression. The distraction of one executive director reduces a firm's ROA by 49 basis points, about 4% compared to the sample average. The coefficient on board distraction is still negative in the Tobin's Q regression, but lose statistical significance. We further examine how our volatility-based distraction measure affects several different aspects of board monitoring and advising effectiveness, and find results directionally similar to those

from the return-based distraction measure: firms with distracted directors have significantly lower CEO turnover-performance sensitivity and discretionary accruals of significantly larger magnitude; CEO compensation is also higher, and there are more restatements, though these results are not statistically significant. We do not find clear evidence on M&A performance.

In Panel C, we instead consider distraction measured by the number of directors whose employers have a financial distress *z*-score is in the bottom quintile of the corresponding industry-year group. The distraction effects are in the expected direction for all outcomes, though only statistically significant at the 5% level or better for ROA, CEO turnover-performance sensitivity, and M&A announcement returns.

In summary, the robustness checks in this Appendix reinforce our main results that director distraction reduces board monitoring and advising effectiveness, and is detrimental to firms.

Table B.1
Alternative estimation specifications.

	ROA	Tobin's Q	Compensation	Turnover	Accruals	Restatement	M&A
	OLS	OLS	OLS	Logit/OLS	OLS	Logit/OLS	OLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A. Baseline (industry and year fixed effects)							
Number distracted directors	−0.0035***	−0.0404**	0.0204***	0.2077***	0.0013***	0.2113**	−0.0027**
	(0.0010)	(0.0159)	(0.0062)	(0.0656)	(0.0004)	(0.0829)	(0.0013)
Number distracted directors × performance				0.4094*			
				(0.2213)			
Panel B. Firm and year fixed effects (OLS in all columns)							
Number distracted directors	−0.0013**	−0.0388***	0.0201***	0.0036*	0.0007	0.0069***	−0.0030**
	(0.0006)	(0.0116)	(0.0077)	(0.0019)	(0.0004)	(0.0016)	(0.0011)
Number distracted directors × performance				0.0060			
				(0.0045)			
Panel C. Industry-by-year fixed effects (OLS in all columns)							
Number distracted directors	−0.0024**	−0.0341**	0.0182***	0.0044**	0.0013**	0.0046**	−0.0023**
	(0.0009)	(0.0146)	(0.0053)	(0.0020)	(0.0005)	(0.0019)	(0.0011)
Number distracted directors × performance				0.0042			
				(0.0059)			
Other controls as in:	Table 3 column 1	Table 3 column 3	Table 4 column 1	Table 5 column 2	Table 6 column 1	Table 6 column 4	Table 7 column 1

Notes: The table presents the results for robustness checks on Tables 3–7. For ease of comparison, Panel A reproduces the results from baseline models. In Panel B, industry fixed effects are replaced by firm fixed effects. In Panel C, industry and year fixed effects are replaced by industry-by-year fixed effects. For the turnover and restatement analysis, OLS is used in Panels B and C. For restatement regression, the dependent variable is restatement due to irregularities. All control variables in the original models are included in all regressions. Standard errors reported in the parentheses are robust and two-way clustered by firm and year. *,**,*** indicate significance at the 10%, 5% and 1% levels, respectively.

Table B.2
Alternative measures of distraction.

	Absence	ROA	Tobin's Q	Compensation	Turnover	Accruals	Restatement	M&A
	Logit	OLS	OLS	OLS	Logit	OLS	Logit	OLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A. Return (by industry-year)								
Return < p20	0.1873***							
	(0.0635)							
Number distracted directors		−0.0038***	−0.0505***	0.0074	0.1485	0.0011***	0.3644***	−0.0008
		(0.0012)	(0.0146)	(0.0094)	(0.0953)	(0.0004)	(0.1017)	(0.0015)
Number distracted directors × performance					0.4595**			
					(0.2100)			
Panel B. Volatility								
Volatility > p80	0.1524*							
	(0.0812)							
Number distracted directors		−0.0049***	−0.0137	0.0179	0.1552	0.0016***	0.1424	0.0023
		(0.0017)	(0.0240)	(0.0131)	(0.1095)	(0.0005)	(0.2100)	(0.0019)
Number distracted directors × performance					0.7585***			
					(0.1797)			

(*continued on next page*)

Table B.2 (*continued*)

	Absence	ROA	Tobin's Q	Compensation	Turnover	Accruals	Restatement	M&A
	Logit	OLS	OLS	OLS	Logit	OLS	Logit	OLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel C. Financial distress								
z-score < p20	0.0866							
	(0.1014)							
Number distracted directors		−0.0053***	−0.0401	0.0162	0.1185	0.0007	0.0715	−0.0033**
		(0.0019)	(0.0287)	(0.0134)	(0.1032)	(0.0006)	(0.2178)	(0.0016)
Number distracted directors					0.5640**			
× performance					(0.2872)			
Other controls as in:	Table 2	Table 3	Table 3	Table 4	Table 5	Table 6	Table 6	Table 7
	column 3	column 1	column 3	column 1	column 2	column 1	column 4	column 1

Notes: The table presents the results on alternative board distraction measures. Panel A measures distraction based on the within industry-year stock return of independent executive director's primary employer. Panel B measures distraction based on stock volatility. Panel C measures distraction based on financial distress (z-score). *Return < p20* is one if primary employer's stock return is in the bottom quintile of corresponding industry-year group and zero otherwise. *Volatility > p80* is one if primary employer's stock volatility is in the top quintile of corresponding industry-year group and zero otherwise. *z-score < p20* is one if primary employer's z-score is in the bottom quintile of corresponding industry-year group and zero otherwise. *Number distracted directors* in Panels A–C is defined based on return, volatility, and z-score, respectively. All control variables in the original models are included all regressions. For restatement regression, the dependent variable is restatement due to irregularities. Standard errors reported in the parentheses are robust and two-way clustered by director and year in column 1 and by firm and year in columns 2–8. *,**,*** indicate significance at the 10%, 5% and 1% levels, respectively.

C. Heterogeneity by director characteristics

In this Appendix, we report detailed results of heterogeneity by certain director characteristics. In each panel of Table C.1, we categorize distracted independent executive directors based on whether or not they meet some criterion, and include in our regressions the number of distracted directors of each type. All of the control variables in the original models are included, though not reported.

We first consider independent executive directors who are "coopted" by the firm's CEO: those who joined the board after the current CEO took office (Coles et al., 2014). Since cooption may make boards less effective in monitoring executive actions, we expect the adverse effects distraction to be stronger for the non-coopted directors who play a particularly important monitoring role. Panel A presents estimates of the effects of distracted coopted and non-coopted directors, separately. As expected, the estimated coefficients on the number of distracted non-coopted directors (or the performance interaction for the turnover regression) are larger in magnitude than those on the number of distracted coopted directors in all regressions except restatement likelihood. The differences are large in economic magnitude; for example, a distracted non-coopted director is associated with an ROA lower by 48 bp, versus 14 bp for a distracted coopted director.

In Panel B, we categorize independent executive directors based on whether each is the CEO of her primary employer. We expect to observe stronger distraction effects for CEO directors, both because CEOs may be more likely to be distracted by events associated with poor returns at their employer, and because CEOs may be particularly valuable directors. The estimated distraction effects are broadly consistent with this hypothesis, with coefficient estimates larger in magnitude for CEOs than non-CEOs in all regressions except for restatement likelihood. (Both CEO and non-CEO coefficients have the expected signs in all regressions.) The differences are again large in economic magnitude, such as an adverse ROA effect of 47 bp for distracted CEO directors versus 24 bp for distracted non-CEOs.

In Panel C, we examine how distraction effects vary across independent executive directors with different tenures. Newer directors, who are less familiar with the firm and its management, may require more time and attention to successfully execute their board duties. Distraction of these low-tenure board members might therefore have more adverse effects on the firm. We classify as short-tenure those directors who have been on a board less than four years (the sample median). Largely consistent with our hypothesis, we find stronger distraction effects for short-tenure directors for five of seven outcomes. While long-tenure directors are more likely to be non-coopted, the positive correlation between these two measures is far from perfect (0.46 in our sample), because CEO tenure also determines cooption. Even short-tenure directors are non-coopted after a firm hires a new CEO, and even long-tenure directors are coopted if the CEO's tenure is even longer. Given that our tests rely on univariate sample splits, the correlation between cooption and tenure was likely to bias against finding the strong distraction effects we identify for both short-tenure directors (who may rely more on attention to overcome a lack of firm-specific directorial experience) and non-coopted directors (who may play a particularly important monitoring role).

Finally, in Panel D, we consider heterogeneity with respect to the number of boards on which independent executive directors serve, following Fich and Shivdasani (2006) in classifying as "busy" independent executive directors who serve on three or more boards. Busy directors may serve on so many boards because they are particularly valuable as monitors and advisors, perhaps particularly so because they are seen as able to avoid the adverse effects of distraction. On the other hand, busy directors may have limited time to spend on each board, such that distracting events at their employing firm may leave them with virtually none. We find that the distraction effects are stronger for busy directors on CEO turnover and discretionary accruals, but weaker on firm overall performance, CEO compensation, and restatement likelihood.

Table C.1
Heterogeneity by director characteristics.

	ROA	Tobin's Q	Compensation	Turnover	Accruals	Restatement	M&A
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A. Co-opted director							
Number non-coopted distracted directors	−0.0048***	−0.0414*	0.0326***	0.2032**	0.0016***	0.2507	−0.0032**
	(0.0013)	(0.0233)	(0.0100)	(0.1030)	(0.0004)	(0.1847)	(0.0015)
Number coopted distracted directors	−0.0014	−0.0388*	0.0008	0.3283***	0.0006	0.3674***	−0.0019
	(0.0013)	(0.0210)	(0.0137)	(0.0936)	(0.0009)	(0.1136)	(0.0022)
Number non-coopted distracted directors × performance				0.6984**			
				(0.3218)			
Number coopted distracted directors × performance				−0.2422			
				(0.3693)			
Panel B. CEO director							
Number distracted CEO directors	−0.0047***	−0.0530*	0.0256**	0.3768***	0.0016***	0.2238*	−0.0025*
	(0.0013)	(0.0277)	(0.0101)	(0.0897)	(0.0006)	(0.1204)	(0.0013)
Number distracted non-CEO directors	−0.0024	−0.0287*	0.0154	0.1006	0.0009	0.3833**	−0.0030
	(0.0016)	(0.0173)	(0.0107)	(0.1065)	(0.0007)	(0.1691)	(0.0020)
Number distracted CEO directors × performance				0.5375*			
				(0.3119)			
Number distracted non-CEO directors × performance				−0.0330			
				(0.4257)			
Panel C. Director tenure							
Number distracted directors w/ short tenure	−0.0040**	−0.0520***	0.0213	0.3848***	0.0016**	0.4161***	−0.0025
	(0.0016)	(0.0188)	(0.0143)	(0.0879)	(0.0007)	(0.0919)	(0.0025)
Number distracted directors w/ long tenure	−0.0031**	−0.0305	0.0196*	0.1132	0.0009**	0.1754	−0.0030**
	(0.0013)	(0.0223)	(0.0109)	(0.1139)	(0.0004)	(0.1616)	(0.0012)
Number distracted directors w/ short tenure × performance				0.3871			
				(0.3056)			
Number distracted directors w/ long tenure × performance				0.1783			
				(0.2519)			
Panel D. Director busyness (number of directorships)							
Number busy distracted directors	−0.0029*	−0.0230	0.0101	0.1590*	0.0018***	0.1643	−0.0024
	(0.0017)	(0.0235)	(0.0149)	(0.0915)	(0.0006)	(0.1542)	(0.0017)
Number non-busy distracted directors	−0.0038**	−0.0503**	0.0264**	0.3015***	0.0010*	0.4237**	−0.0029*
	(0.0018)	(0.0211)	(0.0113)	(0.0976)	(0.0005)	(0.1832)	(0.0018)
Number busy distracted directors × performance				0.5580			
				(0.4166)			
Number non-busy directors × performance				0.1875			
				(0.3140)			
Other controls as in:	Table 3 column 1	Table 3 column 3	Table 4 column 1	Table 5 column 2	Table 6 column 1	Table 6 column 4	Table 7 column 1

Notes: The table presents the results for the heterogeneous effects of board distraction on a set of firm outcomes by director characteristics. Distracted directors are divided into two groups based on different characteristics. In Panel A, directors are categorized based on whether they are coopted with the CEO (Coles, Daniel, and Naveen, 2014). In Panel B, directors are categorized based on whether they are CEOs at primary employing firms. In Panel C, directors are categorized based on whether their director tenure is below the sample median (4 years). In Panel D, directors are categorized based on whether they hold three or more directorships at public firms. All control variables in the original models are included in all panels. Standard errors reported in the parentheses are robust and two-way clustered by firm and year. *,**,*** indicate significance at the 10%, 5% and 1% levels, respectively.

References

Adams, R.B., Ferreira, D., 2007. A theory of friendly boards. J. Financ. 62, 217–250.
Adams, R.B., Ferreira, D., 2009. Women in the boardroom and their impact on governance and performance. J. Financ. Econ. 94, 291–309.
Adams, R.B., Hermalin, B.E., Weisbach, M.S., 2010. The role of boards of directors in corporate governance: a conceptual framework and survey. J. Econ. Lit. 48, 58–107.
Altman, E.I., 1968. Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. J. Financ. 23, 589–609.
Bebchuk, L., Fried, J., 2004. Pay without Performance: The Unfulfilled Promise of Executive Compensation. Harvard University Press, Cambridge, MA.
Bebchuk, L., Cohen, A., Ferrell, A., 2009. What matters in corporate governance? Rev. Financ. Stud. 22, 783–827.
Bergstresser, D., Philippon, T., 2006. CEO incentives and earnings management. J. Financ. Econ. 80, 511–529.
Burns, N., Kedia, S., 2006. The impact of performance-based compensation on misreporting. J. Financ. Econ. 79, 35–67.
Coles, J.L., Daniel, N.D., Naveen, L., 2008. Boards: does one size fit all? J. Financ. Econ. 87, 329–356.
Coles, J.L., Daniel, N.D., Naveen, L., 2014. Co-opted boards. Rev. Financ. Stud. 27, 1751–1796.
Core, J.E., Holthausen, R.W., Larcker, D.F., 1999. Corporate governance, chief executive officer compensation, and firm performance. J. Financ. Econ. 51, 371–406.
Cumming, D.J., 2006. The determinants of venture capital portfolio size: empirical evidence. J. Bus. 79, 1083–1126.
Custódio, C., Metzger, D., 2013. How do CEOs matter? The effect of industry expertise on acquisition returns. Rev. Financ. Stud. 26, 2008–2047.

Dechow, P.M., Sloan, R.G., Sweeney, A.P., 1995. Detecting earnings management. Account. Rev. 70, 193–225.
DeFond, M.L., Jiambalvo, J., 1994. Debt covenant violation and manipulation of accruals. J. Account. Econ. 17, 145–176.
Fahlenbrach, R., Low, A., Stulz, R.M., 2010. Why do firms appoint CEOs as outside directors? J. Financ. Econ. 97, 12–32.
Falato, A., Kadyrzhanova, D., Lel, U., 2014. Distracted directors: does board busyness hurt shareholder value? J. Financ. Econ. 113, 404–426.
Faleye, O., 2011. CEO directors, executive incentives, and corporate strategic initiatives. J. Financ. Res. 34, 241–277.
Faleye, O., Hoitash, R., Hoitash, U., 2011. The costs of intense board monitoring. J. Financ. Econ. 101, 160–181.
Ferris, S.P., Jagannathan, M., Pritchard, A.C., 2003. Too busy to mind the business? Monitoring by directors with multiple board appointments. J. Financ. 58, 1087–1111.
Fich, E.M., 2005. Are some outside directors better than others? Evidence from director appointments by fortune 1000 firms. J. Bus. 78, 1943–1972.
Fich, E.M., Shivdasani, A., 2006. Are busy boards effective monitors? J. Financ. 61, 689–724.
Field, L., Lowry, M., Mkrtchyan, A., 2013. Are busy boards detrimental. J. Financ. Econ. 109, 63–82.
Hallock, K.F., 1997. Reciprocally interlocking boards of directors and executive compensation. J. Financ. Quant. Anal. 32, 331–344.
Hauser, R., 2018. Busy directors and firm performance: evidence from mergers. J. Financ. Econ. 128, 16–37.
Hennes, K.M., Leone, A.J., Miller, B.P., 2008. The importance of distinguishing errors from irregularities in restatement research: the case of restatements and CEO/CFO turnover. Account. Rev. 83, 1487–1519.
Hermalin, B.E., 2005. Trends in corporate governance. J. Financ. 60, 2351–2384.
Hölmstrom, B., 1979. Moral hazard and observability. Bell J. Econ. 10, 74–91.
Kanniainen, V., Keuschnigg, C., 2003. The optimal portfolio of start-up firms in venture capital finance. J. Corp. Finan. 9, 521–534.
Kaplan, S.N., Minton, B.A., 2012. How has CEO turnover changed? Int. Rev. Financ. 12, 57–87.
Kempf, E., Manconi, A., Spalt, O., 2017. Distracted shareholders and corporate actions. Rev. Financ. Stud. 30, 1660.
Klein, A., 2002. Audit committee, board of director characteristics, and earnings management. J. Account. Econ. 33, 375–400.
Kothari, S.P., Leone, A.J., Wasley, C.E., 2005. Performance matched discretionary accrual measures. J. Account. Econ. 39, 163–197.
Larcker, D.F., Richardson, S.A., Tuna, I., 2007. Corporate governance, accounting outcomes, and organizational performance. Account. Rev. 82, 963–1008.
Liu, C.Y., Low, A., Masulis, R.W., Zhang, L., 2017. Monitoring the Monitor: Distracted Institutional Investors and Board Governance. ECGI Finance Working Paper 531/2017.
Maloney, M.T., McCormick, R.E., Mitchell, M.L., 1993. Managerial decision making and capital structure. J. Bus. 66, 189–217.
Masulis, R.W., Mobbs, S., 2014. Independent director incentives: where do talented directors spend their limited time and energy? J. Financ. Econ. 111, 406–429.
Masulis, R. W., Zhang, E. J., n.d. How valuable are independent directors? Evidence from external distractions. J. Financ. Econ. (forthcoming)
Masulis, R.W., Wang, C., Xie, F., 2012. Globalizing the boardroom—the effects of foreign directors on corporate governance and firm performance. J. Account. Econ. 53, 527–554.
Moeller, S.B., Schlingemann, F.P., Stulz, R.M., 2004. Firm size and the gains from acquisitions. J. Financ. Econ. 73, 201–228.
Morck, R., Shleifer, A., Vishny, R.W., 1990. Do managerial objectives drive bad acquisitions? J. Financ. 45, 31–48.
Parrino, R., 1997. CEO turnover and outside succession: a cross-sectional analysis. J. Financ. Econ. 46, 165–197.
Srinivasan, S., 2005. Consequences of financial reporting failure for outside directors: evidence from accounting restatements and audit committee members. J. Account. Res. 43, 291–334.
Travlos, N.G., 1987. Corporate takeover bids, methods of payment, and bidding firms' stock returns. J. Financ. 42, 943–963.
Warner, J.B., Watts, R.L., Wruck, K.H., 1988. Stock prices and top management changes. J. Financ. Econ. 20, 461–492.
Weisbach, M.S., 1988. Outside directors and CEO turnover. J. Financ. Econ. 20, 431–460.
Xie, B., Davidson, W.N., DaDalt, P.J., 2003. Earnings management and corporate governance: the role of the board and the audit committee. J. Corp. Finan. 9, 295–316.
Yermack, D., 2006. Golden handshakes: separation pay for retired and dismissed CEOs. J. Account. Econ. 41, 237–256.