Director attention and firm value*

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Abstract

This paper shows that exogenous director distraction affects board monitoring intensity and leads to a higher level of inactivity by management. We construct a firm-level director "distraction" measure by exploiting shocks to unrelated industries in which directors have additional directorships. Directors attend significantly fewer board meetings when they are distracted. Firms with distracted board members tend to be inactive and experience a significant decline in firm value. Overall, this paper highlights the impact of limited director attention on the effectiveness of corporate governance and the importance of directors in keeping management active.

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1 Introduction

A board of directors has the critical task of actively monitoring and advising top management, with the goal of having managers act in the best interest of shareholders. However, a directorship is rarely a full-time job. Most directors have other occupations besides their directorships, and many directors serve on multiple boards. Given that attention is not unlimited for directors, we ask the question whether directors can still fulfill their job effectively when their other occupations happen to require more of their attention. Consequently, we examine how a firm performs when its directors are distracted.

Understanding the effect of director attention is important to evaluate the role and importance of corporate boards in corporate governance. This paper aims to empirically study the impact of limited director attention on firm value by exploiting *exogenous* variation in board monitoring intensity from time-variation in how directors allocate attention across the multiple directorships they have. We find strong evidence suggesting that distracted directors spend less time and energy to monitor and advise managers and leave room for managers to shirk at the expense of shareholders, leading to significant declines in firm value.

We rely on a sample of RiskMetrics firms with at least one outside director with multiple directorships in the Directors database. These directors need to distribute attention among their directorships, which provides a useful setting to study the effect of director attention. As we cannot observe exactly how much time or energy directors spend on each of their directorships, our identification strategy is designed to exploit plausibly exogenous variation in how directors allocate attention across their directorships. The following simple thought experiment illustrates our approach. Consider two otherwise identical companies in a given industry and quarter. Director A sits on the board of company 1 and on the board of firm "Car" in a totally different industry, namely the automotive industry. Director B sits on the board of company 2 and on another firm that is not in the automotive industry. Suppose now that there is an attention-grabbing event in the automotive industry. Assuming limited attention, director A may shift attention towards company Car and away from company 1. The manager at company 1 consequently receives less monitoring and advice. In contrast, company 2 is not affected since its director is not related to the automotive industry. Thus, we can identify the impact of variation in director attention on firm value by studying the changes in the value of company 1 relative to that of company 2 around the time when director A is distracted. We assign each firm to one of the 49 Fama-French industries and use unusually high volatility as the main empirical proxy for attention-grabbing events. This identification approach is similar to that of Kempf et al. (2017), who study how *investor* attention matters for corporate actions. We confirm that our results are robust to alternative industry classifications and various definitions of industry shocks.

To obtain insights into whether our measure of director distraction captures director attention, we start by examining board meeting attendance. We show that directors identified by our measure as distracted attend fewer board meetings. We next employ our measure of director distraction to study how director attention affects firm value. By examining Tobin's Q and stock performance, we find that firm value drops significantly when board members are distracted. A deviation from no distraction to the average distraction level is associated with a 3.3% discount in quarterly Tobin's Q, and a stock market underperformance of about 72 basis points per quarter. This effect is particularly strong when the distracted directors sit on an important committee of the board.

Because our tests either include industry $\times$ quarter fixed effects or explicitly control for industry-specific shocks, our results are not likely driven by spillovers among industries or by any variable that does not vary across firms within a given industry and quarter, such as the state of the business cycle. Firm-level time-invariant unobservable factors cannot drive our findings as we also include firm fixed effects. Even with these fixed effects, a remaining concern relates to the endogeneous nature of director appointments. For instance, company 1 chose a director A that also holds a directorship in the automotive industry because the business of company 1 is related to the automotive industry, while this is not the case for company 2. Thus, shocks in the automotive industry would spillover to company 1 but not to company 2. To alleviate this concern, we provide three pieces of evidence.

First, we argue that the direction of the spillover effect is mostly consistent with the direction of the industry shock. If the automotive industry experiences a positive shock, then the effect spilled over to company 1 is likely also positive, and vice versa for negative shocks.

We therefore examine distraction from positive and negative industry shocks separately. We show that director distraction from both positive and negative shocks in the other industry affects firm value *negatively*. Secondly, since shocks in the oil and gas industry can especially have spillover effects (also in the opposite direction), we modify our distraction measure by removing shocks from oil and gas industries and we repeat our analysis on a subsample excluding firms operating in those industries. The results remain similar to the baseline results. Thirdly, we ensure that attention shocks come from unrelated industries by excluding shocks from supplier or customer industries, and again find similar results, which supports the validity of our distraction measure in capturing director attention shocks rather than industry relatedness or comovement.

This paper is related to a large literature on the busyness of corporate boards. Some studies find that directors with multiple directorships are too busy to effectively monitor management (Core et al., 1999; Fich and Shivdasani, 2006; Falato et al., 2014), while other researchers find that busyness reflects the quality of directors, which could provide advantages for firms (Gilson, 1990; Kaplan and Reishus, 1990; Shivdasani and Yermack, 1999; Ferris et al., 2003; Field et al., 2013). Our study is able to disentangle busyness from director ability and provides evidence on the costs of having busy directors.

A noteworthy feature of our identification strategy is that we consider the source of distraction at the industry-level rather than at the firm-level.[1] A firm-level approach has the crucial disadvantage that firm-level shocks could be driven by the ability of the director. For instance, if we classify director A as distracted when company Car does poorly (as opposed to the whole automotive industry), then this could simply be attributed to the bad performance of director A. Director A might be a poor monitor and/or adviser, and as a result, both company Car and company 1 can underperform at the same time. Considering industry-level shocks mitigates this concern as it is less likely that the ability of one single director affects the performance of the whole industry.

Earlier work by Falato et al. (2014) uses 220 sudden deaths of directors at interlocked firms as exogenous shocks to directors' workload. Hauser (2018) uses mergers of interlocked

[1] A contemporaneous paper of Stein and Zhao (2016) examines director distraction when the source of distraction is at the firm-level.

firms as exogenous shocks to directors' outside appointments. However, loss of outside appointments could not only decrease directors' workload but also reduces potentially valuable business relationships of the director. Director deaths at interlocked firms introduces uncertainty about the effect of director replacement. Our identification scheme studies director attention while isolating the potential confounding effects resulting from changes to directors' appointments or to interlocked firms' boards. An interesting recent paper of Masulis and Zhang (2018) studies director attention by examining distraction events such as director illness and winning prestigious awards and finds that these distracting events lower firm value. It is comforting to know that the effects of these specific shocks are in line with the effects of the more general source of director distraction that we study.

We further investigate multiple potential channels to better understand the negative effect of director distraction on firm value. When managers receive less monitoring from distracted directors, two potential agency problems might be exacerbated: (1) managers engage in empire building and make value-destroying investment decisions (Jensen, 1986), or (2) managers become more passive and "enjoy a quiet life" (Bertrand and Mullainathan, 2003). Alternatively, managers might miss important advice or have to delay making important decisions when it is difficult to schedule meetings with distracted directors for discussion and approval. We find that firms with more director distraction invest significantly less and are less likely to announce takeovers. These changes are due to firms with distracted directors being less active rather than them postponing their investments. The acquisitions that are still being announced when directors are distracted do not destroy value. Overall, this paper helps address the question of which agency problem the board of directors mitigates. Our results suggest that an effective board of directors prevents manager from shirking or "enjoying a quiet life" at the expense of shareholder value.

Our findings support policies restricting the number of directorships that an individual is allowed to have. Nevertheless, it is important to note that we do not argue that directors with multiple directorships are detrimental to shareholder value per se, since firms could benefit from the knowledge and network of a director who serves on multiple boards (Field et al., 2013). The results in our study provide insights in the tradeoff of having busy directors by isolating their busyness from their quality and highlighting that firm value drops when directors are distracted because management becomes less active.

The remainder of the paper is organized as follows. The next section discusses our data and presents descriptive statistics. Section 3 explains how we construct our director distraction measure. Section 4 presents the main findings and Section 5 examines alternative explanations. Section 6 concludes the paper.

2 Data

We combine data from different sources. Director data are drawn from the RiskMetrics Directors database for the period from 1996 to 2017. This database contains director-firm-year observations for S&P 1500 firms. We use board affiliation information of RiskMetrics to classify directors who are not employed by the firm as outside directors. We choose to focus on outside directors since distraction by other directorships is less likely for inside directors, given their employment with the firm.[2] We exclude firms that have no outside director with multiple directorships. We match the director data with the Compustat Quarterly database to obtain financial reporting data and exclude regulated financial (SICH 6000-6999) and utility firms (SICH 4900-4999).[3] We obtain stock price data from CRSP, data on merger activity from SDC, and Fama-French 49 industry portfolio returns from the data library of Kenneth R. French. We assign each firm to one of the 49 Fama-French industries based on its historical SIC code (Compustat data item SICH). Whenever the historical SIC code is not available, we follow Fama and French (2008) and use the CRSP SIC code (data item HSICCD).

[Table 1 about here.]

The final director-level dataset consists of 71,752 director-firm-year observations, with 5,875 individual outside directors with multiple directorships. The final firm-level dataset consists of 75,595 firm-quarter observations, with 2,264 unique firms. Table 1 reports summary statistics of the variables that we use in our study. Detailed definitions of these variables

[2]Nonetheless, we examine changes in firm value when executive directors are distracted in section 4.3.
[3]Our results are robust to these exclusions.

are reported in Table A.1. All continuous dependent variables are winsorized at the 1% at both tails. Our summary statistics are comparable to previous studies using data from Risk-Metrics and Compustat (e.g., Masulis and Mobbs (2014)).

3 Measuring director distraction

3.1 Variable construction

The main variable of interest is a firm-level proxy for how much the board members of a given firm f are distracted in a given quarter t. The intuition behind the *Distraction* measure is the same as in Kempf et al. (2017), who examine investor distraction. A given director i of firm f is more likely to be distracted if there is an attention-grabbing event in a different industry in which director i has an additional directorship. For each outside director i at firm f in fiscal quarter t, we compute a director-firm-level distraction score D_{ift} as

$$D_{ift} = \sum_{j \in B_{it} \setminus \{f\}} w^f_{ijt} \times 1(Ind_{jt} \neq Ind_{ft}) \times IS_t^{Ind_{jt}}, \quad (1)$$

where $B_{it} \setminus \{f\}$ denotes the set of firms other than firm f where director i serves on the board in quarter t; the weight w_{ijt} captures how much director i cares about firm j; $1(Ind_{jt} \neq Ind_{ft})$ indicates whether firm j is in the same Fama-French 49 industry as firm f, and thereby allows only shocks from industries other than that of firm f; and $IS_t^{Ind_{jt}}$ captures whether distracting events occur in the industry of firm j in quarter t. We now explain the construction of w^f_{ijt} and $IS_t^{Ind_{jt}}$ in more detail.

The construction of the weight w^f_{ijt} is motivated by Masulis and Mobbs (2014), who find that directors with multiple directorships distribute their time and energy unequally based on the directorship's relative prestige, which they establish by firms' market value of equity. Consequently, we calculate the weight of each directorship (firm) j for director i with respect to the focal firm f in quarter t as:

$$w^f_{ijt} = \min\left\{1, \frac{mve_{jt}}{mve_{ft}}\right\}, \quad (2)$$

where mve_{jt} and mve_{ft} denote the market value of equity of firm j and that of focal firm f in fiscal quarter t. This weighting-scheme accounts for the notion that directors are less likely to be distracted from their relatively more prestigious directorships, because it assigns a lower weight to attention shocks from directorships that are less important than the focal firm (i.e., when $mve_{jt} < mve_{ft}$).

The term $IS_t^{Ind_{jt}}$ is meant to identify whether the industry of firm j is attention-grabbing in quarter t. Since attention-grabbing industry shocks are mostly associated with extreme returns and more news releases, which result in high volatility, we define $IS_t^{Ind_{jt}}$ as an indicator variable equal to one if the FF49-industry of firm j has abnormally high volatility relative to the other FF49-industries in a given quarter t. More specifically, in each quarter t, we first calculate for each FF49-industry l, its abnormal volatility:

$$\Delta\sigma_{lt} = \frac{\sigma_{lt} - \widehat{\sigma}_{lt}}{\widehat{\sigma}_{lt}}, \tag{3}$$

where σ_{lt} is the daily volatility of the FF49-industry portfolio l in quarter t and $\widehat{\sigma}_{lt}$ is the daily volatility of the FF49-industry portfolio l over the window [-283, -31] relative to the start of quarter t. Then, we sort the 49 abnormal volatilities and consider an industry attention-grabbing if its abnormal volatility is positive and in the top-10 (top-quintile) across 49 industries. Note that if in a given quarter none of the industries has positive $\Delta\sigma_{lt}$, there would be no attention-grabbing industry in that quarter.[4] Figure 1 shows which Fama-French 49 industries are considered attention-grabbing over time. It can, for example, be seen that IT related industries (Fama-French industries 34-38) are attention-grabbing in the period 2000-2002, and that finance related industries (Fama-French industries 45-48) are attention-grabbing in the period 2008-2010. The dispersed pattern of industry shocks in Figure 1 mitigates the concern that our findings are driven by a small number of industries.

[Figure 1 about here.]

To compute firm-level distraction, we aggregate the director-firm-level distraction scores

[4]Using different estimation windows to compute $\widehat{\sigma}_{lt}$, or different cutpoints such as top-5 industries (instead of top-10) yield qualitatively similar results. We have also used Fama-French 12 industries and 2-digit SIC industries and obtained similar results.

across all directors with outside directorships. Specifically, for firm f in quarter t, we compute its board distraction level as:

$$Distraction_{ft} = \frac{1}{N_{ft}} \sum_{i \in \mathbb{B}_{ft}} D_{ift}, \tag{4}$$

where $\mathbb{B}_{ft}$ denotes the set of outside directors with multiple directorships on the board of firm f in quarter t, and N_{ft} denotes the total number of outside directors. Interestingly, however, Ljungqvist and Raff (2018) highlights that directors can strategically substitute or complement co-directors' monitoring effort, which suggests that a larger number of outside directors does not necessarily mitigate the effects of distracted directors. To test whether the scaling is warranted in our setting, in untabulated analysis we have confirmed that firms in our sample with more outside directors are affected significantly less by individual board member distraction. These results are available upon request from the corresponding author.

An important advantage of $Distraction_{ft}$ is that this firm-level director distraction measure is by construction not related to the fundamentals of the firm of interest (firm f), since only industry shocks from industries other than that of firm f are used to construct D_{ift}. Thus, $Distraction_{ft}$ is a plausible candidate for identifying exogenous shocks to the attention of firm f's board members. Another advantage of our identification strategy is that we consider the source of distraction at the industry-level rather than at the firm-level. Exploiting the source of distraction at the firm-level has a crucial disadvantage that firm-level shocks could be driven by the ability of the director. Considering industry-level shocks alleviates this concern as it is less likely that the ability of one single director affects the performance of the whole industry.

The summary statistics of $Distraction_{ft}$ are presented in Table 1. As is shown, this variable is right-skewed and equals 0 in more than 50% of the sample. We therefore also report the distribution of the distraction variable with only positive values. About 36% of the firms in our sample have ever had distracted directors. We henceforth refer to the value 0.21 as the mean distraction level and refer to distraction values above this mean as high distraction, which involve 11% of our sample.

3.2 Board meeting attendance of distracted directors

To test whether our distraction measure captures director distraction, we study the board attendance rate of directors with multiple directorships in Table 2. The dependent variable is a dummy variable that equals to one if a director has attended less than 75% of the board meetings of a particular firm in a given fiscal year. The idea is that directors are less likely to miss board meetings when they allocate more time and effort on the firm. We aggregate the explanatory variables accordingly as the dummy dependent variable is at the director-firm-year level. Control variables include the directorship's relatively ranking, the number of outside directorships, and other director and firm characteristics. Summary statistics of these variables are presented in Table 1.

We start by validating whether our industry shocks can identify attention shocks. In columns (1-2) of Table 2, we test whether directors are less likely to miss board meetings at a firm when its industry experiences abnormally higher volatility. To this end, we aggregate the quarterly industry shocks over fiscal year y as

$$IS_{ijy} = \sum_{t \in y} IS_t^{Ind_{jt}}, \tag{5}$$

where $IS_t^{Ind_{jt}}$ is given as in section 3.1. As is shown, we find that directors are significantly less likely to miss board meetings at firms in shocked industries. The coefficient of industry shocks implies that an interquartile increase in director-firm-level distraction (0.32) is associated with a 4.8% ($= -0.003 \times 0.32/0.02$) lower probability that the director attended less than 75% of board meetings. This result provides evidence that our industry shock measure captures attention-grabbing events that could potentially distract directors.

When directors of company 1 are distracted and shift time and energy to their other directorships, they might miss more board meetings of company 1. In columns (3-5), we test whether directors miss more meetings at the focal firms when they are distracted according to our measure. We sum up the director-firm-level distraction in (1) over all four quarters in fiscal year y for a particular firm f to obtain a director-firm-year-level measure for director distraction, i.e., $\sum_{t \in y} D_{ift}$.

[Table 2 about here.]

We show in column (3) that the coefficient of director distraction is both statistically and economically significant. An interquartile increase in director-firm-level distraction is associated with a 10% (= $0.002 \times 1/0.02$) higher probability that the director attended less than 75% of board meetings. The effect remains significant after additionally controlling for director and year fixed effects in column (4) where we exploit the variation within the director level over time. In column (5), we further exploit the variation within the firm-year level, which essentially isolates the source of identifying variation to come from pairwise comparisons of distracted directors versus non-distracted directors within the same firm in the same year. The coefficient of the director distraction variable remains virtually unaffected.

While our baseline measure captures attention-grabbing industry shocks by means of abnormally higher volatilities, it does not distinguish between the distraction effect of positive and negative shocks. It may be the case that, conditioning on abnormally high volatility, industries with positive performance shocks may demand less director attention than those with negative performance shocks, because directors may face higher pressure when the firm experiences an unfavorable industry shock. We test this possibility in column (6) of Table 2 by estimating whether negative industry shocks lead directors to miss more board meetings than positive industry shocks do. We interact the yearly director distraction measure with a dummy variable indicating whether at least one of the attention-grabbing industries is hit by a negative shock (i.e. with negative cumulative stock returns). As shown, the baseline director distraction measure remains positive and significant, whereas the coefficient on the interaction term is also significantly positive. When the attention-grabbing industry experiences a negative shock, the affected directors are about 20% (= $0.004 \times 1/0.02$) more likely to attend less than 75% of board meetings. This finding suggests that, while industries with both positive and negative shocks are attention-grabbing, industries with negative shocks are significantly more likely to distract directors.

Finally, we show in column (7) that our finding is not only driven by directors who are executives in the attention-grabbing industries. We interact our baseline director distraction measure with a dummy variable that equals one if the director is an executive in one of the attention-grabbing industries. The positive coefficient on the interaction term falls slightly short of statistical significance ($t = 1.575$) and thus only provides weak evidence that directors are more likely to miss board meetings of the focal firms if they are executives in the shocked industries as opposed to non-executives. The coefficient of the baseline measure remains significantly positive, which implies that both directors with executive and with non-executive positions in attention-grabbing industries are distracted.

A noteworthy limitation of this analysis is that we cannot observe the exact continuous board attendance rate of directors. For example, a meeting attendance drop from 100% to 80% (or from 70% to 20%) is substantial but does not show up in the used binary dependent variable. Since there is relatively little variation in the attendance dummy, we cannot fully exploit the effect of director distraction. Accordingly, we are probably underestimating the effect of distraction on director board meeting attendance. Overall, the results in Table 2 suggest that our measure of distraction adequately captures variation in the attention of directors. Directors attend fewer board meetings when they are distracted, but they are less likely to miss meetings of firms in the attention-grabbing industries, consistent with the notion that distracted directors spend less time and energy to monitor and advise management.

4 Empirical findings

This section presents the main findings of this paper. First, we test the effect of director distraction on firm value. Then, we investigate three potential channels through which director attention could affect firm value. We conclude this section by studying the distraction effect for different groups of directors.

4.1 Main results

In Table 3 we examine the effect of director distraction on firm value using Tobin's Q as the dependent variable. In column (1) and (2), the model is estimated with quarter and firm fixed effects, which exploits variation within firms. In column (3) and (4), the model is estimated with industry $\times$ quarter fixed effects and firm fixed effects, which additionally controls for any unobserved time-varying industry heterogeneity. Including the industry $\times$ quarter fixed effects also mitigates the concern that our findings simply result from spillovers among industries. In column (2) and (4), we also include firm and board characteristics.

[Table 3 about here.]

The coefficient of *Distraction* in columns (1) - (4) is between -0.237 and -0.338 (depending on the model specification) and is statistically highly significant, suggesting that firm value decreases significantly when directors are distracted. This negative impact of director distraction is also economically meaningful. A deviation from no distraction to the average distraction level of 0.205 is associated with a 2.3% ($= -0.237 * 0.205/2.084$) to 3.3% ($= -0.338 * 0.205/2.084$) discount in Tobin's Q on a quarterly basis.

Figure 2 plots the difference in quarterly Tobin's Q between firms with no director distraction and firms with high director distraction over time. The negative impact of director distraction on firm value is relatively consistent over time.

[Figure 2 about here.]

A potential concern might relate to the endogenous nature of director choice. The choice of company 1 to choose director A, who also holds a directorship in the automotive industry, is endogenous. The possibility exists that the business of company 1 is more related to the automotive industry than other companies are. Thus, shocks in the automotive industry would spillover and affect company 1 more than they would affect other companies. To address this concern, we test the prediction of this endogeneity story that the direction of the spillover effect is likely consistent with the direction of the industry shock. That is, if the automotive industry experiences a positive shock, then the effect spilled over to company 1 is also expected to be positive, leading to an increase in firm value of company 1. Conversely, if the automotive industry experiences a negative shock, the effect spilled over to company 1 should be negative, leading to a decrease in firm value of company 1.

In column (5) and (6) of Table 3, we consider distraction from positive and negative industry shocks separately and reestimate their effect on firm value. Distraction positive uses industries with abnormally high volatility and positive performance as attention-grabbing industries, whereas distraction negative uses only industries with abnormally high volatility with negative performance as attention-grabbing industries. The results indicate that the coefficients of the distraction measures have the same negative sign as in the other columns. The magnitude and t-statistics are smaller than those in the other columns, but this is not surprising as each measure ignores many other attention-grabbing cases and sends many firms with high distraction to the control group of firms with low or no distraction. The stronger effect of negative industry shocks is consistent with the idea that industries with negative shocks demand more director attention because directors may face higher pressure when the firm experiences an unfavorable industry shock. The finding that positive shocks to other industries also affect firm value negatively is consistent with our conjecture of director distraction and mitigates the concern that our results are merely driven by industry spillover effects.

In Table 4, we test whether our results are robust to alternative definitions of industry shocks and alternative industry classifications. Our main director distraction measure is based on stock volatility to measure attention-grabbing events. Instead, we now follow Barber and Odean (2008) and Kempf et al. (2017) and consider three alternative ways of capturing salient events in a given industry: extreme positive returns, extreme negative returns, and trading volume. For extreme positive (negative) returns, we consider the industries with quarterly stock performance in the top (bottom) decile as attention-grabbing industries. For trading volume, we define the attention-grabbing industries as those that have the highest (top-decile) abnormal trading volume with respect to the previous three quarters, computed similarly as in Eq. (3). We reestimate the specification from column (3) and (4) of Table 3 with these three alternative definitions of industry shocks. As shown in Table 4, using these alternative measures of attention-grabbing events produces results qualitatively similar to our results based on stock volatility.

[Table 4 about here.]

In addition, we consider three alternative industry classifications, namely the Fama-French 12 industries, the two-digit SICH code industries, and the Hoberg and Phillips (2016) 10-K text-based 50 industry classifications (FIC-50).[5] For each industry classification, we measure director distraction using our baseline volatility-based definition of industry shocks as well as the three alternative definitions. Table 4 shows that using the alternative industry classifications leads to results qualitatively similar to our results based on the Fama-French 49 industry classification. Overall, the findings in Table 4 indicate that our results are not driven by a particular industry classification and are robust to alternative measures of attention-grabbing events within a given industry.

An alternative way to test the effect of director distraction on firm value is to investigate how director attention directly affects firms' stock returns. To this end, we use monthly stock price data from CRSP and match each month to the corresponding fiscal quarter. Table 5 reports the effect of director distraction on firms' stock market performance. In column (1) and (2), the dependent variable is the cumulative excess stock returns ($Ret - R_f$) over each fiscal quarter. We also use two risk-adjusted stock returns as alternative measures in columns (3-6), namely, market-adjusted returns (CAPM) and Fama-French risk-adjusted returns (FF4). To compute the market-adjusted returns, we first estimate the CAPM model to obtain the market beta for each stock in the beginning of each fiscal quarter using monthly returns data of the past 36 month, and then compute the abnormal return as the excess return over the product of the market beta and the market return in a given fiscal quarter. To compute the Fama-French risk-adjusted returns, we first estimate the Fama-French and Carhart four-factor model ($R_t - R_{ft} = \alpha + \beta_{mkt} MKT_t + \beta_{HML} HML_t + \beta_{SMB} SMB_t + \beta_{UMD} UMD_t + \varepsilon_{it}$) to obtain factor betas for each stock in the beginning of each fiscal quarter using monthly returns data of the past 36 month, and then compute the abnormal return as the excess return over the product of the factor betas and the four-risk factors in a given fiscal quarter. In columns (1), (3) and (5), the model is estimated with quarter fixed effects, whereas in the other columns the model is also estimated with stock fixed effects. We further include the returns of Fama-French 49 industry portfolios to control for industry $\times$ quarter level trends.

[Table 5 about here.]

[5] For each two-digit SIC/FIC-50 industry, we construct a value-weighted portfolio using all firms in the CRSP database with a stock price above 5 dollars in that industry.

Table 5 shows that firms' stock performance is significantly worse when their directors are distracted. A deviation from no distraction to the average distraction level of 0.205 leads to an underperformance of about 72 basis points ($= -0.035 \times 0.205$) per quarter. The coefficient of director distraction remains statistically significant when using market-adjusted and Fama-French risk-adjusted returns.

4.2 Potential channels

Our results thus far support the notion that firms have lower valuation when their board members are distracted. Next, we test which underlying mechanism could explain the negative effects of director distraction. When managers receive less monitoring from distracted directors, two potential agency problems might be exacerbated: (1) managers engage in empire building and make value-destroying investment decisions (Jensen, 1986), or (2) they rather become more passive and "enjoy a quiet life" (Bertrand and Mullainathan, 2003). Alternatively, director distraction might not lead to higher agency frictions, but (3) managers might miss important advice or have to delay making important decisions when it is difficult to schedule meetings with distracted directors for discussion and approval.

4.2.1 Overinvestment

In Table 6 we test whether director distraction leads to managerial empire building by studying firms' capital expenditures to total assets (CAPEX) and M&A activities. In column (1-6), the model is estimated with industry $\times$ quarter fixed effects to control for the effect of industry-wide investment shocks such as technology innovations and merger waves. We include standard control variables in investment regressions: firm size, one-quarter lagged Tobin's Q, and cash flow, as well as board size, busyness, and independence. In addition, we control for institutional ownership and institutional investor distraction as in Kempf et al. (2017), which could affect corporate investment decisions.

[Table 6 about here.]

As is shown in Table 6, we find that firms invest significantly less when directors are distracted. First, in terms of capital expenditure, a deviation from no distraction to the average distraction level of 0.205 is associated with a drop of 0.6% ($= -0.021 \times 0.205/0.690$) in firms' CAPEX. The effect remains similar and statistically significant when we also control for firm fixed effects.

Next to capital expenditure, we also examine firms' takeover decisions. Acquisitions are sizable and non-routine investments in which management is clearly heavily involved. Since we observe deal announcement dates, we can also study whether managers decide on the timing of the deal conditional on the monitoring intensity of the board. Moreover, we can compute deal announcement returns to examine how the market reacts to the deal, which allows us to get insights into whether the deal creates or destroys shareholder value.

In column (3) and (4), the dependent variable is a dummy variable that equals one if the firm announces at least one acquisition in the given fiscal quarter. The estimation results suggest that, when directors are distracted, firms are not more likely to announce an acquisition and build an empire. If anything, they are less likely to announce an acquisition.

To test whether managers pursue private benefits when they receive less monitoring, we test in column (5) and (6) of Table 6 whether firms make more diversifying mergers when directors are distracted. Prior studies have suggested that managers pursuing private benefits tend to make diversifying merger deals because these can reduce CEO human capital risk and offer a chance to venture into industries that are considered fashionable, glamorous, or reputable (e.g. Amihud and Lev (1981), Morck et al. (1990)). Interestingly, we find that firms are actually (about 5.7%) less likely to announce diversifying mergers when their directors are distracted.

Even though firms seem to make fewer acquisitions when their directors are distracted, those deals they do might still be value-destroying for shareholders. Therefore, we examine deal announcement returns. The dependent variables are the 5-day CARs around the deal announcement date in column (7) and (8). We find that the announcement returns are not significantly negative conditional on director distraction.

In sum, when directors are distracted, firms do not seem to excessively engage in empire building or to make more value-destroying investments. On the contrary, firms with high director distraction are significantly less active, have lower capital expenditures, and are less likely to announce an acquisition. Our findings suggest that distracted directors leave room for managers to enjoy a quiet life instead of maximizing shareholder value, which leads to a significant decrease in firm value.

It is also interesting to note that board members seems to play a different role in monitoring the management than institutional investors do. When institutional investors are distracted and loosen monitoring, managers tend to make more value-destroying investments (Kempf et al., 2017). Yet, when directors are distracted, managers seem to enjoy a quiet life rather than engage in empire building. This result in sensible as engaging in empire building when investors are not distracted is likely to lead to activism, whereas a period of relative inactivity is less likely to invoke investor activism.

4.2.2 "Quiet life" versus "delayed decision-making"

Although the results in the prior subsection are more in line with the "quiet life" hypothesis (Bertrand and Mullainathan, 2003; Giroud and Mueller, 2010) than with empire building, they do not exclude alternative explanations. Most notably, an alternative explanation is that managers simply cannot make or implement important decisions such as acquisition deals when it is difficult to schedule meetings with distracted directors for discussion and approval. Managers might also miss valuable advice from those distracted directors. Thus, managers might have to delay those important decisions until directors are no longer distracted and could spend more time and energy on the firm.

If managers miss important advice, we might have expected more negative announcement effects of takeover deals, but there is the possibility that director distraction simply led managers to postpone their investments. To examine this possibility, we compare firms' activities in times with high director distraction to those in subsequent times with no director distraction. The "delayed decision-making" hypothesis predicts that, after a period in which directors are distracted, firms would become significantly more active once director attention returns, as managers are then able to get advice and execute pending decisions.

We construct a subsample of firms that have two consecutive quarters in which director distraction is high ($Distraction_{ft} > 0$) while there is no director distraction ($Distraction_{ft} =$

0) in the subsequent two consecutive quarters. We refer to the quarters with high director distraction as the "before" period and to the subsequent quarters without distraction as the "after" period. In Table 7, we compare firms' capital expenditure, takeover decisions, and SEC filings in the "before" to those in the "after" period. Firms' SEC filings are retrieved from the Edgar databases. We consider filings of all form-types disclosed by the firms in our sample and use the filing dates to match the filing activity to our firm-quarters.

[Table 7 about here.]

Panel A of Table 7 reports the mean of the variables of interest in the "before" and "after" period, respectively. The difference between the "before" and "after" period is neither statistically nor economically significant for any of the considered variables. Panel B of Table 7 uses multivariate regressions, in which we include additional control variables and time and firm fixed effects. The coefficient on the dummy variable indicating the "after" period is not significant in any of the specifications.

The evidence in Table 7 seems more consistent with the "quiet life" hypothesis than with the "delayed decision-making" hypothesis. Nevertheless, our findings do not completely rule out an impact of managers not being able to make decisions. Managers might miss valuable investment opportunities when they cannot receive approval or advice from distracted directors, and those investment opportunities might have been seized by competitors or have evaporated once director attention returns. Still, it seems unlikely that all investment opportunities would have evaporated the next period. In addition, when managers really want to push a value-increasing investment, then there are surely ways to do this, even when some directors are more time-constrained. Overall, our findings suggest that the loss in firm value when directors are distracted results mostly from managers enjoying a quiet life when they receive less monitoring from outside directors.

4.3 Effect from different groups of directors

Not every outside directors is assigned the same task. In this subsection, we examine the impact of distraction from various groups of directors on firm value. Important tasks that directors can have is to serve on the audit, nomination and/or compensation committee. We obtain information on committee membership from RiskMetrics. In Table 8, the dependent variable is Tobin's Q. In columns (1-5), we interact the baseline distraction variable with a dummy variable whether at least one of the distracted director belongs to the corresponding group.

[Table 8 about here.]

In column (1), we show that distraction of committee members destroys firm value more than that of non-committee members as the corresponding interaction term is significantly negative. Results in columns (2-4) show that the stronger effect from committee members is mostly driven by distracted compensation-committee members. The distraction of audit- or nomination-committee members is however not more detrimental to firm value than that of non-committee members. In column (5), we show that firms do not suffer more if some of the distracted board members are executives in the shocked industries. Importantly, our distraction variable alone remains negative and highly significantly in all columns, implying that the reduction in firm value due to distraction is not due to only one type of director, and for example applies to both directors with and without executive roles in shocked industries.

In the final column of Table 8, we consider executive directors who hold directorships in the attention-grabbing industries. Our baseline analysis excludes executive directors because we assume that attention shocks from other directorships are less likely to distract directors from their primary occupation at the focal firms. However, it is possible that our results are partially driven by those distracted executives. We test this possibility by constructing the distraction of executive directors in the same way as that of outside directors and then estimating the effect of their distraction on firm value. As shown in column (6), the effect of executive-directors' distraction is not statistically significant, while the effect of outside directors' distraction remains virtually identical to the baseline estimate in Table 3. These results are in line with executives at focal firms being less likely to get distracted and further indicate that our baseline results are robust to controlling for the effects of executive-directors' distraction.

4.4 Distraction and directors' career outcomes

Our findings thus far suggest that temporary director distraction leaves room for managers to shirk at the expense of shareholders, which leads to a significant decline in firm value. It is then natural to ask whether shareholders would take actions to replace distracted directors. As our study focuses on temporary distractions, this analysis could add to the evidence in Masulis and Zhang (2018) that more permanently distracted directors are replaced. The estimation results of whether temporarily distracted directors are more likely to be replaced in the next year are presented in Table 9.

[Table 9 about here.]

The coefficients of director distraction and the interaction effects suggest that directors' temporary distraction because of other attention-grabbing industries does not significantly increase the probability of their departure, even if the distraction is associated with lower firm values (ΔTobin's Q), unless the distraction is also associated with board meeting absence. In other words, temporarily distracted directors are only replaced when the distraction leads them to actually miss more board meetings. These findings add to the literature as our measure of distraction is based on temporary attention-grabbing events in unrelated industries, which are events that shareholders of the focal firm might not easily link to perceived director distraction (as opposed to, for example, severe health issues of a director). In our setting, shareholders may more easily observe the outcome of distraction rather than the cause. Shareholders do take actions to replace distracted directors once the distraction becomes more observable in terms of board meeting absence.

5 Alternative explanations and robustness

The results in the previous section are consistent with the conjecture that distracted directors spend less time and energy to monitor and advise managers and leave room for managers to shirk, leading to decreases in firm value. In this section, we test and rule out some alternative explanations that could drive our results.

5.1 Endogeneity of director choice and industry relatedness

An alternative explanation that we explained earlier is related to the endogeneous nature of director choice. Since directors are likely to sit on the boards of firms in related industries, our results could be mainly driven by industry spillover effects (Dass et al., 2014). Our use of fixed effects and our finding that both positive and negative shocks in a different industry decrease firm value in companies with distracted directors reduce this concern. Nevertheless, one could still argue that a positive shock in one industry sometimes can create a negative shock to another industry, especially when those industries are vertically related. For example, positive oil price shocks are good news for oil producers, but often reduce the profitability of oil consumer industries. In this section, we add two additional pieces of evidence to further alleviate the concern of industry spillovers.

First, as noted above, oil and gas industries often experience price shocks that are exogenous to any individual firm, and then spillover to other related industries with opposite effects (e.g. Lamont, 1997). To rule out the spillover effects from energy industries, we modify our distraction measure by removing attention shocks from oil and gas industries, while focusing on a subsample that excludes firms operating in oil and gas industries.[6] In Table 10, we reestimate the baseline specifications from column (4-6) of Table 3. Besides Tobin's Q, we also use capital expenditures and acquisitions as dependent variables. We find that the coefficient estimates of the adjusted director distraction variables are similar to the baseline results. The magnitude and t-statistics are smaller for the distraction variable based on positive and negative attention shocks separately, which is not surprising since each measure now ignores some attention-grabbing cases and sends some firms with high distraction to the control group of firms with low or no distraction.

[Table 10 about here.]

Our second approach to solidify that attention shocks come from unrelated industries is to disregard shocks from supplier or customer industries. We use the three-digit NAICS code as industry classification, which allows us to exclude industries that are likely to have supplier

[6] Oil and gas industries correspond to Fama-French industry code between 28 and 31.

or customer relationships. We detect possible economic links by using the 2007 U.S. Input-Output Tables from the Bureau of Economic Analysis, which are based on NAICS codes and provide detailed information on the flows of the goods and services among industries.[7] We define supplier or customer industries as those industries with any flows to or from a given industry.

In Table 10, we use director distraction measures constructed based on NAICS codes and attention shocks from plausibly unrelated industries. The magnitude and t-statistic of the coefficient estimates are very similar to those in the baseline Tables 3 and 6, suggesting that our distraction measure indeed captures director attention shocks rather than just industry relatedness and comovement.

5.2 Single-segment firms

Another potential concern is that our results are simply driven by the multi-segment structure of conglomerate firms. Because our sample consists of S&P 1500 firms, which are relatively large, many of the firms in our sample operate in multiple industries. If company 1 in our thought experiment also operates in the automotive industry, then shocks in the automotive industry could directly affect the investment and valuation of company 1, even though the automotive segment is not the primary segment of company 1 (Lamont, 1997; Stein, 1997).

To address this concern, we construct a subsample of single-segment firms, based on the number of segments reported in Compustat's segment files, and reestimate the regressions in Table 3, 5, and 6 for this subsample. If our results are driven by sub-segments of conglomerate firms, we would find an insignificant effect of director distraction on the investment and valuation of single-segment firms.

[Table 11 about here.]

As is shown in Table 11, the effect of director distraction estimated for single-segment firms is very similar to that in Table 3, 5, and 6. This similarity applies to both the magnitude

[7] We use the 2007 table of the commodities by industry valued at purchasers' prices under Use Tables/After Redefinitions/Purchaser Value (`https://www.bea.gov/industry/io_annual.htm`).

and the statistical significance of the effects. As such, our findings in section 4 do not seem to be driven by the internal capital market of conglomerate firms.

5.3 Robustness checks: Matching

In addition to OLS estimations, we now use the nearest-neighbor and propensity score matching strategies to test the robustness of our results (Abadie and Imbens, 2006). More specifically, firms with high director distraction ($Distraction_{ft} > 0.205$) are in the treatment group, and we construct control groups of firms that have no director distraction ($Distraction_{ft} = 0$) and are matched to the treated firms along a set of relevant and observable characteristics, which are firm size (the logarithm of total assets), one-quarter lagged Tobin's Q, board size, busy board (ratio), board independence (ratio), fiscal year and quarter, and Fama-French 49 industry. Each observation in the treatment group is matched with the "nearest" observation out of the control group. Table 12 reports the results of the matching analysis.

[Table 12 about here.]

In Panel A we determine the "nearest" match by using a weighted function of the covariates. In Panel B and C we determine the "nearest" match by using the propensity scores estimated by a logistic treatment model and probit treatment model, respectively. We find a significantly negative effect of high director distraction on firms' valuation and investment in all specifications, consistent with our baseline results in section 4. The matching estimates are even larger in economic magnitude and stronger in statistical significance.

6 Conclusion

Boards of directors are tasked with the critical function of actively monitoring and advising top management. By exploiting exogenous shocks to unrelated industries in which directors have additional directorships, we show that director attention affects board monitoring intensity and thereby firm value as management becomes less active. Firms with more director distraction invest significantly less and are less likely to announce takeovers. These changes are due to firms with distracted directors being less active rather than them postponing their investments. Our results suggest that an effective board of directors prevents manager from shirking or "enjoying a quiet life" at the expense of shareholder value.

Our results contribute to the important and lively debate on the busyness of directors. Directors holding multiple directorships have to divide their attention, but the reason that they are appointed to multiple boards likely reflects their quality. Isolating busyness from ability is therefore a challenging task, as having multiple directorships might reflect both. Our study is able to disentangle busyness from director ability and provides evidence on the costs of having busy directors. As such, our findings render support to policies restricting the number of directorships that an individual is allowed to have. Indeed, according to the Spencer and Stuart U.S. Board Index 2016 Report, 74% of S&P 500 firms now impose some restrictions on their directors' ability to accept other corporate directorships, compared to 27% in 2006.

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Figure 1: Attention-grabbing industries

This figure shows which Fama-French 49 industries are identified as attention-grabbing in each quarter from 1996 to 2017.

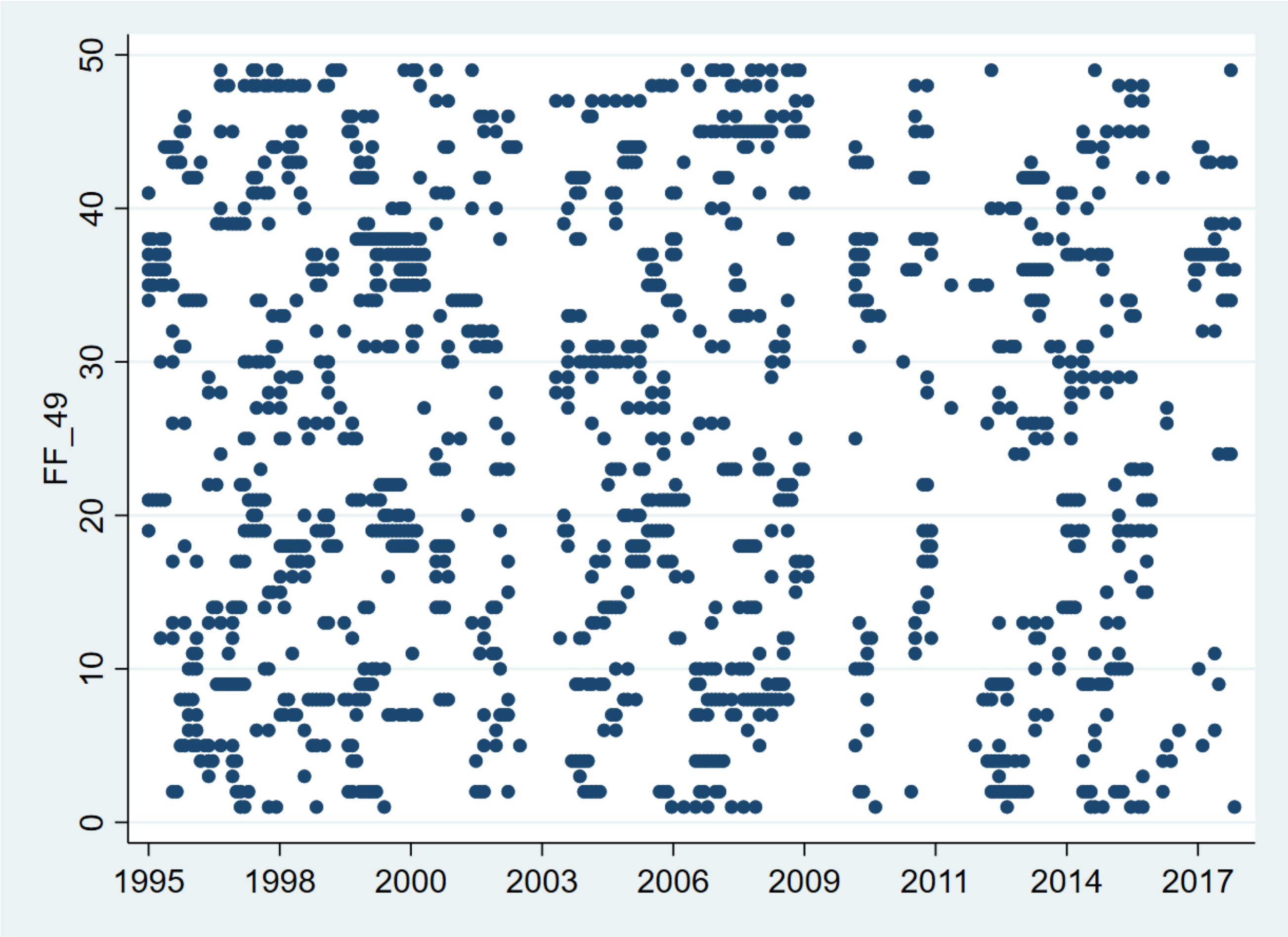

Figure 2: Tobin's Q and director distraction over time

The graph plots the average quarterly Tobin's Q for the subgroups of no distraction ($Distraction_{ft} = 0$) firms and high distraction ($Distraction_{ft} > 0.205$) firms over time. ***, **, and * denote significance of the difference between the no distraction and high distraction groups at 1%, 5%, and 10%, respectively.

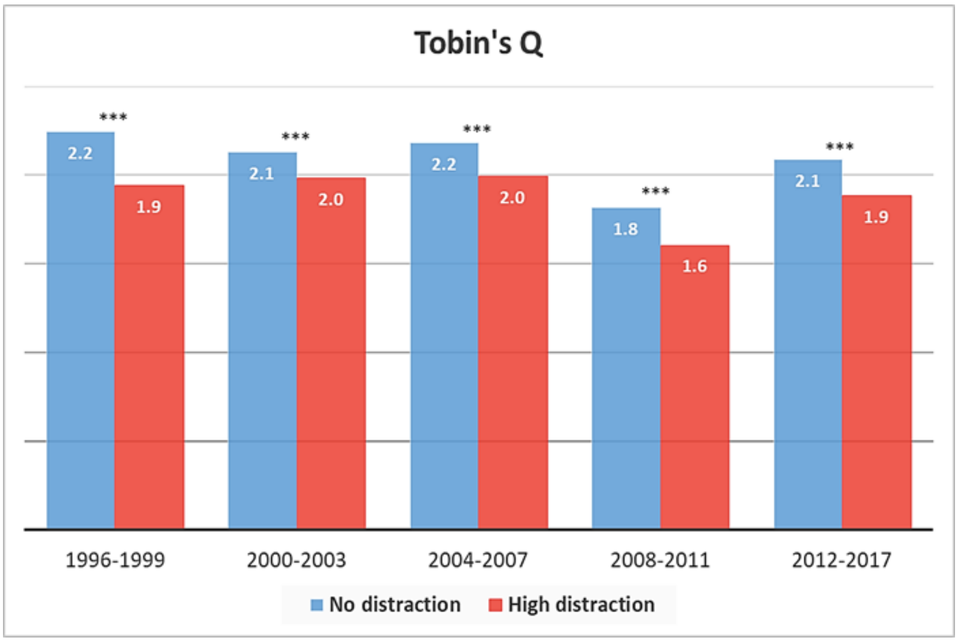

Table 1: Summary statistics

This table reports summary statistics for the main sample of firm-quarter observations of RiskMetrics firms with at least one director with multiple directorships over the period 1996-2017. A complete list of variable definitions is provided in Table A.1. All continuous dependent variables are winsorized at 1% at both tails.

	N	Mean	Std. Dev.	Min.	p25	Median	p75	Max.
Dependent variables								
Tobin's Q	75,331	2.08	1.59	0.47	1.26	1.66	2.36	81.28
CAPEX	75,569	0.69	0.18	-1.39	0.59	0.70	0.79	2.37
Acquisition	75,595	0.08	0.27	0	0	0	0	1
Diversifying merger	75,595	0.04	0.19	0	0	0	0	1
Main independent variable								
Distraction	75,595	0.07	0.17	0.00	0.00	0.00	0.10	6.00
Distraction (> 0)	26,982	0.21	0.22	0.00	0.08	0.14	0.25	6.00
Alternative measures								
Distraction (positive)	75,595	0.03	0.08	0.00	0.00	0.00	0.00	3.58
Distraction (negative)	75,595	0.03	0.10	0.00	0.00	0.00	0.00	5.00
Control variables								
Total assets ($million)	75,595	8,632	26,293	124	745	1,927	5,927	347,564
Log(Assets)	75,595	7.71	1.50	2.64	6.61	7.56	8.69	12.06
Cash flow	71,928	0.04	0.03	-0.42	0.02	0.04	0.05	0.17
Board size	75,595	8.17	2.85	1	7	8	10	20
Board busyness	75,595	0.43	0.25	0.06	0.23	0.40	0.58	1
Board independence	75,595	0.74	0.18	0	0.67	0.78	0.88	1
Institutional ownership	72,031	0.76	0.20	0	0.65	0.79	0.90	1
Investor distraction	68,690	0.05	0.04	0.00	0.02	0.04	0.08	0.47
Merger deal variables								
CAR(-2, +2)	5,527	0.00	0.06	-0.41	-0.02	0.00	0.03	0.48
Relative deal size	5,529	0.14	0.37	0.00	0.02	0.05	0.13	11.17
Diversifying deal	5,529	0.52	0.60	0	0	0	1	1
Private target	5,529	0.74	0.44	0	0	1	1	1
Cross-border	5,529	0.26	0.44	0	0	0	1	1
Director-level variables								
Attended < 75% board meetings	71,752	0.02	0.13	0	0	0	0	1
Director distraction	71,752	0.55	0.92	0	0	0	1	10.77
Industry Shock	71,752	0.23	0.43	0	0	0	0.32	4
Director age	71,702	61.88	7.16	28	57	62	67	95
Log(Director age)	71,702	4.13	0.12	3.37	4.06	4.14	4.22	4.56
Independent	71,752	0.91	0.28	0	1	1	1	1
Number of directorships	71,752	2.64	0.95	2	2	2	3	10
Yearly Tobin's Q	68,290	1.91	1.29	0.46	1.18	1.53	2.16	55.73

Table 2: Director distraction and attendance of board meetings

This table reports the effect of director distraction on directors' attendance of board meetings. We use director-firm-year level observations from RiskMetrics and consider only directors with more than one board seat in a given year. The dependent variable is a dummy variable indicating whether a director has attended less than 75% of the firm's board meetings in a given year. In columns (2), (3), and (6-7), the model is estimated with year fixed effects and firm fixed effects. In column (5), the model is estimated with firm × year fixed effects. In column (6), the indicator variable 1(Negative shock) equals one if at least one of the director's attention-grabbing directorships is hit by a negative industry shock. In column (7), the indicator variable 1(Executive in shocked industry) equals one if the director is an executive in one of the attention-grabbing industries. In all of the specifications, we cluster the standard errors at the director-level. The corresponding t-statistics are reported in parentheses. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

	Attended < 75% board meetings						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Industry shock	-0.003***	-0.002*					
	(-2.776)	(-1.656)					
Director distraction			0.002***	0.002**	0.002**	0.001*	0.001*
			(3.022)	(2.300)	(2.166)	(1.896)	(1.742)
Director distraction × 1(Negative shock)						0.003*	
						(1.776)	
Director distraction × 1(Executive in shocked industry)							0.003
							(1.575)
High ranked directorship	-0.003**	-0.006***	-0.002*	-0.005***	-0.004**	-0.005***	-0.006***
	(-2.281)	(-4.864)	(-1.866)	(-4.513)	(-2.331)	(-4.175)	(-4.557)
Log(Director age)	-0.051***	-0.086	-0.051***	-0.085	-0.023***	-0.085	-0.086
	(-8.048)	(-1.267)	(-8.008)	(-1.261)	(-2.831)	(-1.254)	(-1.277)
Independent	-0.012***	0.005	-0.012***	0.005	-0.005	0.005	0.005
	(-3.766)	(1.446)	(-3.764)	(1.449)	(-1.364)	(1.432)	(1.455)
Number of directorships	0.005***	0.002	0.004***	0.001	0.001	0.001	0.001
	(4.221)	(1.334)	(3.800)	(0.936)	(1.201)	(0.732)	(0.949)
Board size	-0.002***	0.000	-0.002***	0.000	-0.002**	0.000	0.000
	(-5.541)	(1.140)	(-5.410)	(1.248)	(-2.546)	(1.309)	(1.241)
Yearly Tobin's Q	-0.000	-0.000	-0.000	-0.000	-0.001	-0.000	-0.000
	(-0.403)	(-0.574)	(-0.406)	(-0.569)	(-0.255)	(-0.526)	(-0.557)
Observations	68,244	68,244	68,244	68,244	68,244	68,244	68,244
Adj. R^2	0.007	0.092	0.007	0.092	0.053	0.092	0.092
Year FE	No	Yes	No	Yes	No	Yes	Yes
Director FE	No	Yes	No	Yes	No	Yes	Yes
Firm × year FE	No	No	No	No	Yes	No	No

Table 3: Effects of director distraction on firm value

This table reports the effect of director distraction on firm value. The dependent variable is Tobin's Q. In column (1) and (2), the model is estimated with quarter and firm fixed effects, which exploits variation within firms. In column (3) and (4), the model is estimated with industry × quarter fixed effects and firm fixed effects. In column (5) and (6), we consider distraction from positive and negative industry shocks separately. Distraction (positive) uses only industries with abnormally high volatility and positive performance as attention-grabbing industries; distraction (negative) uses only industries with abnormally high volatility with negative performance as attention-grabbing industries. We use Fama-French 49 industries. Standard errors are clustered at the firm level, and the corresponding t-statistics are reported in parentheses. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

	Tobin's Q					
	(1)	(2)	(3)	(4)	(5)	(6)
Distraction	-0.338***	-0.250***	-0.271***	-0.237***		
	(-5.654)	(-4.874)	(-5.332)	(-5.387)		
Distraction (positive)					-0.230**	
					(-1.965)	
Distraction (negative)						-0.316***
						(-3.495)
Log(Assets)		-0.372***		-0.380***	-0.380***	-0.380***
		(-9.491)		(-10.849)	(-10.849)	(-10.860)
Board size		0.015		0.010	0.011	0.010
		(1.299)		(0.935)	(0.981)	(0.954)
Board busyness		-0.179		-0.074	-0.098	-0.089
		(-1.571)		(-0.711)	(-0.921)	(-0.862)
Board independence		-0.153		-0.189	-0.187	-0.186
		(-1.126)		(-1.403)	(-1.390)	(-1.386)
Observations	75,331	75,331	75,331	75,331	75,331	75,331
Adj. R^2	0.499	0.516	0.574	0.589	0.589	0.589
Quarter FE	Yes	Yes	No	No	No	No
Industry × quarter FE	No	No	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 4: Robustness: alternative industry classifications and definitions of industry shocks

In this table we test the robustness of our results for alternative definitions of industry shocks and industry classifications. Besides our baseline volatility-based distraction measure, we use the alternative definitions of industry shocks. Extreme positive (negative) returns consider the industries with quarterly stock performance in the top (bottom) decile as attention-grabbing industries. Trading volume defines the attention-grabbing industries to be those with the highest (in top-decile) abnormal trading volume with respect to the previous three quarters, computed similarly as in Eq. (3). We use the Fama-French 12 industries, the two-digit SICH code industries, and the Hoberg and Phillips (2016) 10-K text-based 50 industries (FIC-50) as alternative industry classifications. For each two-digit SICH/FIC-50 industry, we construct a value-weighted portfolio using all CRSP stocks priced above 5 dollars within that industry. We reestimate the specifications from columns (3) and (4) of Table 3. For brevity we only report the coefficient of the distraction variables and suppress those of control variables. Standard errors are clustered at the firm level, and the corresponding t-statistics are reported in parentheses. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Industry classification	Industry shocks	Firm FE & Industry × quarter FE		FE with controls	
		Coeff.	t-stat.	Coeff.	t-stat.
Baseline:					
Fama-French 49	Volatility	-0.271***	(-5.332)	-0.237***	(-5.387)
Alternatives:					
Fama-French 49	Extreme positive returns	-0.207***	(-3.340)	-0.167***	(-3.091)
Fama-French 49	Extreme negative returns	-0.346***	(-3.530)	-0.318***	(-3.511)
Fama-French 49	Trading volume	-0.224**	(-2.353)	-0.196**	(-2.197)
Fama-French 12	Volatility	-0.216***	(-3.740)	-0.174***	(-3.118)
Fama-French 12	Extreme positive returns	-0.181***	(-3.583)	-0.223***	(-2.802)
Fama-French 12	Extreme negative returns	-0.273***	(-5.646)	-0.268***	(-4.772)
Fama-French 12	Trading volume	-0.224**	(-2.118)	-0.152	(-1.558)
Two-digit SIC	Volatility	-0.313***	(-6.075)	-0.267***	(-5.259)
Two-digit SIC	Extreme positive returns	-0.247***	(-2.981)	-0.206**	(-2.498)
Two-digit SIC	Extreme negative returns	-0.359***	(-5.405)	-0.199**	(-2.328)
Two-digit SIC	Trading volume	-0.276***	(-3.262)	-0.231***	(-3.188)
Hoberg-Phillips 50	Volatility	-0.405***	(-5.739)	-0.334***	(-5.278)
Hoberg-Phillips 50	Extreme positive returns	-0.408***	(-5.055)	-0.370***	(-4.630)
Hoberg-Phillips 50	Extreme negative returns	-0.422***	(-5.756)	-0.366***	(-5.083)
Hoberg-Phillips 50	Trading volume	-0.434***	(-6.166)	-0.367***	(-5.105)

Table 5: Effects of director distraction on stock performance

This table reports the effect of director distraction on firms' stock performance. In column (1) and (2), the dependent variable is the cumulative excess stock returns ($Ret - R_f$) over each fiscal quarter. We also use two risk-adjusted stock returns as alternative measures in columns (3-6), namely, the market-adjusted returns, CAR (CAPM), and the Fama-French risk-adjusted returns, CAR (FF4). To compute the market-adjusted returns, we first estimate the CAPM model to obtain the market beta for each stock in the beginning of each fiscal quarter using monthly returns data of the past 36 month, and then compute the abnormal return as the excess return over the product of the market beta and the market returns in a given fiscal quarter. To compute the Fama-French risk-adjusted returns, we first estimate the Fama-French and Carhart four-factor model ($R_t - R_{ft} = \alpha + \beta_{mkt} MKT_t + \beta_{HML} HML_t + \beta_{SMB} SMB_t + \beta_{UMD} UMD_t + \varepsilon_{it}$) to obtain the factor betas for each stock in the beginning of each fiscal quarter using monthly returns data of the past 36 month, and then compute the abnormal return as the excess return over the product of the factor betas and the four-risk factors in a given fiscal quarter. In column (1), (3) and (5), the model is estimated with quarter fixed effects, whereas in the other columns the model is also estimated with stock fixed effects. Fama-French 49 industry portfolios are included to control for industry $\times$ quarter level trends. Standard errors are clustered at the stock level, and the corresponding t-statistics are reported in parentheses. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

	Cumulative returns		CAR (CAPM)		CAR (FF4)	
	(1)	(2)	(3)	(4)	(5)	(6)
Distraction	-0.035***	-0.033***	-0.034***	-0.031***	-0.026***	-0.024***
	(-5.262)	(-4.623)	(-5.295)	(-4.646)	(-3.910)	(-3.450)
Log(Assets)	0.000	-0.007***	0.000	-0.007***	0.000	-0.007***
	(0.220)	(-4.480)	(0.429)	(-5.015)	(0.414)	(-4.629)
Board size	0.004***	0.004***	0.004***	0.003***	0.004***	0.003***
	(10.320)	(6.464)	(9.254)	(4.446)	(8.641)	(3.986)
Board busyness	-0.022***	-0.022***	-0.015***	-0.016***	-0.011**	-0.009
	(-5.329)	(-3.907)	(-3.615)	(-2.825)	(-2.438)	(-1.528)
Board independence	-0.009*	-0.013	-0.004	0.001	-0.001	0.004
	(-1.663)	(-1.609)	(-0.760)	(0.114)	(-0.157)	(0.485)
Industry returns	0.936***	0.937***	0.401***	0.397***	0.274***	0.269***
	(66.205)	(65.508)	(31.874)	(31.527)	(20.525)	(19.978)
Observations	75,005	75,005	75,005	75,005	75,005	75,005
Adj. R^2	0.295	0.306	0.073	0.092	0.025	0.043
Quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Stock FE	No	Yes	No	Yes	No	Yes

Table 6: Effect of director distraction on firm investment

This table reports the effect of director distraction on firm investment. In column (1) and (2), the dependent variables are firms' capital expenditures (CAPEX). In column (3) and (4), the dependent variable is acquisition which equals to 1 if the firm announces at least one acquisition in the given quarter. In column (5) and (6), the dependent variable is diversifying merger which equals to 1 if the announced acquisition deal is cross-industry. In all those columns, the model is estimated with industry × quarter fixed effects. Column (2), (4), and (6) additionally include firm fixed effects. The standard errors are clustered at the firm level. In column (7) and (8), the dependent variable is the 5-day CARs around the merger announcement date. In those two columns, the model is estimated with industry × year fixed effects, and standard errors are clustered at the industry level. All corresponding t-statistics are reported in parentheses. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

	CAPEX		Acquisition		Diversifying merger		CAR(-2, +2)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Distraction	-0.021***	-0.018*	-0.019**	-0.005	-0.010*	-0.008*	0.018	0.018
	(-3.026)	(-1.867)	(-2.494)	(-0.705)	(-1.775)	(-1.870)	(1.296)	(1.250)
Log(Assets)	-0.012***	0.016***	0.022***	0.016***	0.011***	0.009***	-0.002***	-0.002***
	(-4.387)	(3.453)	(11.538)	(5.268)	(6.527)	(4.244)	(-3.197)	(-3.480)
Lagged Q	-0.004*	-0.001	0.005**	0.007***	0.003*	0.004***	-0.002***	-0.002*
	(-1.801)	(-0.609)	(2.463)	(3.877)	(1.907)	(3.243)	(-2.829)	(-1.975)
Cash flow	0.314***	0.226***	0.237***	0.276***	0.111***	0.116***	0.075	0.066
	(3.367)	(3.318)	(4.628)	(4.941)	(3.298)	(3.635)	(0.996)	(0.963)
Board size	-0.008***	-0.005***	-0.002***	-0.003***	-0.001	-0.001*	-0.000	-0.000
	(-6.052)	(-5.324)	(-2.798)	(-2.706)	(-1.303)	(-1.827)	(-0.489)	(-0.494)
Board busyness	-0.093***	-0.042***	-0.015*	-0.009	0.001	0.005	-0.009	-0.010
	(-7.872)	(-4.497)	(-1.888)	(-0.951)	(0.200)	(0.644)	(-1.218)	(-1.319)
Board independence	-0.056***	-0.019	-0.010	-0.018	0.001	-0.007	-0.002	-0.003
	(-4.221)	(-1.560)	(-1.131)	(-1.463)	(0.214)	(-0.704)	(-0.294)	(-0.464)
Investor distraction	0.058**	0.044**	0.032	0.022	0.001	0.005	-0.011	-0.006
	(2.430)	(2.246)	(0.861)	(0.583)	(0.041)	(0.171)	(-0.336)	(-0.193)
Institutional ownership	0.059***	0.068***	0.021**	0.039***	-0.001	0.012	-0.008	-0.006
	(3.677)	(4.889)	(2.158)	(3.407)	(-0.165)	(1.621)	(-1.232)	(-0.967)
Relative deal size								-0.013***
								(-2.860)
Diversifying deal								0.003
								(1.434)
Private target								0.005*
								(1.903)
Cross-border								0.000
								(0.161)
Observations	65,352	65,352	65,359	65,359	65,359	65,359	5,227	5,227
Adj. R^2	0.156	0.576	0.023	0.112	0.022	0.120	0.120	0.120
Industry × quarter FE	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Firm FE	No	Yes	No	Yes	No	Yes	No	No
Industry × year FE	No	No	No	No	No	No	Yes	Yes

Table 7: Testing the "delayed decision-making" hypothesis

In this table we test the "delayed decision-making" hypothesis. We construct a subsample of firms that have two consecutive quarters in which director distraction is high ($Distraction_{ft} > 0$) while in the subsequent two consecutive quarters there is no director distraction ($Distraction_{ft} = 0$). We refer to the quarters with high director distraction as the "before" period and to the subsequent quarters without distraction as the "after" period. The variables of interests are capital expenditures, takeover decisions, and the number of SEC filings. Panel A reports the mean of the variables of interest in the "before" and "after" period, respectively. Panel B reports the results of multivariate regressions including time and firm fixed effects. In all regressions, $After$ is a dummy variable indicating the "after" period. Standard errors are clustered at the firm level, and the corresponding t-statistics are reported in parentheses. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Panel A: difference in means

		Distraction		Difference
		High (before)	No (after)	After - Before
	N	Mean	Mean	t-stat.
CAPEX	4,366	0.68	0.68	-1.01
Acquisition	4,366	0.06	0.05	-0.97
Log(1+Filings)	3,867	2.04	2.11	1.41

Panel B: OLS regressions

	CAPEX	Acquisition	Log(1 + Filings)
	(1)	(3)	(4)
After	-0.007	-0.006	0.001
	(-1.384)	(-0.575)	(0.040)
Log(Assets)	0.018	0.012	0.109***
	(1.099)	(0.840)	(2.739)
Board size	-0.018***	-0.002	-0.010
	(-3.031)	(-0.320)	(-0.487)
Board busyness	-0.065*	0.020	0.179
	(-1.668)	(0.457)	(1.251)
Board independence	-0.023	0.005	0.280
	(-0.495)	(0.120)	(1.377)
Lagged Q	-0.002	0.018**	0.040
	(-0.142)	(2.252)	(1.633)
Cash flow	0.184	0.067	-0.146
	(0.868)	(0.467)	(-0.287)
Observations	4,028	4,028	3,550
Adj. R^2	0.628	0.083	0.713
Quarter FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes

Table 8: Effect of different groups of directors

This table reports how distraction of different groups of directors affects firm value. The dependent variable is Tobin's Q. In all columns, the model is estimated with industry × quarter and firm fixed effects. In columns (1-5), we interact the baseline distraction variable with a dummy variable whether at least one of the distracted director belongs to the corresponding group. In column (6), we estimate the effect of distracted directors who are executives at the focal firm but hold directorships in the attention-grabbing industries. This distraction measure is computed in the same way as that of outside directors, that is, first indicate whether the executives hold any other directorships in the shocked industries, then aggregate individual executive-director's distraction at the firm-level, and finally scale by the total number of executives on the board. In all of the specifications, standard errors are clustered at the firm level, and the corresponding *t*-statistics are reported in parentheses. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

	Tobin's Q					
	(1)	(2)	(3)	(4)	(5)	(6)
Distraction	-0.126*	-0.199***	-0.233***	-0.186***	-0.254***	-0.238***
	(-1.935)	(-4.101)	(-4.709)	(-3.336)	(-4.658)	(-5.289)
Distraction × 1(All committee)	-0.173*					
	(-1.956)					
Distraction × 1(Audit)		-0.104				
		(-1.106)				
Distraction × 1(Nomination)			-0.018			
			(-0.200)			
Distraction × 1(Compensation)				-0.139*		
				(-1.917)		
Distraction × 1(Executive in shocked industry)					0.047	
					(0.551)	
Distraction (Executive-directors)						0.004
						(0.148)
Observations	75,331	75,331	75,331	75,331	75,331	75,331
Adj. R^2	0.589	0.589	0.589	0.589	0.589	0.589
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry × quarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Table 9: Effect of distraction on directors' career outcomes

This table reports how distraction affects directors' career outcomes. The dependent variable is a dummy variable that equals one if the director is replaced in the next year. Control variables are the same as those in Table 2. In all of the specifications, standard errors are clustered at the director level, and the corresponding t-statistics are reported in parentheses. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

	Replaced in the next year		
	(1)	(2)	(3)
Director distraction	-0.002	-0.003	-0.003
	(-1.299)	(-1.328)	(-1.539)
Distraction × ΔTobin's Q		-0.001	
		(-0.300)	
Distraction × Attended < 75% board meetings			0.019*
			(1.698)
ΔTobin's Q	-0.005***	-0.005**	-0.005***
	(-2.899)	(-2.301)	(-2.903)
Attended < 75% board meetings	0.062***	0.062***	0.047***
	(4.593)	(4.593)	(2.938)
Number of directorships	-0.023***	-0.023***	-0.023***
	(-12.433)	(-12.425)	(-12.519)
High ranked directorship	-0.012***	-0.012***	-0.012***
	(-4.873)	(-4.873)	(-4.872)
Log(Director age)	0.225***	0.225***	0.225***
	(14.412)	(14.411)	(14.412)
Independent	-0.049***	-0.049***	-0.049***
	(-7.873)	(-7.874)	(-7.851)
Board size	-0.011***	-0.011***	-0.011***
	(-17.973)	(-17.968)	(-17.974)
Observations	59,312	59,312	59,312
Adj. R^2	0.016	0.016	0.016

Table 10: Additional tests concerning industry spillovers

This table provides evidence mitigating the concern that our results are merely driven by industry spillover effects. First, we exclude firms operating in oil or gas industries and disregard attention shocks from those industries. Second, we use the three-digit NAICS code as industry classification to exclude industries that are likely to have supplier or customer relationships. We reestimate the baseline specifications in column (4-6) from Table 3 with Tobin's Q, CAPEX, and acquisition as dependent variables in each panel respectively. In all specifications, the model is estimated with quarter fixed effects and firm fixed effects. Included control variables are the same as in Table 3 and 6 respectively, but are suppressed for brevity. Standard errors are clustered at the firm level, and the corresponding t-statistics are reported in parentheses. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Panel A: Tobin's Q

	Tobin's Q					
	Subsample excl. Oil & Gas			Unrelated Naics Industries		
	(1)	(2)	(3)	(4)	(5)	(6)
Distraction	-0.370***			-0.639***		
	(-5.273)			(-3.985)		
Distraction (positive)		-0.189**			-0.169*	
		(-2.325)			(-1.781)	
Distraction (negative)			-0.283**			-0.876***
			(-2.268)			(-5.783)
Observations	70,722	70,722	70,722	65,359	65,359	65,359
Adj. R^2	0.169	0.168	0.168	0.176	0.176	0.176

Panel B: Capital expenditure

	CAPEX					
	Subsample excl. Oil & Gas			Unrelated Naics Industries		
	(1)	(2)	(3)	(4)	(5)	(6)
Distraction	-0.015*			-0.039**		
	(-1.924)			(-2.441)		
Distraction (positive)		-0.024*			-0.031*	
		(-1.733)			(-1.692)	
Distraction (negative)			0.008			-0.064***
			(0.702)			(-3.265)
Observations	61,467	61,467	61,467	65,352	65,352	65,352
Adj. R^2	0.156	0.156	0.156	0.076	0.076	0.077

Panel C: Acquisitions

	Acquisitions					
	Subsample excl. Oil & Gas			Unrelated Naics Industries		
	(1)	(2)	(3)	(4)	(5)	(6)
Distraction	-0.019**			-0.031*		
	(-2.495)			(-1.777)		
Distraction (positive)		-0.028**			-0.048***	
		(-2.100)			(-2.784)	
Distraction (negative)			-0.012			-0.050***
			(-1.067)			(-2.611)
Observations	61,474	61,474	61,474	65,359	65,359	65,359
Adj. R^2	0.024	0.024	0.024	0.013	0.013	0.013

Table 11: Results of single-segment firms

This table replicates the main results in Table 3 and 6 for the subsample of single-segment firms. We identify single-segment firms according to the number of segments reported in Compustat's segment files. In all columns, the model is estimated with quarter fixed effects and firm fixed effects. Included control variables are the same as in Table 3 and 6. Standard errors are clustered at the firm level, and the corresponding t-statistics are reported in parentheses. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

	Tobin's Q	CAR (CAPM)	CAPEX	Acquisition	Diversifying merger
	(1)	(2)	(3)	(4)	(5)
Distraction	-0.262***	-0.034***	-0.034***	-0.022***	-0.010*
	(-3.868)	(-3.820)	(-3.389)	(-2.657)	(-1.688)
Log(Assets)	-0.386***	-0.011***	-0.003	0.020***	0.007***
	(-7.395)	(-4.512)	(-1.120)	(8.382)	(3.523)
Board size	0.015	0.002**	-0.013***	-0.004***	-0.001**
	(0.918)	(2.270)	(-8.164)	(-3.736)	(-2.187)
Board busyness	-0.204	-0.000	-0.093***	-0.022**	0.002
	(-1.294)	(-0.052)	(-6.373)	(-2.322)	(0.400)
Board independence	-0.231	0.003	-0.070***	0.015	0.017**
	(-1.169)	(0.299)	(-4.466)	(1.432)	(2.371)
Lagged Q			0.001	0.008***	0.004**
			(0.509)	(4.200)	(2.209)
Cash Flow			0.045	0.054	0.012
			(0.420)	(1.018)	(0.395)
Investor distraction			-0.025	-0.070*	-0.017
			(-1.063)	(-1.812)	(-0.632)
Institutional ownership			0.032	0.030***	0.009
			(1.636)	(2.699)	(1.204)
Observations	54,316	43,188	47,666	47,670	47,670
Adj. R^2	0.526	0.034	0.065	0.012	0.005
Quarter FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes

Table 12: Results of nearest-neighbor and propensity-score matching

This table reports the results from nearest-neighbor and propensity-score matching estimation. The considered outcome variables are Tobin's Q, capital expenditure (CAPEX), acquisition likelihood, and diversifying deal likelihood. Firms with high director distraction ($Distraction_{ft} > 0.10$) are in the treatment group, and we construct control groups of firms that have no director distraction ($Distraction_{ft} = 0$) and are matched to the treated firms along a set of relevant and observable characteristics: firm size (the logarithm of total assets), one-quarter lagged Tobin's Q, board size, busy board (ratio), board independence (ratio), fiscal year and quarter, and Fama-French 49 industry. Each observation in the treatment group is matched with the "nearest" observation out of the control group. In Panel A we determine the "nearest" by using a weighted function of the covariates. In Panel B and C we determine the "nearest" by using the propensity scores estimated respectively by the logistic treatment model and probit treatment model. Each panel reports the estimated average treatment effect of high director distraction, robust Abadie-Imbens standard error, corresponding z-statistic, and number of observations in the treatment group. ***, **, and * denote significance at 1%, 5%, and 10%, respectively.

Panel A: Nearest-neighbor matching

	Tobin's Q	CAR (CAPM)	CAPEX	Acquisition	Diversiying merger
ATE	-0.130***	-0.031***	-0.014***	-0.005	-0.001
S.E.	0.011	0.005	0.003	0.005	0.004
z-stat.	-11.418	-6.398	-4.852	-0.955	-0.284
N	8,557	7,678	8,571	8,573	8,573

Panel B: (Logistic) Propensity-score matching

	Tobin's Q	CAR (CAPM)	CAPEX	Acquisition	Diversiying merger
ATE	-0.060***	-0.025***	-0.011***	-0.011**	-0.006*
S.E.	0.015	0.005	0.003	0.005	0.003
z-stat.	-4.101	-5.488	-3.284	-2.354	-1.769
N	8,557	7,678	8,571	8,573	8,573

Panel C: (Probit) Propensity-score matching

	Tobin's Q	CAR (CAPM)	CAPEX	Acquisition	Diversiying merger
ATE	-0.077***	-0.022***	-0.012***	-0.015***	-0.008***
S.E.	0.029	0.005	0.004	0.004	0.003
z-stat.	-2.659	-4.831	-2.984	-3.457	-2.667
N	8,557	7,678	8,571	8,573	8,573

A Appendix

Table A.1: Variable description

Variable	Description
Dependent variables	
Tobin's Q	Book value of assets plus the market value of common equity minus the book value of common equity and deferred taxes divided by total assets: $(atq + (cshoq * prccq) - ceqq)/atq$
Cumulative returns	Cumulative excess stock returns $(Ret - R_f)$ over each fiscal quarter
CAR (CAPM)	Cumulative market-adjusted returns
CAR (FF4)	Cumulative returns adjusted for the four Fama-French risk factors
CAPEX	Invested capital divided by lagged total assets: $icaptq/atq_{t-1}$
Acquisition	Dummy variable equal to one if a firm announces an M&A transaction in a given fiscal quarter and zero otherwise. We consider all majority-stake acquisitions recorded in SDC between 1996-2014 with a minimum deal value of $10 million.
Diversifying merger	Dummy variable equal to one if a firm announces a cross-industry M&A transaction in a given fiscal quarter and zero otherwise. A deal is cross-industry if the bidder and target are not in the same Fama-French 49 industries.
Explanatory variable	
Distraction	Firm-quarter level director distraction, computed as described in section 3
Distraction (positive)	Firm-quarter level director distraction where the attention-grabbing industries not only have abnormally high volatility, but also have cumulatively a positive return in that given quarter
Distraction (negative)	Firm-quarter level director distraction where the attention-grabbing industries not only have abnormally high volatility, but also have cumulatively a negative return in that given quarter
Control variables	
Total assets ($million)	*Atq*
Log(Assets)	Logarithm of total assets: $\log(atq)$
Lagged Q	Previous fiscal quarter's Tobin's Q
Cash flow	Previous fiscal quarter's operating income before depreciation divided by lagged total assets: $oibdpq/atq_{t-1}$
Board size	Number of directors
Busy board	Number of directors sitting on more than one board divided by number of directors

Board independence	Number of independent directors divided by number of directors
Institutional ownership	Fraction of the firm's stock owned by institutional investors as reported in the Thomson Reuters 13f database
Investor distraction	Investor distraction computed as in Kempf et al. (2016) with Fama-French 49 industries; and attention-grabbing industries are the three best and three worst performing industries
Merger deal level variables	
CAR(-2, +2)	Five-day cumulative abnormal return around the merger announcement date with estimation window (-280, -31)
Relative deal size	Value of transaction divided by current quarter's total asset
Diversifying deal	Dummy variable equal to one if the acquirer and target are not in the same two-digit SIC industry
Private target	Dummy variable equal to one if the target firm is private
Cross-border	Dummy variable equal to one if the acquirer and target are not in the same country
Director level variables (from RiskMetrics)	
Director distraction	Director i's distraction regarding firm f in a given fiscal year, computed as summing up D_{ift} from Eq. (1) over the four quarters in that fiscal year
Industry Shock	Measure of the attention-grabbingness of a given industry, computed as in Eq. (?)
Attendance $<$ 75% board meeting	Dummy variable equal to one if a director has attended less than 75% of board meetings in a given year: $attend\_less75\_pct$
Director age	Age
Log(Director age)	Logarithm of director age: log(Age)
High ranked directorship	Dummy variable equal to one if the market cap of this directorship is greater than median of the market cap across all firms that the director serves on the board
Independent	Dummy variable equal to one if a director is classified as independent
Number of directorships	Number of total board seats at public companies: $outside\_public\_boards + 1$
Yearly Tobin's Q	Tobin's Q at the end of the current fiscal year