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How Are CEOs Fired?

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Abstract

CEOs are more likely to be dismissed when their firm is the worst performer within directors' networks of interlocked boards. The effects persist after including granular fixed effects, controlling for nonlinear, absolute, and industry-relative performance, and in analyses of exogenous director turnovers and falsification tests. Interlock-benchmarked dismissals are followed by performance declines, analyst downgrades, and lower announcement returns, suggesting that these dismissals are not easily explained as value-enhancing responses to poor performance. Our findings highlight a novel channel through which interlocking boards shape governance and shareholder value: implicit relative performance benchmarks.

Keywords: Corporate governance, Boards, Independent directors, Firm performance, Interlocking directorates, Availability bias

JEL Classification: G34, G41

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Abstract

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1. Introduction

This paper studies a cornerstone topic in corporate governance: the role of boards of directors in hiring and dismissing CEOs. It aims to answer three fundamental questions: How do boards evaluate CEO performance? Are their decisions systematically biased? And what are the consequences? To explore these questions, we propose that directors rely on benchmarks drawn from their own networks of interlocked firms, using those firms' performance as implicit comparators when assessing a CEO. Such benchmarking can arise from rational learning as directors update beliefs about effective leadership based on peers' performance, or from salience-driven heuristics (Tversky and Kahneman, 1973), where interlocked firms provide readily available reference points or mental shortcuts.

To evaluate this proposition, we compile a comprehensive dataset of forced CEO turnovers, and construct director-specific measures of performance that exploit intra-board differences in interlocked directorships. In our sample of 2,587 public firms from 1997 to 2019, 58.7% of independent directors hold multiple board seats at other public firms, highlighting the prevalence of interlocking directorships. Our director-by-director measure of a CEO's annual relative performance is based on the ranking of a firm's annual raw stock returns in each director's full set of interlocked firms. We use this measure to study board decisions and CEO transitions in annual panels where the unit of observation is either a director-firm-year triplet or a firm-year pair.

The main result can be summarized as follows. The likelihood of forced CEO turnover is significantly higher when the firm performs poorly relative to directors' other interlocked firms. A one-standard deviation increase in the share of directors for whom the firm is the worst performer among their interlocks *(%Worst)* is related to a 0.72-0.79 percentage point increase in the probability of CEO dismissal. This represents a 29-32% increase relative to the unconditional

likelihood of dismissal – roughly one-third of the effect of the firm's own stock returns, and 1.4 to 2.5 times the effect of industry performance. This baseline result remains robust after controlling for a comprehensive set of firm-level attributes, including absolute and industry-relative performance, CEO or board attributes, and persists even when the firm outperforms its industry peers. This finding is consistent with anecdotal evidence, such as the 2011 dismissal of AMD's CEO, discussed in Section B of the Internet Appendix.

Section 8 of the Clayton Antitrust Act of 1914 prohibits individuals from serving as directors or officers of competing firms, which mitigates concerns that our findings reflect directors evaluating CEOs using information from interlocked product market/industry competitors. Nevertheless, to assess this possibility, we augment the specification with a wide-ranging set of absolute and relative performance measures, including cubic polynomials of market and accounting performance, indicators for negative industry-relative performance (bottom decile or worst), product market and compensation peers, as well as analyst ratings and media sentiment. The estimated effect of *%Worst* remains virtually unchanged after including these controls. This evidence runs counter to the possibility that *%Worst* captures nonlinear poor performance not accounted for by the baseline controls.

We perform several additional analyses to address concerns that director interlocks are nonrandom and therefore capture relevant information, such as common shocks and underlying economic links. First, we exploit variation due to exogenous director departures. The intuition is as follows: if interlocking directorships capture unobservable common shocks, the focal firm's performance relative to interlocked firms should continue to influence CEO dismissal even after the directors depart. The results show a sharp attenuation after the exit: the effect of departing directors' interlocks is economically and statistically significant before directors depart, but not

after they are gone. This suggests that the baseline results are driven by active benchmarking rather than persistent, unobservable common shocks or economic links between firms. We provide extensive evidence to validate this approach. In particular, we show that the exogenous turnovers do not coincide with pre- or post-turnover trends in firm performance, both in the full sample and across firms with high versus low interlock-benchmarked performance.

Second, we conduct a comprehensive set of falsification tests designed to rule out alternative explanations based on common shocks or unobservable economic linkages across firms. We first reshuffle director-specific benchmarking measures across firms with similar industry and size characteristics and show that the resulting placebo measures have no explanatory power for CEO turnover, indicating that our results are not driven by industry-wide or size-related shocks. We further show that director-specific benchmarking does not predict industry-level CEO turnover rates, alleviating concerns that the estimates capture broad economic conditions affecting peer firms. Next, we replace each focal firm's board with that of an industry–size–performance matched firm and find that the performance of the matched board's interlocked firms does not influence CEO turnover. Lastly, we move beyond industry boundaries by examining if the results arise from broader economic connections embedded in directors' interlocking networks. Specifically, we randomly assign each director to a matched interlocking firm in the same industry and of similar size as the focal firm's actual interlocking peer, and recompute the benchmarking measure using these artificial networks. Benchmarking based on these placebo interlocks yields coefficients that are centered close to zero and lie 5.7 standard deviations below the baseline estimates. Taken together, these tests demonstrate that the results do not reflect common economic shocks, performance co-movement among similar firms, or generic network correlations, but instead arise from director-specific performance benchmarking within actual interlocking portfolios.

It is important to note that while each one of the identification strategies has its respective strengths and weaknesses, they collectively bolster the causal interpretation of our findings by providing similar conclusions despite using different methods, samples, periods, and empirical specifications. Thus, while no single bit of evidence is decisive, consilience across an ensemble of evidence makes the story compelling (Heckman and Singer, 2017, p.301) and helps us achieve triangulation to improve causal inference (Armstrong, Kepler, Samuels, and Taylor, 2022, p.68).

To our knowledge, these findings provide some of the most direct evidence that individual directors influence CEO transitions. They do so by relying on unique performance evaluations that are not shared by other stakeholders. Further, these results provide novel evidence that board interlocks influence CEO turnover through channels other than busyness and quality by generating director-specific relative performance benchmarks. In this regard, the evidence points to an unintended consequence of appointing interlocked directors: the introduction of implicit relative performance benchmarks derived from their other board affiliations.

If neither firm performance nor endogenous interlocks fully account for why directors benchmark a CEO against a small set of interlocked firms, what economic mechanism explains this behavior? We begin by showing that benchmarking has real governance consequences. Directors devote greater attention to firms that perform poorly relative to their other directorships: they are significantly less likely to miss board meetings when the focal firm is the worst performer in their interlocking portfolio. This result holds after saturating the specifications with director-by-year and firm-by-year fixed effects, thus absorbing any time-varying director-level and firm-level attributes, including firms' annual performance. Further, the relation between benchmarking and CEO turnover is concentrated among directors with formal monitoring responsibilities. These findings indicate that benchmarking reallocates directors' attention/effort across the firms they oversee.

We then examine when directors rely on such benchmarking, considering two non-mutually-exclusive interpretations. Under a rational learning interpretation, directors extract information about CEO ability/behavior not captured by conventional performance metrics. Under a heuristic benchmarking view, they rely on mental shortcuts when evaluating CEOs. Because heuristic decision-making is more likely when evaluation tasks are complex (Shah and Oppenheimer, 2008), we test whether benchmarking effects intensify when CEO performance is harder to assess. Consistent with this prediction, the sensitivity of CEO turnover to benchmarking is substantially stronger in firms with greater performance uncertainty, as measured by analyst forecast errors and dispersion, and when there is greater uncertainty about CEO ability, proxied by CEO age.

We further distinguish between rational learning and heuristic benchmarking by examining the consequences of CEO dismissals. If interlock-based benchmarks primarily reveal value-relevant information, such dismissals should not predict systematically worse outcomes. We therefore compare CEO dismissals associated with poor interlocked performance with those unrelated to interlocks. We find that interlock-driven dismissals are followed by weaker operating and market performance, including lower ROA and market-to-book ratios, as well as a higher likelihood of analyst downgrades and deteriorating recommendations. The magnitudes are economically meaningful: a one–standard deviation increase in *%Worst* is associated with a 0.012 decline in post-turnover ROA, equivalent to roughly 12.8% of the standard deviation of ROA.

Next, we group firms by the fraction of independent directors for whom the focal firm is the worst performing interlock: (1) $\%Worst \geq 50\%$, (2) $25\% < \%Worst < 50\%$, and (3) $\%Worst \leq 25\%$. For each firm that dismisses its CEO, we construct a matched sample of same-industry firms that retain their CEO, using pre-dismissal performance metrics such as stock returns, ROA, and market-to-book ratios. The evidence shows that only firms in group 1, the worst interlocked performance ranking, experience weaker subsequent performance following CEO dismissal, whereas no such effects are observed in the other groups.

We also show that the stock market reaction to CEO turnover announcements is more negative when the dismissal is more strongly associated with interlock-based benchmarking. Specifically, the cumulative abnormal return (CAR) around dismissal announcements is –3.4% for high *%Worst* firms (*%Worst* ≥ 50%), compared with –1.0% for low *%Worst* firms (*%Worst* ≤25%). Finally, we find that while dismissed CEOs generally *lose* directorships, this effect is weaker when dismissals are associated with interlocked-directorship benchmarks, suggesting that investors and director labor markets do not view these dismissals as unambiguously negative signals about CEO ability.

The central contribution of this article is twofold. We nest a heuristic-based framework for individual decision-making in a typical governance model that has boards assess the incumbent CEO's ability and dismiss him if they expect to find a better alternative, net of replacement costs (Hermalin and Weisbach, 2017). Therefore, a primary contribution of our paper is providing novel evidence of behavioral biases in boards' decision-making – a possibility raised (yet unexplored) by Jenter and Kanaan (2015) and Guenzel and Malmendier (2020), among others. In this vein, our paper advances the strand of the behavioral finance literature studying whether cognitive biases or heuristics influence the decisions of corporate insiders (e.g., Baker, Pan, and Wurgler, 2012; Dessaint and Matray, 2017).

Our work also offers novel evidence on *how* boards evaluate CEO performance. By estimating the role of an individual director relative to other directors serving on the same board, we provide some of the most compelling estimates, to date, that directors directly influence the CEO replacement process. This evidence advances a large literature that studies the role of boards of directors in hiring and dismissing CEOs.[1] Our work also extends the literature on CEO turnover and relative performance evaluation (e.g., Jenter and Kanaan, 2015; Fee, Hadlock, Huang, and Pierce, 2018). It also puts forth a new channel through which interlocking boards affect corporate governance (e.g., Hallock, 1997; Bizjak, Lemmon, and Whitby, 2009; Eldar and Grennan, 2024).

[1] Broadly, these studies show that: (1) CEOs are more likely to be dismissed following bad performance (e.g., Coughlan and Schmidt, 1985; Warner, Watts, and Wruck, 1988; Weisbach, 1988; Jensen and Murphy, 1990; Denis, Denis, and Sarin, 1997a; Murphy, 1999; Huson, Parrino, and Starks, 2001; Kaplan and Minton, 2012; and Jenter and Lewellen, 2021); and (2) Certain board attributes, such as independence, CEO/Chairman duality, size, busyness, ethnicity/race, or the presence of women directors, influence the sensitivity of CEO turnover to firm performance (e.g., Weisbach, 1988; Yermack, 1996; Dahya and McConnell, 2007; Goyal and Park, 2002; Fich and Shivdasani, 2006; Adams and Ferreira, 2009; and Field, Souther, and Yore, 2020).

2. Sample and Variables

We construct a sample of directors and firms with data from RiskMetrics, which contains director information for S&P1500 firms. We then merge this sample with data on forced CEO turnovers, firm-level financial information, analyst forecast data, and news sentiment data.

Data on forced CEO turnovers comes from Peters and Wagner (2014), who follow Parrino's (1997) method to classify CEO departures as forced or voluntary. A turnover is forced if the press reports that the CEO was fired, forced out, or resigned because of policy differences. All other departures of CEOs aged 60 or older are considered voluntary. Departures of CEOs younger than 60 are forced if the press does not report the reason as death, poor health, acceptance of another position, or if the CEO's departure was announced less than six months before it occurred.

We obtain stock prices and financial accounting information from CRSP and Compustat, respectively. We draw data on analyst forecasts and forecast dispersion from I/B/E/S, and news sentiment data from RavenPack. Our sample period begins in 1997, the first year for which board committee data are available from RiskMetrics, and ends in 2019, the last year for which forced CEO turnover data are available.

To arrive at our final sample, we use the following criteria. First, we drop interim CEOs defined as those who serve less than two years (e.g., Gao, Harford, and Li, 2017; Goldman, 2023). Second, we restrict the sample to firms with common shares (CRSP share codes equal to 10, 11, or 12). Third, we exclude firm-years in which none of the independent board members has at least one external directorship. Fourth, we delete firm-year observations with missing control variables and winsorize all continuous variables at the 1st and 99th percentiles to mitigate concerns of outliers.

The main variables of interest are director-specific performance measures. We define $\%Worst$ ($\%Best$) as the fraction of independent directors for whom the focal firm is the worst (best) performer among their directorship firms. We focus on independent directors because they

play a vital role in monitoring the CEO (Hermalin and Weisbach, 1998). Further, we consider all independent directors regardless of whether they serve on multiple boards. To see why, consider a board of ten independent directors where only one director sits on multiple boards and views the focal firm as the worst performer in her portfolio. Constructing *%Worst* using only interlocked directors would yield a value of 100%, overstating the influence of benchmarking by ignoring the remaining nine directors without comparable interlocking firms. Our definition accounts for this mitigating effect, yielding a *%Worst* value of 10%. Nevertheless, we show in the Internet Appendix that the results continue to hold if we exclude directors who do not serve on multiple boards.

To construct these variables, we compare annual raw stock returns across all the interlocked firms for each director serving on multiple boards. Raw returns are a natural choice given the mechanism we study: directors using mental shortcuts are more likely to rely on readily observable performance rankings than on risk-adjusted figures that require additional computation. For each director, we flag whether the focal firm is the worst (best) performer. We then aggregate these flags at the board level by calculating the fraction of independent directors for whom the focal firm is the worst (best) performer. Variable definitions are reported in Section A of the Internet Appendix.

In Internet Appendix Table IA1, we decompose year-to-year changes in *%Worst* into changes in the focal firm's own stock performance, board composition, and the performance of firms connected through interlocked directors. We focus on changes because our main specifications include firm fixed effects and therefore exploit within-firm variation in *%Worst* over time. This decomposition shows that variation in *%Worst* is not solely driven by changes in firm's own performance or board composition. Changes in the firm's own performance explain 27.8% of the variation in $\Delta\%Worst$. Conditional on the focal firm's performance, changes in board composition add only 3.7% to the model's R^2. Adding changes in interlocked-firm performance

raises the R^2 from 0.315 to 0.470, an increase of 15.5 percentage points. Thus, a substantial share of the variation in *Δ%Worst* reflects performance shocks to other firms in directors' networks, supporting the interpretation that the measure captures interlock-based benchmarking rather than simply poor performance at the focal firm.

Panel A of Table 1 reports firm-level summary statistics. The firm-level sample consists of 23,350 firm-year observations from 2,587 unique firms, 4,624 unique CEOs, and 586 forced turnovers. The unconditional probability of a forced turnover is 2.5 percent. On average, firms are the worst performers for approximately 18 percent of their independent directors. A typical firm has 9.8 board members, of which 76 percent are independent.

Panel B of Table 1 reports director-firm-year-level summary statistics. Because our empirical design compares different directorship firms for the same board member during the same year, these statistics rely on outside directors who hold at least two directorships. The sample includes 57,207 director-firm-year observations from 2,389 firms and 4,802 unique directors. On average, directors hold 3 board seats at all public firms *(#Pub board seats (All Public)*), 2.4 directorships at S&P1500 firms *(#Board seats (Risk Metrics)*),[2] and are 63 years old. About 1.2 percent of directors miss more than 25% of their board meetings each year.

[2] # Pub. board seats (All Public) is constructed from the outside_public_boards variable in ISS RiskMetrics, which reports the total number of other major public company directorships held by a director, regardless of whether the corresponding firms are observed in our sample. # *Board seats (RiskMetrics)* is constructed as the number of board seats held by a director at firms in our sample, where the firm is covered by both Compustat and CRSP, has common shares outstanding, and has non-missing stock return data.

3. Empirical Design

To study how director-specific performance evaluation affects the likelihood of CEO dismissals, we estimate the following regression model:

$$Forced\ CEO\ turnover_{it} = \beta_1 \%Worst_{it}(Best) + \gamma X_{it} + \alpha_i + \alpha_t + \epsilon_{it} \quad \textbf{(1)}$$

where i denotes firm and t denotes year. When there is no forced CEO turnover, stock returns are measured over the current fiscal year. Following Peters and Wagner (2014), Jenter and Kanaan (2015), and Jayaraman, Milbourn, Peters, and Seo (2021), among others, if the current fiscal year overlaps with the announcement of a forced CEO turnover, we compute stock returns over the 12-month period preceding the announcement to avoid attributing performance to the successor CEO. The results, however, continue to hold if we measure returns over the fiscal year regardless of whether the CEO turns over (See Internet Appendix Table IA6). X_{it} represents a vector of firm-level controls: current and lagged stock returns, ROA, (log of) total assets, value-weighted industry stock returns, the standard deviation of stock returns, CEO-Chair duality, CEO ownership, (log of) CEO age, (log of) CEO tenure, (log of) board size, board independence, equal-weighted stock returns of interlocking-directorship firms, and the percentage of independent directors for whom the focal firm is the largest (smallest) among their directorships (Masulis and Mobbs, 2014).[3] We additionally control for the fraction of directors who sit only on the focal firm's board and the average number of board seats held by each independent director, as these variables are mechanically correlated with *%Worst (%Best)* and capture board composition that may influence CEO turnover. Finally, we include second- and third-order terms of contemporaneous stock-based and accounting-based performance to ensure that *%Worst* does not capture nonlinear effects of firm performance on CEO turnover.

[3] Following Masulis and Mobbs (2014) we measure firm size using market capitalization.

Our main analysis uses both logit and linear probability models. The baseline specification for both models includes year fixed effects and performance controls — namely, firm stock returns, ROA, and industry stock returns. A more stringent specification adds industry fixed effects based on the Fama-French 48 industry classification, along with the full set of firm-level controls. For the linear probability model, our preferred specification further includes firm fixed effects to absorb unobservable time-invariant firm characteristics that may be correlated with *%Worst (%Best)* and CEO turnovers. The logit models do not include firm fixed effects due to the potential for inconsistent estimates arising from the incidental parameters problem (Wooldridge, 2010). Standard errors are clustered at the firm level. The coefficient of interest, β_1, measures the impact of *%Worst (%Best)* on forced CEO turnover. One concern is that *%Worst* and firm stock returns are highly correlated, leaving little variation in *%Worst* to estimate β_1 after controlling for performance. Empirically, this does not appear to be the case: the focal firm's stock returns explain only 23% of the variation in *%Worst.*

As an alternative specification, we estimate regressions where the unit of observation is a director-firm-year triplet. The key explanatory variable is *Worst*, an indicator equal to 1 if the focal firm is the worst performer among a director's set of interlocked firms in a given year, and zero otherwise. We saturate these models with director-by-year, industry-by-year, and firm fixed effects, allowing us to estimate the probability of CEO turnover when a firm becomes the worst performer for a given director in a given year. As the outcome variable is measured at the firm level, we account for potential correlation in the error structure by double-clustering the standard errors at the firm and year levels.[4]

[4] Double clustering at the firm and director levels does not change the results.

4. Forced CEO Turnovers

Replacing an underperforming CEO is one of the board's most consequential decisions. Therefore, we examine whether directors use performance information from their other board seats when making this decision. Specifically, we test whether CEO turnover is more likely when a firm underperforms relative to the other firms on which its directors concurrently serve. If directors benchmark across their portfolios of directorships, weaker relative performance should increase the likelihood of CEO dismissal.

4.1 Descriptive Analyses

Figure 1 plots CEO dismissal rates across terciles of *%Worst* separately for underperforming and outperforming firms. Among underperformers (Panel A), the dismissal rate increases by 3.6 percentage points (p.p.) from the lowest to the highest tercile of *%Worst*, a magnitude comparable to the unconditional dismissal rate among underperforming firms (i.e., below-median return) of 3.90%. Among outperformers (Panel B), the dismissal rate rises by 0.87 percentage points, which corresponds to a 77% increase relative to the unconditional mean.

We observe the same pattern when performance is measured using ROA (Panels C and D) and when firms are classified relative to the value-weighted industry benchmark (Panels E and F). These relations are visible in raw turnover rates, alleviating concerns that the findings are driven by heavily parameterized specifications (Chudik, Ellis, and Jaspersen, 2025).

4.2 Firm-level Analyses

Table 2 reports multivariate estimates of the relation between cross-board underperformance and forced CEO turnover. The key explanatory variable, *%Worst*, measures the fraction of independent directors for whom the focal firm is the worst-performing directorship. Across specifications with alternative fixed effects, *%Worst* is a strong predictor of CEO dismissal. In column (2), the logit

estimates imply that a one-standard deviation increase in *%Worst* increases the probability of dismissal by 0.97 percentage points (p.p.), or 39% relative to the sample mean.[5]

Columns (3)–(9) report linear probability models in which all continuous variables are standardized. The estimates indicate a pronounced asymmetry: turnover is driven by directors' worst-performing firms, not their best-performing ones. A one–standard–deviation increase in *%Worst* increases the probability of forced turnover by 0.72 to 0.79 p.p. In contrast, a one–standard–deviation decrease in *%Best* raises turnover by only 0.26 to 0.30 p.p. and becomes insignificant once both measures are included jointly. In column (9), the coefficient on *%Worst* remains 0.768 p.p., while *%Best* is economically small and not statistically significant.

These results are estimated using specifications that include cubic polynomials in current and lagged stock returns and accounting performance, detailed board controls, and alternative sets of year, industry, and firm fixed effects. Controlling for the performance of interlocking firms does not attenuate the estimate on *%Worst*, and the interlocked-firm return (*Interlocked RET[t])* itself is insignificant. This pattern indicates that the effect reflects directors' relative ordinal rankings across their board portfolios rather than the absolute performance of their other firms.

In terms of economic magnitude, the effect of *%Worst* is substantial, amounting to 29–32% of the unconditional probability of forced turnover. To further benchmark this effect, we compare its impact to other major determinants of CEO dismissal. Prior research shows that firm and industry performance are key drivers of CEO turnover (Fee, Hadlock, Huang, and Pierce, 2018; Jenter and Kanaan, 2015). In columns (3)–(5), a one–standard deviation increase in a firm's current stock returns is associated with a 1.7 to 2.5 p.p. decrease in dismissal probability, while a one–standard deviation increase in industry stock returns is associated with a 0.31 to 0.56 p.p. increase. The

[5] The smaller sample in column (2) arises only in the logit specification with industry fixed effects: industries with no forced turnovers are perfectly predicted and dropped from the logit likelihood. The linear models retain all observations even after adding industry fixed effects.

effect of *%Worst* is therefore roughly one-third as large as the effect of firm performance and 1.4 to 2.5 times larger than the effect of industry performance.

We next benchmark the effect against managerial entrenchment. Prior research shows that CEO–chair duality reduces the likelihood of dismissal (Denis, Denis, and Sarin, 1997a; Goyal and Park, 2002). In columns (4) and (5), CEOs who also chair the board are 1.6 to 2.2 p.p. less likely to be replaced. The effect of a one–standard–deviation increase in *%Worst* is therefore about one-third as large as the effect of CEO duality.

Taken together, the evidence indicates that directors evaluate CEOs using performance benchmarks derived from the small set of firms on whose boards they concurrently serve. More broadly, the results reveal a previously overlooked implication of interlocked directorates: they introduce director-specific relative performance benchmarks that shape CEO turnover decisions.

4.3 Director-level Analyses

We next exploit within-director variation across interlocked firms. The director–firm–year panel allows us to compare CEO turnover decisions across the different firms on whose boards the same director serves in the same year, while absorbing all director-specific attributes. If directors benchmark across their board portfolios, turnover should be more likely at the firm that represents the director's worst-performing directorship.

Table 3 tests this prediction by regressing forced CEO turnover on *Worst*, an indicator equal to one when the focal firm is the director's lowest-performing interlocked firm. The specifications include director-by-year fixed effects, which compare dismissal decisions across firms within the same director–year, as well as firm characteristics and industry-by-year and firm fixed effects.[6]

[6] These controls are: current and lagged stock returns, firm size, industry stock returns, ROA, standard deviation of stock returns, (log of) CEO age, (log of) CEO tenure, CEO-Chair duality indicator, CEO ownership, (log of) board size, board independence, *%Non-Interlocked*, *Avg. #board seats*, and higher-order performance variables, including 2nd and 3rd order current and lagged stock and accounting performance.

The results in Table 3 are consistent with the earlier evidence. Holding firm performance constant, a director is more likely to dismiss the CEO of her worst-performing directorship firm. According to the regression estimates, the worst performing CEO in a director's portfolio of interlocked firms is associated with a 0.77 to 0.92 p.p. increase in the probability of forced turnover, which is economically large relative to the 2.5% unconditional turnover rate.

4.4 Poor Performance

Thus far, we have shown that poor performance relative to interlocking directorship firms is associated with a higher likelihood of CEO dismissal. A potential concern is that *%Worst* captures extreme realizations of poor performance rather than director-specific benchmarking. The baseline specifications control for cubic polynomials in returns and ROA, which impose a smooth functional form. If CEO turnover responds discontinuously to very poor performance (for example, when firms fall into the extreme left tail of the performance distribution) these polynomial controls may not fully absorb the effect.

To address this concern, we replace the polynomial controls with indicator variables for bottom-decile performance and for being the worst-performing firm in a given year. These indicators capture sharp increases in turnover associated with extreme underperformance. Column (1) of Table IA2 shows that the coefficient on *%Worst* is virtually unchanged and remains significant at the 1% level. This result indicates that the baseline estimates are not driven by nonlinear or threshold effects of absolute performance.

A second concern is that *%Worst* reflects poor performance relative to industry or product-market peers. To address this concern, columns (2)–(5) augment the baseline specification with controls for peer-relative performance: indicators for bottom-decile performance within the industry, the industry-average performance, and for being the worst performer in the industry. We

implement these controls using multiple industry definitions, including Fama–French 48 and 12 industries, three-digit SIC codes, and TNIC-3 product-market peers (Hoberg and Phillips, 2016). Across all specifications, the coefficient on *%Worst* remains positive with virtually unchanged magnitude. This evidence indicates that the effect is not driven by standard industry or product-market benchmarking and instead reflects director-specific relative rankings across their interlocked firms.

A third concern is that returns and ROA do not fully capture the performance signals used by boards. If analyst assessments or media coverage contain incremental information, *%Worst* may proxy for these omitted measures. Therefore, in columns (6) and (7), we control for analyst ratings and firm-level news sentiment, respectively.[7] Although more favorable ratings and sentiment are associated with lower dismissal probabilities, the coefficient on *%Worst* is virtually unchanged and remains significant at the 1% level. This result indicates that the effect is not driven by alternative performance signals.

Finally, column (8) includes all additional controls from previous columns. The coefficient on *%Worst* remains stable at 0.777, almost identical to the baseline estimate. The results in Table IA2 indicate that *%Worst* does not proxy for poor absolute or peer-relative performance, consistent with director-specific benchmarking playing an independent role in CEO dismissal decisions.

4.5 External Performance Benchmarks

Prior studies show that CEO turnover is sensitive to both absolute performance and performance relative to industry peers (Eisfeldt and Kuhnen, 2013; Jenter and Kanaan, 2015). Given this

[7] News sentiment data come from RavenPack, where we follow Cookson, Lu, Mullins, and Niessner (2024) by retaining articles with a relevance score above 75 and aggregating the Event Sentiment Score to the firm-day level. We then compute the average sentiment score by averaging across firm-years.

evidence, we examine whether the effect of interlock-based benchmarking varies with industry-relative performance.

Table IA3 partitions the sample into industry outperformers and underperformers using several industry classifications and performance measures, including Fama-French 12 (Panel A), 2-digit SIC (Panel B), and 3-digit SIC (Panel C). To measure a firm's relative performance, columns (1) and (2) use stock returns, columns (3) and (4) use accounting returns (ROA), and (5) and (6) use analyst forecasts. In all specifications, the coefficient on *%Worst* is positive and statistically significant except in Panel C, column (1). The effect is present even when firms outperform their industries. For example, a one–standard–deviation increase in *%Worst* increases the probability of forced turnover by 0.367 p.p. for industry outperformers, a 15% increase relative to the sample mean. The magnitude is comparable to the sensitivity of turnover to the firm's own stock return. These results indicate that interlock-based benchmarking operates independently of industry-relative performance.

We next examine whether *%Worst* captures performance relative to formally disclosed peer groups, as prior studies also show that boards often evaluate their CEOs by benchmarking them against their performance and/or compensation peers (e.g., Gong, Li, and Shin, 2011; Jayaraman, et al., 2021). Using Incentive Lab data, Table IA4 shows that the effect of *%Worst* is present both for firms that disclose performance peers and for those that do not. The estimate remains positive and significant when we control for an indicator equal to one if the firm is the worst performer among its disclosed performance peers. A one–standard–deviation increase in *%Worst* increases the probability of forced turnover by 1.8 p.p., whereas being the worst performer among performance peers increases it by 4.7 p.p. The interlock-based benchmark therefore has roughly 40% of the impact of formal peer benchmarking. In the remaining columns, we find similar results

in a subsample based on compensation peers. The effect of *%Worst* persists for firms both with and without compensation peers, and it is not driven by poor performance relative to compensation peers.

In sum, the results in Table IA3 and Table IA4 indicate that the *%Worst* effect remains significant even when the focal firm outperforms its industry and is not captured by official performance/compensation peer benchmarks. These findings are consistent with the director-interlock network serving as an independent source of performance evaluation.

4.6 Robustness

We conduct several tests to assess the robustness of the baseline results. A first concern is misclassification of forced turnover, as some involuntary departures of older CEOs may be reported as voluntary because firms that dismiss a CEO older than 59 years old might not report the dismissal as involuntary in the media (Jenter and Lewellen, 2021).[8] To address this concern, we use three alternative measures of CEO dismissal: (1) all CEO turnovers (forced and voluntary), (2) turnovers of all CEOs younger than 63, treating all departures of CEOs younger than 63 as forced, and (3) turnovers of all CEOs younger than 60, treating all departures of CEOs younger than 60 as forced. Using these broader turnover definitions, the coefficient on *%Worst* remains positive and statistically significant. The estimated magnitudes in Table IA5 imply a 6–14% increase in turnover probability relative to the sample mean. This smaller effect is likely due to noise in these alternative measures, which may classify voluntary turnovers as forced dismissals.

We next consider alternative measures of interlock-based relative performance in Table IA6. Restricting the sample to directors with multiple board seats yields similar results (Columns (1)

[8] In our main specifications, departures of CEOs aged 60 or older are considered voluntary if there is no media mention of an involuntary turnover.

and (2)): a one–standard–deviation increase in *%Worst* is associated with a 0.50–0.54 p.p. increase in the probability of forced turnover. In columns (3) and (4), we move away from director-specific benchmarking and instead measure relative performance at the firm level as the fraction of its interlocking firms that outperform it. The coefficient on this measure is positive and significant: a one–standard–deviation increase increases the probability of forced turnover by about 0.3 percentage points. In columns (5)-(8), we show that using treatment-intensity measures based on the degree of underperformance instead of indicator variables yields comparable estimates.

We then consider the possibility that directors compare the relative performance of the focal firm to their other directorship firms throughout their tenure in columns (9) and (10) by replacing *%Worst* with *%Worst over entire tenure*, which is similar to *%Worst* except that performance is measured since directors joined each of their directorship firms. The coefficient on this alternative measure remains positive and significant, with a one–standard–deviation increase associated with a 0.41 p.p. increase in dismissal probability. The smaller magnitude is consistent with recent performance receiving greater weight in decision-making (Tversky and Kahneman, 1974; Malmendier and Nagel, 2011).

The results are also robust to alternative timing of performance measurement. Using fiscal-year performance rather than the twelve months preceding turnover leaves the coefficient on *%Worst* positive and statistically significant. In columns (11) and (12), the coefficient on this alternative measure , $\%Worst_{fiscal\ year}$, remains positive and statistically significant.

A remaining concern is that directors with multiple board seats are stronger monitors, which would mechanically increase turnover–performance sensitivity.[9] We test this in Table IA7 by interacting stock returns with the fraction of directors who hold a single directorship (*%Non-Interlocked*). The interaction is negative and statistically insignificant, while the coefficient on

[9] This interpretation is not obvious, however, as prior research suggests that busy directors may be weaker monitors (e.g., Fich and Shivdasani, 2006).

%Worst remains positive and similar in magnitude to the baseline estimate. This result indicates that the effect of *%Worst* is not driven by differences in monitoring intensity.

In general, we show that the main results are robust to alternative turnover definitions, alternative measures of interlock-based relative performance, and do not capture differences in monitoring associated with multiple directorships.

4.7 Estimates from Different Identification Approaches

4.7.1 Director Departures

Despite the extensive set of control variables and fixed effects in the baseline specifications, selection concerns still exist. A director's set of interlocked directorships is nonrandom, and his/her performance evaluation of the focal firm relative to the set of interlocked firms may capture common unobservable economic links or shocks. For instance, an unobservable demand shock may decrease the demand for the focal firm's products relative to the demand for the products of its director-interlocked firms. Such a common shock would result in a reduction in director-specific relative performance and would simultaneously increase the likelihood of CEO dismissal since it would change the optimal CEO traits required to run the company effectively, biasing our estimates upwards. Conversely, high-ability CEOs—who are less likely to be dismissed—may systematically match with high-ability directors, who are more likely to experience high performance at their interlocked firms. Under this view, assortative matching between CEOs and directors biases the estimates of *%Worst* downwards.

We address selection concerns in several ways. First, we examine the effect of director-specific benchmarking on CEO turnover before and after director departures. If interlocking directorships capture unobservable common shocks, the focal firm's performance relative to interlocked firms should continue to influence CEO dismissal after the director's departure. In

contrast, if the effect on CEO dismissal is driven by the departing director's active benchmarking of the focal firm against her other board seats, the effect should disappear once the director leaves, particularly for exogenous departures (e.g., retirement, death, or health-related issues).

To test these predictions, we estimate the following firm-year regression model:

$$Forced\ Turnover_{i,t} = \beta_1 \%Worst_{leaver} + \gamma X_{it} + FE + \epsilon_{it} \quad (2)$$

Where $\%Worst_{leaver}$ is the fraction of departing directors for whom the focal firm is the worst performer among their directorships. For the post-departure sample, we compute this variable as if the departing directors remained on the board and maintained the same interlocking directorships they held prior to their departure. Otherwise, the specification mirrors columns (3)–(6) of Table 2.

To identify director departure events, we focus on independent directors who hold multiple board seats and leave at least one firm in a given year.[10] For firms experiencing such departure, we estimate equation (2) separately for periods before and after the departure. Each subsample includes up to six years of firm-level observations, consistent with the median tenure of independent directors.

One concern with this approach is that director departures may be an endogenous response to changes in the firm conditions: firms undergoing organizational changes may replace existing board members with individuals whose expertise align with the firm's new direction. To address these concerns, we focus on departures that are plausibly exogenous: those driven by multi-board directors retiring from the director labor market *altogether*, health-related issues, or death. We classify directors as departing for retirement reasons if they leave all their board seats and are at least 65 years old. By focusing on directors that exit the director labor market altogether, we mitigate concerns that directors strategically time their exit from a given board due to firm-specific

[10] This yields 4,878 unique departing directors associated with 1,711 firms in the year before their departures.

reasons. For departures before age 65, we determine the reason by searching the director's name in *ProQuest One Business*, which aggregates content from over 130 newspapers, within a one-year window around the departure year. We supplement this with ChatGPT to uncover potential explanations for the departures and verify their accuracy by reviewing the underlying sources it provides.[11] We classify those due to health reasons or deaths as exogenous turnovers. Figure 2 shows no discernible performance trends around these departures, either in the full sample or differentially across firms with high versus low interlock-benchmarked performance.[12] Further, Internet Appendix Table IA8 shows that departures are unrelated to prior *%Worst*, ROA, or stock returns. These results mitigate concerns that director exits are systematically timed around changes in firm fundamentals or that high- and low-*%Worst* firms are on different performance trajectories.

Table 4 reports the results. Panel A considers all turnovers, and Panel B uses exogenous turnovers. In both panels, columns (1)–(3) present estimates from the pre-departure sample. The coefficient on $\%Worst_{leaver}$ is positive and statistically significant in four out of the six specifications, indicating that CEO dismissal rates increase as the focal firm's performance deteriorates relative to departing directors' other board seats as long as they still serve on their boards.[13] The effects are economically meaningful. For example, in Panel B-columns (1) – (3), a one-standard deviation increase in $\%Worst_{leaver}$ is associated with a 0.5 to 1 p.p. increase in the probability of CEO dismissal, representing a 20–40% increase relative to the sample mean.

In both panels, columns (4)–(6) present results from the after-departure sample, where the coefficient on $\%Worst_{leaver}$ is not statistically different from zero. Importantly, the difference in

[11] This process yields 409 unique departing directors associated with 858 firms in the year prior to departure.
[12] The F-tests for the joint significance of the coefficients in Figure 2 yield *p*-values of 0.33 and 0.39 in Panels A and B, respectively.
[13] The effects become statistically insignificant after including firm fixed effects due to limited within-firm variation in the relatively short event windows of up to six years.

coefficients before and after departure (associated with the $\%Worst_{leaver}$ variable) is statistically significant for five out of the six specifications. These results indicate that the effect of *%Worst* on CEO turnover operates through directors' active benchmarking of the focal firm against their other board seats rather than through common shocks or matching between firms and directors.

4.7.2 Falsification Tests

To further address endogeneity concerns, we conduct a series of within-industry falsification tests. If the estimated effects reflect unobservable economic links unrelated to director-specific benchmarking, similar relations should remain after reshuffling *%Worst* across firms with comparable fundamentals.

In the first test, we randomly reassign *%Worst* each year to a firm in the same industry and size tercile as the focal firm and re-estimate the baseline specification from column (5) of Table 2. We repeat this process 1000 times and plot the resulting coefficients in Panel A of Figure 3. The falsification coefficients are centered around zero and are considerably smaller than our baseline estimates (red vertical line). This evidence suggests that unobservable annual shocks common to similar-size firms in the same industry do not drive the effect of *%Worst* on CEO firings.

In the second test, we examine whether *%Worst* predicts industry-wide CEO turnover. Specifically, we regress the fraction of industry peers that dismiss their CEO in a given year on the focal firm's *%Worst*, using the same controls and fixed effects as in the baseline specification. Panel A of Table 5 shows that *%Worst* has no explanatory power for industry-level turnover rates.

Finally, we test whether the relative performance of matched peer firms explains CEO turnover at the focal firm. We match each focal firm to an industry peer with similar size, growth opportunities, profitability, and stock performance using propensity scores. We then replace the

focal firm's *%Worst* with *Peer %Worst*, defined as the *%Worst* of the matched peer, and re-estimate the director-level specification from Table 2. Panel B of Table 5 shows that *Peer %Worst* is indistinguishable from zero.

Together, these results indicate that the estimated relation between *%Worst* and forced CEO turnover is not driven by common industry shocks or by performance co-movement among economically similar firms.

4.7.3 Placebo Interlock Reshuffling

While the within-industry reshuffle addresses the concern that the estimates are driven by common industry shocks, interlocked firms may share economic links that extend beyond standard industry boundaries. For example, technology firms may appoint directors who also serve on the boards of investment banks to facilitate financing. In this case, our results could reflect common economic shocks across such connected firms rather than benchmarking within directors' true interlocking portfolios.

To address this possibility, we conduct a placebo test in which each independent director is randomly assigned a placebo interlocking firm from the focal firm's interlocking-peer set, matched on industry and size (total assets within ±30%). We then recompute *%Worst* using these placebo interlocks and re-estimate our baseline specification. If the baseline results are driven by common shocks across economically connected firms, the placebo measure should produce coefficients comparable in magnitude to the baseline estimates.

Panel B of Figure 3 plots the distribution of coefficient estimates from 1,000 placebo simulations. The placebo estimates are centered close to zero (mean 0.16) and are statistically indistinguishable from zero; they lie 5.7 standard deviations below the baseline estimate (red

vertical line).[14] These results indicate that the relation between *%Worst* and forced CEO turnover is unlikely to be driven by common economic links between the focal and interlocking firms. The coefficients are slightly positive because the placebo *%Worst* remains mechanically correlated with the true *%Worst*, as returns of directors' actual interlocking firms are positively correlated with those of their industry peers, which preserves part of the true relative performance.

Overall, the combination of identification strategies that exploit different sources of variation, in different samples and over different sample periods, helps us achieve triangulation in the spirit of DeFond (2010, p. 407). DeFond conjectures that "when …proxies are simply noisy measures of the same underlying theoretical construct, triangulation may rule out the possibility that the observed association is driven by the noise component of a given measure." Therefore, while each one of our empirical approaches has limitations, collectively they limit the scope for alternative explanations (Heckman and Singer, 2017) and improve causal inference (Armstrong et al., 2022).

5. Economic Mechanisms

5.1 Board Monitoring

The baseline results imply that directors benchmark across their board portfolios. We examine whether this effect operates through attention and monitoring by studying board meeting attendance, a commonly used proxy for monitoring effort (Masulis and Mobbs, 2014; Adams and Ferreira, 2009).

Panel A of Table 6 examines directors' board meeting attendance. The dependent variable is an indicator set to 100 if the director misses more than 25% of the board's annual meetings and set to zero otherwise. In columns (1) and (2), the independent variable of interest, *Worst*, is an

[14] The standard deviation of the placebo coefficients is 0.10.

indicator which equals one if the firm is the director's worst performing directorship firm. Analogously, the key independent variable in columns (3) and (4), *Best*, indicates whether the firm is the director's top performing directorship firm. In column (5), we include both indicators. All tests control for director tenure, ownership, and whether the firm is a large or small directorship company.[15] To absorb any time-varying director-level and firm-level attributes (including firms' annual performance) our tests include different combinations of director-by-year and firm-by-year fixed effects. The inclusion of firm-by-year fixed effects allows us to compare the attendance of directors who work for the *same* firm in the same year, noting that for some board members the firm is their worst- (best-) performing directorship, while for others it is not. By including director-by-year fixed effects, we hold constant any time-varying director characteristics that may be correlated with their attendance. In specifications without firm-year fixed effects, we control for the focal firm's performance including first-, second- and third-order stock returns to address the possibility that directors may monitor poorly performing firms more intensively.

The effects are economically meaningful. Estimates in columns (2) indicate that directors are 0.606 p.p. less likely to miss more than 25 percent of board meetings if the focal firm is their worst performing directorship firm, a 51% decrease relative to the sample mean. In contrast, when the firm is the director's best-performing directorship, the probability increases by 0.487 p.p. (41%). These results indicate that directors allocate more attention to their worst-performing firms.

We also conjecture that if the turnover effect reflects monitoring, it should be concentrated among directors with formal monitoring responsibilities. To test this prediction, we decompose *%Worst* based on committee assignments. *Monitoring %Worst* measures the fraction of audit, compensation, nominating, and governance committee members for whom the focal firm is the

[15] We follow Masulis and Mobbs (2014) and classify a company as large (small) if its market capitalization is at least 10% larger (smaller) than the smallest (largest) directorship firm.

worst-performing directorship (Adams and Ferreira, 2009), and *Rest-of-Board %Worst* is defined analogously for other independent directors.

In columns (1) and (2), we replace *%Worst* in the forced CEO turnover specification of Equation (1) with a new independent variable, *Monitoring %Worst*. The new independent variable in columns (3) and (4) is *Rest-of-Board %Worst*. Column (5) includes both *Monitoring %Worst* and *Rest-of-Board %Worst.* As in previous analyses of forced CEO turnover, we control for a vector of firm characteristics as well as for year and industry (firm) fixed effects.

The coefficient on *Monitoring %Worst* is positive and statistically significant, whereas that on *Rest-of-Board %Worst* is not. In column (5), a one–standard–deviation increase in *Monitoring %Worst* raises the probability of forced turnover by 0.6 p.p. This pattern indicates that the turnover effect is driven by directors with monitoring responsibilities rather than by common shocks across interlocked firms. This is because if *%Worst* captures common shocks between interlocking firms that explain CEO dismissal rates, *Rest-of-Board %Worst* would also predict CEO turnover. Instead, the fact that only directors with formal monitoring responsibilities influence dismissal decisions is consistent with a monitoring-based mechanism.

In general, the evidence shows that directors devote more attention to their worst-performing directorships and that the *%Worst*–turnover relation operates through board monitoring.

5.2 Uncertainty

Since evaluating performance is more complex when there is greater uncertainty about the firm or its CEO, the heuristic-benchmarking view predicts stronger effects under higher uncertainty (Tversky and Kahneman, 1974).

Table 7 tests this prediction by augmenting the baseline turnover specification with interactions between *%Worst* and measures of uncertainty. These measures include indicators for firms in the

top tercile of industry analyst forecast error (columns (1) and (2)), the top tercile of analyst forecast dispersion (columns (3) and (4)), and CEOs whose age is below the industry median.

In all cases, there is a positive coefficient on all interaction terms between firm uncertainty and *%Worst*. The increased turnover-to-*%Worst* sensitivity under high uncertainty is economically meaningful. The point estimate in column (1) implies that the effect of *%Worst* on forced CEO turnover is about three times larger in firms with high analyst forecast errors than in firms with low analyst forecast errors. Similarly, the forced turnover–to–*%Worst* sensitivity is higher for younger CEOs, whose managerial ability is more uncertain due to shorter track records.

These results suggest that directors place greater weight on interlock-based performance benchmarks when firm performance and managerial ability are harder to evaluate. This pattern is consistent with heuristic-based decision-making, while also allowing for network-specific soft information to matter more in high-uncertainty settings.

6. Firm Performance Following CEO Turnovers

Director-specific benchmarking may reflect either rational learning about CEO ability or the use of availability-based heuristics. To help distinguish between these interpretations, we examine post-turnover operating performance. If interlock-based rankings reveal value-relevant information, the associated dismissals should not predict systematically weaker subsequent performance. If instead directors place excessive weight on salient interlock-based comparisons, these dismissals need not improve performance and may be followed by weaker outcomes. Prior studies document performance gains following forced CEO turnovers (Taylor, 2010; Dasgupta, Li, and Wang 2018), providing a natural benchmark for this test.

6.1 Conditional Tests

Panel A of Table 8 examines post-turnover firm performance. The sample includes one year before and two years after each forced CEO turnover. Performance is measured using ROA (columns (1) and (2)), market-to-book (columns (3) and (4)), analyst recommendations (columns (5) and (6)), and an indicator for analyst downgrades (columns (7) and (8)).

%Worst is measured over the 12 months preceding the dismissal, and Post equals one in the fiscal years after the turnover. In odd-numbered columns, the coefficient of interest is on *%Worst* × *Post, which* captures whether post-turnover performance varies with the extent to which directors rank the firm as their worst-performing directorship. We also define two independent variables, *%Worst* $\geq$ 50% and 25% < *%Worst* < *50%*, equal to one if the fraction of independent directors for whom the focal company is their worst-performing directorship is greater than or equal to 50%, or is greater than 25% and lower than 50%, respectively. In the even-numbered columns, the key independent variables are these two indicators interacted with *Post*. For example, *%Worst* $\geq$ *50% x Post* captures the change in performance post firing for firms in which the focal firm is the worst performer for more than half of its independent directors, relative to firms with *%Worst*$\leq$*25%.*

All specifications include cubic polynomials of stock returns, industry stock returns, log CEO tenure, log CEO age, CEO–chair duality, and board independence, measured in the turnover year. These controls account for effects of pre-turnover performance and firm characteristics that may shape subsequent performance. We also include firm fixed effects to isolate within-firm changes in performance around forced turnovers, and year fixed effects to control for macroeconomic trends that may influence firm performance.

The estimates indicate that a one-standard deviation increase in *%Worst* is associated with a 0.012 decrease in post-turnover changes in ROA (column 1). The effect is economically sizeable: the decrease is 12.8% relative to the standard deviation of ROA. We find similar evidence with

the other measures of post-turnover performance: A one-standard deviation increase in *%Worst* is associated with a 10% larger decline in both post-firing market-to-book ratio (column 3), and a 22% larger decrease in post-turnover analyst recommendations (column 5) relative to their specific standard deviations.[16] Furthermore, a one-standard deviation increase in *%Worst* is associated with an increase of 7.8 p.p. in the likelihood of an analyst downgrade post-CEO dismissal (column 7). The results in the even-numbered columns suggest that these effects are primarily driven by situations in which *%Worst* is greater than or equal to 50% (i.e., higher reliance on interlocked-directorship benchmarking). The results are robust to alternative event windows (Table IA9). These findings are difficult to reconcile with a simple value-enhancing interpretation of interlock-benchmarked dismissals and are consistent with directors placing excessive weight on salient interlock-based comparisons.

One concern is that these patterns reflect mean reversion driven by unobserved fundamentals: firms with high *%Worst* may have unobserved characteristics that predict continued poor performance following CEO turnover. Following Oster (2019), we assess how strong selection on unobservables must be to eliminate the estimates. For odd-numbered columns we calculate the sensitivity parameter δ, which compares the coefficient movements and changes in R-squared across two regressions: one that includes only *%Worst*, *Post,* and the interaction *%Worst* × *Post*,[17] and another that includes the full set of control variables used in Column (1). For ROA, the implied δ exceeds 21, indicating that unobserved selection would need to be more than twenty times stronger than selection on observables. For the other performance measures, unobserved selection would have to operate in the opposite direction of the observed controls. These results mitigate concerns that our findings can be explained by an omitted variable bias.

[16] We calculate the effects relative to the standard deviation of MTB and analyst recommendations, respectively.
[17] We include *Post* and *%Worst* in the baseline and more stringent specification because *%Worst x Post* cannot be interpreted without the other two variables.

6.2 Unconditional Tests

We next compare firms that dismiss their CEOs with firms that retain them. We split the sample into three subsamples: (1) *%Worst*≥50%, (2) 50%>*%Worst*>25%, and (3) *%Worst*≤25%. Within each group, we propensity-score-match turnover firms (treated) to non-turnover firms (control) in the same industry and year with similar pre-turnover performance (Barber and Lyon, 1996). Pre-turnover performance measures include stock returns, ROA, and the market-to-book ratio (MTB). Panel B of Table 8 reports the average treatment effect on the treated for post-turnover performance.

The results show that when CEO turnovers are associated with director-specific benchmarking (*%Worst*≥50%), the change in ROA is 0.025 *lower* for turnover firms than for similar firms that retain their CEO. This difference is 29% compared to the standard deviation of post-turnover changes in ROA. In contrast, when CEO turnover is unlikely to be driven by director-specific benchmarking (*%Worst* ≤ 25%), turnover firms' change in ROA outperform their matched counterparts by 0.013, or 15% of the standard deviation. Similar patterns obtain for market-to-book, analyst recommendations, and analyst downgrades.[18]

The evidence in Table 8 shows that CEO dismissals associated with director-specific benchmarking are followed by weaker outcomes relative to both non-benchmarked dismissals and matched firms that retain their CEOs. Since we do not observe the same firm's counterfactual outcome absent dismissal, the results do not establish that these turnovers destroy value. Still, the contrast with dismissals unrelated to director-specific benchmarking makes it difficult to interpret interlock-benchmarked dismissals as value-enhancing.

[18] Specifically, across all performance measures, the ATTs indicate that dismissals associated with director-specific benchmarking *(%Worst≥50%*) lead to decreases in performance. For example, looking at firms with *%Worst≥50%* in Panel B, the post-turnover change in *MTB* is 0.197 lower for a firm that dismisses its CEO compared to a similar firm that does not. The difference in the change in MTB between these firms is 26.6% of the standard. Conversely, for firms with *%Worst≤25%,* the change in *MTB* is 0.072 higher for a firm that dismisses its CEO compared to a similar firm that retains its CEO. The difference in this case is 9.7% relative to the standard deviation.

6.3 Turnover Announcement Returns

To further assess how investors interpret benchmark-associated dismissals, we examine stock market reactions to turnover announcements. We compute cumulative abnormal returns (CARs) using the Fama–French six-factor model estimated over the 252 trading days ending 31 days before the announcement.

Figure 4 reports CARs for three groups: (1) *%Worst*≥50%, (2) 50%>*%Worst*>25%, (3) *%Worst*≤25%. Panel A and Panel B show CARs over the [-1,+1] and [-1,+5] windows, respectively. Consistent with Hu, Liu, Liu, Qu, and Zhang (2025) and Desir, Seavey, and Thevenot (2024), the CARs are negative across all buckets, indicating that forced turnovers generally convey bad news. The negative reaction is more pronounced, however, when dismissals are more strongly associated with director-specific benchmarking (*%Worst ≥ 50%*). In Panel B, for example, the CAR around dismissal announcements is –3.4% for high *%Worst* firms compared with –1.0% for low *%Worst* firms (*%Worst ≤ 25%*); a one-sided *t*-test comparing the two groups yields a *p*-value of 0.0664. Given the average market capitalization of firms in our sample is $15.8 billion, this difference corresponds to roughly $379.2 million in lower announcement-window market value for high-*%Worst* dismissals relative to low-*%Worst* dismissals ((3.4%-1%)× 15.8 billion).

These announcement returns suggest that investors react less favorably to dismissals associated with director-specific benchmarking. While the evidence does not establish that these turnovers destroy value, it is difficult to reconcile with a simple interpretation in which interlock-benchmarked dismissals are viewed as unambiguously value-enhancing.

7. Labor Market Outcomes

Our final set of analysis examines whether director-specific benchmarking affects the careers of dismissed CEOs. The empirical design follows a matched-sample difference-in-differences framework that compares changes in the number of board seats held by dismissed and non-dismissed CEOs.[19] Each dismissed CEO is matched, with replacement, to up to five non-dismissed CEOs with similar propensity scores, requiring the difference in propensity scores to be less than 2.5%. We then estimate the following staggered triple difference-in-differences using a Poisson model: [20]

$$\begin{aligned} &\#Board\ Seats_{i,c,t} \\ &\quad = \beta_1 Forced\ CEO\ Turnover_{i,c} \times Post_{c,t} \\ &\quad + \beta_2 Forced\ CEO\ Turnover_{i,c} \times Post_{c,t} \times High\ \%Worst_{c,j,pre} \\ &\quad + \beta_3 Post_{c,t} \times High\ \%Worst_{c,j,pre} + \gamma X'_{c,j,pre} \times Post_{c,t} + \alpha_{c,t} + \alpha_{c,i} + \epsilon_{i,c,j,t} \quad (\mathbf{6}) \end{aligned}$$

where the subscripts i, c, and t denote CEO i, year t, and cohort c, respectively. We consider an event window of 9 years, covering the 4 years before and 4 years after each CEO dismissal.[21] As such, a cohort comprises all treatment and control firms in the 9-year window surrounding the dismissals in a given year. $\#Board\ Seats_{i,c,t}$ is the number of directorships CEO i from cohort c has in year t. $Forced\ CEO\ Turnover_{i,c}$ indicates whether CEO i from cohort c was dismissed. $Post_{c,t}$ indicates cohort-years after the treated CEO was dismissed. $High\ \%Worst_{c,j,pre}$ is an indicator variable equal to one if the firm's *%Worst* is above the sample median (20%), measured

[19] To construct a matched sample of dismissed and non-dismissed CEOs, we estimate a probit model in which the dependent variable, Dismissed, is set to one if the CEO is dismissed during the year and zero otherwise. The independent variables include measures of past performance (stock returns, industry returns, ROA) and time-varying attributes: (log of) CEO age, CEO-Chair duality, CEO stock ownership, and (log of) board size. Using the estimates from the probit model, we calculate annual propensity scores of CEO dismissals.

[20] Because the outcome, #Directorships, is left-censored at zero and skewed, we follow Cohn, Liu, and Wardlaw (2022)'s advice and estimate a Poisson model.

[21] RiskMetrics directorships data cover the period between 1996 and 2021. To ensure there is sufficient observations before and after each dismissal, we restrict the analysis to dismissals that occur between 1999 and 2018.

one year before CEO dismissals. $X'_{c,j,pre}$ is a vector of pre-dismissal firm and CEO attributes. We interact these variables with $Post$ to account for the possibility that dismissed CEOs with certain attributes, such as better performance, obtain more board seats following their dismissal. All the specifications include cohort-year fixed effects ($\alpha_{c,t}$), which subsume the indicator variable $Post_{c,t}$, and cohort-CEO fixed effects $(\alpha_{c,i})$, which absorb the indicator variable $Forced\ CEO\ Turnover_{i,c}$. Standard errors are clustered at the CEO level.[22]

Table 9 reports the results. Column (1) reports the propensity-score model used for matching. Poor performance and greater board independence increase the likelihood of dismissal, whereas CEO power—measured by CEO–chair duality and equity ownership—reduces it, consistent with prior evidence (Weisbach, 1988; Jenter and Kanaan, 2015; Jenter and Lewellen, 2021).

Columns (2) and (3) examine post-dismissal board appointments. Column (2) reports the baseline specification, whereas column (3) adds more firm-level and CEO-level variables interacted with $Post$. The main takeaways are twofold. First, CEOs dismissed by boards with *low %Worst* experience a 58.7% decline in directorships relative to those not dismissed $(e^{-0.885} - 1)$. Second, the decline in board seats is attenuated by roughly 25% for CEOs who are fired by boards with *high %Worst* ($e^{0.222} - 1$).

Together, these findings indicate that dismissed CEOs face penalties in the director labor market, but these penalties are weaker when dismissals are driven by the directorship benchmarking heuristic. These findings augment recent work on the labor market consequences

[22] In Equation (6), β_1 captures the change in directorships after a CEO is fired by a board with low *%Worst* (below the sample median) relative to CEOs who are not fired. The coefficient β_2 captures the change in directorships after a CEO is dismissed by a board with high *%Worst* relative to CEOs dismissed by a board with low *%Worst*. Therefore, $\beta_1+\beta_2$ is the total change in directorships for CEOs fired by a board with high *%Worst* relative to retained CEOs.

of forced CEO turnovers for directors (von Meyerinck et al., 2025) and on the role of interlocking directors' career concerns in firm policies (Zhang, 2021).

The identifying assumption for an unbiased coefficient estimate on *Forced CEO Turnover x Post x High %Worst* is weaker than for the standard DID. It does not require parallel trends in directorships of dismissed and non-dismissed CEOs. Rather, it is consistently estimated if the difference in directorships of CEOs dismissed by a board with high- vs. low-*%Worst* trends similarly to that of non-fired CEOs. While this assumption is untestable, Figure 5 presents an event-study plot where we observe no pre-trends, supporting this assumption.[23]

8. Conclusion

This paper provides evidence that outside directors benchmark firm performance against the small set of companies whose boards they serve on. Firms that rank as the worst performer within a director's portfolio of interlocks are more likely to dismiss their CEOs. These effects obtain in specifications with extensive controls and fixed effects and are supported by analyses around exogenous director departures and falsification tests that reshuffle interlocks.

We further show that dismissals associated with director-specific benchmarking are followed by weaker operating performance, more negative analyst assessments, and more adverse announcement returns. Because we do not observe the same firm's counterfactual outcome absent dismissal, these results do not establish that such turnovers destroy value. Still, the evidence is difficult to reconcile with a simple value-enhancing interpretation of interlock-benchmarked dismissals. The director labor market also appears to treat such dismissals as less informative about CEO ability, as dismissed CEOs face smaller declines in subsequent board appointments.

[23] The F-test for whether the pre-dismissal coefficients are jointly zero yields a *p*-value of 0.22.

Because individual directors' influence over major corporate decisions is difficult to observe directly, our setting provides a way to estimate the role of particular directors by exploiting the uniqueness of each director's interlock network and isolating director-specific variation in CEO evaluation. This perspective also highlights an unintended consequence of director networks. Whereas prior work typically treats interlocks as channels of expertise, information, or director busyness, we show that they also create salient director-specific benchmarks that shape CEO turnover decisions and subsequent firm outcomes.

References

Adams, R.B. and Ferreira, D., 2008. Do directors perform for pay? *Journal of Accounting and Economics*, 46(1), 154-171.

Adams, R.B. and Ferreira, D., 2009. Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 94(2), 291-309.

Armstrong, C.S., Kepler, J.D., Samuels, D. and Taylor, D., 2022. Causality redux: The evolution of empirical methods in accounting research and the growth of quasi-experiments. *Journal of Accounting and Economics*, 74(2-3), p.101521.

Baker, M., Pan, X. and Wurgler, J., 2012. The effect of reference point prices on mergers and acquisitions. *Journal of Financial Economics*, 106(1), 49-71.

Barber, B.M. and Lyon, J.D., 1996. Detecting abnormal operating performance: The empirical power and specification of test statistics. *Journal of Financial Economics*, 41(3), 359-399.

Bizjak, J., Lemmon, M. and Whitby, R., 2009. Option backdating and board interlocks. *The Review of Financial Studies*, 22(11), 4821-4847.

Brav, A., Jiang, W., Partnoy, F. and Thomas, R., 2008. Hedge fund activism, corporate governance, and firm performance. *The Journal of Finance*, 63(4), 1729-1775.

Chen, K.D. and Guay, W.R., 2020. Busy directors and shareholder satisfaction. *Journal of Financial and Quantitative Analysis*, 55(7), 2181-2210.

Chudik, A., Ellis, C.M. and Jaspersen, J.G., 2025. *Lags, Leave-Outs and Fixed Effects*. Federal Reserve Bank of Dallas, Research Department.

Cohn, Jonathan, Zack Liu, and Malcolm Wardlaw. 2022. Count (and count-like) data in finance. *Journal of Financial Economics*, 146(2), 529–551.

Cookson, J.A., Lu, R., Mullins, W. and Niessner, M., 2024. The social signal. *Journal of Financial Economics*, 158, p.103870.

Coughlan, A., and Schmidt, R.M., 1985. Executive compensation, management turnover, and firm performance: An empirical investigation. *Journal of Accounting and Economics*, 7(1-3), 43-66.

Dahya, J., Dimitrov, O. and McConnell, J.J., 2008. Dominant shareholders, corporate boards, and corporate value: A cross-country analysis. *Journal of Financial Economics*, 87(1), 73-100.

Dasgupta, S., Li, X., and Wang, A.Y., 2018. Product market competition shocks, firm performance, and forced CEO turnover. *The Review of Financial Studies*, 31(11), 4187-4231.

DeFond, M.L., 2010. Earnings quality research: Advances, challenges and future research. *Journal of Accounting and Economics*, 50, 402–409.

Denis, D.J., Denis, D.K. and Sarin, A., 1997a. Ownership structure and top executive turnover. *Journal of Financial Economics*, 45(2), 193-221.

Denis, D.J., Denis, D.K. and Sarin, A., 1997b. Agency problems, equity ownership, and corporate diversification. *The Journal of Finance*, 52(1), 135-160.

Desir, R., Seavey, S.E. and Thevenot, M., 2024. Information transfer of CEO turnover: Evidence from firm-CEO mismatch. *Journal of Corporate Finance*, 84, p.102509.

Dessaint, O. and Matray, A., 2017. Do managers overreact to salient risks? Evidence from hurricane strikes. *Journal of Financial Economics*, 126(1), 97-121.

Dougal, C., Parsons, C.A. and Titman, S., 2015. Urban vibrancy and corporate growth. *The Journal of Finance*, 70(1), 163-210.

Dougal, C., Parsons, C.A. and Titman, S., 2022. The geography of value creation. *The Review of Financial Studies*, 35(9), 4201-4248.

Eisfeldt, A.L. and Kuhnen, C.M., 2013. CEO turnover in a competitive assignment framework. *Journal of Financial Economics*, 109(2), 351-372.

Eldar, O. and Grennan, J., 2024. Common venture capital investors and startup growth. *The Review of Financial Studies*, 37(2), 549-590.

Fee, C.E. and Hadlock, C.J., 2004. Management turnover across the corporate hierarchy. *Journal of Accounting and Economics*, 37(1), 3-38.

Fee, C., Hadlock, C., Huang, J., and Pierce, J., 2018. Robust models of CEO turnover: New evidence on relative performance evaluation. *Review of Corporate Finance Studies*, 7(1), 70-100.

Faleye, O., Hoitash, R. and Hoitash, U., 2011. The costs of intense board monitoring. *Journal of Financial Economics*, 101(1), 160-181.

Field, L.C., Souther, M.E. and Yore, A.S., 2020. At the table but can not break through the glass ceiling: Board leadership positions elude diverse directors. *Journal of Financial Economics*, 137(3), 787-814.

Fich, E.M. and Shivdasani, A., 2006. Are busy boards effective monitors? *The Journal of Finance*, 61(2), 689-724.

Gao, H., Harford, J. and Li, K., 2017. CEO turnover–performance sensitivity in private firms. *Journal of Financial and Quantitative Analysis*, 52(2), 583-611.

Gong, G., Li, L.Y. and Shin, J.Y., 2011. Relative performance evaluation and related peer groups in executive compensation contracts. *The Accounting Review*, 86(3), 1007-1043.

Goldman, J., 2023. Do directors respond to stock mispricing? Evidence from CEO turnovers. *Journal of Financial and Quantitative Analysis*, 58(6), pp.2732-2751.

Gormley, T.A. and Matsa, D.A., 2014. Common errors: How to (and not to) control for unobserved heterogeneity. *The Review of Financial Studies*, 27(2), 617-661.

Goyal, V.K. and Park, C.W., 2002. Board leadership structure and CEO turnover. *Journal of Corporate Finance*, 8(1), 49-66.

Guenzel, M. and Malmendier, U., 2020. *Behavioral corporate finance: The life cycle of a CEO career* (No. w27635). National Bureau of Economic Research.

Hallock, K.F., 1997. Reciprocally interlocking boards of directors and executive compensation. *Journal of Financial and Quantitative Analysis*, 32(3), 331-344.

Heckman, J.J. and Singer, B., 2017. Abducting economics. *American Economic Review*, 107(5), 298-302.

Hermalin, B. and Weisbach, M., 1998. Endogenously chosen boards of directors and their monitoring of the CEO. *American Economic Review*, 88(1), 96-118.

Hermalin, B. and Weisbach, M., 2017. Assessing managerial ability: Implications for corporate governance. *The Handbook of the Economics of Corporate Governance*, (1), 93-176. North-Holland.

Hu, J., Liu, L.X., Liu, C.Y., Qu, H. and Zhang, Y., 2025. CEO turnover, sequential disclosure, and stock returns. *Review of Finance*, 29(3), 887-921.

Huson, M.R., Parrino, R. and Starks, L.T., 2001. Internal monitoring mechanisms and CEO turnover: A long-term perspective. *The Journal of Finance*, 56(6), 2265-2297.

Jayaraman, S., Milbourn, T., Peters, F. and Seo, H., 2021. Product market peers and relative performance evaluation. *The Accounting Review*, 96(4), 341-366.

Jensen, M.C., and Murphy, K.J., 1990. Performance pay and top-management incentives. *Journal of Political Economy*, 98(2), 225-264.

Jenter, D. and Kanaan, F., 2015. CEO turnover and relative performance evaluation. *The Journal of Finance*, 70(5), 2155-2184.

Jenter, D. and Lewellen, K., 2021. Performance-induced CEO turnover. *The Review of Financial Studies*, 34(2), 569-617.

Kaplan, S. and Minton, B., 2012. How has CEO turnover changed? *International Review of Finance*, 12(1), 57-87.

Malmendier, U. and Nagel, S., 2011. Depression babies: Do macroeconomic experiences affect risk taking?. *The Quarterly Journal of Economics*, 126(1), pp.373-416.

Masulis, R.W. and Mobbs, S., 2014. Independent director incentives: where do talented directors spend their limited time and energy? *Journal of Financial Economics*, 111(2), pp.406-429.

Murphy, K.J., 1999. Executive compensation. *Handbook of Labor Economics*, 3, 2485-2563.

Oster, E., 2019. Unobservable selection and coefficient stability: Theory and evidence. *Journal of Business & Economic Statistics*, 37(2), 187-204.

Parrino, R., 1997. CEO turnover and outside succession a cross-sectional analysis. *Journal of Financial Economics*, 46(2), 165-197.

Peters, F.S. and Wagner, A.F., 2014. The executive turnover risk premium. *The Journal of Finance*, 69(4), 1529-1563.

Shah, A.K. and Oppenheimer, D.M., 2008. Heuristics made easy: an effort-reduction framework. *Psychological Bulletin*, 134(2), 207-222.

Taylor, L.A., 2010. Why are CEOs rarely fired? Evidence from structural estimation. *The Journal of Finance*, 65(6), 2051-2087.

Tversky, A. and Kahneman, D., 1973. Availability: A heuristic for judging frequency and probability. *Cognitive Psychology*, 5(2), 207-232.

Tversky, A., Kahneman, D. and Slovic, P., 1982. *Judgment under uncertainty: Heuristics and biases* (pp. 3-20).

von Meyerinck, F., Romer, J., and Schmid, M., 2025. CEO turnover and director reputation. *Journal of Financial Economics*, 163, 103971.

Warner, J.B., Watts, R.L. and Wruck, K.H., 1988. Stock prices and top management changes. *Journal of Financial Economics*, 20, 461-492.

Weisbach, M., 1988. Outside directors and CEO turnover. *Journal of Financial Economics*, 20, 431-460.

Wooldridge, J.M., 2010. *Econometric analysis of cross section and panel data*. MIT Press.

Yermack, D., 1996. Higher market valuation of companies with a small board of directors. *Journal of Financial Economics*, 40(2), 185-211.

Zhang, S., 2021. Directors' career concerns: Evidence from proxy contests and board interlocks. *Journal of Financial Economics*, 140(3), 894-915.

Figure 1: CEO dismissal by *%Worst* terciles

This figure reports CEO dismissal rates for low, medium and high levels of *%Worst*, defined as the percent of independent directors for whom the firm is the worst performer among all their directorship firms. Panels A and B present dismissal rates for firms with below- and above-median stock returns, respectively. Panels C and D split the sample around the median return on assets (ROA). Panels E and F show results for firms that underperform or outperform their industry according to the Fama–French 12 industry classification. All variable definitions are provided in the Internet Appendix.

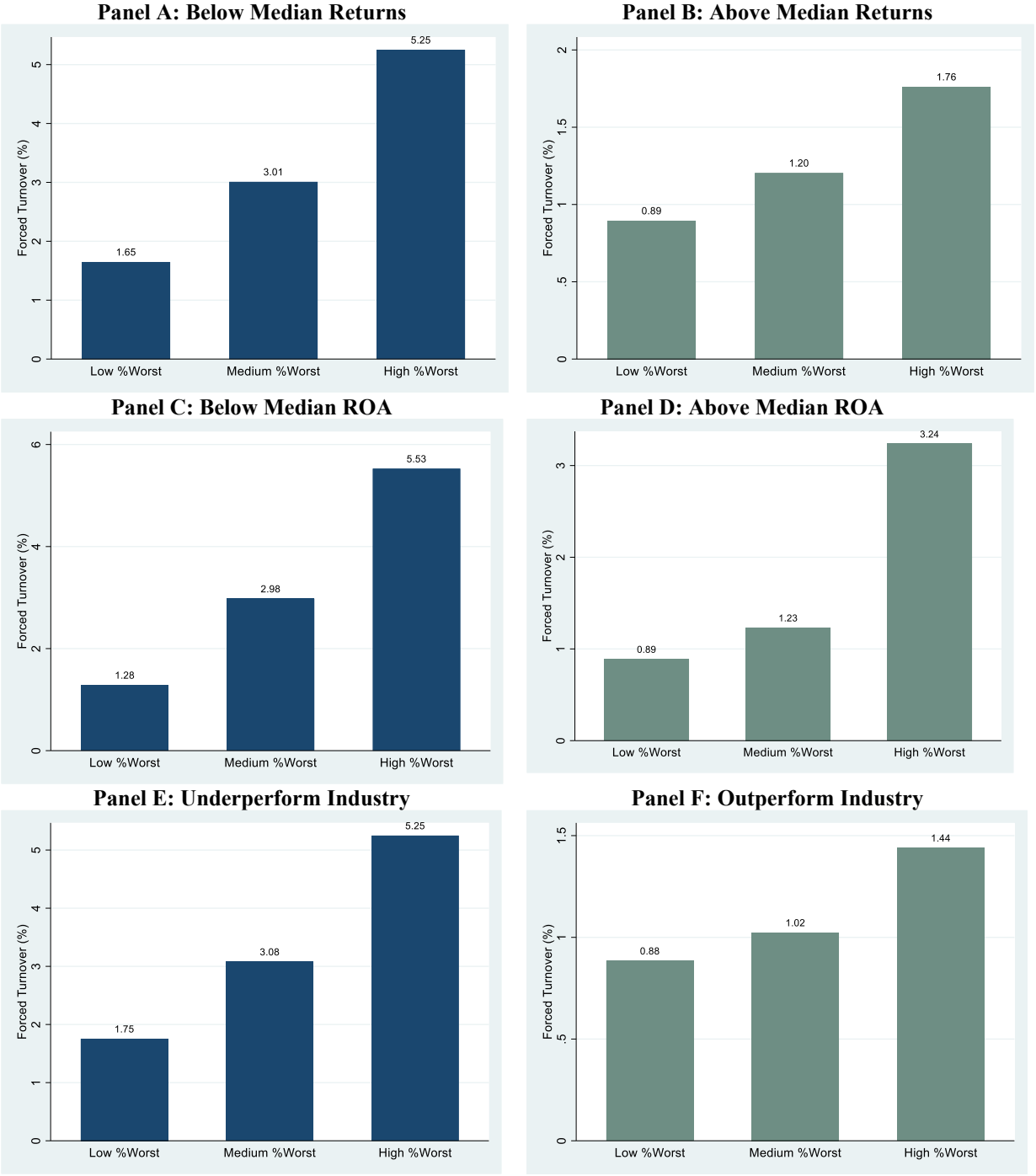


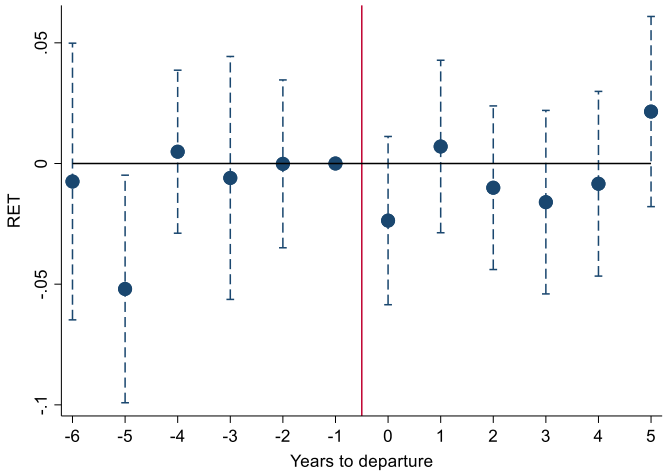
Figure 2: Performance surrounding exogenous director departures

This figure plots firm performance around exogenous director departures. An exogenous departure is defined as the departure of a director who holds multiple board seats and either (i) exits the director labor market at age 65 or older or (ii) departs because of illness or death. We estimate the following event-study specification and plot the coefficients δ_k:

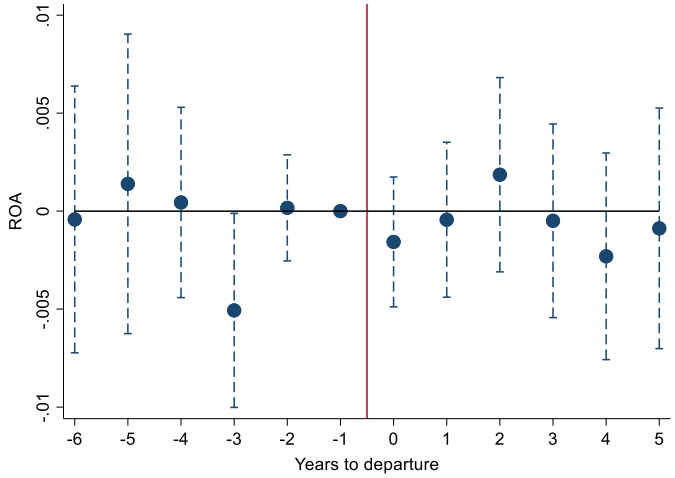
$$y_{it} = \sum_{k=-6, k!=-1}^{5} \delta_k \times 1(t = k)_{c,t} + \alpha_i + \alpha_t + \epsilon_{it}$$

where $y_{i,t}$is firm performance, measured by *RET[t]* in Panel A and *ROA[t]* in Panel B. The indicator $\mathbf{1}(t = k)_{c,t}$ equals one if year t is $k$years relative to an exogenous director departure. The specification includes firm fixed effects (α_i), which absorb time-invariant firm characteristics, and year fixed effects (α_t), which absorb aggregate time-varying shocks. Vertical bars represent 95% confidence intervals. Panels C and D report estimates separately for firms with above-median %Worst (High %Worst, navy circles) and below-median %Worst (Low %Worst, maroon triangles).

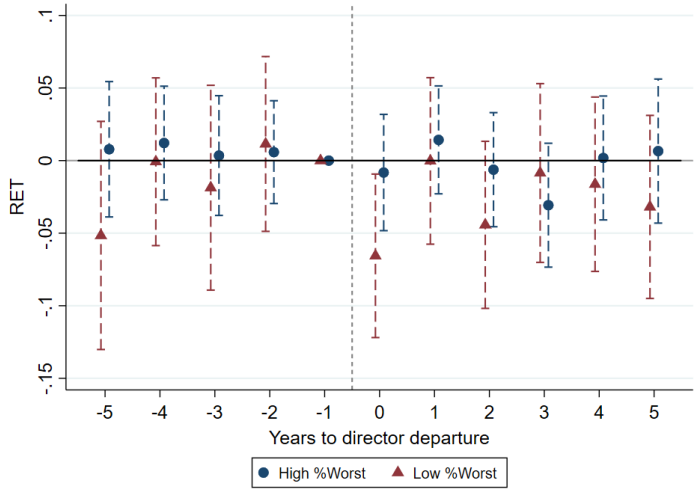
Panel A: Stock Returns (RET)



Panel B: Operating Performance (ROA)



Panel C: RET—High versus Low %Worst



Panel D: ROA—High versus Low %Worst

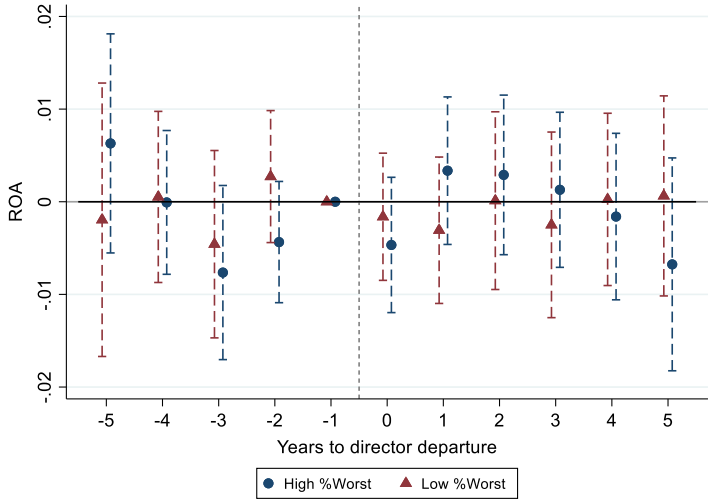
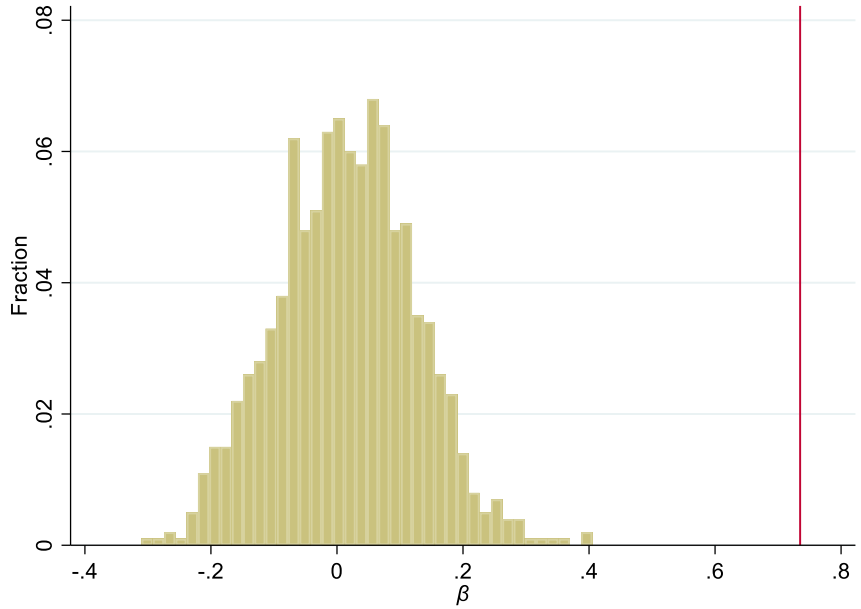


Figure 3: Falsification Tests

This figure reports coefficient estimates from 1,000 placebo regressions based on the specification in column (5) of Table 2, where the dependent variable is an indicator for forced CEO turnover and the key independent variable is *%Worst*. Panel A (Within-industry reshuffle) randomly reassigns *%Worst* each year to a different firm in the same industry and size tercile as the focal firm and re-estimates the baseline regression. Panel B (Interlock reshuffle) randomly replaces each director's actual interlocking firm with a placebo firm from the same industry and of similar size (total assets within 30%), recomputes %Worst using these artificial interlocks, and re-estimates the baseline regression. The red vertical line denotes the baseline estimate. *%Worst* is the fraction of independent directors for whom the focal firm is the worst-performing directorship.

Panel A: Within industry reshuffle



Panel B: Interlock reshuffle

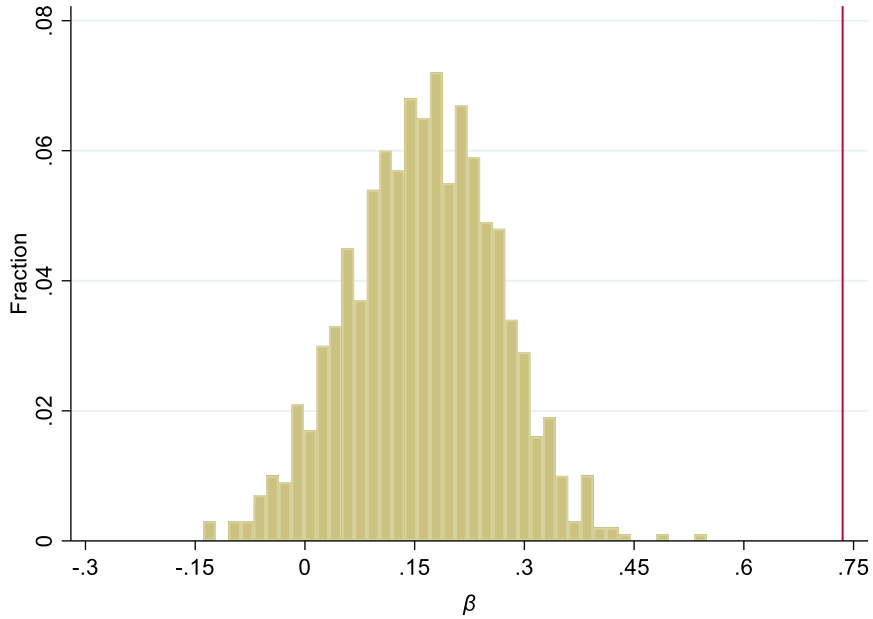
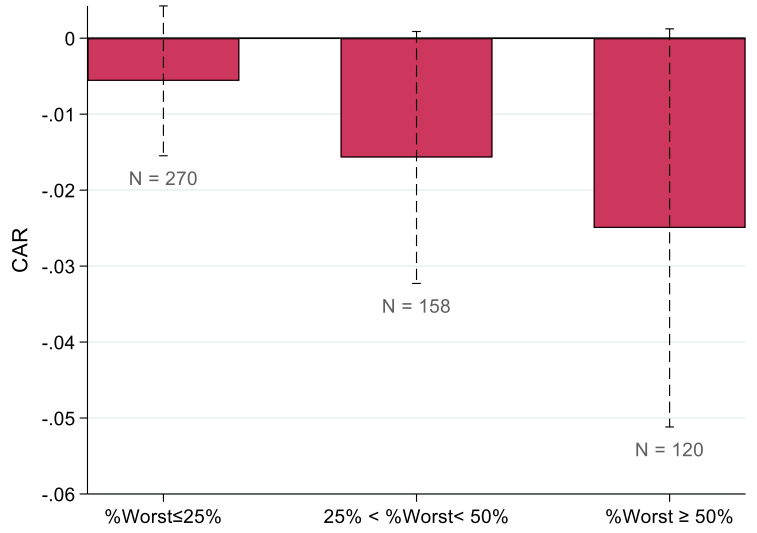


Figure 4: Market reaction to CEO turnover

This figure presents average cumulative abnormal returns (CARs) around forced CEO turnovers for three subsamples sorted on *%Worst* prior to the turnover: (1) *%Worst≥50%*, (2) *50%>%Worst>25%*, and (3) *%Worst≤25%*. *%Worst* is the percent of independent directors for whom the firm is the worst performer among all their directorship firms. Panel A calculates CARs over a [-1, 1] window, whereas Panel B considers a [-1, 5] window. The vertical bars denote 90% confidence intervals, and the number of observations appears below each bar. The CARs are estimated using the Fama–French six-factor model, with parameters obtained from one year (252 trading days) of daily returns ending one month (31 trading days) before the turnover announcement. We require at least 120 valid trading days during the estimation window. All variable definitions are provided in the Internet Appendix.

Panel A: CAR [-1, 1]



Panel B: CAR [-1,5]

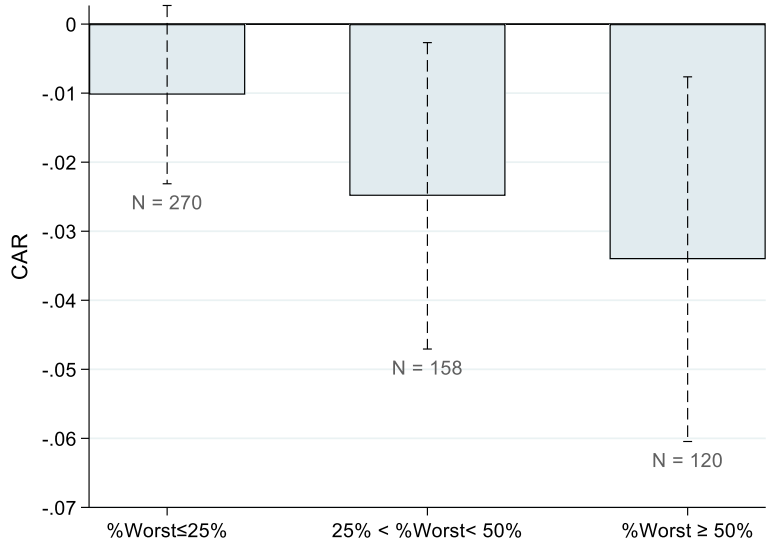


Figure 5: Changes in CEO Directorships surrounding CEO Dismissals

This figure plots coefficient estimates from dynamic difference-in-differences specifications predicting the number of board seats that a CEO holds around CEO dismissals. Specifically, it reports estimates from the following model:

$$\#Board\ Seats_{i,c,t} = \sum_{k=-4,k!=-1}^{4} \delta_k\ Forced\ CEO\ Turnover_{i,c,t} \times High\ \%Worst_{c,j,pre} \times 1(t=k)_{c,t} + \sum_{k=-4,k!=-1}^{4} \eta_k\ Forced\ CEO\ Turnover_{i,c,t} \times 1(t=k)_{c,t} + \gamma X'_{c,j,pre} \times Post_{c,t} + \alpha_{c,t} + \alpha_{c,i} + \epsilon_{i,c,j,t}$$

Where $\#Board\ Seats_{i,c,t}$ is the number of boards that CEO i serves on in year t, $Dismissed_{i,c,t}$ is an indicator that equals 1 if the CEO is forced out, $\%Worst$ is the percent of independent directors for whom the firm is the worst performer among all their directorship firms, and $1(t=k)_{c,t}$ indicates whether year t in cohort c is equal to k years after the CEO is dismissed. The figure plots the coefficient δ_k. Vertical bars denote 95% confidence intervals. All variable definitions are provided in the Internet Appendix.

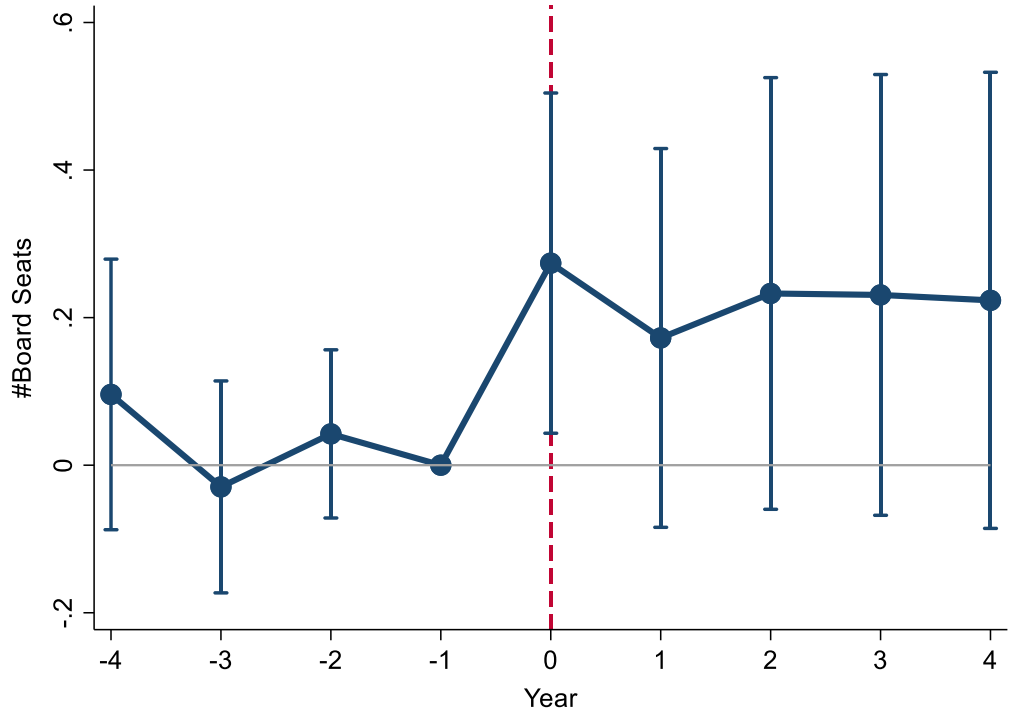


Table 1. Summary Statistics

This table reports summary statistics for directors and their firms from 1997 until 2019. Panel A reports firm-level summary statistics. Panel B reports director-level summary statistics. The director sample is restricted to directors serving on at least two boards in RiskMetrics. All variable definitions are provided in the Internet Appendix.

	Mean	Median	SD.	P10	P25	P75	P90	N
Panel A: Firm-level								
%Worst	0.180	0.143	0.190	0.000	0.000	0.286	0.444	23350
%Best	0.181	0.143	0.191	0.000	0.000	0.286	0.444	23350
Forced CEO turnover (%)	2.510	0.000	15.642	0.000	0.000	0.000	0.000	23350
All turnover (%)	10.685	0.000	30.893	0.000	0.000	0.000	100.000	23350
RET[t]	0.122	0.097	0.394	-0.121	-0.121	0.318	0.584	23350
RET[t-1]	0.143	0.106	0.409	-0.106	-0.106	0.332	0.617	23350
Industry RET[t]	0.185	0.173	0.260	0.037	0.037	0.318	0.481	23350
ROA[t]	0.130	0.124	0.083	0.080	0.080	0.175	0.234	23350
SD RET[t]	0.351	0.300	0.221	0.214	0.214	0.423	0.592	23350
Ln (Asset)	8.196	8.027	1.684	6.945	6.945	9.290	10.477	23350
CEO age	56.193	56.000	6.471	52.000	52.000	60.000	64.000	23350
CEO tenure	7.679	6.000	6.666	3.000	3.000	10.000	16.000	23350
CEO-Chair	0.564	1.000	0.496	0.000	0.000	1.000	1.000	23350
CEO ownership (%)	0.015	0.003	0.045	0.001	0.001	0.008	0.030	23350
Board size	9.766	9.000	2.490	8.000	8.000	11.000	13.000	23350
Board independence	0.760	0.800	0.140	0.667	0.667	0.875	0.900	23350
Busy board	0.200	0.000	0.400	0.000	0.000	0.000	1.000	23350
%Lowest size-rank	0.188	0.167	0.176	0.000	0.000	0.286	0.429	23350
%Highest size-rank	0.173	0.133	0.189	0.000	0.000	0.286	0.444	23350
Avg #Board seats	1.245	1.167	0.417	1.000	1.000	1.455	1.778	23350
%Multiple boards (All Public)	0.587	0.600	0.221	0.429	0.429	0.750	0.875	22504
Panel B: Director-level								
Best	0.409	0.000	0.492	0.000	0.000	1.000	1.000	57207
Worst	0.408	0.000	0.492	0.000	0.000	1.000	1.000	57207
Large	0.560	1.000	0.496	0.000	0.000	1.000	1.000	57207
Small	0.552	1.000	0.497	0.000	0.000	1.000	1.000	57207
#Pub board seats (All Public)	3.068	3.000	1.162	2.000	2.000	4.000	5.000	57199
#Board seats (Risk Metrics)	2.424	2.000	0.747	2.000	2.000	3.000	3.000	57207
Tenure	7.522	6.000	5.795	3.000	3.000	11.000	15.000	57207
Director age	63.042	64.000	6.739	59.000	59.000	68.000	71.000	57162
Miss more than 25% of board meetings	1.182	0.000	10.806	0.000	0.000	0.000	0.000	57207

Table 2. Firm-Level Analyses of Forced CEO Turnovers

This table examines the relation between the performance ranking of interlocked firms and forced CEO turnovers in an annual panel of firms. The observation is at the firm-year level. Columns (1) and (2) report estimates from logit regressions, whereas columns (3)–(9) report OLS estimates. The dependent variable, *Forced CEO Turnover,* equals 100 if the CEO is forced out and zero otherwise. Following Parrino (1997), a turnover is classified as forced if the press reports that the CEO was fired, forced out, or resigned due to policy differences. All other departures of CEOs aged 60 or older are voluntary. Departures of CEOs younger than 60 are forced if the press does not report the reason as death, poor health, or if the departure was announced less than six months before it occurred. *%Worst (%Best)* is the percent of independent directors for whom the focal firm is the worst (best) performer among their directorship firms. *Higher-order perf.* denotes contemporaneous and lagged one period cubic polynomials of stock returns and accounting performance. % (Mean) is the increase in the predicted probability of forced CEO turnover associated with a one–standard deviation increase in *%Worst*, holding all other variables at their observed values in the logit model. All variable definitions are provided in the Internet Appendix. Standard errors, reported in parentheses, are clustered at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dep. variable	Forced CEO Turnover								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
%Worst	1.065***	2.087***	0.790***	0.722***	0.735***				0.768***
	(0.216)	(0.377)	(0.143)	(0.168)	(0.178)				(0.151)
%Best						-0.302***	-0.264*	-0.300*	-0.080
						(0.085)	(0.144)	(0.156)	(0.091)
RET[t]	-2.498***	-2.056***	-1.724***	-2.455***	-2.190***	-2.015***	-2.842***	-2.569***	-1.689***
	(0.201)	(0.273)	(0.159)	(0.257)	(0.271)	(0.154)	(0.254)	(0.269)	(0.162)
ROA[t]	-2.407***	-0.991	-0.648***	-0.194	-0.697	-0.625***	-0.161	-0.675	-0.644***
	(0.546)	(1.444)	(0.110)	(0.516)	(0.627)	(0.111)	(0.516)	(0.627)	(0.111)
Industry RET[t]	0.903***	0.644***	0.562***	0.486***	0.314**	0.621***	0.505***	0.329**	0.556***
	(0.188)	(0.215)	(0.148)	(0.148)	(0.144)	(0.148)	(0.149)	(0.144)	(0.148)
Avg #Board Seats		0.181		0.121	0.596*		-0.082	0.403	
		(0.297)		(0.285)	(0.355)		(0.286)	(0.351)	
%Non-Interlocked		0.709		0.064	0.490		-0.442	-0.029	
		(0.869)		(0.407)	(0.463)		(0.419)	(0.470)	
RET[t-1]		-1.531***		-1.527***	-1.548***		-1.529***	-1.552***	
		(0.186)		(0.195)	(0.205)		(0.195)	(0.205)	
ROA[t-1]		0.597		0.067	-0.535*		0.078	-0.524*	
		(1.381)		(0.266)	(0.308)		(0.266)	(0.308)	
Interlocked RET[t]		-0.081		-0.074	-0.202		0.348	0.260	
		(0.169)		(0.381)	(0.482)		(0.385)	(0.487)	
SD RET[t]		0.434***		0.349*	0.206		0.346*	0.201	
		(0.148)		(0.189)	(0.199)		(0.188)	(0.198)	
ln(Asset)		0.075		0.266	-0.384		0.295	-0.346	
		(0.046)		(0.195)	(0.625)		(0.195)	(0.625)	
ln(CEO age)		-1.313***		-0.330***	-1.017***		-0.327***	-1.014***	
		(0.404)		(0.109)	(0.222)		(0.109)	(0.221)	
ln(CEO tenure)		0.342***		0.646***	2.446***		0.647***	2.446***	
		(0.058)		(0.107)	(0.192)		(0.107)	(0.192)	
CEO-Chair		-0.685***		-1.628***	-2.150***		-1.631***	-2.144***	
		(0.106)		(0.251)	(0.408)		(0.251)	(0.408)	
CEO ownership(%)		-7.715*		-0.400***	-0.479**		-0.396***	-0.478**	
		(4.514)		(0.116)	(0.222)		(0.116)	(0.221)	
ln(board size)		0.518**		0.354***	0.752***		0.355***	0.757***	
		(0.238)		(0.136)	(0.250)		(0.136)	(0.251)	
Board Independence		0.554		0.256	-0.193		0.371*	-0.079	
		(0.666)		(0.205)	(0.292)		(0.204)	(0.290)	
%Lowest Size-Rank		-1.057*		-0.315	-0.111		-0.220	-0.013	
		(0.622)		(0.256)	(0.312)		(0.257)	(0.313)	
%Highest Size-Rank		-0.692		-0.238	-0.130		-0.193	-0.086	
		(0.628)		(0.254)	(0.306)		(0.255)	(0.307)	
Higher-Order Perf.	No	Yes	No	Yes	Yes	No	Yes	Yes	No
Year FE	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	No	Yes	No	No	Yes	No	No
Firm FE	No	No	No	No	Yes	No	No	Yes	No
Model	Logit	Logit	OLS	OLS	OLS	OLS	OLS	OLS	OLS
N	23350	23141	23350	23350	23350	23350	23350	23350	23350
Adj-R-sq			0.020	0.041	0.060	0.019	0.040	0.060	0.020
% (Mean)	19.403	38.940							

Table 3. Director-Level Analyses of Forced CEO Turnovers

This table examines the relation between the performance ranking of interlocked firms and forced CEO turnovers in an annual panel of director-firms. The unit of observation is a director–firm–year triplet, and the sample includes directors serving on at least two boards. The dependent variable, *Forced CEO Turnover,* equals 100 if the CEO is dismissed and zero otherwise. *Worst* is an indicator variable that equals one if the focal firm is the worst performing firm among a director's interlocked firms. *Best* is an indicator variable that equals one if the focal firm is the best performing firm among a director's interlocked firms. The regressions include all the control variables included in column (5) of Table 2. Higher-order perf. denotes contemporaneous and lagged one period cubic polynomials of stock returns and accounting performance. All variable definitions are provided in the Internet Appendix. Standard errors (in parentheses) are double clustered at the firm and year levels. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dep. variable	Forced CEO Turnover					
	(1)	(2)	(3)	(4)	(5)	(6)
Worst	0.851**	0.924***	0.765***			
	(0.350)	(0.323)	(0.237)			
Best				-0.089	-0.190	-0.085
				(0.375)	(0.350)	(0.282)
Large	0.152	0.211	0.229	0.145	0.211	0.227
	(0.300)	(0.302)	(0.306)	(0.304)	(0.302)	(0.304)
Small	0.189	0.230	0.254	0.222	0.264	0.282
	(0.249)	(0.214)	(0.262)	(0.254)	(0.218)	(0.265)
Director Tenure	-0.012	-0.007	-0.014	-0.012	-0.007	-0.014
	(0.023)	(0.023)	(0.024)	(0.023)	(0.023)	(0.024)
Director ownership	-94.598**	-106.584**	-74.110	-97.913**	-109.322**	-76.689
	(44.719)	(48.917)	(47.771)	(44.612)	(49.022)	(47.985)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Higher-order perf.	Yes	Yes	Yes	Yes	Yes	Yes
Director x Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry x Year FE	No	Yes	Yes	No	Yes	Yes
Firm FE	No	No	Yes	No	No	Yes
Adj-R-sq	0.042	0.083	0.159	0.042	0.083	0.159
Obs	57207	57207	57207	57207	57207	57207

Table 4. Director Departures

This table investigates the relation between director benchmarking and CEO turnovers before vs. after director departures. The unit of observation is a firm-year pair. The dependent variable, *Forced CEO Turnover,* equals 100 if the CEO is dismissed and zero otherwise. Panel A considers each and every case where a director leaves one or more firms. Panel B focuses on exogenous departures, defined as retiring from the director labor market entirely (i.e., leaving all boards at the age of 65 or older), or departures due to health reasons or death. Columns (1)–(3) examine the six years before the director departs, whereas columns (4)–(6) examine the six years following the departure. In columns (1)-(3), *%Worst Leaver* is the percentage of departing directors for whom the focal firm is the worst-performing among their directorships. In columns (4)-(6), *%Worst Leaver* is calculated as if the departing directors had remained on the board. *Controls* indicates whether the control variables included in column (5) of Table 3 are included. Higher-order perf. denotes contemporaneous and lagged one period cubic polynomials of stock returns and accounting performance. *p-values* from t-tests comparing the coefficients on *%Worst Leaver* between the pre-and post-departure analyses are reported at the bottom of columns (4)–(6). All variable definitions are provided in the Internet Appendix. Standard errors (in parentheses) are clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dep. Var.	Forced CEO Turnover					
Sample:	Before Departure			After Departure		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: All Departures						
%Worst Leaver	0.890***	0.767***	0.362	-0.008	-0.092	-0.213
	(0.260)	(0.274)	(0.333)	(0.259)	(0.254)	(0.258)
RET[t]	-2.019***	-1.999***	-1.739***	-1.622***	-1.792***	-1.727***
	(0.303)	(0.323)	(0.533)	(0.357)	(0.380)	(0.617)
ROA[t]	-0.692***	-0.541	-1.541	-0.584**	-0.967*	-1.691
	(0.250)	(0.527)	(1.342)	(0.243)	(0.533)	(1.829)
Industry Ret[t]	0.696**	0.425	-0.051	0.115	-0.052	-0.662
	(0.272)	(0.280)	(0.315)	(0.468)	(0.460)	(0.419)
R2	0.023	0.031	0.106	0.010	0.028	0.088
N	5919	5919	5919	4107	4107	4107
P-value				0.01	0.05	0.18
				Vs. col (1)	Vs. col (2)	Vs. col (3)
Panel B: Exogenous Departures						
%Worst Leaver	1.035***	0.864**	0.529	-0.084	-0.185	-0.505
	(0.313)	(0.347)	(0.445)	(0.425)	(0.431)	(0.439)
RET[t]	-0.983**	-2.314***	-2.262***	-2.688***	-3.564***	-3.991***
	(0.491)	(0.762)	(0.798)	(0.624)	(0.914)	(0.945)
ROA[t]	-0.333	0.264	-2.280	-0.571	-2.098	-1.956
	(0.326)	(1.680)	(2.529)	(0.491)	(2.320)	(2.564)
Industry Ret[t]	0.724	0.737	0.461	0.138	-0.018	0.505
	(0.467)	(0.455)	(0.430)	(0.656)	(0.649)	(0.618)
R2	0.015	0.028	0.069	0.016	0.046	0.099
N	1971	1971	1971	2105	2105	2105
P-value				0.03	0.06	0.09
				Vs. col (1)	Vs. col (2)	Vs. col (3)
Higher-order perf.	No	Yes	Yes	No	Yes	Yes
Controls	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	No	No	Yes	No
Firm FE	No	No	Yes	No	No	Yes

Table 5. Falsification Tests

This table reports regression estimates from falsification tests that reshuffle interlocked directorates across firms. Panel A tests whether director benchmarking is associated with forced CEO turnovers at other firms in the same industry. The dependent variable, *%Interlock Peer Forced CEO Turnover,* is the fraction of a firm's industry peers that dismiss their CEOs in a given year. *%Worst* is the percent of independent directors for whom the focal firm is the worst performer among their directorship firms. Panel B tests whether peer firms' director benchmarking is associated with forced CEO turnovers at the focal firm. The dependent variable, *Forced CEO Turnover*, equals 100 if the CEO is dismissed and zero otherwise. Each firm–year observation is matched (with replacement) to a peer firm in the same industry and year with similar characteristics—firm size, lagged stock return, market-to-book ratio, and ROA. To ensure a sufficient number of peer firms, we restrict the sample to industries with more than 15 firms. To ensure match quality, we drop matches where the absolute difference in characteristics between focal and peer firms falls in the top decile. *Peer %Worst* is the percent of independent directors for whom the peer firm is the worst-performing among their directorship firms. Controls indicates whether the control variables from Table 3, column (5), are included. Higher-order perf. denotes contemporaneous and lagged one period cubic polynomials of stock returns and accounting performance. All variable definitions are provided in the Internet Appendix. Standard errors (in parentheses) are clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: CEO Turnovers at Industry Peers

Dep. variable	%Interlock Peer Forced CEO Turnover		
	(1)	(2)	(3)
%Worst	-0.007	-0.045	-0.029
	(0.033)	(0.034)	(0.036)
Controls	Yes	Yes	Yes
Higher-order perf.	No	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	No	Yes	No
Firm FE	No	No	Yes
Adj-R-sq	0.034	0.115	0.094
Obs	23326	23306	23306

Panel B: Peers' Interlocks

Dep. variable	Forced CEO Turnover		
	(1)	(2)	(3)
Peer *%Worst*	0.009	-0.008	-0.023
	(0.128)	(0.127)	(0.138)
Controls	Yes	Yes	Yes
Higher-order perf.	No	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	No	Yes	No
Firm FE	No	No	Yes
Adj-R-sq	0.024	0.030	0.064
Obs	12991	12986	12991

Table 6. Attention and Monitoring

This table studies the role of board monitoring in interlock benchmarking. Panel A examines the relation between the performance ranking of interlocked firms and board meeting attendance for independent directors. The unit of observation is a director–firm–year triplet, and the sample includes directors serving on at least two boards. The dependent variable equals 100 if a director misses more than 25% of board meetings and zero otherwise. *Best (Worst)* is an indicator variable equal to one if the focal firm's performance is the best (worst) among the director's interlocked firms. Director controls indicate whether the following controls are included: *Large (Small)* is an indicator variable equal to one if the focal firm is at least 10% larger (smaller) than the director's smallest (largest) interlocked firm. *Director Tenure* is the number of years that the director served on the board of the focal firm. *Director ownership* is the fraction of the focal firm's shares outstanding owned by the director. RET[t], RET[t]^2, and RET[t]^3 are the first three powers of contemporaneous stock returns, respectively. In Panel B, we examine the role of monitoring committees. Monitoring committees include the nominating, compensation, governance, and audit committees. The dependent variable, *Forced CEO Turnover,* equals 100 if the CEO is dismissed and zero otherwise. *Monitoring %Worst* is the percent of independent directors serving on monitoring committees for whom the focal firm is the worst performing firm among their directorship firms. *Rest-of-Board %Worst* is defined analogously for all other independent board members. The regressions include all the control variables included in column (5) of Table 3. Higher-order perf. denotes contemporaneous and lagged one period cubic polynomials of stock returns and accounting performance. All variable definitions are provided in the Internet Appendix. Standard errors (in parentheses) are clustered at the director in Panel A and at the firm level in Panel B. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Board Meeting Attendance

Dep. variable	Miss more than 25% of meetings*100				
	(1)	(2)	(3)	(4)	(5)
Worst	-0.276**	-0.606***			-0.486**
	(0.127)	(0.197)			(0.236)
Best			0.372***	0.487**	0.271
			(0.126)	(0.214)	(0.254)
RET[t]	-0.209		-0.320		
	(0.347)		(0.338)		
RET[t]^2	-1.275**		-1.451***		
	(0.560)		(0.559)		
RET[t]^3	0.833*		0.961**		
	(0.441)		(0.439)		
Controls	Yes	Yes	Yes	Yes	Yes
Director x Year FE	No	Yes	No	Yes	Yes
Firm x Year FE	Yes	Yes	Yes	Yes	Yes
Adj-R-sq	0.083	0.074	0.083	0.073	0.074
Obs	57207	57207	57207	57207	57207
p-value(Best=worst)					0.001
Pr(Miss more than 25% of meetings)					1.2

Panel B: Monitoring Committee

Dep. variable	Forced CEO turnover				
	(1)	(2)	(3)	(4)	(5)
Monitoring *%Worst*	0.543***	0.611***			0.606***
	(0.165)	(0.179)			(0.178)
Rest-of-board *%Worst*			0.058	0.022	0.054
			(0.128)	(0.132)	(0.132)
Higher-Order Perf.	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	No	Yes	No	No
Firm FE	No	Yes	No	Yes	Yes
Adj-R-sq	0.040	0.060	0.040	0.059	0.060
Obs	23350	23350	23350	23350	23350
p-value of monitoring – rest of the board					0.01

Table 7. The Role of Uncertainty

This table studies the role of uncertainty in director benchmarking. The dependent variable, *Forced CEO Turnover,* equals 100 if the CEO is dismissed and zero otherwise. *%Worst* is the percent of independent directors for whom the focal firm is the worst performing firm among their directorship firms. We use three measures of uncertainty: (1) *High error*, defined as an indicator variable that equals one if the firm's analyst forecasts error is in the top tercile of its industry. (2) *High dispersion*, defined as an indicator variable that equals one if firm's analyst forecasts dispersion is in the top tercile of its industry. (3) *Young CEO*, defined as an indicator variable that equals one if the CEO's age is below (or equal to) the industry median. The regressions include all the control variables included in column (5) of Table 2. *Higher-order perf.* denotes contemporaneous and lagged one period cubic polynomials of stock returns and accounting performance. All variable definitions are provided in the Internet Appendix. Standard errors (in parentheses) are clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dep. variable	Forced CEO turnover					
	(1)	(2)	(3)	(4)	(5)	(6)
%Worst	0.478***	0.440**	0.594***	0.574***	0.229	0.248
	(0.171)	(0.186)	(0.187)	(0.200)	(0.187)	(0.202)
%Worst X High Error	0.815***	0.991***				
	(0.298)	(0.318)				
%Worst X High Dispersion			0.485*	0.421		
			(0.290)	(0.305)		
%Worst X Young CEO					0.924***	0.895***
					(0.251)	(0.268)
Higher-order perf.	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	No	Yes	No	Yes	No
Firm FE	No	Yes	No	Yes	No	Yes
Adj-R-sq	0.041	0.061	0.040	0.058	0.042	0.061
Obs	23015	23015	22452	22452	23350	23350

Table 8. Post-Turnover Performance

This table studies firm performance after forced turnovers. Panel A reports estimates from conditional tests that restricts the analysis to a [-1, +2] event window surrounding forced turnovers. The dependent variables are *ROA* (columns (1)–(2)), the *market-to-book ratio* (columns (3)–(4)), *analyst recommendations* (columns (5)–(6)), and an *analyst downgrade* indicator variable (columns (7)–(8)). *%Worst* is the percent of independent directors for whom the focal firm is the worst performing firm among their directorship firms, measured in the year of the firing (event time = 0). *%Worst* ≥ *50%* indicates whether *%Worst* is at least 50%, and *25% < %Worst < 50%* is an indicator variable equal to one if *%Worst* is greater than 25% and less than 50%. *Post* is an indicator variable equal to one for years after CEO dismissals and zero otherwise. The regressions include the following control variables: *cubic polynomials of Stock returns, Industry stock returns, Log CEO tenure, Log CEO age, CEO–chair duality, and Board independence*. δ is the Oster (2019) sensitivity parameter, calculated using two regressions: one that includes only *%Worst*, Post, and *%Worst* × Post, and a second that corresponds to the full specification in Column (1), which adds the complete set of control variables. Panel B reports estimates from an unconditional test that compares firm performance across firms that dismiss their CEOs ("treated firms") and those that retain their CEOs ("control firms"). The sample is split into three subsamples based on *%Worst*: (1) $\%Worst \geq 50\%$, (2) $25 < \%Worst < 50\%$, and (3) $\%Worst \leq 25\%$. For each subsample, treated firms (that dismissed their CEOs) are matched to control firms (that retained their CEOs) in the same industry and year, with similar pre-turnover performance using propensity score matching, and calculate the average change in performance from the year of forced CEO turnover to two years after the turnover. Sub-Panels 1-4 measure firm performance using ROA, the market-to-book ratio (MTB), analyst recommendations, and analyst downgrades, respectively. For each subsample and performance measure, we report the average treatment effect on the treated (ATT). All variable definitions are provided in the Internet Appendix. Standard errors (in parentheses) are clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Conditional Test

Dep. variable	*ROA*		*MTB*		*Analyst recommendations*		*Analyst downgrade*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
%Worst x Post	-0.012***		-0.099***		-0.105***		0.078***	
	(0.004)		(0.031)		(0.022)		(0.023)	
%Worst ≥ 50% x Post		-0.025***		-0.230***		-0.203***		0.125**
		(0.010)		(0.077)		(0.056)		(0.060)
25%<*%Worst*<50% x Post		-0.012		-0.156**		-0.092*		0.090
		(0.007)		(0.067)		(0.050)		(0.058)
Post	0.002	-0.005	0.078*	0.039	0.010	-0.061*	-0.138***	-0.086**
	(0.005)	(0.004)	(0.047)	(0.036)	(0.036)	(0.031)	(0.041)	(0.036)
%Worst	0.022***		0.164**		0.073		-0.023	
	(0.008)		(0.069)		(0.046)		(0.029)	
%Worst > 50%		0.052**		0.375**		0.148		0.031
		(0.021)		(0.176)		(0.125)		(0.071)
25%<*%Worst*<50%		0.005		0.090		0.096		-0.076
		(0.015)		(0.212)		(0.080)		(0.069)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R-sq	0.656	0.654	0.695	0.694	0.447	0.440	-0.003	-0.007
Obs	2089	2089	2082	2082	2076	2076	2030	2030
δ	21.05		-13.94		-17.79		-3.04	

Panel B: Unconditional Test				
(1) ATT $\Delta_{t,t+2}$*ROA*				
	ATT	*p*-value	Treated obs.	Control obs.
$\%Worst \geq 50\%$	-0.025**	0.049	92	167
$50\% > \%Worst > 25\%$	-0.003	0.702	187	345
$\%Worst \leq 25\%$	0.013**	0.024	227	436
(2) ATT $\Delta_{t,t+2}$ *MTB*				
$\%Worst \geq 50\%$	-0.197*	0.070	89	160
$50\% > \%Worst > 25\%$	-0.052	0.438	188	347
$\%Worst \leq 25\%$	0.072	0.244	228	439
(3) ATT $\Delta_{t,t+2}$*Analyst recommendations*				
$\%Worst \geq 50\%$	-0.082	0.245	85	150
$50\% > \%Worst > 25\%$	-0.015	0.775	171	320
$\%Worst \leq 25\%$	0.080*	0.085	209	404
(4) ATT $\Delta_{t,t+2}$ *Analyst Downgrades*				
$\%Worst \geq 50\%$	0.167**	0.015	81	141
$50\% > \%Worst > 25\%$	0.020	0.665	171	320
$\%Worst \leq 25\%$	-0.049	0.245	206	398

Table 9: Director Labor Markets

This table reports estimates from staggered matched difference-in-differences regressions explaining CEOs' directorships surrounding CEO dismissals. Column (1) reports estimates from a probit model in which the dependent variable is *Forced CEO Turnover*, which equals 100 if the CEO is dismissed and zero otherwise, and the independent variables are known determinants of CEO turnovers. We use the estimates from column (1) to calculate propensity scores and match each dismissed CEO to the five closest non-dismissed CEOs, requiring the difference in propensity scores to be lower than 2.5%. Columns (2) and (3) report estimates from matched-sample Poisson specifications in which the dependent variable is the number of board seats that the CEO holds, excluding the focal firm. *Forced CEO Turnover* is an indicator variable that equals one if the CEO was dismissed. *Post* indicates years after the CEO's dismissal. *High %Worst* is an indicator variable that equals one if *%Worst* is above the sample median (20%), measured one year before the year of the CEO's dismissal. *%Worst* is the percent of independent directors for whom the focal firm is the worst performing firm among their directorship firms. The additional controls include *ROA*, *Ln(Age), CEO-Chair, and %Ownership*. All variable definitions are provided in the Internet Appendix. Standard errors clustered at the CEO level are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dep. variables	Forced CEO Turnover	*#Board seats*	
	(1)	(2)	(3)
Forced CEO Turnover x Post		-0.877***	-0.885***
		(0.098)	(0.101)
Forced CEO Turnover x Post x High *%Worst*		0.206*	0.222*
		(0.117)	(0.120)
Post x High *%Worst*		0.036	0.037
		(0.036)	(0.036)
Post x RET[t]		0.163**	0.193***
		(0.065)	(0.073)
Post x RET[t-1]		-0.017	-0.058
		(0.047)	(0.047)
RET[t]	-1.041***		
	(0.066)		
RET[t-1]	-0.331***		
	(0.052)		
Industry Ret[t]	0.555***		
	(0.081)		
ROA[t]	-0.883***		
	(0.247)		
Ln(Age)	-0.384**		
	(0.182)		
CEO Chair	-0.245***		
	(0.041)		
%Ownership	-1.582***		
	(0.611)		
Board ind.	0.328**		
	(0.157)		
Ln(Board size)	0.147*		
	(0.086)		
Additional Controls x Post	No	No	Yes
Year FE	Yes	No	No
Cohort x Year FE	No	Yes	Yes
Cohort x Director FE	No	Yes	Yes
N	20413	19746	19746
Model	Probit	Poisson	Poisson

Appendix

A. Variable Definitions

Firm characteristics

%Worst = the percentage of independent directors for whom the firm is the worst performer among all their directorship firms. Performance is measured using annual raw stock returns.

%Best = the percentage of independent directors for whom the firm is the best performer among all their directorship firms. Performance is measured using annual raw stock returns.

Interlocked RET[t] = the equal-weighted stock return of the director-interlocked firms over year t.

%Worst over entire tenure = *%Worst* but computes performance over each director's entire tenure across all directorships.

%Worst Leaver = the percentage of departing independent directors for whom the firm is the worst performer among all directorships.

$\%Worst_{MultiBoard}$ = the fraction of independent directors serving on multiple boards for whom the focal firm is the worst-performing directorship.

%Interlock outperformed = the fraction of interlocking directorship firms that outperform the focal firm.

Forced CEO Turnover = 100 if the CEO is forced out and zero otherwise. Following Parrino (1997), a turnover is classified as forced if the press reports that the CEO was fired, forced out, or resigned due to policy differences. All other departures of CEOs aged 60 or older are voluntary. Departures of CEOs younger than 60 are forced if the press does not report the reason as death, poor health, or if the departure was announced less than six months before it occurred.

Turnovers with age < 60 (and < *63*) are indicator variables for CEO departures before age 60 (or 63), excluding cases due to death or health issues.

All Turnover equals one for any CEO turnover (voluntary + forced), excluding health-related or death events.

RET[t]= the firm's buy-and-hold stock return during year t. When there is no forced CEO turnover, stock returns are measured over the current fiscal year. If the current fiscal year overlaps with the announcement of a forced CEO turnover, we instead calculate stock returns over the 12-month period preceding the turnover announcement to avoid attributing performance to the successor CEO.

Industry RET[t] = the value-weighted industry stock return during year t where industry is defined based on the Fama–French 48 classification.

Peer RET = the value-weighted industry stock return during year t, where industry is defined using the Fama–French 48, Fama–French 12, 3-digit SIC, or TNIC-3 classification.

Peer ROA = the industry-average return on assets (ROA) during year t, where industry is defined using the Fama–French 48, Fama–French 12, 3-digit SIC, or TNIC-3 classification.

Bottom Decile RET= An indicator equal to 1 if the focal firm's stock return during year t falls in the bottom decile of either (i) the annual sample distribution or (ii) its industry distribution, where industry is defined using the Fama–French 48, Fama–French 12, 3-digit SIC, or TNIC-3 classification.

Bottom Decile ROA= An indicator equal to 1 if the focal firm's ROA during year t falls in the bottom decile of either (i) the annual sample distribution or (ii) its industry distribution, where industry is defined using the Fama–French 48, Fama–French 12, 3-digit SIC, or TNIC-3 classification.

Worst RET = An indicator equal to 1 if the focal firm has the lowest stock return during year t either in the full sample or within its industry, where industry is defined using the Fama–French 48, Fama–French 12, 3-digit SIC, or TNIC-3 classification.

Worst ROA = An indicator equal to 1 if the focal firm has the lowest ROA during year t either in the full sample or within its industry, where industry is defined using the Fama–French 48, Fama–French 12, 3-digit SIC, or TNIC-3 classification.

ROA[t] = operating income before depreciation divided by total assets over year t

SD RET[t] = the annualized monthly standard deviation of stock returns.

Ln(Assets) = the natural logarithm of total assets.

CEO age = the CEO's age

CEO tenure = years served as CEO for a particular firm

CEO Chair = one when the CEO also serves as board chair.

CEO ownership =the fraction of outstanding shares owned by the CEO.

Young CEO = an indicator variable that equals one if the CEO's age is at or below the median CEO age in the firm's industry.

Board size = the number of directors on the board

Board independence = the percentage of independent directors.

Avg # Board seats= the average number of S&P1500 board seats held by independent directors.

%Non-Interlocked= the fraction of independent directors holding only one board seat at a S&P1500 firm.

%Multiple board (All Public) = the fraction of independent directors with at least two directorships at any public firm.

%Lowest Size-Rank (*%Highest Size-Rank*) = the percentage of independent directors for whom the firm is the smallest (largest) among their directorships, measured by market capitalization.

Bank-director = one if a firm has a director holding external board seats at banks in 2005 and zero otherwise.

Bank = one for depository institutions (SIC between 6000 and 6199) and zero otherwise.

Treatment intensity (Best) = *%Worst*, but for firms that are the worst performer, we subtract the performance of the best-performing directorship before aggregating to the board level.

Treatment intensity (Next Worst) = *%Worst*, except that when the focal firm is the worst performer, we subtract the performance of the 2nd worst performing directorship from the focal firm's performance before aggregating to the board level.

Analyst Rating = average analyst rating ranging from -1 (best rated ; Strong buy) to -5 (worst rated; sell) at the end of the year

News Sentiment = average news sentiment over the current year

Worst (perf.) = indicates whether the focal firm is the worst performer compared to its performance peers.

Worst (Comp.) = indicates whether the focal firm is the worst performer relative to its compensation peers.

Peer %Worst = the percent of independent directors for whom the peer firm is the worst-performing among their directorship firms

Monitoring %Worst = the percent of independent directors serving on monitoring committees (nominating, compensation, governance, and audit committees) for whom the focal firm is the worst performing firm among their directorship firms.

Rest-of-Board %Worst = the percent of independent directors who do not serve on monitoring committees (nominating, compensation, governance, and audit committees) for whom the focal firm is the worst performing firm among their directorship firms.

%Wors t≥50% = one if *%Worst* is at least 50%, and zero otherwise

25% < %Worst < 50% = to one if *%Worst* is greater than 25% and less than 50%, and zero otherwise.

High error = an indicator variable that equals one if the firm's analyst forecasts error is in the top tercile of its industry.

High dispersion = indicator variable that equals one if firm's analyst forecasts dispersion is in the top tercile of its industry.

Analyst Downgrades = one if average analyst rating declined between t and t-1 and zero otherwise

Post = post periods as defined in each table

$\Delta_{t,t+2}ROA$ = Changes in ROA between t and t+2

$\Delta_{t,t+2}$ *MTB*= Changes in MTB between t and t+2

$\Delta_{t,t+2}Analyst\ recommendations$ = Changes between average analyst ratings between t and t+2

$\Delta_{t,t+2}$ *Analyst Downgrades* = one if average analyst rating declined between t and t+2 and zero otherwise

Δ*Interlocked RET[t]* = changes in interlock performance between t and t-1

Δ

CAR[–1,+1] (CAR[–1,+5]) = cumulative abnormal returns over the three (five-day) windows surrounding CEO dismissal announcements.

Director characteristics

Best (Worst)= an indicator variable equal to one if the focal firm's performance is the best (worst) among the director's interlocked firms.

Large (Small)= an indicator variable equal to one if the focal firm is at least 10% larger (smaller) than the director's smallest (largest) interlocked firm.

 # Pub board seats = the number of public company boards a director serves on in a given year

 # Board seats = all board seats in the RiskMetrics database.

Director tenure = the number of years that the director has served on the board of the focal firm

Director ownership = the fraction of the focal firm's shares outstanding owned by the director

Director age = the director's age.

Miss more than 25% meetings = an indicator equal to 100 if directors attend fewer than 75 percent of board meetings in a year for a particular firm.

Internet Appendix

Appendix Contents:

Section A	Case Study of AMD
Section B	Additional Tables and Figures

A. Case Study of AMD

This section describes the case of Advanced Micro Devices (AMD), which illustrates our findings. In July 2008, Dirk Meyer became Chief Executive Officer (CEO) of AMD and led the firm out of financial distress by revamping its product lines, spinning off manufacturing operations, and securing a $1.25 billion settlement in its antitrust suit against rival Intel. Despite these achievements, after markets closed on January 10, 2011, AMD unexpectedly announced Meyer's resignation as CEO. The announcement surprised Wall Street analysts. Stacy Rasgon of Bernstein Research remarked that "the timing [of Meyer's firing] is extremely odd, and it's only going to fuel uncertainty in the stock." Similarly, Patrick Wang, a semiconductor analyst, described the ousting as "shocking." Over Meyer's two-and-a-half-year tenure, the stock price increased by 81.6% compared to 18.5% for NASDAQ. Following the news, Raymond James downgraded AMD from "outperform" to "underperform." By the end of January, AMD had lost nearly 20 percent of its market capitalization. Although AMD's SEC filing characterized the resignation as "a termination of employment without cause," The Wall Street Journal reported that AMD's directors had pushed Meyer out, forcing his abrupt departure.[24]

In this paper, we advance and empirically evaluate a novel proposition: boards rely on director-specific measures, derived from the performance of their interlocked firms, as heuristics when assessing a CEO's performance relative to potential successors. This proposition, and the empirical evidence we present, are consistent with the AMD case described above: at the time of Mr. Meyer's ousting, AMD was the worst performing interlocked directorship for 6 of the board's 7 outside directors.

[24] https://www.wsj.com/articles/SB10001424052748703791904576076241726827256

B Additional Tables and Figures

Table IA1: Decomposition of Changes in %Worst

This table decomposes year-over-year changes in %Worst into components associated with the focal firm's stock performance, changes in board composition, and the performance of interlocked peer firms. We define *Δ%Worst* as the first difference in %Worst for each firm-year. Column (1) regresses *Δ%Worst* on the change in the focal firm's annual stock return, capturing the contribution of the firm's own performance. Column (2) adds two measures of changes in board composition: *Δ%Non-Interlocked*, defined as the change in the fraction of directors who hold only one board seat and therefore lie outside the interlock network, and *ΔAvg. # Board Seats*, defined as the change in the average number of board seats held per director. Column (3) further includes *ΔInterlocked RET*, defined as the change in the equal-weighted average annual stock return of the focal firm's interlocked peer firms. All independent variables are standardized to have mean zero and unit standard deviation. All specifications are estimated using OLS, with standard errors clustered at the firm level.

	Δ*%Worst*		
	(1)	(2)	(3)
ΔRET	-0.129***	-0.129***	-0.171***
	(0.002)	(0.002)	(0.003)
Δ%Non-Interlocked		-0.050***	-0.051***
		(0.002)	(0.002)
ΔAvg #Board Seats		-0.007***	-0.006***
		(0.002)	(0.002)
ΔInterlocked RET			0.105***
			(0.003)
Constant	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)
R-sq	0.278	0.315	0.470
ΔR^2		0.037	0.155
Obs	19747	19747	19747

Table IA2. Nonlinear or Poor Performance

This table examines whether director benchmarking predicts forced CEO turnover beyond standard measures of firm performance. The dependent variable, Forced CEO Turnover, equals 100 if the CEO is dismissed and zero otherwise. *%Worst* is the percentage of independent directors for whom the focal firm is the worst performer among their directorship portfolios. Column (1) controls for higher-order firm performance and includes indicators for bottom-decile and worst stock and accounting performance within the sample year. Columns (2)–(5) sequentially add controls for relative performance based on alternative peer definitions, including indicators for bottom-decile and worst stock and accounting performance relative to industry peers and industry-average stock returns and ROA, where industries are defined using Fama–French 48 (Column (2)), Fama–French 12 (Column (3)), three-digit SIC (Column (4)), and product-market peers based on TNIC-3 (Column (5)). Columns (6) and (7) additionally control for the average analyst rating and average news sentiment over the current year, respectively. Column (8) adds performance decile fixed effects, and Column (9) includes all controls from Columns (1)–(8). All the regressions include the same controls as column (5) of Table 2 (excluding higher-order returns) and year and firm fixed effects. All variable definitions are provided in the Internet Appendix. Standard errors are clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Dep. Variable	Forced CEO Turnover								
Peers:	Sample	FF48	FF12	SIC3	TNIC				All peers
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
%Worst	0.864***	0.830***	0.854***	0.868***	0.892***	0.929***	0.878***	0.821***	0.776***
	(0.171)	(0.172)	(0.170)	(0.172)	(0.177)	(0.172)	(0.186)	(0.184)	(0.213)
RET[t]	-0.870***	-0.996***	-0.873***	-1.243***	-1.137***	-1.492***	-1.566***	-2.228***	-1.435***
	(0.172)	(0.179)	(0.180)	(0.181)	(0.188)	(0.189)	(0.220)	(0.383)	(0.438)
ROA[t]	-0.795***	-0.708***	-0.609**	-1.132***	-0.831***	-0.707**	-0.577*	-0.593**	-0.859***
	(0.263)	(0.260)	(0.253)	(0.279)	(0.272)	(0.288)	(0.305)	(0.282)	(0.314)
Bottom Decile RET	2.803***	2.878***	3.804***	1.077	2.227**				
	(0.680)	(0.707)	(0.724)	(0.785)	(0.869)				
Bottom Decile ROA	0.625	1.973***	2.115***	0.076	1.986**				
	(0.725)	(0.731)	(0.743)	(0.863)	(1.010)				
Worst RET	6.968***	0.104	8.714**	0.828	-0.025				
	(2.606)	(0.147)	(4.180)	(0.947)	(0.776)				Suppressed
Worst ROA	-0.851	0.303	1.879	-0.305	-1.833				
	(2.288)	(0.226)	(4.141)	(0.968)	(1.120)				
Peer RET		3.401**	0.022	0.129	0.133				
		(1.691)	(0.158)	(0.131)	(0.146)				
Peer ROA		-1.125	0.643**	0.439**	0.088				
		(1.533)	(0.290)	(0.202)	(0.203)				
Analyst Rating						-0.650**			0.864***
						(0.328)			(0.171)
News Sentiment							-0.536***		-0.870***
							(0.153)		(0.172)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RET Decile FE	No	No	No	No	No	No	No	Yes	Yes
Adj-R-sq	0.057	0.058	0.060	0.055	0.047	0.053	0.055	0.058	0.052
Obs	23350	23350	23350	23350	21408	23120	19732	23350	17941

Table IA3. Performance Relative to Industry Peers

This table examines the relation between director benchmarking and external performance benchmarks. The dependent variable, *Forced CEO Turnover,* equals 100 if the CEO is dismissed and zero otherwise. *%Worst* is the percent of independent directors for whom the focal firm is the worst performer among their directorship firms. Panel A, B, and C consider underperformance and outperformance relative to industry benchmarks according to the Fama–French 12 industry, 2-digit SIC, and 3-digit SIC classification respectively. Columns (1)–(2) measure outperformance and underperformance using stock returns; columns (3)–(4) use return on assets (ROA); and columns (5)–(6) use analyst forecasts. All regressions include the same controls as column (5) of Table 2. *Higher-order perf.* denotes contemporaneous and lagged one period cubic polynomials of stock returns and accounting performance. All variable definitions are provided in the Internet Appendix. Standard errors (in parentheses) are clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dep. Variable	Forced CEO Turnover					
	Stock Returns		ROA		Analyst Forecasts	
Sample:	Outperformer	Underperformer	Outperformer	Underperformer	Outperformer	Underperformer
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Performance vs. Fama French 12 peers						
%Worst	0.367*	1.081***	0.704***	0.646**	0.453	1.129**
	(0.209)	(0.295)	(0.203)	(0.315)	(0.288)	(0.448)
RET[t]	-0.215	-2.432***	-1.957***	-2.534***	-2.490***	-2.264***
	(0.187)	(0.668)	(0.355)	(0.443)	(0.633)	(0.653)
Adj-R-sq	0.009	0.058	0.043	0.067	0.070	0.049
Obs	11069	11382	12158	10465	6151	6165
Panel B: Performance vs. 2-digit SIC peers						
%Worst	0.451**	1.031***	0.839***	0.428	1.024***	0.730*
	(0.215)	(0.289)	(0.212)	(0.306)	(0.319)	(0.430)
RET[t]	-0.056	-2.342***	-1.670***	-2.732***	-1.699***	-2.677***
	(0.325)	(0.628)	(0.345)	(0.445)	(0.594)	(0.618)
Adj-R-sq	0.042	0.058	0.040	0.069	0.053	0.051
Obs	11201	11235	11915	10712	6115	6174
Panel C: Performance vs. 3-digit SIC peers						
%Worst	0.242	1.105***	0.719***	0.680**	0.655*	0.951**
	(0.176)	(0.287)	(0.241)	(0.273)	(0.354)	(0.420)
RET[t]	-0.538	-2.563***	-2.071***	-2.294***	-1.892***	-2.400***
	(0.368)	(0.532)	(0.396)	(0.403)	(0.634)	(0.600)
Adj-R-sq	0.044	0.065	0.046	0.069	0.069	0.045
Obs	11143	11291	11204	11386	6017	6237
High-order Perf.	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table IA4. Performance Relative to Compensation and Performance Peers

This table examines the relation between director benchmarking and performance/compensation peers. Column (1) restricts the sample to firms without performance peers, whereas columns (2)–(3) include only firms that report performance peers. Similarly, column (4) restricts the sample to firms without compensation peers, whereas columns (5)–(6) include firms that report compensation peers. *Worst (perf.)* indicates whether the focal firm is the worst performer compared to its performance peers. *Worst (Comp.)* indicates whether the focal firm is the worst performer relative to its compensation peers. All regressions include the same controls as column (5) of Table 2. *Higher-order perf.* denotes contemporaneous and lagged one period cubic polynomials of stock returns and accounting performance. All variable definitions are provided in the Internet Appendix. Standard errors (in parentheses) are clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dep. Variable	Forced CEO Turnover					
Sample:	No. perf peer	With perf. peer		No comp. peer	With Comp. peer	
	(1)	(2)	(3)	(4)	(5)	(6)
%Worst	0.598***	1.834***	1.766***	0.552**	0.696**	0.679**
	(0.185)	(0.574)	(0.570)	(0.221)	(0.329)	(0.329)
Worst (perf.)			4.733***			
			(1.653)			
Worst (Comp.)						1.985**
						(0.925)
Higher-order perf.	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R-sq	0.063	0.045	0.053	0.069	0.065	0.065
Obs	20576	2379	2379	14115	8834	8834

Table IA5. Alternative definitions of CEO turnover

This table repeats the analysis in columns (3)–(5) of Table 2, except that the dependent variable varies across specifications. Columns (1)–(2) use all turnovers excluding departures due to health reasons and CEO deaths as the dependent variable. Columns (3)–(4) restrict the dependent variable to all turnovers involving CEOs younger than 63, again excluding departures due to health and CEO deaths. *Controls* denotes the same controls as column (5) of Table 2. *Higher-order perf.* denotes contemporaneous and lagged one period cubic polynomials of stock returns and accounting performance. All variable definitions are provided in the Internet Appendix. Standard errors (in parentheses) are clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	All Turnovers		Turnovers w/ age < 63		Turnovers w/ age < 60	
	(1)	(2)	(3)	(4)	(5)	(6)
%Worst	0.892***	0.605*	0.794***	0.740***	0.676***	0.633***
	(0.238)	(0.334)	(0.201)	(0.275)	(0.177)	(0.229)
RET[t]	-2.660***	-2.922***	-2.416***	-2.603***	-2.014***	-2.066***
	(0.274)	(0.468)	(0.238)	(0.402)	(0.212)	(0.357)
ROA	-0.404**	-0.243	-0.468***	-0.499	-0.469***	-0.779
	(0.178)	(0.925)	(0.166)	(0.814)	(0.152)	(0.742)
Industry Ret[t]	1.065***	0.686**	1.001***	0.607**	1.038***	0.593***
	(0.275)	(0.290)	(0.239)	(0.249)	(0.206)	(0.211)
Higher-Order Perf.	No	Yes	No	Yes	No	Yes
Controls	No	Yes	No	Yes	No	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	Yes	No	Yes	No	Yes
Adj-R-sq	0.011	0.087	0.012	0.058	0.012	0.064
Obs	23350	23350	23350	23350	23350	23350
Mean Turnover		10.60		6.93		4.83

Table IA6. Alternative Measures of Director Benchmarking

This table examines whether alternative measures of interlocking-directorship benchmarking explain forced CEO turnover. The outcome variable is Forced CEO Turnover. Columns (1) and (2) use $\%Worst_{MultiBoard}$, defined as the fraction of independent directors serving on multiple boards for whom the focal firm is the worst-performing directorship. Columns (3) and (4) consider *%Interlock outperformed*, defined as the fraction of interlocking directorship firms that outperform the focal firm. Columns (5) and (6) uses $Treatment\ intensity_{(\text{Best})}$, which is the same as *%Worst*, except that when the focal firm is the worst performer, we subtract the performance of the best performing directorship from the focal firm's performance before aggregating to the board level. Columns (7) and (8) use $Treatment\ intensity_{(\text{NextWorst})}$ which is the same as *%Worst*, except that when the focal firm is the worst performer, we subtract the performance of the 2nd worst performing directorship from the focal firm's performance before aggregating to the board level. Columns (9) and (10) use *%Worst over entire tenure*, defined as the fraction of directors for which the focal firm is the worst-performer among their directorship firms with performance measured over the directors' entire tenure at the respective boards. Columns (11) and (12) use $\%Worst_{fiscal\ year}$, defined as the fraction of independent directors for whom the firm is the worst performer among their director interlocking firms and stock returns are calculated over the fiscal year regardless of whether a forced turnover has occurred or not. *Controls* denotes the same controls as column (5) of Table 2. *Higher-order perf.* denotes contemporaneous and lagged one period cubic polynomials of stock returns and accounting performance. All variable definitions are provided in the Internet Appendix. Standard errors (in parentheses) are clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Forced CEO Turnover											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\%Worst_{MultiBoard}$	0.502***	0.540***										
	(0.131)	(0.152)										
%Interlock outperformed			0.284**	0.302*								
			(0.140)	(0.166)								
$Treatment\ intensity_{(\text{Best})}$					0.914***	0.941***						
					(0.206)	(0.218)						
$Treatment\ intensity_{(\text{NextWorst})}$							0.958***	1.017***				
							(0.210)	(0.226)				
%Worst over entire tenure									0.410***	0.412**		
									(0.140)	(0.180)		
$\%Worst_{fiscal\ year}$											0.347**	0.348**
											(0.156)	(0.161)
Higher-Order Perf.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Firm FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Adj-R-sq	0.040	0.060	0.040	0.059	0.041	0.061	0.041	0.061	0.040	0.063	0.035	0.055
Obs	23325	23325	23325	23325	23350	23350	23350	23350	22436	22436	23347	23347

Table IA7. Turnover Performance Sensitivity and Multi-board Directors

This table examines whether CEO turnover sensitivity varies with the fraction of directors with multiple board seats by adding an interaction term between fraction of directors with only one board seat and stock returns. The outcome variable is forced CEO turnover. *Controls* denotes the same controls as column (5) of Table 2. *Higher-order perf.* denotes contemporaneous and lagged one period cubic polynomials of stock returns and accounting performance. All variable definitions are provided in the Internet Appendix. Standard errors (in parentheses) are clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Forced CEO Turnover		
	(1)	(2)	(3)
%Worst	0.768***	0.819***	0.814***
	(0.150)	(0.166)	(0.182)
%Non-Interlocked x RET[t]	-0.145	-0.171	-0.136
	(0.116)	(0.116)	(0.122)
RET[t]	-2.444***	-2.366***	-2.119***
	(0.231)	(0.252)	(0.272)
%Non-Interlocked	0.238**	0.120	0.536
	(0.105)	(0.414)	(0.471)
Higher-Order Performance	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry	No	Yes	No
Firm FE	No	No	Yes
N	23350	23350	23350
Adj-R-sq	0.031	0.041	0.060

Table IA8. Does *%Worst* Predict Exogenous Departures?

This table tests whether *%Worst* predicts exogenous director departures, defined as cases in which a director who holds multiple board seats exits the director labor market and is at least 65 years old or departs due to illness or death. *Controls* denotes the same controls as column (5) of Table 2. All variable definitions are provided in the Internet Appendix. Standard errors (in parentheses) are clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Dep. variable:	Exogenous Director Departure		
	(1)	(2)	(3)
%Worst	-0.009	-0.011	-0.015
	(0.010)	(0.010)	(0.010)
RET[t]	-0.000	-0.001	-0.002
	(0.004)	(0.004)	(0.004)
ROA[t]	-0.009	-0.009	-0.016
	(0.013)	(0.013)	(0.021)
%Non-Interlocked	-0.074***	-0.074***	-0.080***
	(0.019)	(0.019)	(0.023)
Avg # Board seats	-0.015**	-0.015**	-0.025***
	(0.007)	(0.007)	(0.010)
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry	No	Yes	No
Firm FE	No	No	Yes
N	24604	24604	24604
Adj-R-sq	0.018	0.018	-0.006

Table IA9. Robustness: Post-Turnover Performance

This table replicates Panel A of Table 8 using alternative event windows surrounding forced CEO turnovers: [-1, +1] (Panel A) and [-1,+3] (Panel B). The dependent variables are ROA (columns (1) and (2)), market-to-book ratio (columns (3) and (4)), analyst recommendations (columns (5) and (6)), and an indicator for whether analyst recommendation decline (columns (7) and (8)). *%Worst* is the fraction of independent directors for whom the focal firm is the worst performing firm among their interlocked directorates, measured at the year of firing (event time = 0). $\%Worst \geq 50\%$ indicates whether *%Worst* is at least 50%, (2) $25\% < \%Worst < 50\%$ is an indicator equal to one if *%Worst* is greater than 25% and less than 50%. *Post* is an indicator equal to one for years after firing and is zero otherwise. The regressions include the following control variables: cubic polynomials of stock returns, industry stock returns, (log of) CEO tenure, (log of) CEO age, CEO-Chair dummy, and board independence. All variable definitions are provided in the Internet Appendix. Standard errors (in parentheses) are clustered at the firm level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A: Event window [-1,+1]

Dep. variable	*ROA*		*MTB*		*Analyst recommendations*		*Analyst downgrade*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
%Worst x Post	-0.013***		-0.110***		-0.082***		0.094***	
	(0.004)		(0.031)		(0.022)		(0.028)	
%Worst > 50% x Post		-0.026***		-0.242***		-0.152***		0.143**
		(0.010)		(0.077)		(0.055)		(0.070)
25%<*%Worst*<50% x Post		-0.014*		-0.161**		-0.066		0.089
		(0.007)		(0.063)		(0.045)		(0.068)
Post	0.001	-0.007	0.080*	0.029	-0.042	-0.102***	-0.085*	-0.014
	(0.006)	(0.005)	(0.043)	(0.032)	(0.036)	(0.031)	(0.050)	(0.043)
%Worst	0.025***		0.204**		0.061		-0.053	
	(0.008)		(0.084)		(0.048)		(0.033)	
%Worst > 50%		0.059**		0.462**		0.137		-0.057
		(0.023)		(0.212)		(0.136)		(0.085)
25%<*%Worst*<50%		0.006		0.099		0.047		-0.101
		(0.017)		(0.237)		(0.084)		(0.080)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R-sq	0.672	0.669	0.702	0.700	0.518	0.512	-0.013	-0.021
Obs	1654	1654	1645	1645	1644	1644	1602	1602

Panel B: Event window [-1, +3]								
Dep. variable	*ROA*		*MTB*		*Analyst recommendations*		*Analyst downgrade*	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
%Worst x Post	-0.010***		-0.090***		-0.101***		0.048**	
	(0.003)		(0.030)		(0.022)		(0.021)	
%Worst > 50% x Post		-0.024***		-0.208***		-0.202***		0.066
		(0.009)		(0.077)		(0.056)		(0.054)
25%<*%Worst*<50% x Post		-0.011		-0.162**		-0.104**		0.091*
		(0.008)		(0.070)		(0.052)		(0.051)
Post	0.002	-0.003	0.080*	0.049	0.035	-0.028	-0.137***	-0.112***
	(0.005)	(0.004)	(0.047)	(0.038)	(0.036)	(0.031)	(0.035)	(0.031)
%Worst	0.019**		0.133**		0.065		0.019	
	(0.008)		(0.060)		(0.040)		(0.024)	
%Worst > 50%		0.049**		0.298*		0.131		0.090
		(0.021)		(0.159)		(0.109)		(0.061)
25%<*%Worst*<50%		0.005		0.092		0.106		-0.027
		(0.014)		(0.188)		(0.073)		(0.059)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj-R-sq	0.650	0.649	0.697	0.696	0.393	0.388	-0.016	-0.018
Obs	2491	2491	2484	2484	2469	2469	2417	2417

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