

Director Optimism: Should shareholders pay attention?

Jaideep Chowdhury
Department of Finance and Business Law
James Madison University

Shawn Mobbs
Department of Economics, Finance, and Legal Studies
University of Alabama

Weiwei Zhang
Department of Finance and Business Law
James Madison University

Abstract

We find evidence that directors' favorable assessment of CEO ability, identified through their option exercise activity, is based on private information and accurately reflects future firm performance. As such, when directors are optimistic the likelihood of forced CEO turnover is lower and forced CEO turnover is less sensitive to firm stock performance. Likewise, following periods of poor performance, firms with an optimistic board perform better than other firms. These results hold following two exogenous market-wide negative shocks to firm performance. Finally, optimistic directors' trade-level profitability is higher. These findings indicate that investors should pay attention to directors' option exercise behavior.

Acknowledgements: This paper has benefited from comments and suggestions from Vicent Intintoli, Ting Zhang, and seminar participants at the 2022 Financial Management annual meeting, the 2023 Easter Finance Association annual meeting, the 2022 Indian Statistical Institute in New Delhi, India, James Madison University, and Virginia Tech University. Weiwei Zhang gratefully acknowledges financial support of the College of Business, James Madison University.

Jaideep Chowdhury. Address: 2136 Zane Showker Hall, College of Business, James Madison University, 421 Bluestone Dr., Harrisonburg, VA 22807. Phone: 540-568-3225. Email: chowdhjx@jmu.edu
Shawn Mobbs, corresponding author. Address: Culverhouse College of Business, University of Alabama, 200 Alston Hall, 361 Stadium Drive, Tuscaloosa, AL 35487. Phone: 205-348-6097. Email: hsmobbs@ua.edu
Weiwei Zhang. Address: 4131 Zane Showker Hall, College of Business, James Madison University, 421 Bluestone Dr., Harrisonburg, VA 22807. Phone: 540-568-6748. Email: zhang6wx@jmu.edu

Director Optimism: Should shareholders pay attention?

Abstract

We find evidence that directors' favorable assessment of CEO ability, identified through their option exercise activity, is based on private information and accurately reflects future firm performance. As such, when directors are optimistic the likelihood of forced CEO turnover is lower and forced CEO turnover is less sensitive to firm stock performance. Likewise, following periods of poor performance, firms with an optimistic board perform better than other firms. These results hold following two exogenous market-wide negative shocks to firm performance. Finally, optimistic directors' trade-level profitability is higher. These findings indicate that investors should pay attention to directors' option exercise behavior.

Keywords: Director Optimism, forced CEO turnover, relative performance evaluation, insider trade level profitability

JEL Code: G30, G32

1. Introduction

The value of independent directors' monitoring effectiveness depends on their ability to accurately assess the current CEO's skill set and the firm's prospects. In empirical research studying director effectiveness, these assessments are inferred from director actions, namely the decision to fire or retain the CEO in a given year and the degree to which that decision is sensitive to firm performance (e.g., Weisbach (1988), Fich and Shivdasani (2006), Guo and Masulis (2015), Coles, Daniel, and Naveen (2014), Taylor (2010), Hwang and Kim (2009)). While this approach has yielded vast insights into important director traits, it is not a direct measure of directors' private assessments of the CEO and firm. It is possible that directors solely rely on public measures (i.e., stock performance) to make CEO turnover decisions, without making the effort to obtain and assess private information. If such private information is positive, when publicly available information is negative, then relying only on publicly available measures for CEO turnover decisions could cause directors to fire CEOs prematurely, imposing unnecessary costs to shareholders (Parrino (1997), Laux (2008)). Conversely, the decision not to remove a CEO amidst negative publicly available information may reflect directors who are beholden to the CEO rather than directors who have carefully assessed the CEO's ability or the firm's prospects. To address these shortcomings, we propose a time-varying measure of director optimism as a proxy for a director's private assessment of the firm and CEO.

Our measure of director optimism draws from the extensive literature on CEO overconfidence. Malmendier and Tate (2005)¹ introduced a novel measure of a CEO's belief in

¹ Other studies using their approach include Daniel, Hirshleifer, and Subrahmanyam (1998), Shefrin (2001), Heaton (2002), Malmendier and Tate (2008), Goel and Thakor (2008), Ben-David, Graham, and Harvey (2013), Gervais, Heaton, and Odean (2011), Hirshleifer, Low, and Teoh (2012), Hribar and Yang (2016), and Malmendier, Tate, and Yan (2011).

their own ability based on their option exercise behavior, or lack thereof. In its simplest form, if a CEO believes he/she can create more value for the firm they will elect to not exercise options they hold, even when exercising is optimal. Such CEOs are deemed to be overconfident in assessing their own abilities to alter the outcomes of the firm. Directors are also often paid with option grants and such payments can represent a significant portion of their wealth from the directorship (Yermack (2004)). Like CEOs, they must decide when to exercise the vested options. However, unlike CEOs, directors are not directly positioned to manage day-to-day operations of the firm. Thus, when directors decide when to exercise their options, that decision is not based on the assessment of their own ability, but rather it is based on their assessment of the ability of the incumbent CEO. Since optimism is the general belief in a favorable outcome of future events *under someone else's control* (Scheier and Carver (1985), Scheier, Carver, and Bridges (1994)), we deem directors electing not to exercise vested deep-in-the money options as being optimistic rather than overconfident.

A director's delay in exercising deep-in-the-money exercisable options reflects their having a favorable assessment of the CEO's ability to enhance firm value and, thus, the firm's future stock performance – their optimism towards the directorship. Using this measure of a director's assessment towards a directorship, we first reexamine forced CEO turnover decisions to study how director optimism affects CEO turnover decisions. When a director is optimistic towards a directorship, his/her long-term outlook for firm performance is positive, even if the firm is currently performing poorly, which likely reduces their willingness to fire the CEO. Second, we examine whether director optimism is reflected in subsequent firm performance and thus is based on well-founded director information and not simply reflective of external measures of market sentiment.

To test this conjecture, we first examine forced CEO turnover decisions in the period 2000-2018 using linear probability models incorporating firm and year fixed effects. We find that the presence of optimistic directors on the board is associated with a significantly lower likelihood of forced CEO departure and a significantly lower forced CEO turnover sensitivity to firm-specific performance. Because these results rely on the within firm variation, they are not driven by any unobserved time-invariant firm-specific characteristics. However, it is possible that our measure of director optimism is influenced by an unobserved time-invariant director personality trait associated with directors who are always less willing to remove a CEO. To address this concern, we also estimate the CEO turnover regressions using director level data, rather than firm level data, and we include director and year fixed effects. We again find similar results when focusing on within director variation. Namely, when a director is optimistic, he/she is less likely associated with a forced CEO departure and any departure decisions are less sensitive to the firm's performance. We also find similar results when we focus on the subsample of directors who hold multiple directorships in a year. Thus, the variation is both within a director's directorship through time and across his/her directorships in a given year, indicating that a director's optimism is not firm specific nor director specific but is director-firm-year specific.

It is possible that our measure of director optimism is not capturing a director's private assessment of the CEO/firm if the director's behavior is simply driven by market sentiment towards the firm. We conduct several tests considering this possibility. First, we find that the effects of director optimism on forced CEO turnover are most prevalent in firms with lower stock performance, where the market view is more likely pessimistic. Second, we use the short-interests ratio, which is a measure of market sentiment of other investors towards the firm (Boehmer, Huszar, and Jordan (2010), Rapach, Ringgenberg, and Zhou (2016)), and find that the optimistic

director effect is strongest in firms in the top short-interests ratio quintile. Thus, the director's optimism does not appear to be driven by market sentiment.

Next, we explore whether a director's optimism in a given directorship-year is well founded. If directors' decision not to fire a CEO is based on their assessment of the CEO/firm and relevant private information, shareholders benefit from not having an unnecessary and costly CEO transition. However, if the decision reflects directors who simply are reluctant to fire a CEO when such action is warranted, this can be detrimental to shareholders (e.g., Denis and Denis (1995), Huson, Malatesta, and Parrino (2004)). To see if director optimism is well founded, we sort firms into deciles based on idiosyncratic firm stock return and restrict the sample to the lowest decile of firm performance, but which also did not have a forced CEO turnover event. Then within this subsample we split firms into those with and without optimistic directors during this period of poor performance. We find that firms with optimistic directors exhibit a greater increase in return on assets (ROA) and idiosyncratic firm stock return over the next year relative to firms without optimistic directors. We find similar results when focusing on firms with a high short-interests ratio. Similarly, when we focus on the subsample of poorly performing firms that did fire the CEO, we also find that performance improvements were significantly greater when the firm had a majority of optimistic directors on the board. In such cases, the directors' optimism must be rooted in the firm's prospect under a new CEO. Finally, we find no differences in performance improvements between poor performing firms with an optimistic board that do not fire the CEO and poor performing firms without an optimistic board that do fire the CEO.

It is possible that an unobserved time-varying factor causes both poor firm performance and director optimism simultaneously. To alleviate this concern, we use two exogenous market-wide negative shocks to firm performance and examine subsequent firm performance conditioning

on director optimism just prior to the shock. We use the 9/11 2001 terrorist attack and the 2008-2009 financial crisis as two exogenous negative shocks to firm performance. If directors accurately assess the ability of the CEO to be favorable and thus are optimistic toward the firm prior to these shocks, we expect these firms to weather these negative shocks more effectively than other firms. In both instances, we find significantly greater improvements in stock return and ROA following each of these two shocks in firms with an optimistic board before the shock. In all, these results suggest that director optimism is well founded and is based on private information obtained by directors.

As a final test, we look at whether directors trade on the information that fuels their optimism toward the directorship. Namely, we examine the director trade-level profitability using characteristic-adjusted post-trade abnormal stock returns over three, six, nine and twelve months (Daniel et al. (1997), Mikhail, Walther, and Willis (2004), Cohen and Lou (2012)). We find that the trading profits from stock purchases, excluding option related purchases, of optimistic directors are significantly greater than that of non-optimistic directors over nine- and twelve-months periods. This further suggests director optimism is rooted in private information.

Our study contributes to two strands of literature. First, we extend the vast literature on CEO overconfidence or optimism. There are extensive studies on how managerial personal traits affect firm policies (Bertrand and Schoar (2003), Kaplan, Klebanov, and Sorensen (2012), Graham, Harvey, and Puri (2013), Benmelech and Frydman (2015), Schoar and Zuo (2017), Ahmed and Duellman (2013), Banerjee, Humphery-Jenner, and Nanda (2015), Otto (2014), Malmendier and Tate (2005, 2008), Malmendier, Tate, and Yan (2011), Campbell, Gallmeyer, Johnson, Rutherford and Stanley (2011)). We deploy this widely used approach in a novel way as a means of measuring a director's assessment of a CEO/firm in a given directorship each year. Our

paper is one of the first papers to develop such a measure of a director's assessment of the current firm/CEO and to examine how that assessment, or optimism, affects director decision making. Cook, Chowdhury, and Zhang (2023) apply this approach to study the impact of director optimism on CEO equity compensation. They find that powerful but less optimistic boards exploit CEO optimism by offering them lower percentages of equity-based pay. In our study, we use director optimism as a proxy for the director's private assessment of expected CEO/firm performance and exam CEO turnover decisions. Furthermore, we find that this proxy is well founded and thus informative for shareholders.

Beavers and Mobbs (2020) rely on the CEO overconfidence measure to study the behavior (e.g., board meeting attendance, committee membership and CEO hiring decisions) of overconfident CEOs who are directors at other firms. Thus, their paper focuses on directors who are also overconfident CEOs in the firm they manage and how their overconfidence revealed in their home-firm actions relates to their decision making in firms where they serve as directors. In this study, we examine director actions directly in the various directorships that reveal their optimism. Thus, we more broadly examine all directors, not just those who are also CEOs and we also capture heterogeneity in optimism across a director's directorships.

Second, by using director optimism as a means of measuring directors' assessment of a CEO/firm in a given year, we provide new insights and contribute to the vast literature on board monitoring and forced CEO turnover decisions (e.g., Huson, Parrino, and Starks (2001), Mobbs (2013), Chemmanur and Fedaseyeu (2018)).

We organize the remainder of the paper as follows. In section 2, we develop the hypotheses. In section 3 we explain our sample construction and the director and board level optimism measures. In section 4, we report our empirical results on CEO turnover. In section 5, we test

whether director optimism is well founded. Section 6 concludes the paper.

2. Related Literature and Hypothesis Development

In monitoring the CEO, directors utilize both public and private information to assess firm performance and the current CEO's ability and then decide whether to retain or remove the CEO. Prior literature has shown that directors rely on both hard and soft information, as well as public and private information (e.g., Stein (2002), Laux (2008), Alam et al. (2014), Huang, Maharajan and Thakor (2020), Chemmanur and Fedaseyeu (2018)). However, most empirical work studying such decisions usually relies on only publicly available measures of firm performance to evaluate director CEO turnover decisions (Dasgupta, Li, and Wang (2018), Eisfeldt and Kuhnen (2013)). Directors who are more (less) willing to remove a CEO and those who make turnover decisions more (less) sensitive to publicly available measures of firm performance are viewed as better (weaker) monitors. Although public measures of performance are often correlated with directors' private information, this need not always be the case. Thus, it is important to consider the directors' full information set (Laux (2008), Chemmanur and Fedaseyeu (2018)). While it is not empirically plausible to identify the full information set available to directors, we can identify periods when directors may have positive private information about the firm and the CEO by examining their actions regarding their own stock options in the firm.

When directors do not exercise vested deep-in-the-money stock options they hold, it is likely due to their belief that the value of their options is going to increase. Since the CEO, not the directors themselves, is responsible for firm value, any belief that directors have that firm value is going to increase must be rooted in the directors' private information and corresponding assessment of the CEO and firm. In the context of the CEO, not exercising deep-in-the-money options, is viewed as overconfidence since the CEO is responsible for managing the firm. Similar

decisions not to exercise deep-in-the-money options by directors, who are not the firm managers, is not a measure of overconfidence in their own ability but rather reflects a belief in the ability of the CEO to manage the firm. This belief in the positive outcome of events *under someone else's control* is optimism (Scheier and Carver (1985)). From this perspective, a positive assessment of the outlook of the firm can offset the public information reflected in the firm's stock price, which can reduce the likelihood that the director would support a board decision to remove the CEO.

While it is possible that director optimism in the firm is rooted in the potential replacement CEO, rather than the incumbent CEO, this perspective carries more uncertainty when the replacement CEO is unknown. Thus, our first hypothesis focuses on the current CEO.

Hypothesis 1: Boards with optimistic directors are less likely to terminate the CEOs.

Copious literature has documented that the likelihood of forced CEO turnover becomes more likely when firm performance drops and boards acting in the interests of shareholders are associated with enhancing this negative relation (e.g., Huson, Parrino, and Starks (2001), Engel, Hayes, and Wang (2003), Weisbach (1988), Jenter and Kanaan (2015), Fee et al. (2017)). However, if directors have access to private information about the CEO's ability to improve firm performance, it may be in the shareholder's best interests to not fire the CEO in a period of poor performance. Forced CEO departures can be costly to the firm and may further delay the realization of positive NPV investment opportunities. Directors who do not exercise their deep-in-the-money stock options likely have a reason to be optimistic about the current CEO's ability and if their assessment is correct, then these directors are less likely to rely on publicly available signals, such as firm stock performance, to make forced CEO turnover decisions.

Conversely, as with our first hypothesis, the alternative is that optimistic directors are optimistic about the firm under a potential incoming CEO and thus may be willing to support

removing the incumbent CEO given even a small change in publicly available signals. This would make forced CEO turnover decisions more sensitive to measures of firm performance. Again, given the uncertainty associated with a succeeding CEO, we state our second hypothesis from the perspective of the director's assessment of the current CEO's ability.

Hypothesis 2: The sensitivity of forced CEO turnover to firm performance will be attenuated by the presence of optimistic directors.

3. Data and Sample Constructions

We extract our data from several sources. We begin with the BoardEx database to obtain directors option compensation and identify optimistic directors based on their option exercise behavior. After classifying optimistic boards using three proxies, we merge the firm/board level data with Compustat and CSRP, from which we obtain firm accounting information and stock return information, respectively. BoardEx has the unique firm-level identification code "Company ID", CIK, ISIN, and the company name. We match the "Company ID" in BoardEx with the permno in CRSP by either CIK or cusip (derived from ISIN). We check the accuracy of the matches by comparing company names from BoardEx with company names from CRSP and Compustat. We obtain board size and other director information, such as age, tenure at the firm, and ownership, from BoardEx. We obtain CEO age and tenure, and ownership information from ExecuComp. We follow Humphery-Jenner et al. (2016) to identify overconfident CEOs using ExecuComp database. Specifically, we identify CEOs who hold exercisable options that are more than 67% in the money as overconfident CEOs. Short interest data comes from the Compustat supplemental short-interest file. We obtain director insider trading data from Thomson Reuters Financial Insider Filings and focus on open market equity purchases and eliminate transactions related to option exercises. The director-year sample has 108,195 observations, and the final firm-year sample contains 21,429

observations, from 2000 to 2018.

3.1. Identifying Forced CEO turnover and optimistic directors

3.1.1. Forced CEO turnover.

CEOs leave office for various reasons unrelated to performance, such as health or death. For these departures, the board of directors plays a minimal role. Non-voluntary or forced CEO departures are more informative measures of boards monitoring and disciplining action. We follow similar studies (e.g., Huson, Malatesta, and Parrino (2004), Hazarika, Karpoff, and Nahata (2012), Jenter and Kanaan (2015), Guo and Masulis (2015), Jenter and Lewellen (2020), Ellis, Guo, and Mobbs (2020), Fee et al. (2017), Peters and Wagner (2014), Eisfeldt and Kuhnen (2013), Campbell et al. (2011)) and identify forced CEO departures following Parrino's (1997) algorithm, which is a three-step process based on news articles, an age criterion and further refinements to identify forced CEO turnover events.²

3.1.2. Measuring director and board optimism

Using the directors' option compensation data from BoardEx, we follow procedures similar to the CEO overconfidence literature to determine whether a director is optimistic in a given directorship in a given year (Malmendier and Tate (2005, 2008), Campbell et al. (2011), Malmendier, Tate, and Yan (2011)). Specifically, we use the accumulated option wealth table to obtain the option package held by each director each year to identify directors who hold deep-in-the-money exercisable options. We restrict our attention to the exercisable options held by each director in a year. We compare the exercise price of the exercisable options held by the directors to the median stock price of that firm in the last year. We consider the options as deep in-the-

² We thank Peters and Wagner (2014) for sharing their forced CEO turnover data with us to augment our data.

money if the median stock price over the past year is at least 67% higher than the exercise price.³ To be considered optimistic towards a directorship in a year, we require directors to hold at least one tranche of exercisable deep in-the-money options in that year.

After identifying optimistic directors each year, we aggregate the optimistic independent directors' to the board level creating three measures of board optimism. The first is an indicator variable (OP_board_dummy (0/1)) that equals one if there is at least one independent optimistic director on the board in a year and zero otherwise. The second is another dummy variable (OP_measure (0/1)) that equals one if over 50% of the independent directors are classified as optimistic in the year and zero otherwise. Finally, we scale the number of independent optimistic directors on the board in the year by the board size to obtain our third measure of board optimism, which is the OP_measure (%). These are the main variables of interest in our study.

3.2 Descriptive Statistics

We report the summary statistics of all the variables at the director-firm-year level in Table 1 Panel A. In our sample 43.8% of the director-firm-years are classified as optimistic. We find 51.6% of CEOs are identified as overconfident, consistent with Humphery-Jenner et al. (2016). About 78% of the directors hold only one directorship and directors' average ownership is 0.048%. Furthermore, 33.1% of the directors are defined as co-opted directors. A director's average tenure at a firm is 5.27 years and 20.8% of directors are director-CEOs in our sample.

We report firm-year summary statistics in Table 1 Panel B. Forced CEO turnover events occur in 2% of the firm-year observations in our sample period. There are 60.4% of firms that have at least one independent optimistic director on the board, and 27.6% of firms have over 50% of

³ We obtain similar results by comparing the exercise price with the mean stock price in the last year to gauge the moneyness of the exercisable options. We also compare the exercise price with the previous fiscal year end price and results are similar.

independent directors that are classified as optimistic. The average firm has 37.5% independent optimistic directors on the board. Idiosyncratic firm stock return is the residual of a first-stage regression using value-weighted peer group return as the independent variable and firm stock return as the dependent variable. Industry peer group induced stock return is the predicted firm stock return using the first-stage regression model when using the value-weighted industry peer group return as the independent variable. The mean idiosyncratic firm stock return and industry peer group induced stock return is -2.5% and 19.8%, respectively. The mean CEO age and tenure is 56 years and 7.192 years, respectively. The average CEO's ownership in the firm is 1.157%. The average board consists of 10 directors and 71.6% of which are independent.

Figure 1 shows the annual mean percentage of optimistic directors on boards in our sample from 2000 to 2018. The percentage of identified optimistic directors fluctuates between 40-60%. The lowest representation of optimistic directors occurred during the years of the 2007-2008 financial crises. Moreover, we do not notice a decline in identified optimistic directors despite the declining trend in the use of option-based compensation during the period.

We present firm and director characteristics for directors who hold multiple directorships in Table 1 Panel C. The first two rows show that the average number of directorships held is just above 3 and the average director is optimistic in 78.6% of their directorships and are coopted in just over a third of their directorships. The remaining rows in Panel C report the range of various firm characteristics across a director's directorships. For example, the mean ROA change in year $[-1, 0]$ across a director's directorships spans an average of 40.3%. The tenure of the director across his/her directorships differs on average by 16 years. There is a substantial amount of variation across a director's directorships in terms of experience, director tenure, including relative to the firm's CEO, and firm performance. Thus, it is reasonable that a given director will vary in his/her

optimism across their respective directorships.

[Insert Table 1]

4. Empirical Methodology and Results

In this section, we first study determinants of director optimism. Then, we examine the relation between director/board optimism and forced CEO turnover decisions, both at the board and director level. These are the main tests of our hypotheses.

4.1. Determinants of director optimism.

We begin our analysis by considering director, CEO and firm characteristics associated with a director being optimistic in a directorship in a given year. As discussed earlier, when a director chooses not to exercise deep-in-the-money options in a firm it indicates that he/she expects the firm's stock price to increase, which must be attributed to either the ability of the CEO who is managing the firm or the prospects of the firm under a new, likely unknown, CEO. Thus, we consider determinants that measure either CEO ability or expected firm performance.

Prior literature has shown that CEO overconfidence is associated with better firm performance. This association can be due to overconfident CEOs being more likely to make favorable strategic changes (Banerjee, Humphery-Jenner, and Nanda (2015)) or simply reflect the CEO's greater access to positive inside information (e.g., Malmendier and Tate (2005, 2008 and 2015)). Either way, when the firm's CEO is overconfident, directors may likewise be more optimistic towards the directorship. If the CEO is older and more experienced, the director has more information about the CEO's ability and thus may be inclined to be more optimistic towards the CEO's ability. Recent changes in the firm's operating performance also reflect the incumbent CEO's managerial ability and thus can positively affect the director's optimism. We control for the current and most recent one-year change in ROA.

Aside from the CEO's ability, if the prospects for the industry as a whole are viewed to be favorable, the director may be optimistic towards the firm under the management of the current or replacement CEO. To measure this broader sentiment for the future prospects for the firm, we control for industry-wide stock returns and the recent change in industry ROA. To capture the firm's position within the industry, we control for the firm market share.⁴

Next, we consider director characteristics that may affect their optimism towards a directorship in a given year. First, we consider characteristics that may bias a director towards a particular directorship. Given the reputational benefits from holding a directorship (Fama (1980), Masulis and Mobbs (2014)), directors may be inclined to be more optimistic when they only have one directorship. Similarly, when they hold multiple directorships, they may be biased toward their largest directorship. To account for these potential biases, we control for the number of directorships a director has in each year, an indicator that equals one if the director only holds one directorship and an indicator that equals one in the director's largest directorship in a given year. We also control for the ownership in the directorship since the level of ownership may affect their option exercise decision and it may also reflect the director's outlook for the firm.

Coles, Daniel, and Naveen (2014) find that directors who join the board after the CEO's appointment are more aligned with the CEO. This CEO alignment can also affect the director's assessment of the CEO's ability and future prospects of the firm. To account for this possibility, we include an indicator variable, co-opted director, that equals one if the director joined the board of this firm after the CEO's appointment.

Finally, we control for variables associated with the director's ability or experience. More experienced directors may be better able to access and process private information about the firm

⁴ In all analysis, we use the Fama-French 48 industry classification.

or CEO and thus be more or less likely to be optimistic towards the firm. We control for director age, as a measure of general experience; director tenure at the firm, as a measure of firm-specific experience; and the total directorship tenure, as another measure of directorship experience.⁵ Finally, we include an indicator that equals one if the director is the CEO of another firm.

In addition to these director-level and firm-level characteristics, we include director and year fixed effects in all regressions to address the unobservable director heterogeneity and macroeconomic conditions. To test these determinants of directorship optimism, we use linear probability models (LPM). We report standard errors that are robust to heteroskedascity and clustered at the firm level in all specifications.⁶ We present our regression results in Table 2. We include all directors in model (1) and directors with multiple directorships in model (2).

[Insert Table 2]

In both models, we find that CEO overconfidence is significantly and positively associated with director's optimism. Recent improvements in firm accounting performance and industry stock performance are also related to director's optimism in a given directorship-year. We find evidence that more skilled or experienced directors are more likely to be optimistic in a given directorship year. Director age, tenure at the firm, and total directorship tenure are all positive and significant in both models.

We find no evidence that industry wide operating performance, firm market share or relative size of the directorship affect director optimism toward a given directorship. We also find that director ownership or the number of directorships held have no significant relation with

⁵ We sum the director's tenure at multiple firms, if he/she holds more than one directorship, to obtain the director's total directorship tenure.

⁶ Table 2 results are robust if we cluster the standard errors at the director level. Our results are also similar when we use logit models without director fixed effects.

director optimism. These results indicate that the director's assessment of the CEO's ability, the firm's prospects, and the director's experience drive director optimism.

In model (1) we also find a positive and significant coefficient estimate for the co-opted director indicator. Thus, when the director is more likely aligned with the CEO, the director is more likely to be optimistic. However, the co-opted indicator is insignificant in model (2), where we consider only directors with multiple directorships. Thus, the co-option effect appears strongest among directors with only one directorship. If the director optimism is determined by co-opted directors, it may be possible that the CEOs are less likely to be terminated because of co-opted directors and not because of director optimism. We address this potential concern by controlling for director or board co-option in our subsequent analyses.

4.2. Board optimism and forced CEO turnover.

In this section, we examine whether boards with optimistic directors make different forced CEO turnover decisions compared to boards with no optimistic directors. Specifically, we examine the likelihood of forced CEO turnover and the sensitivity of such decisions to firm stock performance. We include the three measures of board optimism, and the interaction terms of these measures with firm stock performance. We decompose firm stock performance into two components, firm idiosyncratic stock returns and industry peer group induced stock returns.

Holmström (1982), Gibbons and Murphy (1990) and others argue that optimal turnover decisions should depend on performance measures relative to a benchmark that filters out components of firm performance unrelated to managerial effort or ability. To filter out the industry component of firm performance, we follow Jenter and Kanaan (2015) and Na (2020) using a two-stage regression approach. In the first stage, we decompose the firm performance into a systematic component related to peer group performance and an idiosyncratic or firm-specific component that

should reflect the CEO's ability. We estimate the regression in equation (1), and use the predicted value of $\widehat{Firm\ performance}_{i,t} = \alpha + \hat{\beta} \times Peer\ performance_{i,t}$ as the industry component of firm performance, i.e., industry peer group induced stock returns. The residual of the regression, i.e., $\hat{\varepsilon}_{i,t} = Firm\ performance_{i,t} - \alpha - \hat{\beta} \times Peer\ performance_{i,t}$ is the proxy for firm-specific performance, i.e., idiosyncratic firm stock returns.

$$Firm\ performance_{i,t} = \alpha + \beta \times Peer\ performance_{i,t} + \varepsilon_{i,t} \quad (1)$$

We use the value-weighted Fama-French 48 industry stock returns, excluding the sample firms, as the measure of peer performance. We cluster the standard error at the industry level in the first stage regressions following Jenter and Kanaan (2015). In the second stage, we estimate the following linear probability model using forced CEO turnover as the dependent variable.

$$\begin{aligned} Prob(CEO\ forced\ turnover_{i,t+1}) = & \gamma_0 + \gamma_1 \times board\ optimism_{i,t} + \gamma_2 \times \\ & Idiosyncratic\ firm\ stock\ return_{i,t} + \gamma_3 \times Industry\ peer\ group\ induced\ stock\ return_{i,t} + \\ & \gamma_4 \times board\ optimism_{i,t} \times Idiosyncratic\ firm\ stock\ return_{i,t} + \gamma_5 \times board\ optimism_{i,t} \\ & \times Industry\ peer\ group\ induced\ stock\ return_{i,t} + \gamma_6 \times Controls_{i,t} + \gamma_7 \times FE + \varepsilon_{i,t} \end{aligned} \quad (2)$$

The dependent variable is an indicator variable which equals one if there is a forced CEO turnover in the following year (t+1), and zero otherwise. All independent variables are in year t. We include firm and year fixed effects to control for unobservable firm-specific heterogeneity and time-varying macroeconomic factors in all specifications.⁷ Standard errors are robust to heteroskedasticity and clustered at the firm level. We present the results in Table 3.

[Insert Table 3]

The independent variable of interest is the OP_board_dummy (0/1) in model (1), the OP_measure (0/1) in model (2) and the OP_measure (%) in model (3). We find significant and negative coefficient estimates on each measure of board optimism, indicating that optimistic

⁷ Our results are robust when using industry and year fixed effects in all regressions and when using logit models.

boards are less likely to remove the CEOs, consistent with Hypothesis 1.

Firm performance, both idiosyncratic firm stock return and industry peer group stock return, are also negatively related to the likelihood of forced CEO departure (Jenter and Kanaan (2015)). However, we find a positive and significant coefficient on the interaction term between the board optimism measures and idiosyncratic firm stock returns in each of the specifications, suggesting that the sensitivity of forced CEO turnover to firm-specific performance is attenuated in firms with optimistic boards, consistent with Hypothesis 2. In model (2), the coefficient on the interaction of the OP_measure (0/1) with idiosyncratic firm stock return is positive (0.009) and significant at the 5% level. In economic terms, when firm idiosyncratic stock return decreases by one-standard-deviation in firms without an optimistic board (i.e., OP_measure (0/1) = 0), the forced CEO turnover probability increases by 2.01 percentage points (0.648×0.031), which doubles the unconditional average forced CEO turnover rate of 2%. However, when firm idiosyncratic stock return decreases by one-standard deviation in firms with an optimistic board (i.e., OP_measure (0/1) = 1), the forced CEO turnover probability only increases by 1.03 percentage points ($0.648 \times (0.031 - 0.009) - 0.004$), or 48.76% less of an increase in the probability of a forced CEO turnover compared to a non-optimistic board. While the incremental effect of board optimism is a reduction in sensitivity of forced turnover to idiosyncratic firm performance, the net effect of idiosyncratic firm stock performance on forced CEO turnover is still negative and significant, as revealed in the F-test reported in the bottom of the table.

In contrast, we do not find evidence that board optimism affects CEO turnover sensitivity to the industry-wide component of stock returns. While the coefficients of industry peer group stock return are negative and significant across specifications, the interactions between the board optimism measures and industry-wide stock return are insignificant in all models. We also control

for board-cooption in all regressions and find that firms with highly coopted boards also exhibit lower forced CEO turnover sensitivity to firm-specific performance, consistent with Coles, Daniel, and Naveen (2014). However, after accounting for this effect, we continue to find the optimistic board effect, which suggests director optimism is capturing more than simply co-option. Overall, the evidence is consistent with optimistic boards being less likely to fire the current CEO and the turnover decision being less sensitive to firm-specific stock performance. The coefficients on the other control variables are consistent with the prior literature.

4.3. Is director optimism an innate characteristic?

The previous results indicate that the effect of board optimism varies across and within firms. However, because directors can serve in various directorships across firms and over time, it is possible that time-invariant director characteristics drive our results. Specifically, if certain directors are always optimistic, the presence of these directors could cause the CEO turnover relationships we observe. In this section, we exploit our director level data and examine forced CEO turnover decisions at the director-firm-year level. We report these results in Table 4.

[Insert Table 4]

The dependent variable is the forced CEO turnover indicator that equals one in the director-firm-year observation if the firm's CEO is removed during the year and zero otherwise. Firm and CEO controls are the same as those in Table 3, however, instead of firm fixed effects, we control for director fixed effects along with year fixed effects. The director fixed effects will control for any time-invariant director characteristic, such as a director's propensity to be optimistic. In model (1), we use the full sample of director-firm-year observations. We find a negative and significant coefficient on the optimistic director indicator, consistent with the optimistic board indicator in the firm-level regressions in Table 3. Likewise, we also find a positive and significant coefficient

estimate on the interaction between the optimistic director indicator and idiosyncratic firm stock return. In model (2), we restrict the sample to directors with multiple directorships in a given year and we find similar results. These results reveal that a director's optimism also varies through time and across directorships in a given year. Thus, director optimism is not an innate director characteristic, but instead varies based on the director's private information about a specific CEO and/or firm.

4.4. Board optimism and market sentiment

The previous results indicate that when directors exhibit optimism in one of their directorships, forced CEO turnovers are less likely and such decisions are less sensitive to firm stock performance. These effects could be due to the optimistic directors' assessment of the CEO and firm based on their private information, consistent with our hypotheses, or it could be that our measure of director optimism simply captures market sentiment towards these firms. If a director's optimism is not based on private information, but rather merely reflects publicly available market sentiment, then we expect the results in Tables 3 and 4 to be stronger when market sentiment is generally positive. On the other hand, if the results in Tables 3 and 4 are primarily driven by the private information assessed by directors, the results should be stronger when the general market sentiment is negative towards the firm.

To test this conjecture, we use the short-interest ratio as a measure of market sentiment towards the firm. Specifically, we calculate the short-interest ratio in a firm each month as the number of shares sold short divided by the number of shares outstanding. Then we take the twelve-month average short-interest ratio as an annual estimate of market sentiment, with higher (lower) short-interests reflecting greater (lesser) market pessimism towards the firm (Boehmer, Huszar, and Jordan (2010), Rapach, Ringgenberg, and Zhou (2016)). We separately examine firms in the

top and bottom quintiles of this annual short-interest ratio, with those in the top (bottom) quintile being exposed to the greatest (least) negative market sentiment. We report these subsample regressions results in Table 5.

[Insert Table 5]

In models (1) to (3), we report the LPM regression estimates for the firms in the top quintile of the annual short-interests ratio. The coefficients for each of our three measures of board optimism are negative in all three models and significant in models (2) and (3), similar to our primary results. Moreover, the coefficient for the interaction between our board optimism measures and firm-specific stock performance is positive and significant in all three models. Conversely, in models (4) to (6), the subsample of firms with low short-interests ratio, while we continue to find a negative and significant coefficient estimate in 2 of the 3 models for our optimistic board measures, the coefficient estimates on the interaction between the optimistic board measures and firm-specific performance is not significant in any of the three models. Thus, board optimism does not attenuate the relationship between forced CEO turnover and negative idiosyncratic firm stock returns when the investors are also optimistic about the firm.

Overall, the results in Table 5 suggest that board optimism is most impactful on CEO termination decisions when investor sentiment is most pessimistic, which is consistent with director optimism being rooted in private information rather than publicly available information. The reduced sensitivity of forced CEO turnover decisions to firm performance is beneficial to shareholders, so long as such optimism is indeed associated with better subsequent performance.

5. Is director's optimism well founded?

5.1. Ex-post firm performance

If a director's optimism in a directorship-year is well founded and rooted in private

information available to the director, we expect the optimism to be validated by subsequent improvements in firm performance. In Table 6 we examine changes in firm performance for various subsamples of firms to test this conjecture.

First, our primary results indicate that optimistic directors and boards are less likely to terminate a CEO, even when firm performance deteriorates. If the decision not to terminate the CEO when performance drops is beneficial for shareholders, we expect greater performance improvements in firms with optimistic directors following periods of poor performance in which the board did not fire the CEO. In Table 6 Panel A, we report the mean change in performance, both idiosyncratic stock return and ROA, for firms in the bottom decile of firm-specific stock returns, in which there was no forced CEO turnover. We separate these firms into those with and without a majority of independent directors who are optimistic.

[Insert Table 6]

We find that the change in ROA and idiosyncratic stock return from t to $t+1$ are both significantly greater (less negative) for the firms with optimistic boards compared to firms without an optimistic board. These results provide some evidence as to why the optimistic boards did not fire the CEO since the ex-post firm performance is relatively better.

In Table 6 Panel B, we report results from a similar test using the subsample of firms in the top quintile of short-interest ratio. We again find strong evidence that firms in this subsample that have an optimistic board perform significantly better relative to firms without an optimistic board. The changes for ROA and idiosyncratic stock returns are 0.014 (-0.002) and 0.040 (-0.254) for firms with optimistic (non-optimistic) boards respectively. Firms without an optimistic board exhibit decreases in performance in the following year, validating the negative sentiment of those shorting these firms. In sharp contrast, firms with an optimistic board defy the sentiment of the

short sellers by exhibiting improved stock performance and operating performance in the following year, which validates the optimism of the board and suggest that the board optimism is well grounded in private information about the CEO/firm.

These first two tests focus on firms that did not terminate the CEO. Next, we consider firms that did fire the CEO. When an optimistic board does decide to terminate the CEO, it implies the optimism was either misguided or was rooted in the prospects of the firm under a new CEO rather than in the incumbent CEO's ability. In Table 6 Panel C, we focus on the subsample of firm-years in which firm-specific stock performance was in the bottom decile and, in contrast to Panel A, the board did terminate the CEO. We again find that firms with an optimistic board performed significantly better after the CEO removal relative to firms without an optimistic board. Specifically, idiosyncratic stock return is not as bad in the following year and firm ROA improves by a significantly greater amount in firms with an optimistic board compared to those without an optimistic board. Thus, when an optimistic board fires the CEO, director optimism is rooted in the directors' positive private information about the firm under a new CEO.

Finally, to test whether an optimistic board's decision to not fire a CEO during a period of poor performance negatively impacts shareholders, we compare the subsequent performance of firms with an optimistic board that elects not to fire the CEO with firms without an optimistic board that do decide to fire the CEO. The results are reported in Table 6 Panel D. We find that there is no significant difference between the two groups of firms. Thus, the decision not to fire the CEO is not detrimental to the shareholders of firms with an optimistic board. Additionally, it avoids a potentially costly CEO turnover/transition. Together the results in Table 6 are consistent with the conjecture that director optimism is well founded and rooted in the directors' access to positive private information about the CEO/firm. Next, we try to separate optimism toward the

CEO from optimism about the firm.

5.2. Exogenous shocks to performance: 9/11 and the Financial Crisis

It is possible that some unobserved factors are associated with both director optimism and the subsequent improved performance of poorly performing firms that we observe in our previous analysis. For example, directors' optimism may not be related to their assessment of the CEO's ability, but instead could simply be due to positive private information about the firm such as a new product release. In such a case, the director may rightly be optimistic about the firm, but it would not reflect their optimism towards the CEO's ability. In an effort to mitigate this concern and to distinguish between director optimism in the firm and optimism in the CEO, we identify two exogenous negative shocks to firm performance. The first is the terrorist attack on September 11th, 2001, and the second is the financial crisis in 2008-2009. If directors' optimism is rooted in their private assessment of the CEO, we expect these firms to perform relatively better following these negative shocks to performance. Conversely, if director optimism only reflects inside information about the firm and not CEO ability, we expect to see no difference in performance for firms with an optimistic board relative to other firms following these negative performance shocks.

5.2.1 September 11th, 2001.

The terrorist attacks on September 11th, 2001 triggered an economic downturn with all leading stock market indexes experiencing an unexpected sharp decline (Brounen and Derwall (2010)). We separate firms into two groups based on whether the firm's board had optimistic directors using the OP_measure (0/1) in the year 2000, prior to the 9/11 shock. Then we compare the change in firm operating performance and in idiosyncratic stock return for the periods 2002-2003, 2002-2004 and 2002-2005 after the shock. We report the results in Table 7 Panel A .

[Insert Table 7]

The changes in both idiosyncratic firm stock return and ROA are greater for firms with optimistic boards compared to firms with non-optimistic boards in all periods. The differences are statistically significant in 4 of the 6 tests.

5.2.2 Financial Crisis 2008-2009.

Next, we examine changes in firm-specific stock performance and ROA following the 2008-2009 financial crisis. We separate firms into those with and those without an optimistic board in 2007 and examine the changes in performance for the periods 2010-2011, 2010-2012 and 2010-2013. We present the results in Table 7 Panel B. The changes in idiosyncratic firm stock return and ROA are always greater for firms with optimistic board compared to firms without optimistic boards. The differences are statically significant in 5 of the 6 tests, demonstrating that firms with an optimistic board prior to the crisis recovered faster following the crisis than firms without an optimistic board.

Overall, the results reported in Table 7 indicate that the optimistic directors' optimism is well founded and rooted in the directors' assessment of the CEO's ability to navigate the firm through unexpected difficult times.

5.3. Directors' insider trading profit.

As a final test of whether directors' optimism is well founded and based on positive private information, we examine director trading returns. To measure the directors' trading profitability, we follow Mikhail, Walther, and Willis (2004) and Cohen and Lou (2012) and compute characteristic-adjusted abnormal stock returns, defined as the compounded raw return minus the value-weighted return of the matching characteristic-sorted benchmark portfolio. Specifically, we follow Daniel et al. (1997) (hereafter DGTW (1997)) to construct 125 characteristic-sorted monthly matching portfolios ($5 \times 5 \times 5$) based on firms' size, book-to-market ratio, and momentum.

We focus on directors' purchases and exclude those related to options exercise. Trading profitability is defined as the compound buy-and-hold raw stock return minus the value-weighted return of the matching DGTW (1997) portfolio. We then aggregate a director's trading profitability over various windows by taking either the equal-weighted average or the weighted average using the number of shares traded as the weights. In particular, we compute the director trade-level profitability using characteristics-adjusted post-trade abnormal stock returns of 3, 6, 9 and 12 months.

[Insert Table 8]

We present the equally weighted average profitability of a director's stock purchases in each of the four periods in Table 8 Panel A. The DGTW adjusted buy and hold return is always greater for the optimistic directors than the non-optimistic directors with the difference being statistically significant for the 9-month and the 12-month periods. Next, we calculate the weighted average profitability of a director's trades in each period using the number of shares traded by the director as the weight and report results in Panel B. We find similar results. Overall, the results in Table 8 are consistent with optimistic directors' optimism being well founded and based on their access to private information.

6. Conclusion

We make use of the well-known measure of executive overconfidence to identify when a director is optimistic towards a particular directorship where he/she serves. When directors elect to not exercise their deep-in-the money options in a given year, it is presumably because they are optimistic about the CEOs ability to further improve firm performance or, in general, the future prospects of the firm. We find that in the presence of optimistic directors, a board is less likely to terminate the CEO and forced CEO turnover is less sensitive to firm performance.

Our evidence is consistent with director optimism being director-firm-year specific and can

thus vary within a directorship through time and across directorships in a given year. Furthermore, the optimism effect does not appear to be driven by market sentiment as the strongest results hold when market sentiment towards the firm is lowest. We also find that following two exogenous negative shocks to firm performance, firms with an optimistic board just prior to the shock perform significantly better.

In addition, the subsequent performance of boards with optimistic directors is significantly better than similarly performing firms with no optimistic directors. When directors are optimistic towards a particular directorship, they experience significantly better abnormal returns on their insider trades in that directorship. Thus, their optimism is primarily driven by their private information about the current CEO and firm rather than simply publicly available data and market sentiment towards the firm. Therefore, director optimism is an important source of information and investors should pay attention to directors' current assessment of the CEO and firm as revealed through their actions (options exercise behavior). Simply judging director monitoring ability by forced CEO turnover decision sensitivity to performance can be naïve.

References:

- Ahmed, Anwer. S., and Scott Duellman, 2013, Managerial Overconfidence and Accounting Conservatism, *Journal of Accounting Research* 51, 1–30.
- Alam, Zinat S., Mark A. Chen, Conrad S. Ciccotello, and Harley E. Ryan, 2014, Does the Location of Directors Matter? Information Acquisition and Board Decisions, *The Journal of Financial and Quantitative Analysis* 49, 131–164.
- Banerjee, Suman, Mark Humphery-Jenner, and Vikram Nanda, 2015, Restraining Overconfident CEOs through Improved Governance: Evidence from the Sarbanes-Oxley Act, *Review of Financial Studies* 28.
- Beavers, Randy, and Shawn Mobbs, 2020, Director overconfidence, *Financial Management* 49, 389–422.
- Ben-David, Itzhak, John R. Graham, and Campbell R. Harvey, 2013, Managerial Miscalibration*, *The Quarterly Journal of Economics* 128, 1547–1584.
- Benmelech, Efraim, and Carola Frydman, 2015, Military CEOs, *Journal of Financial Economics* 117, 43–59.
- Bertrand, Marianne, and Antoinette Schoar, 2003, Managing with Style: The Effect of Managers on Firm Policies*, *The Quarterly Journal of Economics* 118, 1169–1208.
- Boehmer, Ekkehart, Zsuzsa R. Huszar, and Bradford D. Jordan, 2010, The good news in short interest, *Journal of Financial Economics* 96, 80–97.
- Brounen, Dirk, and Jeroen Derwall, 2010, The Impact of Terrorist Attacks on International Stock Markets, *European Financial Management* 16, 585–598.
- Campbell, T. Colin, Michael Gallmeyer, Shane A. Johnson, Jessica Rutherford, and Brooke W. Stanley, 2011, CEO optimism and forced turnover, *Journal of Financial Economics* 101, 695–712.
- Chemmanur, Thomas J., and Viktor Fedaseyev, 2018, A Theory of Corporate Boards and Forced CEO Turnover, *Management Science* 64, 4798–4817.
- Cohen, Lauren, and Dong Lou, 2012, Complicated firms, *Special Issue on Investor Sentiment* 104, 383–400.
- Coles, Jeffrey L., Naveen D. Daniel, and Lalitha Naveen, 2014, Co-opted Boards, *The Review of Financial Studies* 27, 1751–1796.
- Cook, Douglas O., Jaideep Chowdhury, and Weiwei Zhang, 2023, Director optimism and CEO equity compensation, *Journal of Empirical Finance* 72, 143–162.
- Daniel, Kent, Mark Grinblatt, Sheridan Titman, and Russ Wermers, 1997, Measuring Mutual Fund Performance with Characteristic-Based Benchmarks, *The Journal of Finance* 52, 1035–1058.

Daniel, Kent, David Hirshleifer, and Avanidhar Subrahmanyam, 1998, Investor Psychology and Security Market Under- and Overreactions, *The Journal of Finance* 53, 1839–1885.

Dasgupta, Sudipto, Xi Li, and Albert Y Wang, 2018, Product Market Competition Shocks, Firm Performance, and Forced CEO Turnover, *The Review of Financial Studies* 31, 4187–4231.

Denis, David J., and Diane K. Denis, 1995, Performance Changes Following Top Management Dismissals, *The Journal of Finance* 50, 1029–1057.

Eisfeldt, Andrea L., and Camelia M. Kuhnen, 2013, CEO turnover in a competitive assignment framework, *Journal of Financial Economics* 109, 351–372.

Ellis, Jesse, Lixiong Guo, and Shawn Mobbs, 2020, How Does Forced CEO Turnover Experience Affect Directors?, *Journal of Financial and Quantitative Analysis*, 1–46.

Engel, Ellen, Rachel M. Hayes, and Xue Wang, 2003, CEO turnover and properties of accounting information, *Journal of Accounting and Economics* 36, 197–226.

Fama, Eugene F., 1980, Agency Problems and the Theory of the Firm, *Journal of Political Economy* 88, 288–307.

Fee, C Edward, Charles J Hadlock, Jing Huang, and Joshua R Pierce, 2017, Robust Models of CEO Turnover: New Evidence on Relative Performance Evaluation, *The Review of Corporate Finance Studies* 7, 70–100.

Fich, Eliezer M., and Anil Shivdasani, 2006, Are Busy Boards Effective Monitors?, *The Journal of Finance* 61, 689–724.

Gervais, Simon, J. B. Heaton, and Terrance Odean, 2011, Overconfidence, Compensation Contracts, and Capital Budgeting, *The Journal of Finance* 66, 1735–1777.

Gibbons, Robert, and Kevin J. Murphy, 1990, Relative Performance Evaluation for Chief Executive Officers, *Industrial and Labor Relations Review* 43, 30S–51S.

Goel, Anand M., and Anajan V. Thakor, 2008, Overconfidence, CEO Selection, and Corporate Governance, *The Journal of Finance* 63, 2737–2784.

Graham, John R., Campbell R. Harvey, and Manju Puri, 2013, Managerial attitudes and corporate actions, *Journal of Financial Economics* 109, 103–121.

Guo, Lixiong, and Ronald W. Masulis, 2015, Board Structure and Monitoring: New Evidence from CEO Turnovers, *The Review of Financial Studies* 28, 2770–2811.

Hazarika, Sonali, Jonathan M. Karpoff, and Rajarishi Nahata, 2012, Internal corporate governance, CEO turnover, and earnings management, *Journal of Financial Economics* 104, 44–69.

Heaton, J.B., 2002, Managerial Optimism and Corporate Finance, *Financial Management* 31.

Hirshleifer, David A., Angie Low, and Siew Hong Teoh, 2012, Are Overconfident CEOs Better Innovators?, *The Journal of Finance* 67, 1457–1498.

Holmström, Bengt, 1982, Moral Hazard in Teams, *The Bell Journal of Economics* 13, 324–340.

Hribar, Paul, and Holly Yang, 2016, CEO Overconfidence and Management Forecasting, *Contemporary Accounting Research* 33, 204–227.

Humphery-Jenner, Mark, Ling Lei Lisic, Vikram Nanda, and Sabatino Dino Silveri, 2016, Executive overconfidence and compensation structure, *Journal of Financial Economics* 119, 533–558.

Huson, Mark R., Paul H. Malatesta, and Robert Parrino, 2004, Managerial succession and firm performance, *Journal of Financial Economics* 74, 237–275.

Huson, Mark R., Robert Parrino, and Laura T. Starks, 2001, Internal Monitoring Mechanisms and CEO Turnover: A Long-Term Perspective, *The Journal of Finance* 56, 2265–2297.

Hwang, Byoung-Hyoun, and Seoyoung Kim, 2009, It pays to have friends, *Journal of Financial Economics* 93, 138–158.

Jenter, Dirk, and Fadi Kanaan, 2015, CEO turnover and relative performance evaluation, *Journal of Finance* 70, 2155–2183.

Jenter, Dirk, and Katharina Lewellen, 2020, Performance-Induced CEO Turnover, *The Review of Financial Studies*.

Kaplan, Steven N., Mark M. Klebanov, and Morten Sorensen, 2012, Which CEO Characteristics and Abilities Matter?, *The Journal of Finance* 67, 973–1007.

Laux, Volker, 2008, Board Independence and CEO Turnover, *Journal of Accounting Research* 46, 137–171.

Malmendier, Ulrike, and Geoffrey Tate, 2008, Who makes acquisitions? CEO overconfidence and the market's reaction, *Journal of Financial Economics* 89, 20–43.

Malmendier, Ulrike, Geoffrey Tate, and Jon Yan, 2011, Overconfidence and Early-Life Experiences: The Effect of Managerial Traits on Corporate Financial Policies, *The Journal of Finance* 66, 1687–1733.

Masulis, Ronald W., and Shawn Mobbs, 2014, Independent director incentives: Where do talented directors spend their limited time and energy?, *Journal of Financial Economics* 111, 406–429.

Mikhail, Michael B., Beverly R. Walther, and Richard H. Willis, 2004, Do security analysts exhibit persistent differences in stock picking ability?, *Journal of Financial Economics* 74, 67–91.

- Mobbs, Shawn, 2013, CEOs Under Fire: The Effects of Competition from Inside Directors on Forced CEO Turnover and CEO Compensation, *Journal of Financial and Quantitative Analysis* 48, 669–698.
- Na, Ke, 2020, CEOs' outside opportunities and relative performance evaluation: evidence from a natural experiment, *Journal of Financial Economics* 137, 679–700.
- Otto, Clemens A., 2014, CEO optimism and incentive compensation, *Journal of Financial Economics* 114, 366–404.
- Parrino, Robert, 1997, CEO turnover and outside succession A cross-sectional analysis, *Journal of Financial Economics* 46, 165–197.
- Peters, Florian S., and Alexander F. Wagner, 2014, The Executive Turnover Risk Premium, *The Journal of Finance* 69, 1529–1563.
- Rapach, David E., Matthew C. Ringgenberg, and Guofu Zhou, 2016, Short interest and aggregate stock returns, *Journal of Financial Economics* 121, 46–65.
- Scheier, Michael F., and Charles S. Carver, 1985, Optimism, coping, and health: Assessment and implications of generalized outcome expectancies, *Health Psychology* 4, 219–247.
- Scheier, Michael F., Charles S. Carver, and Michael W. Bridges, 1994, Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): A reevaluation of the Life Orientation Test, *Journal of Personality and Social Psychology* 67, 1063–1078.
- Schoar, Antoinette, and Luo Zuo, 2017, Shaped by Booms and Busts: How the Economy Impacts CEO Careers and Management Styles, *The Review of Financial Studies* 30, 1425–1456.
- Shefrin, Hersh, 2001, Behavioral Corporate Finance, *Journal of Applied Corporate Finance* 14, 113–126.
- Taylor, Lucian A., 2010, Why Are CEOs Rarely Fired? Evidence from Structural Estimation, *The Journal of Finance* 65, 2051–2087.
- Weisbach, Michael S., 1988, Outside directors and CEO turnover, *Journal of Financial Economics* 20, 431–460.
- Yermack, David, 2004, Remuneration, Retention, and Reputation Incentives for Outside Directors, *The Journal of Finance* 59, 2281–2308.

Table 1. Summary statistics.

This table presents the summary statistics in the sample. Panel A reports firm, CEO, and director characteristics at the director level. We report the firm, CEO, and board characteristics at the firm level in Panel B. CEO age and tenure are in years, and CEO share ownership in percentage. Panel C reports the characteristics of directors who hold multiple directorships across firms. Our sample period spans from 2000 to 2018. We winsorize all continuous variables at 1% and 99% level. All variable definitions are reported in Appendix A1.

Panel A. Director and directorship characteristics	N	Mean	Std. Dev.	Min	Max
Optimistic director (0/1)	108,195	0.438	0.496	0.000	1.000
CEO overconfidence	108,195	0.516	0.498	0.000	1.000
CEO age	108,195	55.853	6.087	41.000	73.000
ROA change in [-1, 0]	108,195	-0.001	0.081	-0.198	0.211
ROA change in [-2, -1]	108,195	0.002	0.091	-0.204	0.237
Industry stock return	108,195	0.153	0.269	-0.594	0.724
Industry ROA change in [-1, 0]	108,195	0.001	0.002	-0.066	0.127
Firm market share	108,195	0.018	0.048	0.001	0.200
Number of directorships held	108,195	1.493	1.204	1.000	9.000
Only directorship (0/1)	108,195	0.781	0.406	0.000	1.000
Directors' ownership (%)	108,195	0.048	0.159	0.000	1.544
Co-opted director (0/1)	108,195	0.331	0.471	0.000	1.000
Director age	108,195	52.239	7.672	36.000	72.000
Director tenure at the firm	108,195	5.267	6.134	1.000	29.900
Director total directorship tenure	108,195	11.268	9.312	0.300	38.500
Director CEO (0/1)	108,195	0.208	0.406	0.000	1.000
Panel B. Firm, CEO, and board characteristics	N	Mean	Std. Dev.	Min	Max
Forced CEO turnover (0/1)	21,429	0.020	0.137	0.000	1.000
OP_board_dummy (0/1)	21,429	0.604	0.424	0.000	1.000
OP_measure (0/1)	21,429	0.276	0.447	0.000	1.000
OP_measure (%)	21,429	0.375	0.404	0.000	1.000
Idiosyncratic firm stock return	21,429	-0.025	0.648	-0.928	1.947
Industry peer group induced stock return	21,429	0.198	0.232	-0.227	0.872
CEO age	21,429	56.019	6.148	40.000	74.000
CEO tenure	21,429	7.192	7.238	1.000	35.000
CEO shares ownership (%)	21,429	1.157	3.638	0.000	24.260
CEO overconfidence	21,429	0.495	0.435	0.000	1.000
Firm size	21,429	7.985	1.804	4.114	12.833
Board independence	21,429	0.716	0.119	0.333	0.938
Board size	21,429	9.786	2.746	5.000	18.000
Board co-option	21,429	0.325	0.339	0.000	1.000
Panel C. Directors with multiple directorships					
Average number of directorships held					3.145
Average fraction of director's directorships in which the directors is optimistic (%)					78.625
Fraction for which the director is co-opted (%)					34.057
Range of firm performance (ROA change in year [-1,0]) across their directorships					0.403
Range of tenure at the directorships (years)					16
Range in CEO's tenure for the director's directorships (years)					21
Range in market share held by the director's directorships					0.268

Table 2. Determinants of director optimism.

This table presents the results of LPM regressions of director optimism on potential determinants. The dependent variable is the indicator variable, optimistic director, which takes the value of one if a director is classified as optimistic based on his/her option exercising behavior, and zero otherwise. We include all directors in model (1) and include directors with multiple directorships in model (2). We include the director and year fixed effects in all regressions. Standard errors are robust to heteroskedasticity and clustered at the firm level. *, ** and *** denote significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)
	Optimistic director (0/1)	
CEO overconfidence	0.242*** (0.000)	0.219*** (0.000)
CEO age	0.002 (0.154)	0.003 (0.248)
ROA change in [-1, 0]	0.212*** (0.000)	0.263*** (0.000)
ROA change in [-2, -1]	0.109*** (0.000)	0.111*** (0.000)
Industry stock return	0.078*** (0.000)	0.096*** (0.000)
Industry ROA change in [-1, 0]	1.088 (0.379)	1.147 (0.264)
Firm market share	0.207 (0.243)	0.244 (0.366)
Largest directorship	0.028 (0.402)	0.036 (0.552)
Number of directorships held	0.016* (0.045)	0.035 (0.296)
Only directorship	0.015* (0.064)	
Directors' ownership	0.229 (0.278)	0.421 (0.355)
Co-opted director (0/1)	0.031** (0.042)	0.038 (0.152)
Director age	0.031* (0.079)	0.036* (0.083)
Director tenure at the firm	0.005** (0.022)	0.006** (0.035)
Director total directorship tenure	0.013*** (0.000)	0.017*** (0.004)
Director CEO (0/1)	0.036*** (0.004)	0.029* (0.054)
Constant	-1.854*** (0.000)	-1.917*** (0.000)
Observations	108,195	23,694
R-squared	0.543	0.540
Year FE	Yes	Yes
Director FE	Yes	Yes

Table 3. Board optimism and forced CEO turnover sensitivity to firm performance.

This table reports the results of LPM regressions of forced CEO turnover on board optimism. The dependent variable is the indicator variable which takes on value of one if there is a forced CEO turnover event in a year, and zero otherwise in models (1) to (3). The independent variable of interest is OP_board_dummy (0/1), which takes the value of one if there is at least one independent optimistic director on the board, and zero otherwise in model (1). The independent variable of interest is OP_measure (0/1), which takes the value of one if the percentage of independent optimistic directors on board is greater than 50%, and zero otherwise, in model (2). The independent variable of interest is OP_measure (%), which is the number of independent optimistic directors on the board scaled by the board size in model (3). All independent variables are one-year lagged variables. Models (1) to (3) include firm and year fixed effects. Standard errors are robust to heteroscedasticity and clustered at the firm level. We report P-values in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	Forced CEO turnover		
	(1)	(2)	(3)
OP_board_dummy (0/1)	-0.002* (0.067)		
OP_board_dummy (0/1) × Idiosyncratic firm stock return	0.015** (0.044)		
OP_board_dummy (0/1) × Industry peer group induced stock return	0.009 (0.167)		
OP_measure (0/1)		-0.004** (0.029)	
OP_measure (0/1) × Idiosyncratic firm stock return		0.009** (0.048)	
OP_measure (0/1) × Industry peer group induced stock return		0.008 (0.268)	
OP_measure (%)			-0.006** (0.045)
OP_measure (%) × Idiosyncratic firm stock return			0.015*** (0.001)
OP_measure (%) × Industry peer group induced stock return			0.012 (0.191)
Idiosyncratic firm stock return	-0.036*** (0.000)	-0.031*** (0.000)	-0.035*** (0.000)
Industry peer group induced stock return	-0.027** (0.024)	-0.025*** (0.005)	-0.026*** (0.002)
Board co-option	0.014 (0.411)	0.014 (0.426)	0.015 (0.421)
Board co-option × Idiosyncratic firm stock return	0.024** (0.034)	0.026** (0.025)	0.023** (0.031)
Board co-option × Industry peer group induced stock return	-0.013 (0.318)	-0.014 (0.342)	-0.016 (0.348)
CEO age	0.001 (0.245)	0.001 (0.225)	0.001 (0.224)
CEO tenure	0.002*** (0.008)	0.002*** (0.009)	0.002*** (0.006)
CEO shares ownership (%)	-0.002*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)
CEO overconfidence	-0.011 (0.191)	-0.012 (0.108)	-0.011 (0.107)
Firm size	-0.002 (0.625)	-0.002 (0.561)	-0.002 (0.699)
Board independence	0.006 (0.453)	0.008 (0.458)	0.007 (0.482)
Board size	0.002 (0.277)	0.002 (0.306)	0.002 (0.482)
Constant	0.048	0.053	0.049

	(0.460)	(0.418)	(0.453)
Observations	21,429	21,429	21,429
R-squared	0.020	0.020	0.021
Year FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
F test statistic:	28.49		
OP_board_dummy (0/1) × Idiosyncratic firm stock return + Idiosyncratic firm stock return = 0			
P-value of F-test	0.000		
F test statistic:		19.96	
OP_measure (0/1) × Idiosyncratic firm stock return + Idiosyncratic firm stock return = 0			
P-value of F-test		0.000	
F test statistic:			22.15
OP_measure (%) × Idiosyncratic firm stock return + Idiosyncratic firm stock return = 0			
P-value of F-test			0.000

Table 4. Director optimism and forced CEO turnover sensitivity to firm performance

This table reports the results of regressions of forced CEO turnover on director optimism. The dependent variable is the indicator variable which takes on value of one if there is a forced CEO turnover event in a year, and zero otherwise in models (1) to (2). The independent variable of interest is Optimistic director (0/1), which takes the value of one if a director is classified as an optimistic director, and zero otherwise in models (1) and (2). Models (1) and (2) include director and year fixed effects. We use full sample in model (1) and use restricted sample for directors with multiple directorships in model (2). All independent variables are one-year lagged variables. Standard errors are robust to heteroscedasticity. We report P-values in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	Forced CEO turnover	
	(1)	(2)
Optimistic director (0/1)	-0.009*** (0.002)	-0.007*** (0.003)
Optimistic director (0/1) × Idiosyncratic firm stock return	0.026*** (0.000)	0.024*** (0.000)
Optimistic director (0/1) × Industry peer group induced stock return	0.011 (0.163)	0.012 (0.156)
Idiosyncratic firm stock return	-0.038*** (0.000)	-0.039*** (0.000)
Industry peer group induced stock return	-0.027*** (0.003)	-0.026*** (0.002)
Co-opted director	0.009 (0.120)	0.011 (0.131)
Co-opted director × Idiosyncratic firm stock return	0.007* (0.095)	0.008* (0.072)
Co-opted director × Industry peer group induced stock return	-0.001 (0.901)	-0.001 (0.927)
CEO age	-0.001 (0.656)	-0.001 (0.740)
CEO tenure	0.002*** (0.001)	0.002*** (0.001)
CEO shares ownership (%)	-0.002*** (0.001)	-0.002*** (0.001)
CEO overconfidence	-0.002 (0.187)	-0.002 (0.185)
Firm size	-0.001 (0.797)	-0.003 (0.901)
Board independence	-0.019* (0.051)	-0.021** (0.026)
Board size	-0.002 (0.184)	-0.001 (0.192)
Constant	0.005 (0.904)	0.002 (0.956)
Observations	108,195	23,694
R-squared	0.518	0.451
Year FE	Yes	Yes
Director FE	Yes	Yes

Table 5. High short-interest ratio vs. low short-interest ratio firms.

This table reports the results of LPM regressions of forced CEO turnover on the board optimism in two groups of firms. The dependent variable is the indicator variable which takes on value of one if there is a forced CEO turnover event in a year, and zero otherwise in models (1) to (6). The independent variable of interest is OP_board_dummy (0/1), which takes the value of one if there is at least one independent optimistic director on the board, and zero otherwise, in models (1) and (4). The independent variable of interest is OP_measure (0/1), which takes the value of one if the percentage of independent optimistic directors on boards is greater than 50%, and zero otherwise, in models (2) and (5). The independent variable of interest is OP_measure (%), which is the number of optimistic directors on the board scaled by the board size in models (3) and (6). We calculate the monthly short interest ratio as the number of shares sold short divided by total number of shares outstanding and compute the average short interest ratio for a given firm in a year. We restrict our sample to firms located in the top quintile of short-interest ratio in models (1) to (3), firms located in the bottom quintile of short-interest ratio in models (4) to (6). All independent variables are one-year lagged variables. All models include firm and year fixed effects. We include the number of firm-year observations. Standard errors are robust to heteroscedasticity and P-values are given in parentheses. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
	High short-interest ratio firms (Top quintile)			Low short-interest ratio firms (Bottom quintile)		
	Forced CEO turnover					
OP_board_dummy (0/1)	-0.016 (0.191)			-0.022 (0.568)		
OP_board_dummy (0/1) × Idiosyncratic firm stock return	0.027* (0.058)			0.018 (0.333)		
OP_board_dummy (0/1) × Industry peer group induced stock return	0.022 (0.317)			0.009 (0.516)		
OP_measure (0/1)		-0.018** (0.024)			-0.021** (0.046)	
OP_measure (0/1) × Idiosyncratic firm stock return		0.015** (0.032)			0.006 (0.328)	
OP_measure (0/1) × Industry peer group induced stock return		0.008 (0.746)			0.011 (0.353)	
OP_measure (%)			-0.017** (0.039)			-0.017** (0.045)
OP_measure (%) × Idiosyncratic firm stock return			0.010** (0.041)			0.006 (0.637)
OP_measure (%) × Industry peer group induced stock return			0.006 (0.714)			0.035 (0.284)
Idiosyncratic firm stock return	-0.049*** (0.003)	-0.038*** (0.006)	-0.041*** (0.005)	-0.018** (0.019)	-0.022** (0.021)	-0.022** (0.022)
Industry peer group induced stock return	-0.072** (0.034)	-0.056* (0.079)	-0.061* (0.082)	-0.043 (0.485)	-0.044 (0.394)	-0.049 (0.574)
Board co-option	0.064 (0.398)	0.065 (0.352)	0.064 (0.395)	0.025 (0.379)	0.026 (0.369)	0.025 (0.348)
Board co-option × Idiosyncratic firm stock return	0.018* (0.068)	0.017* (0.077)	0.021* (0.063)	0.024 (0.435)	0.025 (0.319)	0.026 (0.342)
Board co-option × Industry peer group induced stock return	0.025 (0.458)	0.029 (0.497)	0.024 (0.502)	0.046 (0.486)	0.049 (0.349)	0.043 (0.457)
CEO age	-0.003** (0.029)	-0.003** (0.034)	-0.004** (0.041)	-0.001 (0.456)	-0.001 (0.473)	-0.001 (0.542)
CEO tenure	0.002* (0.002)	0.002* (0.002)	0.002* (0.002)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)

	(0.091)	(0.074)	(0.082)	(0.239)	(0.394)	(0.325)
CEO shares ownership	-0.002**	-0.002**	-0.002**	-0.001	-0.001	-0.001
	(0.042)	(0.037)	(0.039)	(0.186)	(0.198)	(0.188)
CEO overconfidence	-0.017	-0.016	-0.017	-0.014	-0.015	-0.013
	(0.490)	(0.491)	(0.483)	(0.133)	(0.141)	(0.140)
Firm size	-0.018	-0.018	-0.019	-0.009	-0.010	-0.009
	(0.386)	(0.291)	(0.391)	(0.429)	(0.503)	(0.526)
Board independence	-0.006	-0.007	-0.009	-0.016	-0.014	-0.017
	(0.849)	(0.799)	(0.825)	(0.698)	(0.702)	(0.624)
Board size	-0.006	-0.009	-0.008	0.038*	0.041*	0.039*
	(0.381)	(0.323)	(0.218)	(0.061)	(0.079)	(0.068)
Constant	0.433***	0.437***	0.435***	0.015	0.005	0.007
	(0.002)	(0.002)	(0.002)	(0.883)	(0.964)	(0.943)
Observations	4,040	4,040	4,040	4126	4126	4126
R-squared	0.056	0.057	0.056	0.023	0.024	0.023
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 6. Ex-post firm performance.

We report the firm performance change from year t to $t+1$ in firms with no forced CEO turnover events in Panel A and B. In Panel A, we examine firms in each idiosyncratic stock returns decile and separate firms into two groups based on optimistic board measure, OP_measure (0/1). In Panel B, we examine the firms with high short-interest ratios and partition the firms into two groups based on optimistic board measure, OP_measure (0/1). In both panels, we present the firm idiosyncratic stock return change and ROA change in year $t+1$. In Panel C, we report the change in firm performance from year t to $t+1$ in firms with forced CEO turnover events. In Panel D, we report the change in firm performance from year t to $t+1$ in firms with optimistic boards and no forced CEO turnover, and firms with non-optimistic boards and forced CEO turnover in year t .

Panel A. Firms idiosyncratic stock return			
	Bottom decile of idiosyncratic stock return in year t		
	OP_measure (0/1) =1	OP_measure (0/1) =0	P-value in testing the difference in means
Idiosyncratic stock return change from t to $t+1$	-1.040	-1.300	< 0.01***
ROA change from t to $t+1$	-1.098	-1.396	< 0.01***
Panel B. High short-interest ratio firms			
	OP_measure (0/1) =1	OP_measure (0/1) =0	P-value in testing the difference in means
Idiosyncratic stock return change from t to $t+1$	0.040	-0.254	< 0.01***
ROA change from t to $t+1$	0.014	-0.002	< 0.01***
Panel C. Firms with forced CEO turnovers in year t			
	Bottom decile of idiosyncratic stock return in year t		
	OP_measure (0/1) =1	OP_measure (0/1) =0	P-value in testing the difference in means
Idiosyncratic stock return change from t to $t+1$	-0.817	-1.474	0.046**
ROA change from t to $t+1$	0.047	0.017	0.039**
Panel D. Firms performance change from t to $t+1$			
	Bottom decile of idiosyncratic stock return in year t		
	OP_measure (0/1) =1 without forced CEO turnover year t	OP_measure (0/1) =0 with forced CEO turnover in year t	P-value in testing the difference in means
Idiosyncratic stock return change from t to $t+1$	-0.670	-0.691	0.357
ROA change from t to $t+1$	0.012	0.021	0.194

Table 7. 9/11 and 2008-2009 financial crisis as exogenous shocks.

We report the change of idiosyncratic stock return and ROA after 9/11 in Panel A and financial crisis in Panel B. We separate firms into two groups based on OP_measure (0/1) in 2000 in Panel A. We separate firms into two groups based on OP_measure (0/1) in 2007 in Panel B. We report the change of idiosyncratic stock return and ROA after two shocks in two groups

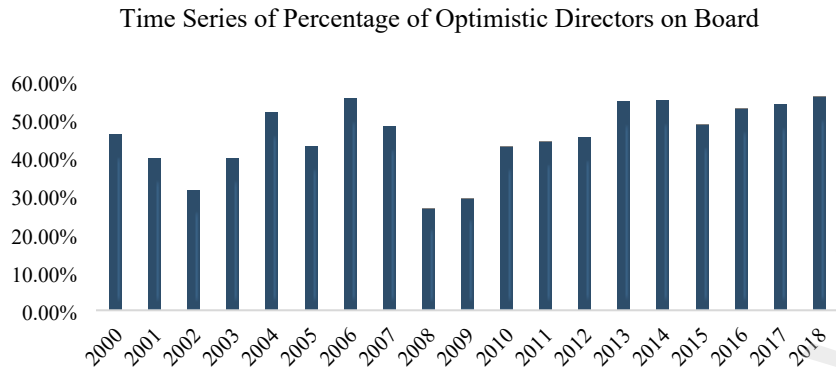
Panel A. Time period after 9/11		OP_measure (0/1) = 1 (2000)	OP_measure (0/1) = 0 (2000)	P-value in testing the difference in means
2002 - 2003	Idiosyncratic firm stock return change	2.71%	1.95%	0.086*
	ROA change	1.19%	0.87%	0.058*
2002 - 2004	Idiosyncratic firm stock return change	0.86%	-2.70%	0.025**
	ROA change	1.06%	0.95%	0.765
2002 - 2005	Idiosyncratic firm stock return change	-1.46%	-4.12%	0.028**
	ROA change	0.91%	0.70%	0.513
Panel B. Time period after financial crisis		OP_measure (0/1) = 1 (2007)	OP_measure (0/1) = 0 (2007)	P-value in testing the difference in means
2010 - 2011	Idiosyncratic firm stock return change	1.95%	1.42%	0.085*
	ROA change	1.73%	1.19%	0.028**
2010 - 2012	Idiosyncratic firm stock return change	1.52%	0.28%	0.066*
	ROA change	1.22%	0.51%	0.081*
2010 - 2013	Idiosyncratic firm stock return change	2.22%	2.40%	0.934
	ROA change	0.79%	0.39%	0.027**

Table 8. Directors' insider trading profit.

We measure a director's trading profitability in various periods at the director's level by aggregating a director's trade-level profits. We begin with calculating the director's trade-level profitability by computing the characteristic-adjusted post-trade abnormal stock returns over three, six, nine, and twelve months after the transaction month following Daniel et al. (1997) (DGTW). We compute the insider director's purchase trading profitability as the compounded raw stock return minus the value-weighted return of characteristic-adjusted matching portfolio. We construct 125 characteristic-sorted monthly matching portfolios ($5 \times 5 \times 5$) based on firms' size, book-to-market ratio, and momentum. To obtain the director-level insider trading profitability, we calculate the average profitability of a director's trades and present the buy and hold returns in various windows in Panel A. We compute the weighted average profitability of a director's insider trades using the number of shares purchased by the directors as weights and present the buy and hold returns in various windows in Panel B. We report the p-values in the last column. *, ** and *** denote significance at the 10%, 5% and 1% level, respectively.

Panel A. Equal-weighted return				
	All directors	Optimistic directors	Non optimistic directors	P-value in testing the difference in means
DGTW adjusted 3-month buy and hold return	1.67%	1.96%	1.44%	0.263
DGTW adjusted 6-month buy and hold return	2.29%	2.47%	2.14%	0.591
DGTW adjusted 9-month buy and hold return	3.06%	4.16%	2.16%	0.013**
DGTW adjusted 12-month buy and hold return	4.29%	5.81%	3.06%	0.004***
N	50,101	22,418	27,683	
Panel B. Number of shares-weighted return				
	All directors	Optimistic directors	Non optimistic directors	P-value in testing the difference in means
DGTW adjusted 3-month buy and hold return	1.62%	1.85%	1.44%	0.396
DGTW adjusted 6-month buy and hold return	2.16%	2.38%	1.98%	0.526
DGTW adjusted 9-month buy and hold return	2.88%	3.90%	2.06%	0.024**
DGTW adjusted 12-month buy and hold return	4.07%	5.52%	2.90%	0.007***
N	50,101	22,418	27,683	

Figure 1. The percentage of optimistic directors on board from 2000 to 2018



Appendix A1. Variable definitions and data sources.

Variables	Definition (Data sources)
Optimistic director (0/1)	Optimistic director is an indicator variable, which takes the value of one if a director is classified as optimistic based on his/her option exercising behavior, and zero otherwise.
CEO overconfidence (0/1)	CEO overconfidence is a dummy variable, which takes the value of one if a CEO is classified as overconfident based on his/her option exercising behavior, and zero otherwise.
CEO age	CEO age in years
ROA change in [-1, 0]	ROA change in [-1, 0] is the annual change of earnings before interest and taxes over lagged total assets from year -1 to year 0.
ROA change in [-2, -1]	ROA change in [-2, -1] is the annual change of earnings before interest and taxes over lagged total assets from year -2 to year -1.
Industry stock return	Industry stock return is the median 12-month compounded stock return in the industry using Fama-French 48 industry classification code.
Industry ROA change in [-1, 0]	Industry ROA change in [-1, 0] is the annual change of median ROA in the industry from year -1 to year 0 using Fama-French 48 industry classification code.
Firm market share	Firm market share is the market share of each firm in the same Fama-French 48 industry.
Largest directorship (0/1)	Largest directorship is an indicator variable that equals one if the directorship is the largest one held by the director based on market cap.
Number of directorships held	Number of directorships held is the total number of directorships held by the director.
Only directorship (0/1)	Only directorship is an indicator variable that equals one if the director holds only one directorship, and zero otherwise.
Directors' ownership (%)	Director ownership is the total shares owned by the director scaled by the number of shares outstanding
Co-opted director (0/1)	Co-opted director is a dummy variable which takes the value of one if a director is hired after the CEO assumes the office, and zero otherwise.
Director age	Director age is the age of director in years.
Director tenure at the firm	Director tenure is defined as the number of years that the director serves on the board at the firm.
Director total directorship tenure	Director total directorship tenure is the total number of years a director served on all boards.
Director CEO (0/1)	Director CEO is an indicator variable that equals to one if a director is also a CEO, and zero otherwise.
Forced CEO turnover (0/1)	Forced CEO turnover (0/1) is an indicator variable, which takes the value of one if there is a forced turnover event in the year, and zero otherwise.
OP_board_dummy (0/1)	OP_board_dummy (0/1) is a dummy variable, which takes the value of one if there is at least one independent optimistic director on the board, and zero otherwise.
OP_measure (0/1)	OP_measure (0/1), which takes the value of one if the percentage of independent optimistic directors on the board is greater than 50%, and zero otherwise.
OP_measure (%)	OP_measure (%), which is the number of independent optimistic directors on the board divided by the board size.
Idiosyncratic firm stock return	Idiosyncratic firm stock return is the residual of first-stage regression using value-weighted peer group return as independent variable and firm stock return as dependent variable. The peer group stock return is the value-weighted Fama-French 48 industry stock return, excluding the sample firms.
Industry peer group induced stock return	Industry peer group induced stock return is the predicted firm stock return in the first-stage regression using value-weighted industry peer group return as the independent variable and firm stock return as dependent variable.

Firm size	Firm size is the natural log of total assets.
Board independence	Board independence is the number of independent directors divided by the board size.
Board size	Board size is the total number of directors on the board.
Board co-option	The percentage of directors on boards are classified as co-opted directors.
