Spillover effects of CEO Performance-Induced Removal on competitor CEOs' firms' financial policies

1. Dr. Saif-Ur-Rehman

   Professor

   Faculty of Management, Canadian University of Dubai, UAE

   Email: doctor.saifkhanfg@gmail.com

   Cell # +971 55 7743293

2. Khaled Hussainey
   Professor of Accounting and Financial Management
   Faculty of Business and Law,
   University of Portsmouth, United Kingdom
   Email: khaled.hussainey@port.ac.uk
   Cell # +44 7727 190105

3. Dr. Hashim Khan

   Assistant Professor

   COMSATS University Islamabad, Pakistan

   Email: hashimkhan_4@yahoo.com

Abstract

Purpose: We examine the spillover effects of CEO removal on the corporate financial policies of competing firms among S&P 1500 firms.

Methodology: We used generalized estimating equations (GEE) on a sample of S&P 1,500 firms from 2000 to 2018 to test our research hypotheses. Return on assets (ROA), investment policy, and payout policy are used as proxies for corporate policies.

Findings: We found an increase in ROA and dividend payout in the immediate aftermath. Further, our hypothesis does not hold for R&D expenditure and net-working capital as we found an insignificant change in them in the immediate aftermath. However, we found a significant reduction in capital expenditure, supporting our hypothesis in the context of investment policy. Institutional investors and product similarity moderated the spillover effect on corporate policies (ROA, dividend payout, and capital expenditure).

Originality: We address a novel aspect of CEO performance-induced removal due to poor performance, i.e., the response of other CEOs to CEO performance-induced removal. Our findings add to the literature supporting the bright side of CEOs' response to CEO performance-induced removal in peer firms due to poor performance.

Keywords: CEO performance-induced removal, financial policy, institutional investors

1. Introduction

Everyone believes the CEO matters and can be replaced (Hamori & Koyuncu, 2015). The stock market may react positively or negatively to this shift. However, removing a CEO can have serious financial consequences for the company (Cornelli, Kominek, & Ljungqvist, 2013). The removal points out two main indications. First, the CEO was a bad pick, questioning the hiring decision. Researchers have studied CEO removal antecedents and their effects on a firm's financial and non-financial performance (Wang, DeGhetto, Ellen, & Lamont, 2019). Second, the company needs an adaptable CEO replacement. The removal challenges other rival operating business CEOs to establish their worth (Fiegenbaum, Hart, & Schendel, 1996). Nearly half of U.S. CEO Removals are performance-induced.

Sometimes, a firm conveys to internal and external stakeholders that proper corrective action is being taken by terminating the CEO. Leaders face harsher punishments since their audience is larger. The punishment's message value is essential as it conveys a message of board oversight and effectiveness. However, when a firm under-performs, something must be done, and firing

someone is frequently seen as the path of least resistance. It is also apparent that the firm is taking the issue seriously. Firms within a geographic region may share similar corporate governance practices due to learning from one another or peer pressure from management groups. More specifically, if one or more firms in a region have undergone CEO turnovers, CEOs of other firms in the same area may also feel pressure to be changed. Such a view can motivate them to change operational policies, improving firm performance.

Our study is more relevant because performance-induced removal may be common in labor markets, and competitors' CEOs are expected to react strongly. Jenter & Lewellen (2021) examined performance-induced removal during corporate scandals, activist campaigns, and institutional investor sell-offs, often leading to CEO removal. We agree with Jenter & Lewellen (2021) that all three events increase forced and performance-induced turnovers but not removal unrelated to performance. The findings suggest that boards reassess CEOs after these events or feel pressure to fire underperforming CEOs. Thus, performance-induced removal provides several reasons to believe competitors' CEOs will react immediately.

Performance-induced policy spillover has not been studied (Morgeson, Mitchell, & Liu, 2015). Since job security is most important, the competitive firm's CEO will respond to the event to protect their jobs. To support our claim, we examine whether a CEO's performance-induced removal affected other firms' financial policies. We address the CEO and performance sensitivity issue to focus on financial policies that affect firm performance. We examined the spillover effects of CEO performance-induced removal on firm profitability (RAO), payout policy (dividend payout ratio), and investment policy (capital expenditure and R&D).

Since the S&P-1500 index is one of the major stock indexes in the U.S., firms considered joining an elite club that confers prestige. We expect peer policy changes after a firm enters the club (Shi, Connelly, Mackey, & Gupta, 2019). Any event of concern may have spillover effects, as one firm's decision can affect other competitors. Competitors' market-centered, visible, and affiliated effects are stronger (Shi, Connelly, et al., 2019). Our argument is strong because a CEO's performance-induced removal may affect other firms' financial policies in the same industry. We expect peer CEOs to respond to the removal to secure their position. We hope competitors know that firing a CEO costs the company and its peers (Yi, Zhang, & Windsor, 2020). A competitor firm's performance-induced CEO removal may affect other firms' policies (Malhotra, Morgan, & Zhu, 2020). Stock investors may be edgy after a CEO's dismissal, affecting financial policy decisions (Shi, Connelly, et al., 2019). Good or bad news creates inertia that affects competitor CEOs' financial policies. Competitor firms may change financial policies because their CEO prioritizes job security over focus. Since homogeneous firms' policies are more likely to affect the decision, we expect competitor firms to respond more strongly. The literature on CEO behavior

has focused on risk-taking (Shi, Connelly, et al., 2019). Still, the study adds a possible new antecedent to CEOs' financial policy decisions.

We hypothesized that CEO performance-induced removal affects competitor CEOs' financial policies. After theoretically establishing the relation, we empirically tested their response to CEO performance-induced removal while holding constant all firms and managerial characteristics that may influence firm policies (Mohamed, Souissi, Baccar, & Bouri, 2014). First, we observed the CEO before and after the event to determine how CEO performance-induced removal affected corporate policies. Second, exogenous shocks are tested against the most critical corporate policies that affect short-term performance. We focused on reducing discretionary R&D and capital expenditure, which can immediately boost short-term performance (Lee & Wu, 2016). We also tested the payout policy, which significantly increases stock investing incomes, provides an additional metric for critical analysis, decreases portfolio risk, and supports capital preservation. More importantly, ROA holistically assesses firm performance by considering income statement performance and the assets needed to run a business (Issah & Antwi, 2017; Salem et al., 2022). Our three financial policy constructs represent CEO behavior.

Our study made significant contributions. First, it addresses a novel aspect of CEO performance-induced removal due to poor performance: the response of other CEOs. Second, our findings support CEOs' positive response to peer firms' CEO performance-induced removal. After the CEO's dismissal, the other firms favored stockholders. After CEO performance-induced removal due to poor performance, treated firms adopt shareholder-friendly policies that minimize agency conflicts, like returning money to investors. Third, product similarity moderates post-removal ROA and payout policy responses (Issah & Antwi, 2017. Retaining CEOs benefits them privately, causing shareholder-manager conflict. The personal shock partially aligns managerial incentives with shareholder preferences by reducing positional incentives.

The remainder of the paper is as follows. In the next section, the research background of the study is provided and places forward hypotheses for empirical analyses. The study enlightens the methodological selection, followed by the empirical findings and conclusion at the end.

2. Research Background and Hypotheses Development

2.1 CEO performance-induced removal

Given the importance of a CEO in firm strategic decisions, research has gone to great lengths to understand and illuminate the implications of CEO performance-induced removal (Darouichi, Kunisch, Menz, & Cannella Jr, 2021; Gentry, Harrison, Quigley, & Boivie, 2021). CEO turnover in academia occurs when a CEO under 60 is fired or resigns due to poor performance or policy changes. He did not die, join another company, or accept a new position in the statement.

Financial policies are tested for the disciplinary effect of CEO performance-induced removal due to poor performance on other firms in the same industry in S&P-1500 listed firms (Wiersema & Zhang, 2011). CEO performance-induced removal has improved firm performance (Darouichi et al., 2021; Wiersema & Zhang, 2011). The meta-analysis (Schepker, Kim, Patel, Thatcher, & Campion, 2017) found that CEO succession hurts short-term performance. Unexpected CEO turnover led to more reforms (Wiersema, 1995). These empirics strongly support the idea that CEO performance-induced removal may significantly affect firm strategic choices and performance at the focal firm (Shi et al., 2017); the response of other competitor firms is unknown. CEOs may consult peers when making strategic decisions (Burgstaller and Wagner, 2015; Connelly et al., 2019). Events influence CEOs' decisions, according to recent studies. A CEO becomes acquisitive after industry peers win awards (J. Li, Yi, Shi, & Zhang, 2018). These findings suggest thoughtful CEOs. The peer event influences their choices.

2.2 Job insecurity

Job insecurity occurs when an employee perceives the risk to the stability and continuity of their current job (Davy, Kinicki, & Scheck, 1997), and it is highly correlated with circumstances (Debus, Unger, & König, 2019). Events can increase or decrease job insecurity (Ellonen & Nätti, 2015). An insecure employee responds to keep his job (Cheng & Chan, 2008). Thus, employees should highlight potential threats to reduce vulnerability (Maner, Gailliot, Butz, & Peruche, 2007). It gives employees a job defense incentive to prove their worth to the focal firm, imitate organizational customs and values, or manage their impressions (L. Jiang & Lavaysse, 2018).

The current study must understand how CEO performance-induced removal in one firm affects CEOs in the same peer. Numerous studies reported contender responses to executive actions (Connelly, Li, Shi, & Lee, 2020). Thus, we base our analysis on CEOs reacting to peer-firm performance-induced removal.

In the current study context, it is imperative to understand how CEO performance-induced removal in one firm affects the actions of CEOs operating in the same peer. Numerous studies noted contender responses or responses to particular executive choices and conduct (Connelly, Li, Shi, & Lee, 2020). Henceforth, we build our study on the maxim that CEOs respond to CEO performance-induced removal in their peer's firms.

2.3 CEO performance-induced removal and competitor CEOs

As informally positioned agents (Westphal & Zajac, 2013), CEOs are likely to socially recognize each other as associated business leaders (Westphal, Park, McDonald, & Hayward, 2012). The relation is more pronounced in large settings. As leaders make tactical choices, they classify each

other as being amongst a joint cluster of business elites (Abrams & Hogg, 1998). Serving with the same peers, they consider each other mainly since competitor CEOs are often used as reference points for cooperative associations (Hsieh, Tsai, & Chen, 2015). They screen each other's conduct, and the inertia of negative information and event is closely monitored. The prospect theory value function is steeper for losses than gains- therefore, the adverse events are heavily weighted (Rozin & Royzman, 2001). Removal from office perhaps is the most adverse incident a CEO faces in their career as a forced turnover adversely affects his financial interests and reputation. Specifically, CEOs of firms operating in the peers observe CEO performance-induced removal as it is the worst scenario a CEO faces in their career (J. Li et al., 2018). Sometimes, the removal can also amplify the probability of their removal as a suitable choice; thus, growing their responsiveness, they could be a possible victim. Though the scenario does not put them in instant peril, it may intensify a sense of job insecurity. The reality is that CEOs' removals could gradually worsen the feeling of job insecurity (Crossland & Chen, 2013). Ultimately, these feelings might significantly impact CEOs' strategic choices in competitor firms (Delgado-García & De La Fuente-Sabaté, 2010). A CEO is accountable to stockholders who desire to see their CEO involved in strategic decisions that ultimately increase their return without compromising the firm's growth prospect (Chen, Yi, Zhang, & Li, 2018). In compliance with possible standards of behavior, hence, would advocate that CEO is expected to increase short-run performance in line with the view of (Huang et al., 2016), who stated that job insecurity prompts individuals to show their worth to the firm and shareholders (Huang et al., 2016). Further, we prompt the view that the response in among competitors may be more pronounced. Therefore, the study hypothesizes that:

Hypothesis 1: Following the CEO's performance-induced removal, CEOs of competitor firms will reinforce the motivation to convey positive short-run outcomes.

Further, there is also a possibility that peer CEOs might increase positive short-run outcomes against the cost of their strategic investment policy in response to CEO performance-induced removal. This aligns with the view that job insecurity leads individuals to adapt to the likely and anticipated behavior (Hewlin, Kim, & Song, 2016). The argument is supported by research depicting those individuals with job insecurity emphasis on strategies that secure their job defense (Shoss, 2017). In the case of a CEO's performance-induced removal, job performance or decision error may be the common trigger (Connelly et al., 2020; Rivolta, 2018). This may result in minimizing the probability of poor performance or/and the likelihood of critical decision flaws. One obvious tactic is to ease strategic risk-taking by reducing investments (Hiebl et al, 2019). Investment policy covers multiple extents; however, in the current study context, capital expenditures, R&D expenses, net working capital, and acquisitions are the probable strategy investment that may be influenced. Though high risk taking escalates extreme positive or negative performance (positive and negative), and presents a cloud of arenas where the CEO

might make possibly tragic choices (Sanders & Hambrick, 2007). Though, an investment is critical to long-term effectiveness (Karim & Mitchell, 2000), it can bring a risk exposure that may badly impact short-run outcomes (Shapira, 1995), exposing the CEO's career to risk. In this vein, (Shi, Zhang, & Hoskisson, 2019) stated that CEOs are compensated comparatively lower once they have been involved in more risk-taking when their firms under-achieve compared to peers. Henceforth, peer CEOs could prioritize looking for rational, status-quo firm performance to preserve a job, evading risky investments that may endanger their job if investments fail to produce desired paybacks (Mansion & Bausch, 2020). Resultantly, we support the argument that peer CEOs lessen investments that increase risk exposure since the CEO is the highest-ranking executive in a firm. Hence, job defense is highly distressed (Adam Cobb, 2016). Therefore, the study hypothesizes that:

Hypothesis 2: Following a CEO's performance-induced removal*, CEOs of firms operating with the same peers will reinforce the motivation to lower investment.*

Shareholders don't compare CEO performance to employees' job insecurity. Thus, CEOs' performance cannot be measured against others. CEOs drive shareholder returns (Wowak, Mannor, & Crossland, 2018). Therefore, a CEO should be wary of following their demands by distributing a large portion of cash as a dividend since dividends can be used to keep a job (Haleblian & Rajagopalan, 2006; Hussainey, K. et al., 2011). CEOs lead top executives (Spierdijk & Zaouras, 2017). Along with this landmark, the job exposes a CEO to risks and exogenous shocks that can make it difficult, if not impossible, to achieve goals. He will focus on securing his job when he feels insecure, which may lead to short-term strategies. (Ma, Sun, Zeng, Lin, & Shi, 2021) CEOs who see their peers winning medals become more nervous about winning. We argue that a CEO who sees his peers fired behaves defiantly because he becomes more concerned with not losing than winning, which leads to higher dividends (Spierdijk & Zaouras, 2017). The study hypothesizes:

Hypothesis 3: Following a CEO's performance-induced removal*, CEOs of peers will increase their dividend distribution.*

The empirics regarding the role of institutional investors are mainly dominated by an argument concerning their function and behavior. Two competing views—"monitoring" and "short-termism"—exist (Callen & Fang, 2013). According to the monitoring perspective, institutional investors act as watchdogs because they prioritize long-term value over short-term profits and control managerial decisions to achieve this goal (Callen & Fang, 2013; Chung, Liu, Wang, & Zykaj, 2015). In line with the "monitoring" view, institutional ownership positively affects CEO performance-induced removal (Helwege, Intintoli, & Zhang, 2012), R&D spending (David, Hitt, &

Gimeno, 2001), managerial recompense (Callen & Fang, 2013; Ivanova, 2017), and market-wide adverse shocks (Cella, Ellul, & Giannetti, 2013). Institutional investors run investee firms under "short-termism" (Black, 1990). Institutional investors are transient shareholders (Bushee, 2001) who are focused on short-term gain due to their high turnover portfolios and cannot act as responsible stewards (Callen & Fang, 2013).

Institutional investors can react in two ways. First, they possess hundreds of thousands of shares and can sell them if the reaction is poor, which may lower the firm's market value. Due to timing and price decreases, institutional selling may not help a stock rise. These institutional investors have analysts. Thus, their sales often foreshadow future consequences (W. Li & Lu, 2016). Second, when dissatisfied, they influence the board to fire the CEO. Both possibilities might cost CEOs their jobs. Thus, a peer firm CEO must improve short-term performance, lower investment, and increase dividend payout to protect his position (Luo, Zhang, Zhang, & Aspara, 2014). If our short-termism is reasonable, CEOs at firms where institutional investors dominate stock ownership should have a stronger association with our first three hypotheses. Thus, prominent stockholders can moderate CEO performance (Crossland & Chen, 2013). The study hypothesizes:

Hypothesis 4: if the logic of short-termism is true, the institutional investors will moderate the responses of the CEOs of firms operating with the same peers.

Notably, a CEO's dismissal may affect peer CEOs' actions depending on product similarity, as other firms in the same peer may have diverse product portfolios. A CEO removal from a similar firm to the respondent CEO must be more conspicuous than in other firms with the same peers. Based on constrained rationality (Selten, 1990), a CEO may be more aware of the CEO's dismissal of a similar firm in his industry (Fiegenbaum & Thomas, 2004). Companies in the same industry with similar products tend to make similar strategic decisions and compete fiercely (Hsieh et al., 2015). Thus, CEOs in these organizations must make strategic decisions (Connelly, Certo, Ireland, & Reutzel, 2011). These firms also share internal and external settings. They fight for the same suppliers and customers externally (Bamberger & Fiegenbaum, 1996). Investors and analysts evaluate them similarly. These organizations hire employees with similar technology skills (Gong, Yu, & Huang, 2021). Thus, CEOs of product-similar enterprises will focus on unpleasant events like CEO removal (Chang & Wang, 2007; Gatignon & Xuereb, 1997). Since CEO removal is the most uncomfortable event in their peer firms, CEOs are likely to respond because they sense more job insecurity than CEOs of industry firms. The study hypothesizes that:

Hypothesis 5: if the rationality of higher response from CEOs serving in the firms with product similarity is true, the product similarity will moderate the responses of the CEOs of firms in hypothesis 1 to hypothesis 3 in the immediate aftermath.

3. Methods

3.1 Sample Descriptions

Our sample starts with S&P 1,500 firms. The S&P Composite 1500® combines three leading indices, the S&P 500®, the S&P MidCap 400®, and the S&P SmallCap 600®, to cover approximately 90% of U.S. market capitalization. It is designed for investors seeking to replicate the performance of the U.S. equity market or benchmark against a representative universe of tradable stocks.

As CEO's performance-induced removal is a concern in the current study, we collected data regarding CEO's performance-induced removal from an open-source dataset documenting the reasons for CEO exit in S&P-1500 firms from 2000 through 2018 provided by (Gentry et al., 2021). In this dataset, they coded voluntary and involuntary CEOs' departures in line with earlier studies (Connelly et al., 2020; Jenter & Kanaan, 2015; Orij, Rehman, Khan, & Khan, 2021). Further, they compared their dataset to three published datasets in the CEO succession literature to assess the qualitative and quantitative differences among them and to explore how these differences impact empirical findings associated with the CEO performance-induced removal relationship. The dataset includes eight classifications for CEO turnover, a narrative description of each departure event, and links to sources used to construct the narrative so that future researchers can validate or adapt the coding[1]. The final number of performance-induced removals in our sample is 546. The data description is provided in Appendix B. Our sample selection is limited to specific criteria. First, a firm should be included in S&P 1500 for the sample period. Second, the data regarding financial variables should be available from Thomson Reuters. Third, we had firms from manufacturing sectors to avoid estimation biases. The restrictions limited our dataset to 604 firms from different sectors (see appendix B).

Further, firm-level data is collected from Compustat, and shareholder-specific information from Thomson Reuters Institutional holdings. Based on prior studies (Ammann, Horsch, & Oesch, 2016; F. Jiang, Shi, & Zheng, 2020), we use the TNIC database to classify competitors. To capture product similarity, (Hoberg & Phillips, 2016) applied a text-based analysis of firms' 10-K filings. In the U.S., firms must disclose precisely and rationalized product descriptions in the 10-K as per securities laws. Product similarity is measured in terms of the relative number of words in common in product descriptions (Hoberg & Phillips, 2016). When two firms have a high product similarity score, they are competitive rivals. A 21.3 percent minimum similarity benchmark begins with 10-K based-industries where nearly 2% of all firm pairs are direct competitors, similar to 3-digit SIC-industry codes (Hoberg & Phillips, 2016). Though SIC codes offer a valuable tool for industry indexing, TNIC-3 categorizations are more beneficial for classifying direct competitors

[1] The resulting data are available at (https://doi.org/10.5281/zenodo.4543893).

(Hoberg & Phillips, 2016). It is essential to mention that firms enter and exit various industries. In contrast, TNIC-3 computes yearly product market comparisons and can alleviate measurement bias arising from a specific firm's exit or entry. Further, the database (TNIC-3) categorizes competitors per product description after considering corporate diversification.

3.2 Sample construction

We created a sample of competitor firms to construct our sample for the primary analysis. First, we followed Connelly et al. (2020) approach. We matched firms A and B at a benchmark percentage (minimum of 21.3%), and the matched firms are declared competitors. As the firms are producing more than one product, the probability may be that firm B has competitors. $C_1, C_2, C_3, - - - - - C_n$ (product similarity above the threshold of 21.3%) but these (means B's competitors) may not be a competitor to A (product similarity below 21.3% of threshold). Therefore, we adjusted the method and put firm size as a constraint, following 75-125% of the total assets of a TNIC-3-matched firm lie within 75-125% of the total assets (J. Li et al., 2018). However, we applied a minimum threshold of 10%, implying that a firm can't be declared a competitor unless it qualifies two criteria. First, its product similarity must be above 21.3% of the threshold. Otherwise, its product similarity should be above 10% with firm A, and its size lies within 75% to 125% of TNIC-3-matched firm (firm B) total assets.

3.3 Independent variable

The study is based on CEOs' behavior following CEO performance-induced removal; therefore, the post-removal period is a variable of concern. Suppose CEOs witness multiple CEO performance-induced removals during the sample frame. In that case, the first removal is the ultimate focus because the first removal is the prime shock that may bring removal into the realm of likelihood, thus, increasing the sense of job insecurity. In line with earlier studies, we created a dummy variable that was equal to "1" for the period once CEOs witness the first removal and "0" for four years before removal, including the year of the event (removal) (Baghai, Servaes, & Tamayo, 2014; Zhang, 2008). In our primary analysis, we included only the firms that matched the criteria for the independent variable. However, we also used three- and five-year post-removal windows, and the results supported the main findings.

3.4 Dependent variables

As the study aims to examine the response from three perspectives, i.e., performance, investment, and payout, we used further regression to test our hypotheses. First, we used ROA as a proxy for firm performance. Compared to other performance measures like ROE and sales growth, ROA is the most effective and generally accessible financial measure that is a widely

applicable measure of firm performance (Peni, 2014; Gerged et al., 2023). It holistically captures the fundamentals of business performance, looking at income statement performance and the assets required to run a business. Commonly used metrics such as return on equity or returns to shareholders are vulnerable to financial engineering, primarily through debt leverage, which can obscure the fundamentals of a business.

Second, investment policy includes several dimensions. Thus, we explore whether the CEO performance-induced removal leads to adjusting these variables: capital expenditures, R&D expenses, net-working capital, and acquisition (Aktas, Croci, & Petmezas, 2015). These measures align with the earlier study by (Aktas, Boone, Croci, & Signori, 2021). Third, we study payout policy proxied by dividend payout (Aktas et al., 2021).

3.5 Moderating variables

We used two moderating variables that may augment the relationship between independent and dependent variables. The study used institutional ownership and product similarity as moderating variables for analyses. For institutional ownership, we used the percentage of shares held by institution owners in each firm (Pruitt & Wei, 1989). Further, we used the product similarity dummy to test the moderating role of product similarity in CEO response to CEO performance-induced removal. Our moderating variables differ as one is measured in percentage of ownership, whereas the other is a product similarity dummy.

3.6 Control variables

We controlled our main findings using several control factors in our primary analyses. We included all models of year-dummies, firm fixed-effects, CEO-level control, corporate governance control, and financial control. Following (Francoeur, Lakhal, Gaaya, & Saad, 2021), we included year-fixed effects to control for likely variable effects across time. As our primary variable of concern is CEO response, we control for CEO-level factors. CEO duality, tenure, age, interlock, and ownership (%) empower the CEO to influence corporate policies. Thereby allowing him to manipulate earnings are use other measures (Abatecola & Cristofaro, 2019; Fong, 2010; Hemdan, Hasnan, & Ur Rehman, 2021). On the other hand, female CEOs are likely to follow the code of ethics and may restrict themselves in earnings manipulation, showing better firm performance (Sun & Zou, 2021). Likewise, we also control for financial factors, including firm size, financial leverage, industrial concentration, and firm age. CEOs in larger firms somehow feel secure as larger firms are more likely to get incentives relative to their size, which means more significant incentives. In contrast, high leverage negatively impacts ROA (Bae, Kim, & Oh, 2017). Further, firms' age positively correlates with ROA (Ali, Rehman, Suleman, & Ntim, 2022).

4. Empirical Model

While the CEOs' removal events could affect CEO behavior in peer firms, the behavior, researchers are less likely to ignore their capability and expertise. Instead, it restricts us from emphasizing. Therefore, we control for several managerial traits, including CEO gender, CEO experience, CEO interlock, and CEO ownership, in line with earlier studies (Johnson, Schnatterly, & Hill, 2013). Further, we also control for board characteristics by including board independence, board diversity, board vigilance (measured by meeting frequency), and board interlock. This is one of the critical features of this study, given the importance of CEO and board-specific characteristics (Dejong & Ling, 2013). Likewise, we also control for firms' specific factors, which include firms' age, firm size, financial leverage, sales growth, and cash ratio. In short, this approach keeps CEO, board, and financial variables constant while CEO behavior changes. To assess the impact of CEO performance-induced removal on peers firms, we used the following model;

$$\mathrm{Y_{i,t}} = \beta_0 + +\beta_1 \mathrm{removal_i} + \beta_2\ \mathrm{removal_i} * \mathrm{post_{i,t}} + \beta_3 \mathrm{control\ factors_{i,t}} + \mathfrak{y}_c + \mathfrak{y}_i + \varepsilon_{i,t} - 1$$

In equation 1, $\mathrm{i\ and\ t}$ represent the firm index and index in the event years, $\mathrm{Y_{i,t}}$ is the outcome variable, and $\mathfrak{y}_c$ and $\mathfrak{y}_i$ are calendar-year dummies and firm fixed-effect. As the model captures event time (from − 3 to 3), we used the year effect to control the time trend in the primary analysis. $\mathrm{removal_i}$ is equal to 1 for treated firms, and 0 for corresponding control firms. Further, the post takes the value of 0 for years t-3, t-2, t-1, and t=0, and 1 for t+1, t+2, and t+3. It is important to note that having firm fixed effects does not allow the addition of the stand-alone removal dummy variable, as it is a time-in-variant variable for a given firm.

To test the moderating role of institutional investors, we use the following models.

$$\begin{aligned}\mathrm{Y_{i,t}} = \beta_0 + +\beta_1 \mathrm{Institutional\ ownership_{i,t}} + \beta_2\ \mathrm{years} - 2\ \mathrm{after_i} + \beta_3\ \mathrm{years} - 3\ \mathrm{after_i} \\ + \beta_4\ \mathrm{years} - 2\ \mathrm{after_i} * \mathrm{Institutional\ ownership_{i,t}} + \beta_5\ \mathrm{years} - 3\ \mathrm{after_i} \\ * \mathrm{Institutional\ ownership_{i,t}} + \beta_3 \mathrm{control\ factors_{i,t}} + \mathfrak{y}_c + \mathfrak{y}_i + \varepsilon_{i,t} - 2\end{aligned}$$

To test the moderating role of product similarity, we use the following models.

$$\begin{aligned}\mathrm{Y_{i,t}} = \beta_0 + +\beta_1 \mathrm{product\ similarity_{i,t}} + \beta_2\ \mathrm{years} - 2\ \mathrm{after}_i + \beta_3\ \mathrm{years} - 3\ \mathrm{after}_i \\ + \beta_4\ \mathrm{years} - 2\ \mathrm{after}_i * \mathrm{product\ similarity_{i,t}} + \beta_5\ \mathrm{years} - 3\ \mathrm{after}_i \\ * \mathrm{product\ similarity_{i,t}} + \beta_3 \mathrm{control\ factors_{i,t}} + \mathfrak{y}_c + \mathfrak{y}_i + \varepsilon_{i,t} - 3\end{aligned}$$

Our final data set includes 8820 (490 firms x 18 years) year observations. The data contains both cross-sectional and time-series components. Thus, the data constructions interrupt the

postulation of independence across observations essential for OLS regression (ordinary least squares) regressions. These led us to use generalized estimating equations (GEE) to estimate the parameters for main analyses due to several causes. As many CEO-specific, board-specific, and financial factors may influence firms' financial policies, we can use random effects (RE) or GEE instead of fixed effects.

Further, the random effect model is appropriate for our panel under the null hypothesis assumption. Compared with RE, GEE estimates are more robust and reliable in the case of autocorrelation due to non-independence (Liang & Zeger, 1986). Further, the GEE model is grounded on fewer assumptions. Thus, its estimates are more robust to erroneous assumptions. Additionally, the GEE model is less subjective to unpredictability and convergence problems because it is less rigorous than the RE model (Velu, 2016). We also conducted a modified Wald test for group-wise heteroskedasticity. The findings revealed a presence of heteroskedasticity ($p<.01$).

The robust standard error is used to address the concern of heteroskedasticity (Baltagi, Bratberg, & Holmås, 2005). Variance inflation factor (VIF is also used to test the multicollinearity, and the value range is below the threshold of 10 (see table 1). VIF value ensures that our dataset has no multicollinearity.

5. Descriptive statistics

Table 2 presents the VIF, descriptive statistics, and correlation of variables. For brevity, we discussed the descriptive statistics of the main variables. The sample has a 7.13 mean value of return on assets with a standard deviation of 0.62. The post represents the period after the removal of the CEO, and its mean value is 0.57. Further, the overall sample has 24% institutional ownership and product similarity, with a mean value of 4.09 and a standard deviation of 2.77. The descriptive statistics of CEO-level control and firm controls are also provided in Table 2. The value of variance inflation factors (VIF) is far below the acceptable level of 10, showing no multicollinearity issue in our regression model (Olanrewaju, Olubusoye, Adenikinju, & Akintande, 2019). Lastly, the correlation matrix shows that the correlation between variables is below 0.70, which signifies no issue of multicollinearity.

Table 2 Descriptive Statistics, VIF, and Correlation Matrix

Variables	Mean	S/D	VIF	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
ROA (1)	7.13	1.52	3.19	1.00															
Post (2)	0.57	0.50	3.89	0.33	1.00														
Institutional ownership (3)	0.24	0.38	2.26	0.21	0.30	1.00													
product similarity (4)	4.09	2.77	3.49	0.29	0.46	0.90	1.00												
CEO duality (1/0) (5)	0.37	0.67	4.80	0.14	0.57	0.17	0.35	1.00											
CEO tenure (6)	8.42	2.30	3.04	0.36	0.34	0.44	0.29	0.34	1.00										
CEO age (7)	43.26	7.29	0.18	0.22	0.14	0.42	0.39	0.33	0.79	1.00									
CEO interlock (8)	0.43	1.78	1.60	0.13	0.31	0.01	0.02	0.01	0.35	0.03	1.00								
CEO ownership (%) (9)	0.03	0.67	3.62	0.30	0.43	0.10	0.09	0.08	-0.01	0.07	0.82	1.00							
CEO gender (1/0) (10)	0.04	0.80	4.99	0.42	-0.02	0.23	0.21	0.18	0.09	0.16	0.80	0.78	1.00						
Board Independence (%) (11)	23.25	5.38	0.19	0.15	0.16	0.32	0.29	0.25	0.19	0.22	0.77	0.76	0.12	1.00					
Gender diversity (%) (12)	88.18	0.56	1.88	0.16	0.10	-0.01	-0.01	-0.01	0.27	-0.01	-0.01	-0.24	0.17	0.16	1.00				
Board meeting frequency (13)	7.06	2.28	1.16	0.10	0.06	0.12	0.11	0.09	-0.01	0.08	0.08	0.07	-0.01	0.10	0.06	1.00			
Firm size (14)	7.46	1.87	2.71	0.36	0.12	0.07	0.07	0.06	0.10	0.05	0.05	0.04	0.06	0.06	0.12	0.11	1.00		
Financial leverage (15)	1.93	2.55	1.44	-0.12	-0.09	-0.05	-0.11	-0.08	-0.06	-0.03	-0.11	-0.08	-0.10	-0.18	-0.12	-0.01	-0.14	1.00	
Industrial concentration (16)	0.18	1.03	1.40	0.11	-0.24	0.09	0.08	0.07	0.04	0.06	0.06	0.05	0.02	0.12	-0.01	0.17	0.16	**0.37**	1.00

We only provided the mean and standard deviation of variables used in the current study for brevity. The variance Inflation Factor is also calculated to test the issue of multicollinearity. Each variable is defined in Appendix A.

6. Empirical findings

6.1.1 Firm performance and CEOs' response (Hypothesis 1)

First, we investigated the response of other firms to CEO performance-induced removal. We used ROA to measure firm performance (see Appendix-A for variable definition). In model 1, we found a significant impact of post on ROA (β =0. 0268 and p<.10; refer to model 1 in table 2). This indicates that post does have a positive influence on firms' performance. However, the interaction term is our variable of interest, and findings show that the interaction term is positive and statistically significant (β =0.0486 and p<.05; refer to model 1 in table 2).

In comparison to the direct impact of the post, the interaction term shows a higher level of significance (p<.05) and coefficient estimate (β =0.0486-0. 0268=2.18%). Thus, treated firms exhibit a higher response of 2.18% in a coefficient estimate due to CEO performance-induced removal among competitors. This 2.18% increase is quite significant compared to the 7.13% mean value of ROA in table 1 above. Therefore, our hypothesis 1 is strongly supported. Following CEO performance-induced removal, CEOs of competitor firms will reinforce the motivation to convey positive short-run outcomes proxied by ROA in the immediate aftermath. Thus, the logic of the disciplinary effect of CEO performance-induced removal on other firms in the same industry in S&P-1500 listed firms is strongly supported in line with earlier studies (Wiersema & Zhang, 2011; Clout, Ghannam, Loyeung, & Yang, 2021). Removing a poorly performing CEO is a critical decision that triggers CEOs operating with the same peers to respond positively in the U.S. market to evade any potential threat of removal from office. The finding also supports the inter-firm corporate governance role of CEO performance-induced removal as the CEO responds regarding financial policy (Aguilera, Desender, Bednar, & Lee, 2015). Performance-induced removal is, arguably, more relevant for the efficient allocation of managerial talent (Jenter & Lewellen (2021), as removal that would not have occurred had performance been "good." Therefore, the trigger's effect on competitors' CEOs' financial policies is evident and supported by our findings. A CEO's performance-induced removal is the most prominent event that has affected competitors' CEO financial policies.

Regarding CEO-specific control factors, we found that CEO tenure, age, and ownership are positively associated with ROA. Board independence and meeting frequency positively influence ROA among the board-specific factors. Lastly, firm size and age are the indicial variables that improve firm performance. In contrast, high leverage is negatively associated with firm performance. Also, we supplement the description with year dummies and firm fixed effects. Importantly, our dataset comprises Global Financial Crises (GFC) period; therefore, we also control for the GFC period to avoid biases in our estimation. The GFC refers to extreme stress in global financial markets between mid-2007 and early 2009. During the GFC, a downturn in the US housing market catalyzed a financial crisis that spread from the United States to the rest of

the world through linkages in the global financial system. To control the effect of GFC in our model, we introduce a GFC dummy that is equal to 1 in the year 2007 to 2009 and 0 otherwise. The results show the insignificant impact of GFC on the ROA. The finding may be attributed to a more extensive data set, as a larger data set helps researchers control the effect.

Table 2 CEO performance-induced removal and ROA

Dependent variable: ROA			
	Model-1	**Model-2**	**Model-3**
Post	0.0268* [1.729]		
Treatment x Post (H1)	0.0586** [2.532]		
Institutional ownership		0.0431* [1.602]	
Years-2-after (reference= 1 year after)		0.0941** [2.149]	0.0938** [2.409]
years-3-after (reference = 1 year after)		0.0452* [1.758]	0.0444* [1.655]
years-4-after (reference = 1 year after)		0.0166 [1.135]	0.0182 [1.074]
Institutional investors as moderator			
years-2 after x institutional ownership		0.1104*** [4.966]	
years-3 after x institutional ownership		0.0729** [2.133]	
years-4 after x institutional ownership		0.007 [0.998]	
product similarity as moderator			
product similarity			0.1081** [2.104]
years-2 after x product-similarity			0.1893*** [4.323]
years-3-after x product-similarity			0.1162** [2.291]
years-4-after x product-similarity			0.0118 [1.502]
CEO-specific factors			
CEO duality (1/0)	0.0125 [1.008]	0.0130 [0.884]	0.0136 [0.709]
CEO tenure	0.0722** [2.385]	0.0752** [2.272]	0.0983** [2.339]
CEO age	0.0371* [1.664]	0.0486** [2.382]	0.0403* [2.499]
CEO interlock	0.0621 [0.843]	0.0347 [0.546]	0.0674 [0.546]

CEO ownership (%)	0.1044** [2.018]	0.0988** [1.991]	0.1133** [1.987]
CEO gender (1/0)	0.0016 [1.023]	0.0017 [0.900]	0.0017 [0.952]
Board-specific factors			
Board Independence (%)	0.0711** [2.483]	0.0649** [2.411]	0.0592** [2.100]
Gender diversity (%)	0.0044 [1.516]	0.0040 [1.516]	0.0037 [0.177]
Board meeting frequency	0.0815** [2.472]	0.0944*** [2.416]	0.0678** [2.509]
Other control			
Firm size	0.1152*** [3.791]	0.1051*** [3.546]	0.0959*** [4.371]
Financial leverage	-0.0611** [2.544]	-0.0557* [2.432]	-0.0709** [2.145]
Industrial concentration	0.0167 [1.228]	0.0152 [1.190]	0.0139 [1.475]
Firm age	0.0182** [2.303]	0.0166** [2.141]	0.0152** [2.450]
GFC effect	No	No	No
Year fixed effect	Yes	Yes	Yes
Constant	46.083*** [5.511]	49.782*** [5.707]	47.549*** [5.434]
Wald chi-square (d.f.)	188.00*** [11.654]	165.76*** [13.656	166.54*** [13.23]
P-values in parentheses; * p < 0.1, ** p < 0.05, *** p < 0.01. We regressed three different models to avoid any estimation bias. In model 1, the interaction term between the post and treatment firm is our variable of concern. In model 2 and model 3, the roles of institutional ownership and product similarity are a major concern. Interaction terms explain their moderating role years after the event.			

6.1.2 The moderating role of institutional investors and product similarity (Hypothesis 4 and 5)

In model 2, we introduced interaction terms to highlight the moderating role of institutional investors. First, institutional ownership has a positive and statistically significant impact on ROA (β =0.0431 and p<.05; refer to model 2 in table 2). Using one year after the event as a reference category, we also included years-2, years-2, and four years effects in model 2. The findings show that the year effect is positive and significant for years-2 and years-3, but the effect dilutes in 4 years (for year-2 effect β =0.0941 and p<.05 and 3-year effect β =0.0452 and p<.05; refer to model 2 in table 2). In comparison, the year-2 effect is more pronounced both in terms of coefficient estimate and level of significance as we observed 0.0489% (β =0.0941-0.0452=0.0489%) higher coefficient estimate for year-2 and level of significance (p<.05). However, we found no significant

impact of year-3 on ROA. Regarding our variables of interest (interaction terms), we found both have a positive and statistically significant effect on ROA.

In comparison, coefficient estimates and level of significance are higher for interaction term years-2 after x institutional ownership (β =0.1104 -0.0701 = 4.03% and p<.01). This shows that CEOs respond significantly higher in the immediate aftermath (year-2). However, we found an insignificant interaction term for year 4. In brief, the findings indicate that institutional ownership moderates the positive association between ROA and CEO responses in the immediate aftermath (years-2 and year-3). Notably, the response is significantly higher in year-2 compared to year-3. Thus, justifying our argument that CEOs respond positively to CEO performance-induced removal in the U.S., the immediate response is significantly high and moderated by the presence of institutional investors. As a result, our hypothesis 4 is strongly supported, which states that if the logic of short-termism is true, the institutional investors will moderate the responses of the CEOs of firms operating with the same peers in hypothesis 1 in the immediate aftermath.

As per findings in model 3, product similarity has a positive and statistically significant impact on ROA (β =0.108 and p<.05). Further, the interaction terms year-2 after x product similarity and years-3 after x product similarity are positive and statistically significant at 1% and 5% levels of significance. This shows that product similarity moderates the positive relation between years-2 and years-2 effect and ROA. Notably, the association is more robust both in terms of coefficient estimates and level of significance for interaction term years-2 after x product similarity (β =0.1893-0.1162= 7.31% and p<.01). The increase of 7.31% is very substantial in the context of current study where the direct impact of post on ROA is 2.68%. Again, like model 2, we found an insignificant effect of interaction term years-4 after x product similarity, implying that product similarity does not moderate the insignificant impact years-4 on ROA. In short, our hypothesis 5 is supported, which states that if the logic of higher response from CEOs serving in the firms with product similarity is true, the product similarity will moderate the responses of the CEOs of firms in hypothesis 1 in the immediate aftermath.

6.2 Investment Policy and CEO performance-induced removal

6.2.1 Hypothesis 2

We also tested the impact of CEO performance-induced removal on a firm's investment policy. As investment policy comprises several dimensions, so we used capital expenditure, R&D expenses, and net-working capital as proxies for investment policy. Interaction terms are our main variables of concern. First, we tested the response of other firms' CEOs in the context of capital expenditure. The results are reported in table 3 below. For each proxy, we used three different models. In model 1 (column 1), the findings depicted that the interaction term between post and CEO performance-induced removal is negative but statistically insignificant. This

indicates that CEOs do not respond through a reduction in capital expenditure since any reduction in R&D expenses is perceived as a negative sign in the U.S. market. The finding indicates that CEOs do not respond positively to CEO performance-induced removal through a reduction in capital expenditure. This fails to support hypothesis 2 in the context of R&D expenses. Second, to test our hypothesis 2 in the context of capital expenditure, we introduced the interaction term between treatment and post in model 1 (column 4). The finding shows that the interaction term between post and treatment is negative and statistically significant at a 5% level (β =-0.1086 and $p<.05$; refer to column 4, model 1 in table 3).

Contrary to R&D expenses, the CEOs respond through a reduction in capital expenditure by 10.86% (expressed as % of total assets), which is quite substantial in the context of the current study. Therefore, hypothesis 2 is supported in the context of capital expenditure. Third, as for the effect of the post on the firm's net working capital is concerned, the coefficient estimate of the interaction term between post and treatment is positive and statistically significant at 10% (β =0.0422and $p<.10$; refer to column 7, model 1 in table 3). Working capital management is an accounting policy focusing on maintaining a sufficient balance between a company's current assets and liabilities.

Further, effective working capital management helps the firm cover its financial obligations and lift current earnings. Since investors' choices are often driven by firm liquidity and return on assets, peers' CEOs often get involved in improving firms' liquidity, as liquidity is one of the positive signals of financial health. Our hypothesis 2 is supported by capital expenditure and net working capital.

The reduction in capital expenditure and increase in net working capital align with the views of the managerial horizon and CEO career concerns. Once a CEO is under performance pressure, he is more likely to follow a policy within his managerial domain that is easy to implement. He may have an immediate effect on performance. However, the decision to reduce capital expenditure might be a strategy to boost current earnings, but it hampers the long-term growth potential of the firm. As we have observed earlier that CEO performance-induced removal positively impacts ROA, the findings align with the view that reduction in capital expenditure firms short-term performance. It is essential to distinguish between current profit and firm market value as the latter considers the firm prospects and current gain. Current profit also penalizes capital expenditure as accounting rules necessitate capital expenditure to be expensed, thus, requiring them to be subtracted from operating income in the year it's expended. In contrast, the payoffs to capital expenditure don't occur until future periods. Thus, the further the return of capital expenditure, the less likely operating divisions are to conduct it. One can argue that a decrease in capital expenditure may not always be negative for stockholders, mainly if the firm is cutting value-reducing projects. Thus, the strategy (reduction in value-creating investments) could prove

costly for CEOs. The response to CEO performance-induced removal due to poor performance could bring career concerns for CEOs of the firms.

6.2.2 The moderating role of institutional investors (Hypothesis 4)

In model 2, interaction terms tested institutional investors' moderating role in three investment policy proxies. We used the reference category for both interaction terms one year after the event. In a contest of R&D expenses, institutional investors do not significantly impact R&D (refer to column 2 and model 2 in table 3). The findings also show that years' effects (all three years) are negative but statistically insignificant (refer to model 2, column 2 in table 3). Notably, three interaction terms (years-2 after x institutional ownership, years-3 after x institutional ownership, and years-4 after x institutional ownership) are also negative but statistically insignificant. These show that institutional investors do not moderate the negative relation between years-2, years-2, and years-2 effects and R&D.

In the context of capital expenditure, we also tested the direct impact of institutional investors on capital expenditures. The finding shows a negative and significant impact on capital expenditure (β =-0.0431 and $p<.10$; refer to column 5, model 2 in table 3). In contrast to R&D expenses, the interaction terms years-2 after x institutional ownership and years-3 after x institutional ownership are negative and statistically significant at 5% and 10%, respectively (refer to column 5, model 2 in table 3). In comparison, we found a higher coefficient estimate and significance level for interaction term years-2 x institutional investors implying that CEOs' response is higher in years-2. However, the interaction term between years-4 and institutional investors has an insignificant impact on capital expenditure, clarifying that the response dilutes in year-4 (refer to model 2, column 5 in table 3). We found strong support for hypothesis 4 as the empirical findings show a significant reduction in capital expenditure.

Lastly, we found an insignificant impact of institutional investors on net working capital (refer to model 2 in column 8 of table 3). Further, we also found no significant effect in years-2 after, years-3 after, and years-4 after (refer to model 2 in column 8 of table 3). Interaction terms are the variables of concern. Table 3 and column 8 (model 2) found all three-interaction terms positive but statistically insignificant. Thus, hypothesis 4 is not supported in net working capital like R&D expenses.

6.2.3 The moderating role of product similarity (Hypothesis 5)

We introduced interaction terms in model 3 of all three proxies to test the moderating role of product similarity. In column 3, the interaction terms are introduced to test the moderating role of product similarity in the association between years and R&D expenses. Interaction terms are

our variables of concern since we are interested in moderating the role of product similarity. The finding shows that all three interaction terms are negative and statistically insignificant. The results do not support the argument that product similarity has moderating role between CEOs' responses and R&D expenses. R&D expenses are the keystone of modern businesses desiring to contest, grow and succeed. During a crisis, firms don't prefer to cut R&D expenses. Investors penalize management for any reduction in expenses as they view new and more efficient products as a shield from decline and believe that R&D expenses may set the firm up for solid growth in subsequent recovery ages. Studies conducted over multiple recessions or crises have shown that firms that continue to invest in R&D will grow. At the same time, competitors that decrease these investments face an increased risk of suffering from decline. R&D activities signal customers and investors that they can rely on the firm to produce superior products. Therefore, CEOs who don't opt for any such option in response to CEO performance-induced removal could also be disastrous for them and their focal firms. As a result, hypothesis 5 is not supported in the context of R&D expenses.

Further, in the context of capital expenditure, we found interaction terms (years-2 after x product similarity, years-3 after x product similarity, and years-4 after x product similarity) are negative and statistically significant ($p<.05$ for years-2 after x product similarity, years-3 after x product similarity and $p<.10$ for years-4 after x product similarity). Further, the coefficient estimate for interaction terms years-2 after x product similarity is higher than the coefficient estimate of years-3 after x product similarity, comparatively 4.01% higher (β =-0.1110-(-0.0709)=0.0401) than the interaction years-3 after x product similarity. The interaction term years-4 after x product similarity has the lowest coefficient estimate and significance level among the three interaction terms. For further clarity, we also introduced the interaction term years-4 after x product similarity and found an insignificant association with capital expenditure (for brevity purposes, we did not show the result). Hence, these findings indicate that CEOs reduce capital spending in response to CEOs' removal due to poor performance in their peers.

Further, the response is significantly higher in years-2, weakens in years-3 and years-4, and dilutes in years-5. CEOs are the primary owners of capital-expenditure development, they are major stakeholders, and in most cases, they should play a more significant role. Further, they are well placed to manage capital expenditure and represent their strategic choices. When the firms are under financial constraint or exposed to competitors' risk, they often manage this expenditure to enhance the short-run performance. When a CEO faces financial distress or performance pressure in a competitive market, he is more likely to reduce capital expenditure to ensure and safeguard his current standing. Like in the present study, CEOs in peer firms often reduce firms' capital expenditure to show higher short-run performance. As a result, hypothesis 5 is supported strongly in the context of capital expenditure. Lastly, we also tested the moderating role of

product similarity in the context of net working capital. We introduced three interaction terms in model 3 of column 9. We found interaction terms years-2 after x product similarity and years-2 after x product similarity is positive but statistically insignificant. The control factors have a similar impact as expected. For brevity purposes, we did not explain them in detail. However, they are mentioned in the table below.

Table 3 Investment Policy and CEO performance-induced removal

	R&D expenses			capital expenditures			net-working capital		
	1	**Column-2**	**Column-3**	**Column-4**	**Column-5**	**Column-6**	**Column-7**	**Column-8**	**Column-9**
	Model-1	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**	**Model-1**	**Model-2**	**Model-3**
Post	-0. 0268			**-0.0568**			**0.0051**		
Treatment x Post	-0.0395			**-0.1086****			**0.0122**		
Institutional ownership		-0.0131			0.0431*			0.0031	
years-2-after (reference= 1 year-after)		-0.0226	-0.0119		0.0941**	0.0938**		0.0039	0.0062
years-3 –after (reference = 1 year-after)		-0.0180	-0.0269		0.0452*	0.0444*		0.0052	0.0044
years-4-after (reference f= 1 year-after)		-0.0017	-0.0013		0.0166	0.0182		0.0007	0.0050
Institutional investors as moderator									
years-2 after x institutional ownership		-0.0110			-0.110***			0.0082	
years-3 after x institutional ownership		-0.0329			-0.0729**			0.0024	
years-4 after x institutional ownership		-0.0008			-0.0072			0.0071	
product similarity as moderator									
product similarity									
years-2 –after x product-similarity			-0.0041			-0.1103**			0.0010
years–after x product-similarity			-0.0022			-0.0769**			0.0006
years-4 –after x product-similarity			-0.0013			-0.0413*			0.0003
CEO-specific factors									
CEO duality (1/0)	0.0801**	0.0761**	0.0724***	0.0688***	0.065***	0.0674***	0.0696***	0.071***	0.073***
CEO-tenure	0.0541*	0.0514*	0.0489**	0.0465**	0.0442**	0.0455*	0.0469**	0.0483**	0.0498*
CEO-age	-0.0056	-0.0093	-0.0015	-0.0048	-0.0046	-0.0047	0.0049	0.0050	0.0052
CEO interlock	0.0084	0.0080	0.0076	0.0072	0.0069	0.0071	0.0073	0.0075	0.0077
CEO ownership (%)	0.0300*	0.0285**	0.0271*	0.0258**	0.0245*	0.0252*	0.0260**	0.0268*	0.0276*
CEO gender (1/0)	0.0699**	0.0789**	0.0780**	0.0171	0.0162	0.0167	0.0272*	0.0378*	0.0383*
Board-specific factors									
Board-independence (%)	0.0343	0.0326	0.0310	0.0295	0.0280	0.0289	0.0297	0.0306	0.0316
Gender diversity (%)	0.0442	0.0420	0.0399	0.0380	0.0361	0.0372	0.0383	0.0395	0.0407
Board meeting frequency	0.0810	0.0770	0.0732	0.0696	0.0661	0.0681	0.0702	0.0723	0.0745
Other control									

ROA	0.1119***	0.1064***	0.1011***	0.0961*	0.0914**	0.0941*	0.0970**	0.099**	0.1030**
Firm-size	0.0774**	0.0936***	0.0699***	0.0665***	0.0632***	0.0651***	0.0671***	0.0691**	0.0712**
Financial leverage	-0.0001	-0.0041	-0.0001	-0.0001	-0.0041	-0.0037	-0.0046	-0.0082	-0.0090
Industrial concentration	0.07211**	0.8685**	0.0652**	0.0619**	0.0589**	0.0607**	0.0625**	0.0644**	0.0664***
Firm age	0.0227*	0.0314**	0.0208**	0.0303**	0.0298**	0.0301**	0.0204**	0.0307**	0.0310**
GFC effect	No	No	No	No	No	No	No	No	No
Year-fixed-effect	Included	Included	Included	Included	Included	Included	Included	Included	Included
Constant	39.56***	42.73***	40.81***	33.95***	36.68***	35.03***	29.14***	31.48***	30.07***
Wald chi-square (d.f.)	161.37***	142.29***	142.96***	138.52***	122.14***	122.71***	118.90***	104.8***	105.33***

Three different proxies of investment policy are used to identify the spillover impact; three separate panels are used. In each panel, three different models are regressed to avoid any estimation biases,
See appendix A for the definition of the variable.
ROA Is used as financial control factors
Diagnostic tests are also reported. ***, ** and * represent 1%, 5% and 10% respectively.

More, R&D spending is conditional on corporate strategic positions. For an in-depth view, we focused on managers' subject initiative's role in R&D spending. We used Porter's (1996) generic strategies and sorted firms into ones adopting a product-differentiation strategy and ones with a cost-leadership strategy. The dimension of firms' strategic strength is closely related to the intensity of R&D spending. The effectiveness of R&D spending is maximized when the firm's R&D spending is aligned with a firm's particular competitive advantage. The competitive edge depends on the strategy a firm adopts. In the product-differentiation strategy, a firm has uniqueness as a competitive edge, which must be backed up by continuous extensive R&D spending (Garner et al. 2002). They use R&D spending to distinguish themselves from rivals and repel technological spillover's adverse effects. In contrast, the cost leadership strategy has a different case. They rely on efficiency as the core competitive advantage by maintaining tight cost controls, which allow them to defeat competitors through aggressive pricing and exploiting economic scale. So these firms avoid R&D spending as excessive R&D spending disrupts the standard. We argue that CEOs in firms with a cost-leadership strategy are expected to reduce their R&D spending in response to CEOs' removal.

These viewpoints make our research regarding competitors' CEO responses to performance-induced removal more relevant. In line with Snow and Hambrick (1980), we used objective indicators to classify a firm's strategic positions. Contrasting to other methods that rely on individuals' views, this method considers and controls potential perceptual biases, thus allowing for large and heterogeneous samples. The product-differentiation strategy emphasizes high-profit margins, whereas the cost-leadership strategy increases asset turnover. Following these arguments, we used operating profit margin and asset turnover indicators to classify a firm's strategic positions. This aligns with earlier studies (Palepu and Healy 2008; Soliman 2008; Little et al. 2009). We used asset turnover to measure efficient inventory and working capital management. In contrast, the profit margin indicates pricing powers, like product innovation and brand-name recognition. We contend that a firm's strategic position has persisted over the years. A firm's R&D spending will also change in a strategy change (McGrath and Nerkar, 2004). The process leads us to two sub-samples (product-differentiation strategy and cost-leadership strategy). We used separate regression for each sub-sample, and the results are reported in Table 4 below. The firms are classified into a product differentiation strategy if it has higher operating profit margins and lower asset turnover. In contrast, a firm is ranked as a cost-leadership strategy if it has lower operating profit margins and asset turnover. As the study aims to investigate the response of CEOs for four consecutive years, a firm is included in a group if it does not change its strategy for five years after the CEOs' performance-induced removal. This limited our sample significantly (see Appendix C). We included only those firms that remained stable throughout our sample period (see Appendix C).

In panel a, the findings of product-differentiation strategy firms are reported. The results show a significant effect of the interaction term (Treatment x Post) on R&D spending (β=0.0395 and p<.10; refer to model 1 in panel A). In line with our argument, we find no reduction in R&D spending by the firms involved in product-differentiation strategy; instead, these firms continue to increase their R&D spending despite CEOs' performance-induced removal from their competitors. In addition, the year effect also remained insignificant up to year 4 (refer to model 2 in panel A). We also found a positive and statistically significant coefficient estimate of Institutional ownership, implying that institutional ownership improves firms' R&D spending (β=0.0662 and p<.05; refer to model 2 in panel A). However, the interaction terms are our variable of concern. We found that all interaction terms have positive and statistically significant coefficient estimates (p<.05; refer to model 2 in panel A). Likewise, product similarity also has a positive and statistically significant coefficient estimate (β=0.0490 and p<.10; refer to model 3 in panel A). The interaction terms between product similarity and year effects are also positive and statistically significant (p<.10; refer to model 3 in panel A).

In panel B, we found a negative coefficient estimate of the interaction term (Treatment x Post) on R&D spending (β=0.0444 and p<.05; refer to model 1 in panel B). Similarly, institutional investors and product similarity effects are negative and statistically significant (p<.05; refer to models 2 and 3 in panel B). Further, we found negative and statistically significant coefficient estimates of their interaction terms in year-2 and year-3 with R&D spending, and the effect dilutes in year 4. The results of both panels are consistent with our prediction. The CEOs in firms involved in product-differentiation strategies do not respond to CEOs' performance-induced removal in their competitor's firms. These firms often follow a smooth strategy of product development to gain a competitive edge in the market, and their strategic choice is not affected by any event happening to their peers (Palepu and Healy 2008). Over the years, these firms have used much R&D spending to ensure their competitive edge in the market. CEOs in these firms are unaffected by unpleasant events in their surroundings (Little et al. 2009). Further, the logic of - Product-differentiation strategy is supported by institutional investors, as institutional investors positively influence R&D spending, which aligns the interest of CEOs and significant stockholders. So, CEOs in these firms reduce R&D spending in response to a CEO's performance-induced removal from their peers.

In conclusion, reduction in R&D spending is conditioned by a firm's strategic position, and the intensity of R&D spending is steady with a specific firm's intentions and general plan. CEOs in product-differentiation strategies are motivated by the strategic position instead of the unpleasant event (CEOs' performance-induced removal) happening in their surroundings. On the other hand, the Cost-leadership strategy allows CEOs to respond to CEOs' performance-induced removal in their competitor's firms. The relation is moderated by institutional ownership and

product similarity. In these firms, cost efficiency is the benchmark of CEOs' performance evaluation; therefore, a positive response is rational in the event of CEOs' performance removal from their peers.

Table 4 Firm Strategy and CEO performance-induced removal

Dependent variable= R&D spending						
	Panel A- Product-differentiation strategy			Panel A- Cost-leadership strategy		
	Model-1	Model-2	Model-3	Model-1	Model-2	Model-3
Post	0.0268			-0. 0042		
Treatment x Post (H1)	0.0395*			-0.0444**		
Years-2-after (reference= 1 year after)		0.0163	0.0119		-0.0332**	-0.0412**
years-3-after (reference = 1 year after)		0.0155	0.0269		-0.0265*	-0.0407*
years-4-after (reference = 1 year after)		0.0132	0.0114		-0.0025	-0.0100
Institutional ownership		0.0662**			-0.0293**	
Institutional investors as moderator						
years-2 after x institutional ownership		0.0503**			-0.0266**	
years-3 after x institutional ownership		0.0488**			-0.0286*	
years-4 after x institutional ownership		0.0522**			-0.0144	
product similarity as moderator						
product similarity			0.0490*			-0.0788**
years-2 after x product-similarity			0.0310*			-0.0399*
years-3-after x product-similarity			0.0263*			-0.0280*
years-4-after x product-similarity			0.0326*			-0.0168
Control factors	Included	Included	Included	Included	Included	Included
GFC effect	No	No	No	No	No	No
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Constant	27.63***	29.84***	28.50***	23.71***	25.61***	24.46***
Wald chi-square (d.f.)	112.69***	99.36***	99.83***	96.73***	85.29***	85.69***

Panel A consist of all those firms that meet the criteria of Product-differentiation strategy. Similarly, panel B included firms that follow a Cost-leadership strategy. As the number of firms varies annually, we used unbalanced panel data in our empirical models for each panel. Three separate regressions are run to avoid any estimation bias in models. CEO-specific, board-specific, and other controls are included. The findings are suppressed for brevity purposes. There are 2892 years of observations for panel A. In panel B, there are 3131 firms' years of observations. We also control for GFC and year-fixed effect. Diagnostic tests are also reported. ***, ** and * represent 1%, 5% and 10% respectively. Firm R&D spending is our dependent variable.

6.3 Payout Policies and CEO Performance-induced Removal

We examined CEOs' responses to dividend distribution ratio-based payout policies in the third stage. Table 4 below includes a report of the findings. The concerning variable in model 1 is the interaction term treatment x post. Because the interaction term has a positive and statistically significant coefficient estimate (β=0.0686 and $p<.05$; see model 1 in Table 4), we discovered that businesses generally exhibit a considerable rise in dividend payout ratio in response to CEO performance-induced dismissal. Regarding the coefficient estimate, we discovered a 6.86% rise in dividend payout due to the CEO's dismissal due to poor performance. CEOs respond by increasing dividend distribution because investors value big dividend payouts since they give them assurance about the company's financial stability. Therefore, a company that raises dividends keeps investors intact, increasing demand for its shares. As a result, hypothesis 3 is strongly supported.

6.3.1 The moderating role of institutional investors (Hypothesis 4)

In model 2, the interaction terms are introduced to test the moderating role of institutional investors. For further clarity, the direct impact of institutional investors on dividend payout policy is also tested. We found institutional investors' positive and significant effect on dividend payout (β =0.0662 and $p<.10$; refer to model 2 in Table 4). As per the findings reported in model 2 (refer to table 4), the interaction terms between years-2 after and years-3 after and institutional investors are positive and statistically significant at 5% and 10%, respectively. The findings show that institutional investors positively moderate the CEOs' response in years-2 and years-3, but the moderating role dilutes in years-4. Institutional investors are commonly supposed to have a variety of non-tax motivations to invest in dividend payout. Indeed, some institutional investors may stop holding shares if uncertainly prevails. CEOs are required to distribute more dividends in response to CEO performance-induced removal. This attracts the investors to hold their stock which ultimately safeguards their position. The findings may be attributed to the collective influence of institutional investors on making CEOs accountable. Their association ensures transparency through corporate policies (Brav, Graham, Harvey, & Michaely, 2008; Krieger, Mauck, & Pruitt, 2021). Higher dividend is often perceived as better managerial skills; institutional investors moderate the relation regarding CEOs' responses. Our hypothesis 4 is strongly supported in the context of dividend payout. Institutional investors also have an essential role in monitoring CEO performance. Their significance adds extra pressure on CEOs because they are held accountable in firms with substantial institutional ownership. The trigger effect is more pronounced in firms where CEOs have more career concerns and accountability. Our findings lay more solid support for their role in the governance structure.

6.3.2 The moderating role of product similarity (Hypothesis 5)

In model 3, we found that product similarity has a positive and statistically significant impact on dividend payout (β =0.0644 and p<.10; refer to model 3 in Table 4). Further, the interaction terms years-2 after x product similarity and years-3 after x product similarity are positive and statistically significant at 1% and 5%, respectively. However, interaction term years-4 after x product similarity is positive but statistically insignificant. Compared to years-2 and years-3 of direct impacts, the interaction terms show higher coefficient estimates and levels of significance for both interaction terms, implying that product similarity strongly moderates the positive response in terms of coefficient estimates and level of significance.

Table 4 Overall Sample

Dependent variable= dividend payout			
	Model-1	**Model-2**	**Model-3**
Post	0.0268 [0.551]		
Treatment x Post (H1)	0.0686** [2.219]		
Institutional ownership		0.0662* [1.844]	
Years-2-after (references= 1 year-after)		0.0700* [1.692]	0.0419** [2.119]
Years-3-after (references= 1 year-after)		0.0452* [1.771]	0.0275* [1.908]
Years-4-after (references= 1 year-after)		0.004 [1.371]	0.0182 [0.759]
Institutional investors as moderator			
Years-2 after x institutional ownership		0.0997*** [4.099]	
Years-3 after x institutional ownership		0.0520** [2.072]	
Years-4 after x institutional ownership		0.007 [0.489]	
product similarity as moderator			
product similarity			0.0644** [2.461]
Years-2-after x product-similarity			0.1139*** [3.567]
Years-3-after x product-similarity			0.0710** [2.219]
Years-4-after x product-similarity			0.0020 [0.544]
Control factors	Included	Included	Included
GFC effect	No	No	No
Year fixed effect	Yes	Yes	Yes
Constant	30.07***	25.02***	27.03***

Wald chi-square (d.f.)	105.33***	102.06***	89.99***
Three different models are regressed to avoid any estimation biases, See Appendix A for variables. Diagnostic tests are also reported. ***, ** and * represent 1%, 5% and 10% respectively.			

6.4 CEOs Opportunistic Behavior

We also tested the treated firms' CEOs' opportunistic behavior, which could improve firm performance. Earnings management allows CEOs to enhance ROA. Estimating the difference-in-differences model addressed the issue. Earnings management is best proxied by discretionary accruals (Fang, Huang, & Karpoff, 2016). Performance pressure may lead CEOs of underperforming firms to engage in earnings management. For support, we created a treatment group using industrial-adjusted ROA means split criteria. A firm is under pressure if its ROA for the two pre-event years (t-1, t-2, and t-3) is below the industrial-adjusted ROA.

Propensity score matching estimates reduced overlooked variables that could immediately impact post and earnings management. We pair-match firm-year observations from the sample with lower and higher ROA firms within each year by industry (one-digit SIC code) and firm-specific matching criteria. We had 410 firms (205 treated and 205 matched) after controlling for firm size, age, financial leverage, growth, and board independence. The difference-in-differences model addressed the issue.

We used the following regression model for analysis.

$$Discretionary\ accruals_{i,t} = \beta_0 + \beta_1 treatment_{i,t} + \beta_2 post_{i,t} + \beta_3 treatment * post_{i,t} + \beta_4 control\ factors_{i,t} + \mathfrak{y}_c + \mathfrak{y}_i + \varepsilon_{i,t} - - - 5$$

The results are reported in Table 5. The results show a negative but statically insignificant impact of post on earnings management. The findings strongly reject the view that the CEOs in a firm with lower ROA opt for opportunistic behavior following exogenous shock (CEO performance-induced removal).

Table 5 CEOs' Opportunistic Behavior

Dependent variable= Discretionary accruals				
	Coefficient	**S.E**	**t-statistics**	**p-value**
Post	0.00290	0.00207	0.71250	0.75771
Treatment	0.00363	0.00358	0.98540	0.53545
Treatment X Post	0.00322	0.00421	1.30880	0.17652

Control variable	Included
Firm fixed effect	Included
GFC effect	No
Year fixed effect	Included
Industry fixed effect	Included
R-squared	0.2162
***, ** and * represent 1%, 5% and 10% respectively.	

6.5 Conclusion

We examined how CEO performance-induced removal affects competitors' CEO behavior in different firms' policies. We examined CEOs' financial policy responses after an exogenous shock (CEO performance-induced removal). Any S&P-1500 CEO performance-induced removal will likely influence other CEOs' financial policies. CEOs must be market-savvy and credible. A better response can demonstrate their ability and defend their position, making it more likely. Therefore, such an event is expected to divert CEOs' policies to short-term performance, possibly reducing investments in long-term projects that could generate shareholder rental (Clout, Ghannam, Loyeung, & Yang, 2021). Our R&D spending findings require careful explanation. CEO performance-induced removal does not affect competitors' CEO behavior in product-differentiation firms.

Competitor CEOs improve performance and dividend payout after peer CEO performance-induced removal. This study examines how a CEO's performance-induced removal affects competitors' financial policies rather than its causes. Institutional investors and product similarity strengthened the relationship between CEO performance-induced removal and outcome variables (ROA and dividend payout). These findings show that CEO performance-induced removal affects peer firms' performance and payout policy. We found no CEO opportunism to support our claim. However, stockholders benefit from performance improvement, and our findings support the optimistic view of CEO performance-induced removal in competitor firms.

We used three investment policy proxies—R&D expenses, capital expenditure, and networking capital—unlike Connelly et al. (2020). R&D, capital, and acquisition were composite risk-taking measures. All sample firms have annual capital and R&D expenses but rarely invest. Thus, a proxy based on these measures may be biased. Both measures' dimensions and determinants vary by firm type, composition, and industry. Thus, examining them separately in the current study will provide valuable insight. We found contradictory results for both measures, supporting our view. CEO performance-induced removal negatively affects capital expenditures, and the relationship is stronger when competitor CEOs are subject to product similarity and institutional investment. R&D and net working capital contradict our hypothesis. Competitor firms only reduce capital expenditure in response to CEO performance-induced removal, not R&D or net working capital.

CEO performance-induced removal has been shown to improve financial and non-financial performance (Benner & Tushman, 2003), retrieve market assurance (Ang, Lauterbach, & Vu, 2003), and hire a more skilled CEO (Zhang, 2008). Turnover concerns for focal firms have been the main focus. Even though the literature on CEO performance-induced removal is vast and well-established, with strong support from well-investigated antecedents and outcomes (Kaplan and Minton, 2012), few have investigated how it affects industry firms' behaviors. (Kwon & Yi, 2018) and (Connelly et al., 2020) have noted the spillover effect on peer firms. Our research shows that competitor CEOs boost firm performance and dividend payout and cut capital expenditure to protect jobs. R&D expenses and net working capital did not decrease. Our study also supports CEOs' non-opportunistic response to performance-induced removal, which aligns shareholders' interests with CEO decision-making. Institutional investors and product similarity moderated our argument to support it. Both moderators improve the relationship. Our research on institutional investors' "short-termism" adds to corporate governance literature. They boost ROA and dividend payout and lower capital expenditure.

Our study suggests future research. A similar study should be conducted in other economies to generalize the current research. Second, the takeover effect can be applied to CEO responses. Third, policy responses like a corporate compliance board will provide new insight.

References

Abatecola, G., & Cristofaro, M. (2019). Ingredients of sustainable CEO behavior: Theory and practice. *Sustainability, 11*(7), 1950.

Abrams, D., & Hogg, M. A. (1998). Prospects for research in group processes and intergroup relations. *Group Processes & Intergroup Relations, 1*(1), 7-20.

Adam Cobb, J. (2016). How firms shape income inequality: Stakeholder power, executive decision making, and the structuring of employment relationships. *Academy of Management Review, 41*(2), 324-348.

Aktas, N., Boone, A., Croci, E., & Signori, A. (2021). Reductions in CEO career horizons and corporate policies. *Journal of Corporate Finance, 66*, 101862.

Aktas, N., Croci, E., & Petmezas, D. (2015). Is working capital management value-enhancing? Evidence from firm performance and investments. *Journal of Corporate Finance, 30*, 98-113.

Ali, R., Rehman, R. U., Suleman, S., & Ntim, C. G. (2022). CEO attributes, investment decisions, and firm performance: New insights from upper echelons theory. Managerial and decision economics, 43(2), 398-417.

Ammann, M., Horsch, P., & Oesch, D. (2016). Competing with superstars. Management Science, 62(10), 2842-2858.

Anderson, C. J., & Pontusson, J. (2007). Workers, worries and welfare states: Social protection and job insecurity in 15 OECD countries. European Journal of Political Research, 46(2), 211-235.

Ang, J., Lauterbach, B., & Vu, J. (2003). Efficient labor and capital markets: Evidence from CEO appointments. Financial management, 27-52.

Bae, J., Kim, S.-J., & Oh, H. (2017). Taming polysemous signals: The role of marketing intensity on the relationship between financial leverage and firm performance. *Review of Financial Economics, 33*, 29-40.

Baghai, R. P., Servaes, H., & Tamayo, A. (2014). Have rating agencies become more conservative? Implications for capital structure and debt pricing. *The Journal of Finance, 69*(5), 1961-2005.

Baltagi, B. H., Bratberg, E., & Holmås, T. H. (2005). A panel data study of physicians' labor supply: the case of Norway. *Health Economics, 14*(10), 1035-1045.

Bamberger, P., & Fiegenbaum, A. (1996). The role of strategic reference points in explaining the nature and consequences of human resource strategy. *Academy of Management Review, 21*(4), 926-958.

Benner, M. J., & Tushman, M. L. (2003). Exploitation, exploration, and process management: The productivity dilemma revisited. *Academy of Management Review, 28*(2), 238-256.

Brav, A., Graham, J. R., Harvey, C. R., & Michaely, R. (2008). Managerial response to the May 2003 dividend tax cut. *Financial management, 37*(4), 611-624.

Burgstaller, J., & Wagner, E. (2015). How do family ownership and founder management affect capital structure decisions and adjustment of SMEs? Evidence from a bank-based economy. The Journal of Risk Finance, 16(1), 73-101.

Bushee, B. J. (2001). Do institutional investors prefer near-term earnings over long-run value? *Contemporary Accounting Research, 18*(2), 207-246.

Callen, J. L., & Fang, X. (2013). Institutional investor stability and crash risk: Monitoring versus short-termism? *Journal of Banking & Finance, 37*(8), 3047-3063.

Cella, C., Ellul, A., & Giannetti, M. (2013). Investors' horizons and the amplification of market shocks. *The Review of Financial Studies, 26*(7), 1607-1648.

Chang, S.-C., & Wang, C.-F. (2007). The effect of product diversification strategies on the relationship between international diversification and firm performance. *Journal of world business, 42*(1), 61-79.

Chen, X., Yi, N., Zhang, L., & Li, D. (2018). Does institutional pressure foster corporate green innovation? Evidence from China's top 100 companies. *Journal of Cleaner Production, 188*, 304-311.

Cheng, G. H. L., & Chan, D. K. S. (2008). Who suffers more from job insecurity? A meta-analytic review. *Applied Psychology, 57*(2), 272-303.

Chung, C. Y., Liu, C., Wang, K., & Zykaj, B. B. (2015). Institutional monitoring: Evidence from the F-score. *Journal of Business Finance & Accounting, 42*(7-8), 885-914.

Clout, V., Ghannam, S., Loyeung, A., & Yang, J. S. (2021). Eyes on the prize: CEO and director retirement preferences and acquisitions. *Accounting & Finance, 61*, 1345-1361.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of Management, 37*(1), 39-67.

Connelly, B. L., Li, Q., Shi, W., & Lee, K. B. (2020). CEO dismissal: Consequences for the strategic risk taking of competitor CEOs. *Strategic management journal, 41*(11), 2092-2125.

Cornelli, F., Kominek, Z., & Ljungqvist, A. (2013). Monitoring managers: Does it matter? *The Journal of Finance, 68*(2), 431-481.

Crossland, C., & Chen, G. (2013). Executive accountability around the world: Sources of cross-national variation in firm performance–CEO dismissal sensitivity. *Strategic Organization, 11*(1), 78-109.

Darouichi, A., Kunisch, S., Menz, M., & Cannella Jr, A. A. (2021). CEO tenure: An integrative review and pathways for future research. *Corporate Governance: An International Review*.

David, P., Hitt, M. A., & Gimeno, J. (2001). The influence of activism by institutional investors on R&D. *Academy of Management Journal, 44*(1), 144-157.

Davy, J. A., Kinicki, A. J., & Scheck, C. L. (1997). A test of job security's direct and mediated effects on withdrawal cognitions. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior, 18*(4), 323-349.

Debus, M. E., Unger, D., & König, C. J. (2019). Job insecurity and performance over time: the critical role of job insecurity duration. *Career Development International*.

Dejong, D., & Ling, Z. (2013). Managers: Their effects on accruals and firm policies. *Journal of Business Finance & Accounting, 40*(1-2), 82-114.

Delgado-García, J. B., & De La Fuente-Sabaté, J. M. (2010). How do CEO emotions matter? Impact of CEO affective traits on strategic and performance conformity in the Spanish banking industry. *Strategic management journal, 31*(5), 562-574.

Ellonen, N., & Nätti, J. (2015). Job insecurity and the unemployment rate: Micro-and macro-level predictors of perceived job insecurity among Finnish employees 1984–2008. *Economic and Industrial Democracy, 36*(1), 51-71.

Fang, V. W., Huang, A. H., & Karpoff, J. M. (2016). Short selling and earnings management: A controlled experiment. *The Journal of Finance, 71*(3), 1251-1294.

Fiegenbaum, A., Hart, S., & Schendel, D. (1996). Strategic reference point theory. *Strategic management journal, 17*(3), 219-235.

Fiegenbaum, A., & Thomas, H. (2004). Strategie risk and competitive advantage: an integrative perspective. European Management Review, 1(1), 84-95.

Fong, E. A. (2010). Relative CEO underpayment and CEO behaviour towards R&D spending. Journal of Management studies, 47(6), 1095-1122.

Francoeur, C., Lakhal, F., Gaaya, S., & Saad, I. B. (2021). How do powerful CEOs influence corporate environmental performance? Economic Modelling, 94, 121-129.

Gatignon, H., & Xuereb, J.-M. (1997). Strategic orientation of the firm and new product performance. Journal of marketing research, 34(1), 77-90.

Garner, J., Nam, J., & Ottoo, R. (2002). Determinants of corporate growth opportunities of emerging firms. Journal of Economics and Business, 54(1), 73–93.

Gentry, R. J., Harrison, J. S., Quigley, T. J., & Boivie, S. (2021). A database of CEO turnover and dismissal in S&P 1500 firms, 2000–2018. *Strategic management journal, 42*(5), 968-991.

Gerged, A. M., Salem, R., & Beddewela, E. (2023). How does transparency into global sustainability initiatives influence firm value? Insights from Anglo-American countries. Business Strategy and the Environment.

Gong, T.-J., Yu, C.-M. J., & Huang, K.-F. (2021). Strategic similarity and firm performance: Multiple replications of Deephouse (1999). *Strategic Organization, 19*(2), 207-236.

Haleblian, J., & Rajagopalan, N. (2006). A cognitive model of CEO dismissal: Understanding the influence of board perceptions, attributions and efficacy beliefs. *Journal of Management Studies, 43*(5), 1009-1026.

Hamori, M., & Koyuncu, B. (2015). Experience matters? The impact of prior CEO experience on firm performance. *Human Resource Management, 54*(1), 23-44.

Helwege, J., Intintoli, V. J., & Zhang, A. (2012). Voting with their feet or activism? Institutional investors' impact on CEO turnover. *Journal of Corporate Finance, 18*(1), 22-37.

Hemdan, D. A. M., Hasnan, S., & Ur Rehman, S. (2021). CEO power dynamics and firms' reported earnings quality in Egypt: Moderating role of corporate governance. *Pakistan Journal of Commerce and Social Sciences (PJCSS), 15*(1), 1-30.

Hewlin, P. F., Kim, S. S., & Song, Y. H. (2016). Creating facades of conformity in the face of job insecurity: A study of consequences and conditions. *Journal of Occupational and Organizational Psychology, 89*(3), 539-567.

Hiebl, M. R., Duller, C., & Neubauer, H. (2019). Enterprise risk management in family firms: evidence from Austria and Germany. The Journal of Risk Finance.

Hoberg, G., & Phillips, G. (2016). Text-based network industries and endogenous product differentiation. *Journal of Political Economy, 124*(5), 1423-1465.

Hsieh, K.-Y., Tsai, W., & Chen, M.-J. (2015). If they can do it, why not us? Competitors as reference points for justifying escalation of commitment. *Academy of Management Journal, 58*(1), 38-58.

Huang, Y.-H., Lee, J., McFadden, A. C., Murphy, L. A., Robertson, M. M., Cheung, J. H., & Zohar, D. (2016). Beyond safety outcomes: An investigation of the impact of safety climate on job satisfaction, employee engagement and turnover using social exchange theory as the theoretical framework. *Applied ergonomics, 55*, 248-257.

Hussainey, K., Mgbame, C. O., & Chijoke-Mgbame, A. M. (2011). Dividend policy and share price volatility: UK evidence. The Journal of risk finance.

Issah, M., & Antwi, S. (2017). Role of macroeconomic variables on firms' performance: Evidence from the U.K. *Cogent Economics & Finance, 5*(1), 1405581.

Ivanova, M. R. (2017). Institutional investors as stewards of the corporation: Exploring the challenges to the monitoring hypothesis. *Business Ethics: A European Review, 26*(2), 175-188.

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

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

Jiang, F., Shi, W., & Zheng, X. (2020). Board chairs and R&D investment: Evidence from Chinese family-controlled firms. *Journal of Business Research, 112*, 109-118.

Jiang, L., & Lavaysse, L. M. (2018). Cognitive and affective job insecurity: A meta-analysis and a primary study. *Journal of Management, 44*(6), 2307-2342.

Johnson, S. G., Schnatterly, K., & Hill, A. D. (2013). Board composition beyond independence: Social capital, human capital, and demographics. *Journal of Management, 39*(1), 232-262.

Karim, S., & Mitchell, W. (2000). Path-dependent and path-breaking change: reconfiguring business resources following acquisitions in the U.S. medical sector, 1978–1995. *Strategic management journal, 21*(10-11), 1061-1081.

Krieger, K., Mauck, N., & Pruitt, S. W. (2021). The impact of the COVID-19 pandemic on dividends. *Finance Research Letters, 42*, 101910.

Kwon, S. Y., & Yi, H. S. (2018). Do social ties between CEOs and engagement audit partners affect audit quality and audit fees? *Auditing: A Journal of Practice & Theory, 37*(2), 139-161.

Lee, C. L., & Wu, H. C. (2016). How do slack resources affect the relationship between R&D expenditures and firm performance? *R&D Management, 46*(S3), 958-978.

Li, J., Shi, W., Connelly, B., Yi, X., & Qin, X. (2020). CEO awards and financial misconduct. *Journal of Management*, 0149206320921438.

Li, J., Yi, X., Shi, W., & Zhang, D. (2018). *Do CSR Awards Motivate Award Winners' Competitors to Undertake CSR Activities?* Paper presented at the Academy of Management Proceedings.

Li, W., & Lu, X. (2016). Institutional interest, ownership type, and environmental capital expenditures: Evidence from the most polluting Chinese listed firms. *Journal of Business Ethics, 138*(3), 459-476.

Liang, K.-Y., & Zeger, S. L. (1986). Longitudinal data analysis using generalized linear models. *Biometrika, 73*(1), 13-22.

Luo, X., Zhang, R., Zhang, W., & Aspara, J. (2014). Do institutional investors pay attention to customer satisfaction and why? *Journal of the Academy of Marketing Science, 42*(2), 119-136.

Ma, H., Sun, D., Zeng, S., Lin, H., & Shi, J. J. (2021). The Effects of Megaproject Social Responsibility on Participating Organizations. *Project Management Journal*, 87569728211015868.

Malhotra, S., Morgan, H. M., & Zhu, P. (2020). Corporate governance and firms' acquisition behavior: The role of antitakeover provisions. *Journal of Business Research, 118*, 26-37.

Maner, J. K., Gailliot, M. T., Butz, D. A., & Peruche, B. M. (2007). Power, risk, and the status quo: Does power promote riskier or more conservative decision making? Personality and Social Psychology Bulletin, 33(4), 451-462.

Mansion, S. E., & Bausch, A. (2020). Intangible assets and SMEs' export behavior: a meta-analytical perspective. Small Business Economics, 55(3), 727-760.

McGrath, R., & Nerkar, A. (2004). Real options reasoning and a new look at the R&D investment strategies of pharmaceutical firms. Strategic Management Journal, 25(1), 1–21.

Mohamed, E. B., Souissi, M. N., Baccar, A., & Bouri, A. (2014). CEO's personal characteristics, ownership and investment cash flow sensitivity: Evidence from NYSE panel data firms. Journal of Economics Finance and Administrative Science, 19(37), 98-103.

Morgeson, F. P., Mitchell, T. R., & Liu, D. (2015). Event system theory: An event-oriented approach to the organizational sciences. Academy of Management Review, 40(4), 515-537.

Orij, R. P., Rehman, S., Khan, H., & Khan, F. (2021). Is CSR the new competitive environment for CEOs? The association between CEO turnover, corporate social responsibility and board gender diversity: Asian evidence. Corporate Social Responsibility and Environmental Management, 28(2), 731-747.

Peni, E. (2014). CEO and Chairperson characteristics and firm performance. Journal of Management & Governance, 18(1), 185-205.

Pruitt, S. W., & Wei, K. J. (1989). Institutional Ownership and Changes in the S&P 500. The Journal of Finance, 44(2), 509-514.

Porter, M. (1996). What is strategy? Harvard Business Review, 74(6), 61–78

Palepu, K., & Healy, P. (2008). Business Analysis and Valuation: Using Financial Statements (Fourth edition). Mason: Thomson Southwestern

Rivolta, M. L. (2018). Worth the wait? Delay in CEO succession after unplanned CEO departures. Journal of Corporate Finance, 49, 225-251.

Rozin, P., & Royzman, E. B. (2001). Negativity bias, negativity dominance, and contagion. Personality and social psychology review, 5(4), 296-320.

Salem, R., Ezeani, E., & Song, X. (2022). The relationship between religiosity and voluntary disclosure quality: a cross-country evidence from the banking sector. Review of Quantitative Finance and Accounting, 1-41.

*Sanders, W. G., & Hambrick, D. C. (2007). Swinging for the f*ences: The effects of CEO stock options on company risk taking and performance. *Academy of Management Journal, 50*(5), 1055-1078.

Schepker, D. J., Kim, Y., Patel, P. C., Thatcher, S. M., & Campion, M. C. (2017). CEO succession, strategic change, and post-succession performance: A meta-analysis. The Leadership Quarterly, 28(6), 701-720.

Selten, R. (1990). Bounded rationality. Journal of Institutional and Theoretical Economics (JITE)/Zeitschrift für die gesamte Staatswissenschaft, 146(4), 649-658.

Shapira, Z. (1995). Risk taking: A managerial perspective: Russell Sage Foundation.

Shi, W., Connelly, B. L., Mackey, J. D., & Gupta, A. (2019). Placing their bets: The influence of strategic investment on CEO pay-for-performance. Strategic management journal, 40(12), 2047-2077.

Shi, W., Zhang, Y., & Hoskisson, R. E. (2017). Ripple effects of CEO awards: Investigating the acquisition activities of superstar CEOs' competitors. Strategic management journal, 38(10), 2080-2102.

Shi, W., Zhang, Y., & Hoskisson, R. E. (2019). Examination of CEO–CFO social interaction through language style matching: Outcomes for the CFO and the organization. Academy of Management Journal, 62(2), 383-414.

Shoss, M. K. (2017). Job insecurity: An integrative review and agenda for future research. Journal of Management, 43(6), 1911-1939.

Snow, C., & Hambrick, D. (1980). Measuring organizational strategies: Some theoretical and methodological problems. Academy of Management Review, 5(4), 527–538.

Soliman, M. (2008). The use of Du Pont analysis by market participants. Accounting Review, 83(3), 823–853.

Spierdijk, L., & Zaouras, M. (2017). The Lerner index and revenue maximization. Applied Economics Letters, 24(15), 1075-1079.
Sun, R., & Zou, G. (2021). Political connection, CEO gender, and firm performance. *Journal of Corporate Finance, 71*, 101918.
Velu, C. (2016). Evolutionary or revolutionary business model innovation through coopetition? The role of dominance in network markets. *Industrial Marketing Management, 53*, 124-135.
Wang, G., DeGhetto, K., Ellen, B. P., & Lamont, B. T. (2019). Board antecedents of CEO duality and the moderating role of country-level managerial discretion: a meta-analytic investigation. *Journal of Management Studies, 56*(1), 172-202.
Westphal, J. D., Park, S. H., McDonald, M. L., & Hayward, M. L. (2012). Helping other CEOs avoid bad press: Social exchange and impression management support among CEOs in communications with journalists. *Administrative Science Quarterly, 57*(2), 217-268.
Westphal, J. D., & Zajac, E. J. (2013). A behavioral theory of corporate governance: Explicating the mechanisms of socially situated and socially constituted agency. *Academy of Management Annals, 7*(1), 607-661.
Wiersema, M. F. (1995). Executive succession as an antecedent to corporate restructuring. *Human Resource Management, 34*(1), 185-202.
Wiersema, M. F., & Zhang, Y. (2011). CEO dismissal: The role of investment analysts. *Strategic management journal, 32*(11), 1161-1182.
Wowak, A. J., Mannor, M. J., & Crossland, C. (2018). Do CEOs receive the pay they deserve? A new vantage on a familiar question. *Management Research: Journal of the Iberoamerican Academy of Management*.
Yi, X., Zhang, Y. A., & Windsor, D. (2020). You are great and I am great (too): Examining new CEOs' social influence behaviors during leadership transition. *Academy of Management Journal, 63*(5), 1508-1534.
Zhang, Y. (2008). Information asymmetry and the dismissal of newly appointed CEOs: An empirical investigation. *Strategic management journal, 29*(8), 859-872.

Appendix A Variable and their definition

Variable	**Definition**
ROA	$\text{Net income(t)//total assets}_{t-1}$
CAPITAL EXPENDITURE	$\text{Capital expenditures/total assets}_{t-1}$
R&D expenses	$\text{R\&D expenses/total assets}_{t-1}$
Net working capital	$[\text{Inventories(t)} + \text{receivables(t)} - \text{accounts payable(t)}]/\text{total assets}_{t-1}$
Dividend payout	$\text{Cash dividends(t)/total assets}_{t-1}$
Institutional ownership	Percentage of shares held by institutional investors
CEO duality (1/0)	Dummy variable that is equal to 1 if the CEO also chairs the otherwise 0
CEO tenure	Number of years serving as CEO in focal firm
CEO age	Age of CEO
CEO interlock	Dummy variable that equals one if a CEO serves as a director on another board; otherwise, 0
CEO ownership (%)	Percentage of shares held by CEO
CEO gender (1/0)	Dummy variable that equals 1 if a CEO is a female; otherwise, 0
Board Independence (%)	Percentage of independent directors
Gender diversity (%)	Percentage of female directors on corporate board

Board meeting frequency	Number of board meetings per year
Firm size	Log of total assets
Financial leverage	$(\text{Debt in current liabilities(t)} + \text{long} - \text{term debt})/\text{total assets}_{t-1}$
Industrial concentration	Herfindahl − Hirschman index (HHI)of firms′ sales revenues based on TNIC − 3 classification
Firm age	The difference between the year of incorporation and the year of observation

Appendix B Data Description

Manufacturing Sector	SIC Code	Number of firms	Removal
Apparel & Other Textile Products	23	45	41
Chemicals & Allied Products	28	41	37
Coal Mining	12	20	18
Electronic & Other Electric Equipment	36	31	28
Fabricated Metal Products	34	26	24
Food & Kindred Products	20	18	16
Furniture & Fixtures	25	27	24
Industrial Machinery & Equipment	35	32	29
Instruments & Related Products	38	31	28
Leather & Leather Products	31	25	23
Lumber & Wood Products	24	21	19
Metal Mining	10	17	15
Misc Manufacturing Industries	39	13	12
Nonmetallic Minerals Mining	14	15	14
Oil & Gas Extraction	13	19	17
Paper & Allied Products	26	16	14
Petroleum & Coal Products	29	17	15
Primary Metal Industries	33	22	20
Printing & Publishing	27	11	10
Rubber & Misc Plastics Products	30	22	20
Software Systems & Design	73	24	22
Stone, Clay & Glass Products	32	10	9
Textile Mill Products	22	26	24
Tobacco Products	21	16	14
Transportation Equipment	37	38	34
Wholesale Trade Durable Goods	50	11	10
Wholesale Trade Nondurable Goods	51	10	9
Total		604	546

Appendix C Classification of firms

		Cost-Leadership Strategy		Product-Differentiation Strategy		Indistinct-Strategy
Year	overall	Total	stable	Total	stable	
2000	604	154		172		278
2001	604	156	150	177	162	271
2002	604	156	151	174	162	274
2003	604	158	151	176	164	270
2004	604	157	152	182	164	265
2005	604	155	152	180	164	269
2006	604	158	153	182	164	264
2007	604	160	153	178	165	266
2008	604	158	153	184	165	262
2009	604	161	153	183	165	260
2010	604	158	153	184	166	262
2011	604	162	153	177	166	265
2012	604	163	153	184	166	257
2013	604	156	153	176	166	272
2014	604	158	153	183	166	263
2015	604	157	153	181	166	266
2016	604	160	153	188	166	256
2017	604	161	153	179	166	264
2018	604	162	153	183	166	259

The firms are grouped into three different panels yearly.
Stable firms are those that did not change their strategy.
If a firm does not meet the criteria, it is declared as indistinct.