

Placing their bets: The influence of strategic investment on CEO pay-for-performance

Wei Shi¹ | Brian L. Connnelly²  | Jeremy D. Mackey² |
 Abhinav Gupta³ 

¹Miami Business School, University of Miami, Coral Gables, Florida

²Harbert College of Business, Auburn University, Auburn, Alabama

³Foster School of Business, University of Washington, Seattle, Washington

Correspondence

Wei Shi, Miami Business School,
 University of Miami, 5250 University Dr,
 414J Jenkins Bldg, Coral Gables, FL 33146.
 Email: wshi@bus.miami.edu

Abstract

Research Summary: A number of studies examine the extent to which boards compensate CEOs for their firm's performance (i.e., pay-for-performance), but these studies typically do not incorporate what CEOs actually do to bring about those performance outcomes. We suggest that directors will make stronger internal attributions about firm performance when the CEO engages in high levels of corporate strategic investment. CEOs that invest in firm growth essentially "place their bets," so the pay-for-performance relationship is stronger for them than it is for CEOs who do not invest as much in firm growth. We also theorize and find that directors make internal attributions about firm performance more for prestigious, but not less prestigious, CEOs and more when the directors collectively exhibit conservative, but not liberal, political ideologies.

Managerial Summary: Shareholders and other stakeholders often demand that CEOs should be paid for performance. In other words, CEOs should be paid well when the company is performing well and paid less when the company is not performing well. We add an additional dimension: boards might also consider what CEOs actually do to bring about performance outcomes. Our findings suggest that when CEOs make heavy corporate investments, they essentially "place their bets." In this scenario, boards attribute performance to the CEO so that CEO compensation rises and falls with company performance. When CEOs

make fewer corporate investments, their compensation is not as strongly associated with company performance. This primary relationship is particularly true when CEOs have high social recognition or when the directors are collectively conservative.

KEY WORDS

attribution theory, boards of directors, CEO compensation, political ideology, strategic risk-taking

1 | INTRODUCTION

One of the most important functions of a board of directors is setting the CEO's compensation (Devers, Cannella, Reilly, & Yoder, 2007). To do this, directors take many factors into account. For example, they consider the size of the firm and industry in which it operates (Wade, O'Reilly, & Pollock, 2006). They also account for the CEO's tenure at the firm and assess stakeholders' opinions about the CEO's ability (Chen, Schenker, Frosto, & Henderson, 2004). Perhaps most importantly, boards look at the company's stock market performance when making executive compensation decisions, which is consistent with their fiduciary role to serve as representatives of the firm's shareholders (Finkelstein, Hambrick, & Cannella, 2009; Walsh & Seward, 1990).

Embedded into agency theory is a pay-for-performance perspective that envisions CEO compensation as an ex post means of settling up (Fama, 1980). This view puts forward the notion that the job of the board is to make compensation decisions that reward the CEO for improving shareholder value when the company is doing well and punish them, or at least reward them less, when the company is underperforming. In fact, shareholders are increasingly holding directors accountable for this responsibility. For example, Ralph Whitworth's Relational Investors forced Home Depot to remove four directors after accusing them of allowing executive compensation to become divorced from performance (Creswell & Barbaro, 2007; Walker, 2016). Working from this perspective, scholars have developed a rich body of work on the sensitivity of CEO pay to firm performance (Gerhart, Rynes, & Fulmer, 2009; Hall & Liebman, 1998). This work typically draws on agency arguments to defend the notion that CEO pay should reflect past performance (Aggarwal & Samwick, 2003; Leone, Wu, & Zimmerman, 2006).

There are, of course, a number of things a CEO can do to affect firm performance (Mackey, 2008). The CEO can implement a wide variety of corporate-level strategic actions that establish the direction of the firm and affect its scope and size (Ireland, Hoskisson, & Hitt, 2014). For instance, CEOs can quickly grow the firm via acquisitions and business expansion or take a more methodical approach to growth via internal product development. Management scholars call these kind of investments "risk-taking expenditures" (Kish-Gephart & Campbell, 2015; Zhu & Chen, 2015) or alternatively refer to them as "resource allocations" (Harrison, Hall, & Nargundkar, 1993) and/or "investment spending" (Sanders & Hambrick, 2007). Given that research and development (R&D), acquisitions, and capital expenditures all involve difficult-to-reverse capital outlays aimed at firm growth, we investigate them collectively as corporate-level strategic investments. We ask: when making attributions about firm performance (i.e., pay-for-performance), to what extent do boards account for the CEO's strategic investments?

To answer this question, we consider board decisions about CEO compensation among S&P 1500 firms over a period of 15 years. We argue that directors, as observers, are subject to the actor-observer bias, so they are likely to make internal attributions about a CEO's responsibility for firm performance, manifesting itself as a strong pay-for-performance relationship when the CEO makes a high level of corporate-level strategic investments. This is consistent with research on the romance of leadership, wherein external observers ascribe success and failure to leaders at the top (Meindl, Ehrlich, & Dukerich, 1985). When CEOs invest in high levels of growth, it provides directors with a target for their internal attributions, intensifying the pay-for-performance relationship. Moreover, we theorize about two scenarios where internal attributions are most likely to occur. One pertains to the CEO, where we suggest that our relationships under investigation will be strongest for prestigious CEOs (Geletkanycz, Boyd, & Finkelstein, 2001). Another pertains to the board, where we suggest the hypothesized effects are strongest for conservative boards (Gupta & Wowak, 2017). Empirical results support our hypotheses.

We believe our study holds the potential to contribute to the literature in several ways. Foremost, we extend work on CEO pay-for-performance, which has garnered considerable academic attention (Capezio, Shields, & O'Donnell, 2011; Gao & Li, 2015). We add a previously overlooked moderator to this literature that suggests the pay-for-performance relationship is strongest for CEOs that "place their bets" by investing in firm growth. We also contribute to corporate governance research more broadly insofar as we conceptualize the extent to which boards, as decision-making bodies (Forbes & Milliken, 1999), incorporate consideration of process (i.e., the investment decisions CEOs make) into decisions about whether CEOs will be rewarded for outcomes (i.e., performance). Specifically, we uncover a key potential bias that helps explain how board members approach the important task of monitoring CEOs.

2 | CONCEPTUAL DEVELOPMENT

2.1 | CEO pay-for-performance

Agency theory has been the foundational lens by which scholars understand and explain the role of the board of directors (Dalton, Hitt, Certo, & Dalton, 2007). In the agency framework, boards are important because they draw from formally bestowed corporate law to mitigate agency problems (Boivie, Bednar, Aguilera, & Andrus, 2016). One way they accomplish this is by controlling executive compensation (Devers et al., 2007; Gomez-Mejia & Wiseman, 1997). A body of research explores the extent to which boards do their job by rewarding CEOs for good performance and punishing (or at least not rewarding) them for poor performance (Baber, Kang, & Kumar, 1998; Boschen, Duru, Gordon, & Smith, 2003). In fact, external stakeholders such as shareholders and analysts often criticize boards when CEO pay becomes separated from firm performance (Bebchuk & Fried, 2005).

Less research, though, links CEO compensation to the strategic decisions that CEOs actually make. One exception is Bliss and Rosen (2001), who find that boards reward CEOs in the banking industry in accordance with the type of acquisitions in which they engage. Also, Coombs and Gilley (2005) find that CEO pay is affected by their stakeholder management activity. Despite these initial forays, Devers et al. (2007) observe that there is a vast amount of research examining how CEO pay is a function of performance outcomes (Capezio et al., 2011), but fewer studies consider the extent to which boards reward, or don't reward, CEOs for the process that brought about those outcomes.

2.2 | Corporate-level strategic investment

One way CEOs affect firm performance is by making corporate-level strategic investments (or just “strategic investments” for brevity), which refer to major investments designed to grow the firm (Hoskisson, Hitt, Johnson, & Grossman, 2002). Strategic investments have a few key characteristics in common (Connelly, Tihanyi, Certo, & Hitt, 2010). Most importantly, they require a significant commitment of the company's resources. They are also difficult to implement and reverse (Hambrick, Cho, & Chen, 1996). These features make it challenging for competitors to imitate strategic investments because there are diseconomies of time associated with doing so. Lastly, strategic investments typically have a long time horizon for payout (Miller & Chen, 1996). This is important because they can engender short-term constraints (e.g., capital or resources tied up in the investment, making the firm less able to dynamically respond to environmental change) with a view toward potential long-term benefits.

When investments fill these collective criteria, they constitute make-or-break opportunities for firms and executives who stake their reputations on them (Sanders & Hambrick, 2007). Investments that do not meet these criteria are less consequential. For instance, pricing and marketing actions are also aimed at firm growth, but they are more readily implemented and undone (and potentially imitated by competitors), so we do not bundle them among the firm's options for corporate-level strategic investments (Connelly et al., 2010; Devers, McNamara, Wiseman, & Arrfelt, 2008).

CEOs have a number of different strategic investment options at their disposal to bring about firm growth. We focus on three of the most dominant approaches (Zhu & Chen, 2015). One common way to grow the firm quickly is to engage in acquisitions, which CEOs might use to push the firm into new product or geographic markets, acquire new resources, or neutralize the competition (Haleblian, Devers, McNamara, Carpenter, & Davison, 2009). Other CEOs might choose to grow the firm more methodically via internal R&D (Shinkle & McCann, 2014), which takes time and money, but can provide the firm with new products and services they can use to compete. Lastly, some CEOs might pursue firm growth through business expansion and capital expenditures. This could include such strategic investments as capacity expansions, facility improvements, or new technologies that support existing operations (Henderson & Cool, 2003).

These three forms of corporate-level strategic investments collectively constitute ways that CEOs, in a public and observable way, might use to grow their firms. If these types of investments are successful, they reflect positively on the CEO. However, these investments require major commitments that cannot be undone, so if they are unsuccessful they reflect negatively on the CEO.

2.3 | Attribution theory

Attribution theory (Heider, 1958) offers the potential to add an important nuance to the agency theory perspective that describes the function of boards as overseers of CEO compensation. Attribution theory is founded on the premise that individuals act as naïve psychologists who make causal inferences about important outcomes they observe and experience (Heider, 1958; Weiner, 1985). Individuals use the locus of causality to determine whether they ascribe the cause of important outcomes to the internal characteristics of themselves and others, or external characteristics of the environment in which the outcome occurred. Further, individuals can make self-attributions that assess whether or not the attributor caused the outcome, or they can make social attributions that assess whether the cause of the outcome is internal or external to another individual being evaluated.

When making attributions, CEOs are likely to be susceptible to the self-serving bias, where they make self-attributions that ascribe positive outcomes to their own business acumen (i.e., internal

attributions) and negative outcomes to external factors beyond their control (i.e., external attributions). They may exhibit these patterns to maintain their positive self-evaluations and/or project themselves in a favorable manner (Hayward, Rindova, & Pollock, 2004). For example, Salancik and Meindl (1984) find that leaders of firms with unstable financial performance tend to manipulate their self-attributions for firm performance to manage impressions of control over firm performance. Stated simply, CEOs tend to assign good performance to themselves, while blaming external factors for poor performance.

Directors make similar attributions about their CEO's responsibility for firm performance (Clapham & Schwenk, 1991). As external observers, though, directors are also susceptible to the actor-observer bias, which is the tendency of observers to overly attribute success and failure to the focal actor. In agency theory, CEOs are "actors," whereas directors are "observers" tasked with monitoring the actors (Dalton et al., 2007). As such, we should expect that directors will have a tendency to make internal attributions about CEOs' influence over firm outcomes. This arises, in part, owing to information asymmetry wherein the observer does not have as much information as the actor about external factors that potentially affect outcomes or internal factors that may have contributed to those outcomes.

Consistent with attribution theory, research on the romance of leadership (Bligh, Kohles, & Pillai, 2011; Meindl & Ehrlich, 1987) corroborates the notion that directors, as observers, engage in this particular attributional behavior. This line of study shows that external observers tend to overestimate the ability CEOs have to control and determine firm outcomes (Connelly, Haynes, Tihanyi, Gamache, & Devers, 2016; Meindl et al., 1985). Some have described this as a "halo effect," where external observers have a tendency to give CEOs excess credit for organizational successes and excess blame for failures (Rosenzweig, 2007). The romance of leadership is, thus, a cognitive shortcut that "entails people's frequent tendency to attribute a company's performance to its leaders rather than consider the actual complex factors influencing [organizational outcomes]" (Hino & Aoki, 2013, p. 366). This cognitive heuristic enables boards to make socially constructed attributions about a CEO's leadership, potentially simplifying their role as monitors of the CEO's job performance.

Management researchers have used attribution theory and the romance of leadership to explain the attributions external observers make for organizational outcomes (Weber & Wiersema, 2017). For example, several studies have found that external observers, such as shareholders and information intermediaries, tend to make internal attributions about executives' responsibility for alleged instances of fraud (Gangloff, Connelly, & Shook, 2016; Gomulya & Boeker, 2014; Kang, 2008). Others focus on poor firm performance, finding that external observers favor internal attributions for failure, which often results in the dismissal of top executives (Hambrick & Quigley, 2014; He & Fang, 2016). Consistent with these ideas, Gibson and Schroeder (2003) find that, in the event of organizational failures, observers tend to blame upper-level, as opposed to lower-level, employees. Our ideas build on those of He and Fang (2016), who examine the influence of CEO overpayment on the negative relationship between firm performance and CEO dismissal. We build on their ideas by using CEO compensation as our dependent variable, allowing us to theorize about variation in positive and negative director attributions. In addition, we develop theory about what CEOs have done to warrant particular compensation decisions.

3 | HYPOTHESES

When directors make internal attributions about firm performance, the pay-for-performance relationship should be strong (Devers et al., 2007). That is, internal attributions suggest that directors believe

the CEO is largely responsible for the firm's success or failure. Consequently, they are likely to reward the CEO handsomely for good performance and reward them less when performance is down. There could be other aspects of the organization that contribute to the firm's success or failure, such as the contributions of mid-level management, the firm's culture, or the firm's unique combination of assets (Waldman, Ramirez, House, & Puranam, 2001), but the CEO is ultimately responsible for these things. Thus, directors are likely to reward them commensurate with the firm's performance outcomes.

Prior studies have investigated the sensitivity of CEO pay to firm performance in some depth (Tosi, Werner, Katz, & Gomez-Mejia, 2000), so we do not develop a hypothesis about this direct relationship. Most of this work examines CEO compensation using a logarithmic operationalization, so the direct relationship is actually log-linear. The direct effect we refer to, therefore, is one that increases at a decreasing rate. This should probably be expected because sometimes firms have extremely good performance as an outlier, but the pay-for-performance relationship cannot be expected to increase in a linear manner indefinitely. We begin our study with a moderating hypothesis about how the log-linear pay-for-performance relationship is contingent on corporate-level strategic investment. For convenience, we refer to a shorthand "direct effect" when describing how the moderator strengthens or weakens the pay-for-performance relationship, but it is important to keep in mind that the moderator is actually strengthening or weakening an effect that diminishes as the predictor (i.e., firm performance) increases.

3.1 | Director attributions when CEOs "place their bets"

In this study, we inquire about what will happen to the pay-for-performance relationship when CEOs make high levels of corporate-level strategic investments. The answer is not obvious. There is logic to the notion that the pay-for-performance relationship could *diminish* under high levels of strategic investment. For example, directors might resort to a pay-for-performance mentality when strategic investment is low because they do not have much else to go on other than the performance figures (Hoskisson & Hitt, 1988). When strategic investment is high, directors have more information about the CEO's activity and intent for the firm, so they can forego financial controls in favor of trying to evaluate the potential shrewdness of the investments (i.e., relying instead on strategic controls) (Baysinger, Kosnik, & Turk, 1991). Alternatively, it could be that strategic investment has *no effect* on the pay-for-performance relationship. This would be true if directors simply have a bias toward action. In this case, directors would always reward high levels of strategic investment more than low levels.

We, however, put forward several reasons to believe that corporate-level strategic investment will *positively moderate* the CEO pay-for-performance relationship, such that the relationship will be especially strong when a firm has a high level of strategic investment. One reason is that large capital outlays for strategic investments render internal attributions for success or failure as a psychologically attractive account of performance outcomes (Meindl, 1990). Directors face a daunting task in having to interpret the complexities of firm performance, which is especially challenging given the bounds of information available to them and time available to process that information (Khanna, Jones, & Boivie, 2014). When the CEO has made large strategic investments, though, it provides directors with a convenient reason for pinning success and failure on the firm's top leader. In today's competitive environments, where the forces underlying firm performance are often difficult to ascertain, directors may welcome the opportunity to reduce their decision-making to a cognitively simple solution by pointing to the CEO's strategic investments as the likely driver of performance.

Ascribing performance outcomes to a CEO's decisions about strategic investments also provides directors with feelings of human agency and control (Mitchell, Shepherd, & Sharfman, 2011). Doing so helps remove uncertainty about why certain performance outcomes occurred and gives directors a sense of comfort about their decisions (Bligh et al., 2011). As directors undergo the cognitive calculus of why firms performed the way they did, they may be likely to favor explanations that revolve around the actions of an individual over esoteric explanations that rely on factors such as luck, social forces, or resource interdependencies, which are less knowable (De Rond & Thietart, 2007). In the sensemaking literature, scholars describe how the diagnosticity (i.e., usefulness in coming to a conclusion) of an explanation for an outcome is a function of its clarity and relevance (Fiske & Taylor, 2008; Petkova, Rindova, & Gupta, 2013). Corporate-level strategic investments fulfill these two criteria. Directors have access to information about strategic investments, so they are clear. Directors also can mentally draw a straight line between investments and performance, so they are relevant. Large strategic investments, therefore, provide directors with a hook on which to hang their intuitions about the CEO, because this information is salient when making attributions about a CEO's responsibility for firm performance.

Another key driver of internal attributions when CEOs make high levels of strategic investments arises from the pressure directors are under from the firm's principals. Powerful shareholder coordinating bodies, such as Institutional Shareholder Services (ISS) and Glass Lewis, are on the lookout for directors who appear to be falling short with respect to their monitoring responsibilities (Choi, Fisch, & Kahan, 2008). Institutional investors have the ability, through the mechanisms of proxy voting and the threat of exit, to oust such directors (Arthaud-Day, Certo, Dalton, & Dalton, 2006). As such, directors are strongly motivated to ensure that shareholders, and other stakeholders, clearly understand the rationale behind their decisions. When CEOs engage in high levels of strategic investment, it provides directors with an observable account for the firm's successes and failures that outsiders can easily grasp (Fahlenbrach, 2009). Shareholders want directors to hold CEOs accountable for their actions, so they are primed to accept this explanation about firm performance. Large strategic investments make it easy for directors to play into their hand.

Lastly, it is important to recognize that directors are often top executives, and they may not be willing to take action that would frustrate or oppose the CEO (Westphal, 1999). Doing so could have adverse consequences for their own firm or their potential for movement toward the center of the interlocking directorate (Westphal & Bednar, 2005). When CEOs make large strategic investments, they make themselves vulnerable to either being praised for bold decision-making or criticized for making poor investments (Sanders & Hambrick, 2007). This actually removes a measure of accountability from directors because it affords them with a layer of protection for their compensation decisions. The CEO can hardly blame directors for restraining CEO compensation when they made strategic bets that were not successful. Similarly, CEOs would cast directors in a positive light when directors reward them for apparently successful strategic bets. These arguments suggest the following:

Hypothesis 1. *Corporate strategic investment moderates the CEO pay-for-performance relationship. The relationship is stronger for firms with high levels of strategic investment.*

3.2 | Moderating role of CEO prestige

Our main moderating relationship may depend on the type of CEO that is in place (Busenbark, Krause, Boivie, & Graffin, 2016). Prior research has found that a number of CEO characteristics can

affect director assessments of CEO performance (Wiersema & Zhang, 2011). In this study, we are concerned with CEO characteristics that might elicit directors' tendency to make internal attributions about a CEO's responsibility for firm performance. Thus, we turn our attention to characteristics that might affect directors' opinions about the actions the CEO has chosen to undertake such that directors increase their rewards and punishments.

One such characteristic that is likely to be relevant to director assessments is the CEO's prestige (Zhang & Wiersema, 2009). Scholars have looked at a variety of aspects of prestige, such as social status, education, and media attention (Boivie, Graffin, & Pollock, 2012). Others consider prestige in terms of "superstar" CEOs that have won media awards for their achievements (Shi, Zhang, & Hoskisson, 2017; Wade, Porac, Pollock, & Graffin, 2006), which is the approach we adopt in this study.¹ While measures vary, the idea is that people view prestigious CEOs differently from those with less prestige.

We elect to examine CEO prestige, as opposed to CEO power, because prestige is more pertinent to our attributional framework. Prestige is largely about external evaluation and recognition, whereas a critical source of power arises from firm characteristics and structures. Thus, CEO power is more likely than CEO prestige to be endogenous to the firm. Prestige may not necessarily translate into better performance, but when boards look at a set of outcomes they assess them differently for a CEO they believe to be prestigious. This is akin to research showing that scholars critiquing a set of research outcomes assess them differently depending on whether the person conducting the research has a degree from a prestigious university or a lesser institution (Crane, 1965; Judge, Cable, Colbert, & Rynes, 2007). Opinions about a person's body of work may be swayed by the assessor's pre-dispositions about the person's skills and abilities, which would be favorable for the most prestigious CEOs.

We expect the moderating relationship described in Hypothesis 1 will be especially strong for prestigious CEOs. When prestigious CEOs make appreciable strategic investments, the halo effect described earlier would be especially prevalent (Pathak, Hoskisson, & Johnson, 2014). Their prestige shines a spotlight on the strategic investments they make. For the most prestigious CEOs, if their strategic investments are successful and firm performance is strong, it will strengthen directors' internal attributions about the CEO's inherent ability (Holcomb, Holmes, & Connelly, 2009). The positive view of the CEO brought on by their award-winning behavior is borne out in strategic investments that have given rise to desirable firm performance. Directors will reward these CEOs commensurate with the apparently successful risks they have taken.

On the other hand, if the strategic investments of prestigious CEOs yield poor firm performance, then a discrepancy arises between actual and expected performance (Cool & Schendel, 1988). According to expectancy violation theory (Burgoon & Jones, 1976), directors would be likely to respond negatively to this gap between expectations and outcome. To lessen the cognitive dissonance associated with such a gap (Burgoon, 2009), directors would reduce CEO compensation. Doing so allows directors not to be concerned about the gap between what they expected of prestigious CEOs who make large strategic investments and what they actually saw in terms of firm performance, because they have accounted for this difference by rewarding the underperforming CEOs less lucrative than they would have otherwise (Staw, McKechnie, & Puffer, 1983). Thus, when prestigious

¹We mention our specific operationalization here because there could be slight differences in our theorizing depending on what we mean by, and how we measure, prestige. Our focus is on the external evaluations of others such that prestigious CEOs are "superstars." This has clear implications for director presuppositions about a CEO's skills and abilities. Other measures of prestige based on social connections could engender the same presuppositions, but their influence may be somewhat less certain.

CEOs make intensive strategic investments, they draw attention to their behavior (Tang, Crossan, & Rowe, 2011) such that the moderating processes described in Hypothesis 1 are especially pronounced.

The same is not true, though, of less prestigious CEOs. In this case, directors may still make internal attributions about their CEO's responsibility for firm performance, but there is less reason to connect those attributions with the CEO's strategic investments because everything these CEOs do is under less scrutiny. Less prestigious CEOs are not visible to outsiders, so they are not as clear of a target for internal performance attributions as their more prestigious counterparts. Similarly, directors may not feel the same expectancy violation gap for strategic investments with poor outcomes when they face a less prestigious CEO because expectations for this group of CEOs were probably not as high to begin with.

Taken together, therefore, we expect CEO prestige to moderate our main moderating hypothesis.

Hypothesis 2. *For highly prestigious CEOs, corporate strategic investment strongly moderates the CEO pay-for-performance relationship. This moderating relationship is weaker for less prestigious CEOs.*

3.3 | Moderating role of board political ideology

Political ideologies describe how people will vote, but they also affect decisions in various non-political domains (Chin, Hambrick, & Trevino, 2013). Studies support the notion that political ideologies act as an interpretive lens through which people view the world and have an enduring influence on behavior (Jost, 2006). Scholars rely on where people fall on a liberalism-conservatism spectrum to capture political ideology (Knight, 2006). Those with liberal ideologies favor social justice and egalitarianism, whereas those with conservative ideologies emphasize free markets and individualism (Tetlock, 2000). More importantly for our study, liberals and conservatives are “driven by fundamental differences in attributional tendencies. Conservatives tend to make internal attributions for outcomes when making evaluations ... Conversely, liberals are more willing to make external attributions” (Gupta & Wowak, 2017, p. 6).

We theorize that board political ideology should work together with corporate-level strategic investment so that the moderating relationship of Hypothesis 1 will be especially strong for conservative-leaning boards. When conservative boards evaluate CEOs that have made considerable strategic investments, it gives them an obvious reason to make internal attributions (Gupta, Briscoe, & Hambrick, 2018). Conservative boards are likely to tie strategic investments to firm performance because doing so fits their ideological convictions regarding individuals being responsible for outcomes (Chin & Semadeni, 2017; Christensen, Dhaliwal, Boivie, & Graffin, 2015). This may occur because conservative directors strongly believe that CEOs are personally responsible for successes and failures, so CEOs' big bets on strategic investments further reinforce their favored themes of personal accountability. Also, conservative directors are more likely to believe in the CEO's ability to influence the fate of the firm (Briscoe, Chin, & Hambrick, 2014), a belief that will be strengthened in the presence of large strategic investments that lend themselves to being identified as the cause of the firm's rising or declining fortunes. Thus, we expect that conservative boards will bolster the rewards for CEOs when they see strategic investments co-existing with good performance and reduce compensation for CEOs when strategic investments co-occur with lagging performance.

In contrast, liberal boards are likely to envision the CEO as being constrained by external factors and believe that performance outcomes are a product of the joint effort of many individuals working together. As liberal boards seek an explanation for firm performance that is congruent with their values, they will be less likely to draw the linkage between a CEO's strategic investments and performance, in favor of external or non-individual factors. This occurs because, as Tetlock et al. (2013, p. 24) observe, "liberals are likelier to see the effort-success links as easily severed by chance and exogenous shocks." Even when strategic investments co-occur with high performance, liberal-leaning boards may show reluctance to accept: (a) that the strategic investments are the primary drivers of firm performance; and (b) that the CEO single-handedly arrived at the decision to make those strategic investments. Gupta and Wowak (2017, p. 8) describe this mechanism, noting, "their more pronounced beliefs in external causes of performance should lead liberal boards to view CEOs as having a lower potential contribution." Such ideologically informed reluctance to make internal attributions will systematically lower liberal boards' desire to grant outsized rewards or punishments to their CEOs (Chin & Semadeni, 2017; Gupta et al., 2018). These arguments suggest that board political ideology moderates our main moderating hypothesis.

Hypothesis 3. *For conservative-leaning boards, corporate strategic investment strongly moderates the CEO pay-for-performance relationship. This moderating relationship is weaker for liberal-leaning boards.*

4 | METHODOLOGY

4.1 | Sample

We use a longitudinal data set from the years 2000–2014 to test our hypotheses. The sample we use in this study is all firms in ExecuComp, which covers firms listed in the Standard & Poor's (S&P) 1500 index, companies that were once part of the S&P 1500 index and are still trading, and a few other large, publicly traded companies. We obtain data on corporate strategic investments and firm financial data from Compustat, stock returns data from the Center for Research in Security Prices (CRSP), institutional ownership data from Thomson Reuter 13(F), corporate initiative action data from Capital IQ Key Development, and CEO and board data from BoardEx.

4.2 | Variables

4.2.1 | Dependent variable

The dependent variable in our study is total CEO compensation, which consists of salary, bonuses, the value of restricted stock granted, the value of options granted, long-term incentive payouts, and other compensation. We select this over pay-for-performance sensitivity, commonly referred to as "delta" (Core & Guay, 2002), because the latter is largely about stock price sensitivity, whereas we are more concerned with board decisions about CEO compensation. We, therefore, use the variable of "tdc1" from ExecuComp to measure our dependent variable. Following prior CEO compensation research (Carpenter, Sanders, & Gregersen, 2001; Core, Holthausen, & Larcker, 1999; Shi & Connelly, 2018), we use the natural logarithm of CEO total compensation to fit a log-linear model, which is often used to estimate an individual's earning power (Cohen & Soto, 2007). We adjust CEO compensation by the average of compensation levels of other CEOs

in the same industry (based on two-digit SIC codes) to partial out the differences in CEO compensation across industries (Fredrickson, Davis-Blake, & Sanders, 2010).

4.2.2 | Independent variables

For our independent variable, firm performance, we use *industry-adjusted stock returns*. We use a market-based measure instead of other performance indicators for two reasons. First, boards are sensitive to firms' performance in the stock market because a decline in stock price can increase external pressure (e.g., investor activism). Second, CEO compensation has a stronger connection to market performance than accounting performance (Murphy, 1999).

We adjust annual stock returns by industry averages because boards often engage in social comparison when evaluating the firm's performance (O'Reilly et al., 1988). We selected industry average because our theory describes how board members take into account CEO behavior when making attributions about the firm's performance figures that the CEO presents to the board. This is consistent with prior work on pay-for-performance and with attribution theory, because attributions are retrospective judgments of causes (Halebian & Rajagopalan, 2005). For this adjustment, we use the average stock returns for all public firms, excluding the focal firm, in the same two-digit SIC code industry. Thus, *industry-adjusted stock return* is the difference between a focal firm's annual stock returns and the equally weighted industry returns. As a robustness check, we examine the same relationships using a three-digit SIC code industry, and the results are similar.

4.2.3 | Moderators

Our primary moderator is corporate strategic investment intensity. This variable is the ratio of summatized R&D, acquisition, and capital expenditures to total sales revenues (we call it "intensity" because we scale it by firm size, measured as sales). Strategy scholars have used versions of this measure extensively in prior studies to capture a firm's corporate-level spending in pursuit of internal (R&D and capital expenditure) and external (acquisitions) growth (Beckman & Haunschild, 2002; Chatterjee & Hambrick, 2007; Sanders & Hambrick, 2007; Zhu & Chen, 2015). Around 45% of firm-year observations in our sample have missing R&D values. We follow prior research by coding the *missing R&D* data as zero and including a dummy variable equal to 1 for these firm years to account for potential bias arising from this coding procedure (Benner & Ranganathan, 2012; Chen, Hambrick, & Pollock, 2008). We adjust corporate strategic investment intensity by industry average (based on two-digit SIC codes) to partial out the influence of industry peers' investment decisions on focal firms (Gimeno, Hoskisson, Beal, & Wan, 2005). We do this because when a firm's investment activities deviate from industry norms, they become salient information for board members' attributions.

We also consider two additional moderators that can affect the role of corporate strategic investment in shaping the pay-for-performance relationship. The first is *CEO prestige*. We use awards as a proxy to determine the level of a CEO's prestige (Wade, Porac, et al., 2006). Major business magazines rank CEOs based on performance criteria that stakeholders accept as credible and legitimate. Winners of awards, which scholars refer to as CEO certification contests, experience a sharp increase in social prominence and status (Shi et al., 2017; Wade, Porac, et al., 2006). Therefore, winners of CEO certification contests have a higher level of prestige than CEOs who did not win.

Following existing research using this measure (Malmendier & Tate, 2008; Shi et al., 2017), we examine CEO certification contests conducted by the following business magazines and

organizations: "Fortune," "Ernst & Young," "Forbes," "Morningstar," "Business Week," "Financial World," "Chief Executive," "Industry Week," "Times," "Electronic Business," and "Harvard Business Review." We use the number of CEO certification contests that a CEO has won in a year to measure their level of prestige.

The second additional moderator is *board conservatism*. To evaluate board conservatism, we needed to ascertain the political ideologies of individual directors serving on the boards in our sample. Consistent with prior research (Chin et al., 2013; Christensen et al., 2015; Gupta & Wowak, 2017), we measure directors' political ideologies by examining their donations to the two major parties in the United States. We collect political donation data from the Federal Election Commission (FEC), which offers information on both the donation itself and the donor. We focus on directors' contributions to candidates for federal or state offices, their campaign finance committees, and political action committees.

We follow Gupta and Wowak (2017) to create an index of director conservatism based on several factors, as follows: (a) the ratio of the number of donations to the Republican Party to the total number of donations to both parties; (b) the ratio of dollar amount of donations to the Republican Party to total dollar amount of donations to both parties; (c) the ratio of the number of distinct years with donations to the Republican Party to the total number of years the director donated to either party; (d) the ratio of the number of distinct Republican recipients of donations to the total number of donation recipients from both parties. We standardize these four components and average them to measure each director's conservatism. We aggregate this to the board level by averaging the scores of all directors on the board.

4.2.4 | Control variables

We control for a number of firm characteristics. First, we control for firm size by using the natural log of total assets (*log assets*) because large firms tend to pay CEOs higher levels of compensation than small firms. We also control for the firm's accounting performance using return on equity (ROE), which is the ratio of operating income after depreciation to shareholders' equity, because accounting performance can influence CEO compensation. We control for *debt ratio*, which is the ratio of the summated long- and short-term debt to total market value, because firms with high debt ratios may be financially constrained and thus less able to pay CEOs high levels of compensation. We control for *the number of corporate actions* by counting the number of the following eight types of corporate initiatives that a firm has announced in a year: mergers and acquisitions, new product introductions, business expansions, strategic alliances, seeking to sell/divest business units, discontinued operations/downsizing, spin-offs/split-offs, and business reorganizations. We obtain data on corporate initiative activities from Capital IQ Key Development. We use the natural logarithm of this control variable to address skewness.

We include controls for external governance mechanisms. The first of these pertains to characteristics of the firm's ownership structure, because research suggests that powerful shareholders can influence CEO compensation (Hartzell & Starks, 2003). Bushee (2001) uses factor and cluster analysis to classify institutional investors based on portfolio turnover, momentum trading (i.e., earnings sensitivity), and portfolio diversification (i.e., breadth). Dedicated institutional investors are low on all three factors and transient institutional investors are high on all three factors. Quasi-indexing institutional investors reside somewhere between dedicated and transient investors along these three factors. We focus on ownership by dedicated and transient institutional investors because dedicated investors might use their influence to rein in CEO compensation and transient investors could allow

for more lenient compensation policies (Connelly, Tihanyi, Ketchen, Carnes, & Ferrier, 2017). We calculate the percentage of all firm shares held by dedicated and transient investors to measure *dedicated institutional ownership* and *transient institutional ownership*. We control for *analyst coverage*, which is measured as the number of financial analysts covering a firm in a year, because external monitoring by financial analysts can affect CEO compensation (Chen, Harford, & Lin, 2015).

In addition, we include some internal governance controls. Large boards are associated with less effective governance (Core et al., 1999), so we control for *board size* using the number of directors. In addition, we control for *board centrality*, as directors that are central in the interlocking directorate could provide effective governance because of their unique access to information. We measure board centrality using the average number of non-executive directors' board directorships in publicly traded firms (Shi, Connelly, & Cirik, 2018). We follow prior research to create a *CEO power* index, which includes the following indicators: CEO duality (binary), CEO tenure (years), CEO equity ownership (ratio of shares owned to total shares), board independence (ratio of outside to total directors, reverse coded), and CEO-appointed directors (ratio of directors appointed by CEO total directors). These capture different sources of CEO power (Finkelstein & Hambrick, 1990; Haynes & Hillman, 2010; Westphal & Zajac, 1995; Zhu & Chen, 2015). We standardize these five variables and sum them to measure CEO power.

Lastly, we control for *year fixed-effects*. In Table 1, we report descriptive statistics for all of the variables in our study.

4.3 | Models

The data for this study are in panel data format. Our theory is concerned with the extent to which within-firm changes in performance and corporate strategic investments affect changes in CEO compensation. Therefore, we use CEO-firm fixed-effects regression analyses to test our hypotheses. A key advantage of firm fixed-effects models is that they circumvent the problem of correlation between an independent variable and group-level disturbance. As a result, this methodological approach has "become the most popular technique for analyzing panel data in strategy research" (Certo, Withers, & Semadeni, 2017, p. 1542). CEO-firm fixed-effects regression analyses control for potential biases from time-invariant CEO-firm heterogeneity by inherently including a dummy variable for each CEO-firm pair. We use CEO-firm fixed-effects instead of firm fixed-effects or CEO fixed-effects because those approaches only address bias from time-invariant firm or CEO heterogeneity, respectively.

A few other methodological issues are of note. Given our chosen analytical technique, we do not include CEO demographic variables (e.g., gender, educational background) as controls because they are time-invariant for each CEO-firm pair. Our analyses predict how firm performance and corporate strategic investment intensity jointly affect CEO compensation, so we measure CEO compensation at time $t + 1$ and all other variables at time t . Kalnins (2018) notes that when controls share a common factor with a variable of theoretical interest and the correlations between controls and hypothesized variables are at the moderate level (e.g., 0.3), there could be concerns of multicollinearity. For the main effect regression, the highest correlation between the interaction term and control variables is 0.25. For the moderating effect of CEO prestige, the highest correlation between the three-way interaction term and control variables is 0.05. Therefore, there is limited evidence of multi-collinearity from these correlations. However, given that board conservatism is relatively stable for a given firm (the average coefficient of variation is 0.08), this results in high correlations between the three-way interaction term and control variables (in unreported results, we find the highest correlation is greater

TABLE 1 Descriptive statistics

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1 Industry adjusted CEO compensation (log)	0.03	0.94	1.00																			
2 Industry adjusted strategic investment (ASI)	0.04	0.15	-0.01	1.00																		
3 Industry adjusted stock returns (ASR)	0.04	0.42	0.04	-0.04	1.00																	
4 CEO prestige	0.05	0.27	0.12	0.00	-0.02	1.00																
5 Board conservatism	0.52	0.12	0.05	0.01	-0.02	-0.03	1.00															
6 ASI × ASR	0.00	0.07	0.03	-0.02	0.25	-0.01	0.00	1.00														
7 ASI × CEO prestige	0.00	0.04	0.05	0.19	-0.01	0.24	-0.01	-0.04	1.00													
8 ASR × CEO prestige	0.00	0.11	0.00	-0.01	0.17	0.00	-0.01	0.05	-0.04	1.00												
9 ASR × ASI × CEO prestige	0.00	0.02	0.01	-0.04	0.05	-0.03	0.00	0.16	-0.27	0.35	1.00											
10 Log assets	7.70	1.71	0.57	-0.08	-0.02	0.17	-0.01	0.00	0.02	-0.01	-0.01	1.00										
11 ROE	0.21	0.36	0.14	-0.11	0.03	0.06	0.02	0.00	-0.01	0.01	0.01	0.15	1.00									
12 Debt ratio	0.54	1.21	0.02	-0.04	-0.03	0.02	-0.06	0.00	-0.01	-0.01	0.00	0.25	0.03	1.00								
13 Number of corporate actions	1.23	1.05	0.31	0.15	-0.10	0.12	0.02	-0.02	0.07	-0.02	-0.01	0.27	-0.01	-0.06	1.00							
14 Missing R&D	0.45	0.50	-0.03	-0.12	0.05	-0.02	-0.05	0.03	-0.02	0.02	0.01	0.25	0.05	0.19	-0.28	1.00						
15 Dedicated institutional ownership	0.04	0.07	0.06	-0.01	0.00	0.00	0.04	-0.01	0.00	0.01	0.01	0.04	0.01	0.01	-0.01	-0.02	1.00					
16 Transient institutional ownership	0.16	0.12	0.08	0.02	0.03	-0.02	0.10	0.00	0.00	0.00	0.00	-0.06	-0.04	-0.09	0.18	1.00						

TABLE 1 (Continued)

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
17 Analyst coverage	9.88	7.77	0.46	0.05	-0.08	0.15	0.02	-0.01	0.07	-0.02	-0.02	0.54	0.10	-0.05	0.38	-0.05	0.07	0.16	1.00			
18 CEO p power	1.72	2.87	-0.08	0.00	-0.01	0.05	0.01	0.00	0.02	0.00	-0.01	0.01	-0.01	-0.04	0.03	0.02	0.02	-0.01	1.00			
19 Board size	11.64	3.50	0.42	-0.08	-0.01	0.11	0.02	0.00	0.01	0.00	0.00	0.03	0.00	-0.01	0.03	-0.02	0.02	0.05	0.04	1.00		
20 Board centrality	4.93	2.24	0.09	0.05	-0.02	0.03	-0.02	-0.01	0.02	-0.02	-0.01	0.03	0.00	-0.01	0.02	0.01	0.01	-0.04	-0.01	1.00		

Note: Absolute value of correlations greater than 0.02 statistically significant at $p < .05$ level.

TABLE 2 Corporate strategic investment and CEO compensation

Variable	Model 1	Model 2	Model 3	Model 4	Model 5		Model 6	
					High	Low	High	Low
Industry-adjusted strategic investment × industry-adjusted stock returns		0.129 [.046]	0.130 [.046]	0.098 [.121]	0.232 [.008]	-0.006 [.936]		
Industry-adjusted strategic investment × industry-adjusted stock returns × CEO prestige					0.796 [.012]			
Industry-adjusted strategic investment	-0.045 [.297]	-0.047 [.279]	-0.047 [.275]	-0.045 [.303]	-0.085 [.135]	0.014 [.824]		
Industry-adjusted stock returns	0.112 [.000]	0.106 [.000]	0.106 [.000]	0.109 [.000]	0.100 [.000]	0.102 [.000]		
CEO prestige			0.054 [.107]	0.051 [.158]				
Board conservatism			0.082 [.505]					
Industry-adjusted strategic investment × CEO prestige				0.089 [.523]				
Industry-adjusted stock returns × CEO prestige					-0.082 [.376]			
Log assets	0.209 [.000]	0.210 [.000]	0.209 [.000]	0.209 [.000]	0.227 [.000]	0.165 [.000]		
ROE	0.000 [.996]	0.000 [.981]	-0.001 [.969]	-0.001 [.963]	0.025 [.354]	-0.028 [.208]		
Debt ratio	-0.042 [.000]	-0.042 [.000]	-0.042 [.000]	-0.042 [.000]	-0.051 [.000]	-0.030 [.004]		
Number of corporate actions	-0.016 [.091]	-0.017 [.087]	-0.017 [.084]	-0.017 [.081]	0.001 [.957]	-0.038 [.010]		
Missing R&D	-0.054 [.237]	-0.054 [.237]	-0.053 [.248]	-0.052 [.262]	-0.008 [.902]	-0.050 [.518]		
Dedicated institutional ownership	0.082 [.459]	0.085 [.444]	0.088 [.431]	0.086 [.441]	0.037 [.814]	0.152 [.353]		
Transient institutional ownership	0.453 [.000]	0.451 [.000]	0.454 [.000]	0.453 [.000]	0.487 [.000]	0.441 [.000]		
Analyst coverage	-0.001 [.583]	-0.001 [.584]	-0.001 [.563]	-0.001 [.573]	-0.001 [.617]	-0.003 [.374]		
CEO power	0.002 [.729]	0.002 [.736]	0.002 [.764]	0.002 [.769]	0.008 [.363]	0.002 [.824]		
Board size	-0.008 [.023]	-0.008 [.023]	-0.008 [.025]	-0.008 [.027]	-0.008 [.132]	-0.006 [.292]		
Board centrality	-0.006 [.304]	-0.006 [.301]	-0.006 [.304]	-0.006 [.302]	-0.009 [.308]	-0.011 [.231]		
Constant	-1.489 [.000]	-1.494 [.000]	-1.532 [.000]	-1.493 [.000]	-1.593 [.000]	-1.191 [.000]		
Observations	18,999	18,999	18,999	18,999	9,501	9,498		
CEO-firm FE	Yes	Yes	Yes	Yes	Yes	Yes		
Year FE	Yes	Yes	Yes	Yes	Yes	Yes		
Within <i>R</i> -squared	0.0425	0.0428	0.0433	0.0441	0.0455	0.0358		

TABLE 2 (Continued)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
					High	Low
Between <i>R</i> -squared	0.405	0.406	0.406	0.405	0.422	0.310
Overall <i>R</i> -squared	0.337	0.337	0.338	0.337	0.373	0.257
Log-likelihood	-10,355	-10,351	-10,345	-10,336	-4,615	-4,978

Note. *p*-values reported in brackets. Standard errors clustered by CEO-firm pairs. Two-tailed tests.

than 0.6) and gives rise to multicollinearity concerns. Therefore, we test the moderating effect of board conservatism by conducting subgroup analyses (based on the median value of board conservatism). Stock returns, strategic investment, and CEO compensation are all industry-adjusted, but we drop the “industry-adjusted” label for parsimony in reporting results.

5 | RESULTS

In Table 2, we present the results of our CEO-firm fixed-effects regression analyses. In Model 1, we examine the influence of just the control variables and main effects of strategic investment and stock returns as predictors of CEO compensation (logged), without the interaction term. The main effect of stock returns is positive ($\beta = 0.112$, $p < .01$), as should be expected because CEOs receive higher compensation when the firm's stock is performing well, but the strength of this relationship diminishes as performance becomes very high. The main effect of strategic investment on CEO compensation is not significant ($\beta = -0.045$, $p = .297$), which is reflective of some investments being better than others for the firm's bottom line. Firm size (i.e., log assets) and transient institutional ownership are positively associated with CEO compensation and debt ratio is negatively associated with CEO compensation, all of which are in the expected direction (Connelly et al., 2016).

In Model 2, we test our first hypothesis. In this model, the coefficient estimate of the strategic investment \times stock returns interaction is positive ($\beta = 0.129$, $p = .046$), supporting Hypothesis 1. We calculate the magnitude of the interaction effect when strategic investment and stock returns take different values. Consistent with Wiersema and Bantel (1992), we define high (low) values of strategic investment and stock returns as mean plus (minus) one standard deviation. We follow the procedure suggested by Wiersema and Bowen (2009) to calculate marginal effects of industry-adjusted stock returns on CEO compensation when strategic investment takes different values. We present these results in Table 3. As shown in Table 3, the marginal effect of stock returns is stronger for high levels of strategic investment ($b = 0.129$, $z = 9.06$) than for low levels of strategic investment ($b = 0.090$, $z = 5.47$).

TABLE 3 Marginal effect of industry-adjusted returns on CEO compensation

Adjusted strategic investment	Marginal effect	Z-statistic
Low	0.090	5.47
High	0.129	9.06

Note. Low adjusted strategic investment refers to mean minus one standard deviation and high adjusted strategic investment refers to mean plus one standard deviation.

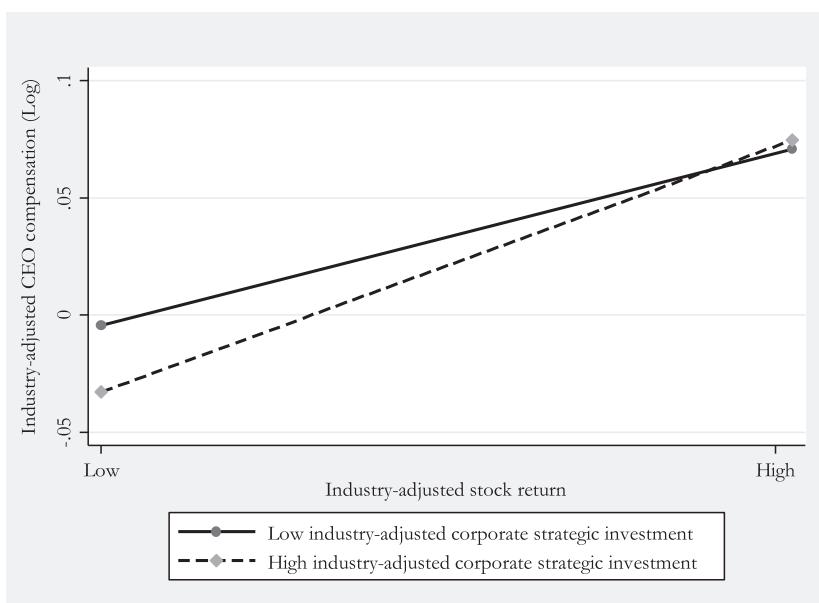


FIGURE 1 Interaction effect of corporate strategic investment and performance

For low strategic investment, CEO compensation increases by 7.7% when stock returns increase from its low to high value. For high strategic investment, CEO compensation increases by 11% for the same increase in stock returns. Thus, the pay-for-performance relationship is greater when CEOs make high levels of strategic investments. These values represent increases around the mean (plus or minus one standard deviation), but the increases would be smaller at higher levels of stock returns owing to the log-linear nature of the main pay-for-performance relationship.

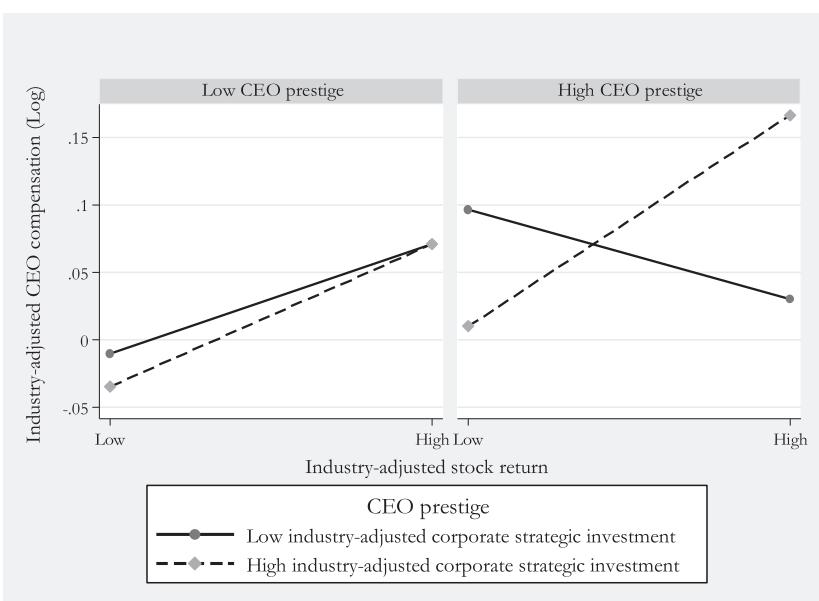


FIGURE 2 Moderating effect of CEO prestige

TABLE 4 Marginal effect of industry-adjusted stock returns on CEO compensation for different CEO prestige

Industry-adjusted strategic investment	CEO prestige	Marginal effect	Z-statistic
Low	Low	0.098	6.51
High	Low	0.127	8.98
Low	High	-0.079	-0.63
High	High	0.189	3.24

Note. Low industry-adjusted strategic investment refers to mean minus one standard deviation and high industry-adjusted strategic investment refers to mean plus one standard deviation. Low CEO prestige takes the value of 0 and high CEO prestige takes the value of 1.

In Figure 1, we show how the relationship between pay and performance is contingent on the CEO's strategic investment activity. This graph shows that when CEOs place their bets in the form of high levels of strategic investments, directors reward them more for high firm performance and penalize them more for poor firm performance.

In Model 3, we control for CEO prestige and board conservatism. The coefficient estimate of the interaction between strategic investment and stock returns from our first hypothesis is still positive ($\beta = 0.130, p = .046$), consistent with Hypothesis 1. Hypothesis 2 predicts that CEO prestige will further moderate the interaction described in Hypothesis 1, such that the relationship is stronger when CEOs have high prestige. In Model 4, the coefficient estimate of strategic investment \times stock returns \times CEO prestige is positive ($\beta = 0.796, p = .012$).

We calculate marginal effects of stock returns on CEO compensation when strategic investment and CEO prestige take different values (low prestige is "0" and high is "1"), presenting results in Table 4. The marginal effect of stock returns on CEO compensation is stronger when strategic investment is high and CEO prestige is low ($b = 0.127, z = 8.98$) than when strategic investment is low and CEO prestige is low ($b = 0.098, z = 6.51$). The marginal effect of stock returns on CEO compensation is 0.189 when strategic investment is high and CEO prestige is high ($z = 3.24$). However, the marginal effect is not statistically significant ($z = -0.63$) when strategic investment is low and CEO prestige is high.

To gain a better understanding of the moderating effect of CEO prestige, we graph the three-way interaction in Figure 2. For the high prestige scenario, when strategic investment is high, CEO compensation increases by 14% when stock returns increase from its low to high value. However, when strategic investment is low, there is no such increase in CEO compensation (actually a slight decrease) when stock returns increase from its low to high value. Figure 2 provides support for Hypothesis 2.

Hypothesis 3 proposes that board conservatism will also moderate the interaction described in Hypothesis 1, such that the relationship is stronger when board conservatism is high than when it is

TABLE 5 Marginal effect of industry-adjusted returns on CEO compensation for high board conservatism

Adjusted strategic investment	Board conservatism	Marginal effect	Z-statistic
Low	High	0.073	3.43
High	High	0.142	7.34

Note. Low adjusted strategic investment refers to mean minus one standard deviation of its respective value and high adjusted strategic investment refers to mean plus one standard deviation. We use the median value of board conservatism to define high board conservatism.

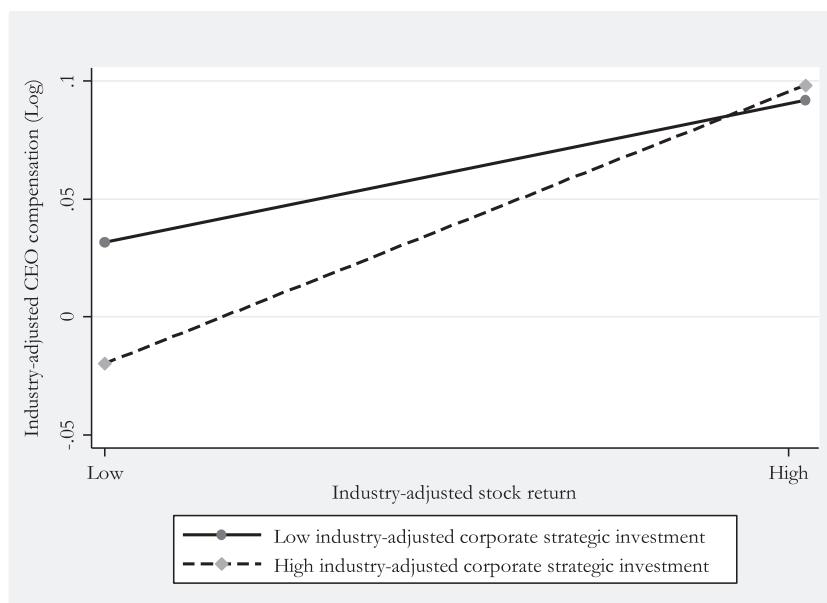


FIGURE 3 Interaction effect for high board conservatism

low. As noted, due to multicollinearity concerns, we conduct subgroup analyses based on the median value of board conservatism to test Hypothesis 3. In Model 5 of Table 2 (high board conservatism), the coefficient estimate of strategic investment \times stock returns is positive ($\beta = 0.232, p = .008$). In Model 6 of Table 2 (low board conservatism), the estimate of strategic investment \times stock returns is negative ($\beta = -0.006, p = .936$). A two-sample unpaired Z test shows that the two coefficient estimates are statistically different from each other ($p < .01$). In unreported results, we also investigate the moderating effect of board conservatism through including interaction terms. The coefficient estimate of strategic investment \times stock returns \times board conservatism is positive ($\beta = 0.708, p = .047$).

We calculate the marginal effects of stock returns on CEO compensation when strategic investment take different values for the subgroup of high board conservatism, presenting results in Table 5. The marginal effect of stock returns on CEO compensation is higher when strategic investment is high and board conservatism is high ($b = 0.142, z = 7.34$) than when strategic investment is low and board conservatism is high ($b = 0.073, z = 3.43$).

In Figure 3, we show the role of strategic investment in shaping the relationship between pay and performance when board conservatism is high. Comparing Figure 3 with Figure 1, we observe that the slope of the dotted line is steeper in Figure 3 than Figure 1 (high strategic investment) and the slope of the solid line is flatter in Figure 3 than Figure 1 (low strategic investment), indicating that the role of strategic investment in shaping the pay-for-performance relationship is stronger in the presence of high board conservatism. Thus, Figure 3 is consistent with the prediction of Hypothesis 3.

5.1 | Supplementary analyses

5.1.1 | Propensity score weighted regressions

To mitigate concerns about endogeneity, we conduct additional analyses using the inverse-probability-of-treatment-weighted (IPTW) methodology, which is a two-stage selection-on-observables

TABLE 6 Propensity score weighted regression results

Variable	Model 1	Model 2	Model 3		Model 4	
			High	Low	High	Low
Industry adjusted strategic investment \times industry adjusted stock returns	0.128 [.049]	0.100 [.126]	0.240 [.012]	-0.031 [.721]		
Industry adjusted strategic investment \times industry adjusted stock returns \times CEO prestige		0.848 [.012]				
Industry adjusted strategic investment	-0.031 [.452]	-0.033 [.421]	-0.068 [.251]	0.034 [.571]		
Industry adjusted stock returns	0.108 [.000]	0.110 [.000]	0.095 [.000]	0.111 [.000]		
CEO prestige		0.040 [.121]				
Industry adjusted strategic investment \times CEO prestige		0.109 [.343]				
Industry adjusted stock returns \times CEO prestige		-0.078 [.286]				
Log assets	0.195 [.000]	0.195 [.000]	0.206 [.000]	0.164 [.000]		
ROE	0.001 [.948]	0.000 [.991]	0.011 [.674]	-0.018 [.435]		
Debt ratio	-0.032 [.000]	-0.032 [.000]	-0.044 [.000]	-0.021 [.032]		
Number of corporate actions	-0.019 [.018]	-0.019 [.016]	-0.002 [.833]	-0.036 [.003]		
Missing R&D	-0.050 [.235]	-0.049 [.250]	-0.013 [.839]	-0.043 [.496]		
Dedicated institutional ownership	0.056 [.589]	0.057 [.579]	0.023 [.877]	0.149 [.319]		
Transient institutional ownership	0.427 [.000]	0.428 [.000]	0.462 [.000]	0.403 [.000]		
Analyst coverage	0.001 [.714]	0.001 [.751]	-0.000 [.998]	-0.000 [.896]		
CEO power	0.005 [.391]	0.004 [.420]	0.011 [.139]	0.006 [.506]		
Board size	-0.009 [.007]	-0.008 [.008]	-0.009 [.051]	-0.006 [.204]		
Board centrality	-0.011 [.055]	-0.011 [.055]	-0.013 [.133]	-0.019 [.041]		
Constant	-1.408 [.000]	-1.407 [.000]	-1.425 [.000]	-1.240 [.000]		
Observations	18,983	18,983	9,491	9,492		
R-squared	0.804	0.804	0.819	0.815		
Year FE	Yes	Yes	Yes	Yes		
CEO-firm FE	Yes	Yes	Yes	Yes		

Note. *p*-values reported in brackets. Standard errors clustered by CEO-firm pairs. Two-tailed tests.

estimation technique (Robins, Hernan, & Brumback, 2000). Recent research has used IPTW to mitigate selection bias and adjust for non-random treatment (Almundoz & Tilesik, 2016; Shi, Zhang, & Hoskisson, 2019; Yue, Luo, & Ingram, 2013). We have two key predictors in our study: stock returns and strategic investment. We believe that firms may not have a direct influence on stock price and, therefore, endogeneity concerns are less likely to arise from stock returns. Thus, we treat strategic investment as an endogenous variable. The IPTW weighting approach is akin to simulating what would occur if all firms have the same level of strategic investment, addressing the possibility that specific types of firms systematically have a higher level of strategic investment.

To implement IPTW, we first estimate a probit model predicting the probability of a firm having a high or low level of industry adjusted strategic investment. Following Almundoz and Tilcsik (2016), we use the median value of strategic investment to code whether a firm has a low or high level of strategic investment. We include all the control variables used in predicting CEO compensation and industry fixed effects based on two-digit SIC industry codes in the first-stage probit regressions. The instrument that we use in the first stage regression is *a firm's membership in the Morgan Stanley Capital International All Country World Index* (MSCI ACWI). Specifically, we have a dummy variable (MSCI) that takes the value of "1" if a firm is a member of the MSCI ACWI in year t , and zero otherwise. MSCI is a commonly used benchmark index for institutional investors. Inclusion in the MSCI index can increase the pressure firms face from investors and may reduce strategic investment. Yet, inclusion in the MSCI index should not have an immediate or direct effect on CEO compensation.

In an unreported first-stage regression, we find the coefficient of MSCI is negative ($\beta = -0.097$, $p < .01$). We report results from second-stage weighted OLS regressions in Table 6. In Model 1, the coefficient estimate of strategic investment \times stock returns is positive ($\beta = 0.128$, $p = .049$), consistent with Hypothesis 1. In Model 2, the coefficient estimate of strategic investment \times stock returns \times CEO prestige is positive ($\beta = 0.848$, $p = .012$), consistent with Hypothesis 2. In Model 3 (high board conservatism), the coefficient estimate of strategic investment \times stock returns is positive ($\beta = 0.240$, $p = .012$) and in Model 4 (low board conservatism), the coefficient estimate of strategic investment \times stock returns is negative ($\beta = -0.031$, $p = .721$). These confirm the results of our primary analysis.

5.1.2 | Other supplementary analyses

First, board members may make attributions based on multiple years of a CEO's strategic investment. Therefore, we also consider a two-, three-, and four-year average of strategic investment. We found consistent results for Hypothesis 1, which we report in Supporting Information (See Table S1).

Second, to examine which type of strategic investments drive our findings, we separately investigate the interaction of R&D intensity and firm performance, the interaction of capital expenditure intensity and firm performance, and the interaction of acquisition intensity and firm performance, using CEO compensation as the dependent variable. We found that only the coefficient estimate of R&D intensity and firm performance was statistically significant by itself if we use one-year data. If we use a two-year, three-year, or four-year average, we found that the coefficient estimates for R&D intensity and stock returns and the interaction of capital expenditure intensity and firm performance were positive and statistically significant. These findings are consistent with our theoretical arguments. Boards approve most acquisitions and large capital investment decisions and are heavily involved in making those decisions. As a result, directors may be reluctant to make attributions about firm performance based on acquisitions and capital investment. We discuss details of these analyses in Supporting Information (See Table S2).

Third, we investigate whether the number of different strategic initiatives could be important to director attributions about the CEO's responsibility for firm performance. To investigate this possibility, we measure growth actions separate from consolidations and reorganizations, which enables us to examine how they differentially affect the pay-for-performance relationship. Growth actions differ from consolidations because growth actions are aimed at expanding, rather than contracting, the firm. Growth actions require large resource commitments, such as capital outlays, and typically demand high levels of board involvement. Moreover, growth actions (new product introductions, mergers

and acquisitions, and business expansions) can be driven by agency problems, because growth expands firm size, which yields high levels of CEO compensation (Harford & Li, 2007) and social status (Palmer & Barber, 2001). Accordingly, growth actions could influence directors' attributions about the CEO's responsibility for firm performance. We find that the effect of growth actions \times stock returns interaction on CEO compensation is positive ($\beta = 0.029, p = .023$) (See Table S3). However, the effect of consolidation actions \times stock returns interaction on CEO compensation is not significant ($\beta = 0.020, p = .405$) (See Table S3). These results suggest that boards appear to make attributions about a CEO's responsibility for firm performance when the CEO undertakes growth activity, but not when they consolidate the firm.

6 | DISCUSSION

This study's findings provide insight into when and why directors attribute firm performance to CEOs. Prior studies link firm performance outcomes to CEO compensation decisions. This is consistent with our findings because, as shown in Figure 1, CEO compensation is clearly a function of firm performance. We take this work a step further, though, by inquiring about when boards conclude that CEOs are, in fact, responsible for performance outcomes. In other words, we ask whether directors simply look at performance outcomes or dig deeper into the process by which firms obtained those performance outcomes. To do so, we theorize about the extent to which a CEO's strategic investment decisions affect the pay-for-performance relationship.

Our findings demonstrate that when CEOs make big strategic investments, the pay-for-performance relationship becomes especially strong. That is, boards of directors are more likely to reward performance for CEOs who engage in high levels of corporate strategic investments than those who do not engage in such investments. This is especially true for prestigious CEOs and conservative boards. Our results are robust to several alternative specifications and forms of analysis.

6.1 | Research implications

Foremost, this paper extends research on CEO pay-for-performance—an important topic in CEO compensation research (Capezio et al., 2011; Gao & Li, 2015). Given information asymmetry that exists between CEOs and board members, the latter often lack specific information to evaluate whether the former are actually responsible for firm performance. Our findings begin to unpack how the investment decisions of CEOs might affect director decisions about CEO compensation. Shareholders want directors to fulfill their duty of settling-up with CEOs, whether that means paying to retain those that have contributed to the firm's success or not paying those that may have contributed to the firm's demise (Aggarwal & Samwick, 2003). When CEOs go big with strategic investments, they effectively place a bet on a particular strategy. When they do so, directors will either handsomely reward them if the bet is a winner or penalize them if it is not.

Our study also sheds light more generally on CEO compensation research, which is one of the most commonly investigated areas within corporate governance (Devers et al., 2007; Finkelstein et al., 2009). Existing research has shown that firm performance and CEOs' strategic decisions (e.g., mergers and acquisitions) can influence CEO compensation (Harford & Li, 2007; Murphy, 1999). Our findings extend this line of inquiry by theorizing about the extent to which these two antecedents, performance and CEO decision-making, might work together to influence directors' decisions about CEO compensation. We do not make judgments about whether directors should, or should not, reward CEOs differentially based on particular investment decisions. After all, a higher

level of strategic investment is not necessarily good, as the non-significant direct effect of strategic investment on firm performance appears to indicate. Instead, our work should be viewed in light of Sanders and Hambrick (2007) and Chatterjee and Hambrick (2007), who show there is considerable variance among CEOs with respect to the degree to which they “swing for the fences” with their investment strategies. We build on this work by considering the implications of such behavior for a CEO’s future compensation.

We also contribute to board research insofar as we conceptualize the extent to which boards, as decision-making bodies (Forbes & Milliken, 1999), incorporate attribution processes into decisions about whether they will reward CEOs for particular outcomes (i.e., performance). Governance research on boards of directors focuses largely on how characteristics of directors and structural characteristics of the board might influence their monitoring effectiveness, which in turn affects firm performance (Dalton et al., 2007). There is less research about director attributions, which links director decision-making to behavioral outcomes (Hillman & Dalziel, 2003). This is an important shortcoming because evaluating the CEO and setting their compensation is a primary board responsibility (Wade, O'Reilly III, & Pollock, 2006). We add to research on boards by applying an attributional lens that offers an important nuance to existing perspectives.

In addition, our study provides a process-oriented refinement to the prevailing outcome-oriented prescriptions of agency theory. In the agency framework, boards should be process monitors in order to mitigate agency problems between shareholders and managers. Yet, directors' cognitive biases often make it challenging to fulfill their fiduciary responsibility effectively, forcing them to focus on outcomes rather than processes. Although boards are supposed to represent the interests of principals, they suffer from the effects of information asymmetry and limitations in cognitive elaboration. As a result, boards are subject to biases when making attributions about performance outcomes. They ultimately are forced to use imperfect information to determine whether internal factors (e.g., effective development and implementation of strategic investments) or external factors (e.g., industry demand) are responsible for firm performance outcomes. Our study helps describe this process by introducing a behavioral component to agency relationships. Specifically, we uncover scenarios in which boards (as representatives of the principals) judge the actions of CEOs (as managerial agents) more harshly than they otherwise would.

Recent developments in agency theory similarly introduce behavioral perspectives to help explain agency relationships in more depth. For instance, behavioral agency theory integrates prospect theory and agency theory to evaluate agents' risk taking propensity in view of realistic assumptions about agent behaviors (Wiseman & Gomez-Mejia, 1998). The theory describes how decision makers' problem framing affects their risk preferences. This approach is helpful for explaining decisions about strategic investments. Behavioral agency theory, though, is less useful for explaining when or why board members might seek underlying causes for firm performance (i.e., when the pay-for-performance relationship will be strongest). Attribution theory is especially appropriate toward this end because attribution theory explains how individuals form retrospective judgments of causes. In this sense, leveraging attribution theory in a governance context offers the opportunity to develop insights into the evaluations of directors and other stakeholders beyond the board, such as principals, analysts, customers, and suppliers.

6.2 | Limitations

One limitation of our study is that we did not directly measure directors' attributions. We argue that boards make internal attributions about firm performance based on strategic investments, and these

investments lead board members to develop specific evaluations of the CEO's responsibility for firm performance. However, firm performance can be an outcome of the interplay between CEO ability and effort (Holcomb et al., 2009). To help alleviate this problem, we controlled for the number of corporate actions that a firm has undertaken, which could help capture managerial effort. However, our data do not allow us to know whether directors base their CEO compensation decisions on evaluation of CEO ability or effort. Future research could meaningfully extend our findings by conducting field studies that provide more detailed insights into the nature of board attributions than we are able to offer with archival data.

In addition, future research might add richness to the relationships at hand by investigating the underlying attributional biases in more depth. For example, researchers might examine differences in the extent to which directors make causal attributions about CEOs they appointed to the office versus those that appointed them to the board. There are also a number of attributional biases (e.g., self-serving bias) that future research could utilize to explain boards' assessments of CEOs. Researchers, for instance, could incorporate CEOs' own attributional explanations for firm performance into study designs to examine congruence between boards' and CEOs' attributions. Relatedly, future research could delve deeper into our prestige moderator, especially given that there are varied ways of understanding prestige. Arguments could be made that CEOs with certain kinds of prestige (e.g., within important social circles) or power are difficult to monitor and less likely to be challenged, which could lead to different predictions.

Lastly, it is important to mention that there are different ways to assess performance and/or strategic investment decisions (e.g., implementation time, payout horizon, number of people affected). We investigated strategic investments using a measure that essentially captures the dollar value of investment adjusted by firm size and performance using a standard one-year lag. Our measures do not, however, incorporate aspects such as historical performance, self-reported performance, or forward-looking performance expectations (such as from analysts). In an unreported supplementary analysis, we failed to find results using firm performance relative to a consensus of analyst earnings forecasts, which may suggest that board members dole out rewards more for actual performance improvements as opposed to improvements compared to expectations. Future research may uncover further insights into the impact of different strategic decisions to develop greater understanding of how particular types of investments relate to compensation decisions in view of varying types of performance metrics.

7 | CONCLUSION

The message of our study is clear: when CEOs undertake strategic investments, boards reward them handsomely for desirable firm performance and penalize them for poor performance. In other words, the pay-for-performance relationship is strongest for CEOs that place their bets by investing in firm growth. We also uncover two important moderating scenarios: the effect is strongest for prestigious CEOs and conservative boards. These results do not mean that CEOs should or should not undertake strategic investments. Instead, they suggest that CEOs (and especially prestigious CEOs and those with conservative boards) should exercise an extra measure of caution when they undertake such investments because there are likely to be personal consequences for their actions. We hope our arguments and findings inform researchers, practitioners, and policymakers about whether and when directors attribute firm performance to the CEO's performance-related behaviors.

ORCID

Brian L. Connelly  <https://orcid.org/0000-0003-1804-8654>

Abhinav Gupta  <https://orcid.org/0000-0003-3823-7890>

REFERENCES

- Aggarwal, R. K., & Samwick, A. A. (2003). Why do managers diversify their firms? Agency reconsidered. *Journal of Finance*, 58(1), 71–118.
- Almundoz, J., & Tilcsik, A. (2016). When experts become liabilities: Domain experts on boards and organizational failure. *Academy of Management Journal*, 59(4), 1124–1149.
- Arthaud-Day, M. L., Certo, S. T., Dalton, C. M., & Dalton, D. R. (2006). A changing of the guard: Executive and director turnover following corporate financial restatements. *Academy of Management Journal*, 49(6), 1119–1136.
- Baber, W. R., Kang, S.-H., & Kumar, K. R. (1998). Accounting earnings and executive compensation: The role of earnings persistence. *Journal of Accounting and Economics*, 25(2), 169–193.
- Baysinger, B. D., Kosnik, R. D., & Turk, T. A. (1991). Effects of board and ownership structure on corporate R&D strategy. *Academy of Management Journal*, 34(1), 205–214.
- Bebchuk, L. A., & Fried, J. M. (2005). Pay without performance: Overview of the issues. *Journal of Applied Corporate Finance*, 17(4), 8–23.
- Beckman, C. M., & Haunschild, P. R. (2002). Network learning: The effects of partners' heterogeneity of experience on corporate acquisitions. *Administrative Science Quarterly*, 47(1), 92–124.
- Benner, M. J., & Ranganathan, R. (2012). Offsetting illegitimacy? How pressures from securities analysts influence incumbents in the face of new technologies. *Academy of Management Journal*, 55(1), 213–233.
- Bligh, M. C., Kohles, J. C., & Pillai, R. (2011). Romancing leadership: Past, present, and future. *Leadership Quarterly*, 22(6), 1058–1077.
- Bliss, R. T., & Rosen, R. J. (2001). CEO compensation and bank mergers. *Journal of Financial Economics*, 61(1), 107–138.
- Boivie, S., Bednar, M. K., Aguilera, R. V., & Andrus, J. L. (2016). Are boards designed to fail? The implausibility of effective board monitoring. *Academy of Management Annals*, 10(1), 319–407.
- Boivie, S., Graffin, S. D., & Pollock, T. G. (2012). Time for me to fly: Predicting director exit at large firms. *Academy of Management Journal*, 55(6), 1334–1359.
- Boschen, J. F., Duru, A., Gordon, L. A., & Smith, K. J. (2003). Accounting and stock price performance in dynamic CEO compensation arrangements. *Accounting Review*, 78(1), 143–168.
- Briscoe, F., Chin, M. K., & Hambrick, D. C. (2014). CEO ideology as an element of the corporate opportunity structure for social activists. *Academy of Management Journal*, 57(6), 1786–1809.
- Burgoon, J. K. (2009). Expectancy violations theory. In *The international encyclopedia of interpersonal communication*. New York, NY: Wiley.
- Burgoon, J. K., & Jones, S. B. (1976). Toward a theory of personal space expectations and their violations. *Human Communication Research*, 2(2), 131–146.
- Busenbark, J. R., Krause, R., Boivie, S., & Graffin, S. D. (2016). Toward a configurational perspective on the CEO: A review and synthesis of the management literature. *Journal of Management*, 42(1), 234–268.
- Bushee, B. J. (2001). Do institutional investors prefer near-term earnings over long-run value? *Contemporary Accounting Research*, 18(2), 207–246.
- Capezio, A., Shields, J., & O'Donnell, M. (2011). Too good to be true: Board structural independence as a moderator of CEO pay-for-firm-performance. *Journal of Management Studies*, 48(3), 487–513.
- Carpenter, M. A., Sanders, W. G., & Gregersen, H. B. (2001). Bundling human capital with organizational context: The impact of international assignment experience on multinational firm performance and CEO pay. *Academy of Management Journal*, 44(3), 493–511.
- Certo, S. T., Withers, M. C., & Semadeni, M. (2017). A tale of two effects: Using longitudinal data to compare within- and between-firm effects. *Strategic Management Journal*, 38(7), 1536–1556.
- Chatterjee, A., & Hambrick, D. C. (2007). It's all about me: Narcissistic chief executive officers and their effects on company strategy and performance. *Administrative Science Quarterly*, 52(3), 351–386.

- Chen, G. L., Hambrick, D. C., & Pollock, T. G. (2008). Puttin' on the ritz: Pre-IPO enlistment of prestigious affiliates as deadline-induced remediation. *Academy of Management Journal*, 51(5), 954–975.
- Chen, J., Schenker, S., Frosto, T. A., & Henderson, G. I. (2004). Leverage decision and manager compensation with choice of effort and volatility. *Journal of Financial Economics*, 73(1), 71–92.
- Chen, T., Harford, J., & Lin, C. (2015). Do analysts matter for governance? Evidence from natural experiments. *Journal of Financial Economics*, 115(2), 383–410.
- Chin, M., & Semadeni, M. (2017). CEO political ideologies and pay egalitarianism within top management teams. *Strategic Management Journal*, 38(8), 1608–1625.
- Chin, M. K., Hambrick, D. C., & Trevino, L. K. (2013). Political ideologies of CEOs: The influence of executives' values on corporate social responsibility. *Administrative Science Quarterly*, 58(2), 197–232.
- Choi, S. J., Fisch, J. E., & Kahan, M. (2008). Director elections and the role of proxy advisors. *Southern California Law Review*, 82, 649–699.
- Christensen, D. M., Dhaliwal, D. S., Boivie, S., & Graffin, S. D. (2015). Top management conservatism and corporate risk strategies: Evidence from managers' personal political orientation and corporate tax avoidance. *Strategic Management Journal*, 36(12), 1918–1938.
- Clapham, S. E., & Schwenk, C. R. (1991). Self-serving attributions, managerial cognition, and company performance. *Strategic Management Journal*, 12(3), 219–229.
- Cohen, D., & Soto, M. (2007). Growth and human capital: Good data, good results. *Journal of Economic Growth*, 12(1), 51–76.
- Connelly, B. L., Haynes, C. J., Tihanyi, L., Gamache, D., & Devers, C. E. (2016). Minding the gap: Antecedents and consequences of top management-to-worker pay dispersion. *Journal of Management*, 42(4), 862–885.
- Connelly, B. L., Tihanyi, L., Certo, S. T., & Hitt, M. A. (2010). Marching to the beat of different drummers: The influence of institutional owners on competitive actions. *Academy of Management Journal*, 53(4), 723–742.
- Connelly, B. L., Tihanyi, L., Ketchen, D. J., Carnes, C., & Ferrier, W. (2017). Competitive repertoire complexity: Governance antecedents and performance outcomes. *Strategic Management Journal*, 38(5), 1151–1173.
- Cool, K., & Schendel, D. (1988). Performance differences among strategic group members. *Strategic Management Journal*, 9(3), 207–223.
- Coombs, J. E., & Gilley, K. M. (2005). Stakeholder management as a predictor of CEO compensation: Main effects and interactions with financial performance. *Strategic Management Journal*, 26(9), 827–840.
- Core, J., & Guay, W. (2002). Estimating the value of employee stock option portfolios and their sensitivities to price and volatility. *Journal of Accounting Research*, 40(3), 613–630.
- Core, J. E., Holthausen, R. W., & Larcker, D. F. (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics*, 51(3), 371–406.
- Crane, D. (1965). Scientists at major and minor universities: A study of productivity and recognition. *American Sociological Review*, 30(5), 699–714.
- Creswell, J., & Barbaro, M. (2007, January 4). Home depot board ousts chief, saying goodbye with big check. *New York Times*. Retrieved from <https://www.nytimes.com/2007/01/04/business/04home.html>
- Dalton, D. R., Hitt, M. A., Certo, S. T., & Dalton, C. M. (2007). The fundamental agency problem and its mitigation: Independence, equity, and the market for corporate control. *Academy of Management Annals*, 1(1), 1–64.
- De Rond, M., & Thietart, R. A. (2007). Choice, chance, and inevitability in strategy. *Strategic Management Journal*, 28(5), 535–551.
- Devers, C. E., Cannella, A. A., Reilly, G. P., & Yoder, M. E. (2007). Executive compensation: A multidisciplinary review of recent developments. *Journal of Management*, 33(6), 1016–1072.
- Devers, C. E., McNamara, G., Wiseman, R. M., & Arrfelt, M. (2008). Moving closer to the action: Examining compensation design effects on firm risk. *Organization Science*, 19(4), 548–566.
- Fahlenbrach, R. (2009). Founder-CEOs, investment decisions, and stock market performance. *Journal of Financial and Quantitative Analysis*, 44(2), 439–466.
- Fama, E. F. (1980). Agency problems and the theory of the firm. *Journal of Political Economy*, 88(2), 288–307.
- Finkelstein, S., & Hambrick, D. C. (1990). Top-management-team tenure and organizational outcomes: The moderating role of managerial discretion. *Administrative Science Quarterly*, 35(3), 484–503.
- Finkelstein, S., Hambrick, D. C., & Cannella, A. A. (2009). *Strategic leadership: Theory and research on executives, top management teams, and boards*. New York, NY: Oxford University Press.

- Fiske, S. T., & Taylor, S. E. (2008). *Social cognition: From brains to culture*. New York, NY: McGraw-Hill.
- Forbes, D. P., & Milliken, F. J. (1999). Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups. *Academy of Management Review*, 24(3), 489–505.
- Fredrickson, J. W., Davis-Blake, A., & Sanders, W. M. G. (2010). Sharing the wealth: Social comparisons and pay dispersion in the CEO's top team. *Strategic Management Journal*, 31(10), 1031–1053.
- Gangloff, K. A., Connelly, B. L., & Shook, C. L. (2016). Of scapegoats and signals: Investor reactions to CEO succession in the aftermath of wrongdoing. *Journal of Management*, 42(6), 1614–1634.
- Gao, H., & Li, K. (2015). A comparison of CEO pay-performance sensitivity in privately-held and public firms. *Journal of Corporate Finance*, 35, 370–388.
- Geletkanycz, M. A., Boyd, B. K., & Finkelstein, S. (2001). The strategic value of CEO external directorate networks: Implications for CEO compensation. *Strategic Management Journal*, 22(9), 889–898.
- Gerhart, B., Rynes, S. L., & Fulmer, I. S. (2009). Pay and performance: Individuals, groups, and executives. *Academy of Management Annals*, 3(1), 251–315.
- Gibson, D. E., & Schroeder, S. J. (2003). Who ought to be blamed? The effect of organizational roles on blame and credit attributions. *International Journal of Conflict Management*, 14(2), 95–117.
- Gimeno, J., Hoskisson, R. E., Beal, B. D., & Wan, W. P. (2005). Explaining the clustering of international expansion moves: A critical test in the US telecommunications industry. *Academy of Management Journal*, 48(2), 297–319.
- Gomez-Mejia, L., & Wiseman, R. M. (1997). Reframing executive compensation: An assessment and outlook. *Journal of Management*, 23(3), 291–374.
- Gomulya, D., & Boeker, W. (2014). How firms respond to financial restatement: CEO successors and external reactions. *Academy of Management Journal*, 57(6), 1759–1785.
- Gupta, A., Briscoe, F., & Hambrick, D. (2018). Evenhandedness in resource allocation: Its relationship with CEO ideology, organizational discretion, and firm performance. *Academy of Management Journal*, 61(5), 1848–1868.
- Gupta, A., & Wowak, A. J. (2017). The elephant (or donkey) in the boardroom: How board political ideology affects CEO pay. *Administrative Science Quarterly*, 62(1), 1–30.
- Haleblian, J., Devers, C. E., McNamara, G., Carpenter, M. A., & Davison, R. B. (2009). Taking stock of what we know about mergers and acquisitions: A review and research agenda. *Journal of Management*, 35(3), 469–502.
- Haleblian, J., & Rajagopalan, N. (2005). Top managerial cognitions, past performance, and strategic change: A theoretical framework. In G. Szulanski, J. Porac, & Y. Doz (Eds.), *Strategy process Advances in strategic management* (Vol. 22, pp. 63–91). Bingley, England: Emerald.
- Hall, B. J., & Liebman, J. B. (1998). Are CEOs paid like bureaucrats? *Quarterly Journal of Economics*, 113(3), 653–691.
- Hambrick, D. C., Cho, T. S., & Chen, M.-J. (1996). The influence of top management team heterogeneity on firms' competitive moves. *Administrative Science Quarterly*, 41(4), 659–684.
- Hambrick, D. C., & Quigley, T. J. (2014). Toward more accurate contextualization of the CEO effect on firm performance. *Strategic Management Journal*, 35(4), 473–491.
- Harford, J., & Li, K. (2007). Decoupling CEO wealth and firm performance: The case of acquiring CEOs. *Journal of Finance*, 62(2), 917–949.
- Harrison, J. S., Hall, E. H., & Nargundkar, R. (1993). Resource allocation as an outcropping of strategic consistency: Performance implications. *Academy of Management Journal*, 36(5), 1026–1051.
- Hartzell, J. C., & Starks, L. T. (2003). Institutional investors and executive compensation. *Journal of Finance*, 58(6), 2351–2374.
- Haynes, K. T., & Hillman, A. (2010). The effect of board capital and CEO power on strategic change. *Strategic Management Journal*, 31(11), 1145–1163.
- Hayward, M. L. A., Rindova, V. P., & Pollock, T. G. (2004). Believing one's own press: The causes and consequences of CEO celebrity. *Strategic Management Journal*, 25(7), 637–653.
- He, L., & Fang, J. (2016). CEO overpayment and dismissal: The role of attribution and attention. *Corporate Governance: An International Review*, 24(1), 24–41.
- Heider, F. (1958). *The psychology of interpersonal relations*. New York, NY: Wiley.
- Henderson, J., & Cool, K. (2003). Learning to time capacity expansions: An empirical analysis of the worldwide petrochemical industry, 1975–95. *Strategic Management Journal*, 24(5), 393–413.
- Hillman, A. J., & Dalziel, T. (2003). Boards of directors and firm performance: Integrating agency and resource dependence perspectives. *Academy of Management Review*, 28(3), 383–396.

- Hino, K., & Aoki, H. (2013). Romance of leadership and evaluation of organizational failure. *Leadership & Organization Development Journal*, 34(4), 365–377.
- Holcomb, T. R., Holmes, R. M., & Connelly, B. L. (2009). Making the most of what you have: Managerial ability as a source of resource value creation. *Strategic Management Journal*, 30(5), 457–485.
- Hoskisson, R. E., & Hitt, M. A. (1988). Strategic control systems and relative R&D investment in large multiproduct firms. *Strategic Management Journal*, 9(6), 605–621.
- Hoskisson, R. E., Hitt, M. A., Johnson, R. A., & Grossman, W. (2002). Conflicting voices: The effects of institutional ownership heterogeneity and internal governance on corporate innovation strategies. *Academy of Management Journal*, 45(4), 697–716.
- Ireland, R., Hoskisson, R., & Hitt, M. (2014). *Strategic management: Concepts and cases: Competitiveness and globalization*. Boston, MA: South-Western College Publishing.
- Jost, J. T. (2006). The end of the end of ideology. *American Psychologist*, 61(7), 651–670.
- Judge, T. A., Cable, D. M., Colbert, A. E., & Rynes, S. L. (2007). What causes a management article to be cited: Article, author, or journal? *Academy of Management Journal*, 50(3), 491–506.
- Kalnins, A. (2018). Multicollinearity: How common factors cause Type 1 errors in multivariate regression. *Strategic Management Journal*, 39(8), 2362–2385.
- Kang, E. (2008). Director interlocks and spillover effects of reputational penalties from financial reporting fraud. *Academy of Management Journal*, 51(3), 537–555.
- Khanna, P., Jones, C. D., & Boivie, S. (2014). Director human capital, information processing demands, and board effectiveness. *Journal of Management*, 40(2), 557–585.
- Kish-Gephart, J. J., & Campbell, J. T. (2015). You don't forget your roots: The influence of CEO social class background on strategic risk taking. *Academy of Management Journal*, 58(6), 1614–1636.
- Knight, K. (2006). Transformations of the concept of ideology in the twentieth century. *American Political Science Review*, 100(4), 619–626.
- Leone, A. J., Wu, J. S., & Zimmerman, J. L. (2006). Asymmetric sensitivity of CEO cash compensation to stock returns. *Journal of Accounting and Economics*, 42(1), 167–192.
- Mackey, A. (2008). The effect of CEOs on firm performance. *Strategic Management Journal*, 29(12), 1357–1367.
- Malmendier, U., & Tate, G. (2008). Who makes acquisitions? CEO overconfidence and the market's reaction. *Journal of Financial Economics*, 89(1), 20–43.
- Meindl, J. R. (1990). On leadership—An alternative to the conventional wisdom. *Research in Organizational Behavior*, 12, 159–203.
- Meindl, J. R., & Ehrlich, S. B. (1987). The romance of leadership and the evaluation of organizational performance. *Academy of Management Journal*, 30(1), 91–109.
- Meindl, J. R., Ehrlich, S. B., & Dukerich, J. M. (1985). The romance of leadership. *Administrative Science Quarterly*, 30(1), 78–102.
- Miller, D., & Chen, M. J. (1996). The simplicity of competitive repertoires: An empirical analysis. *Strategic Management Journal*, 17(6), 419–439.
- Mitchell, J. R., Shepherd, D. A., & Sharfman, M. P. (2011). Erratic strategic decisions: When and why managers are inconsistent in strategic decision making. *Strategic Management Journal*, 32(7), 683–704.
- Murphy, K. J. (1999). Executive compensation. In O. Ashenfelter & D. Card (Eds.), *Handbook of labor economics* (Vol. 3, pp. 2485–2563). Amsterdam, Netherlands: Elsevier/North-Holland.
- O'Reilly, C. A., Main, B. G., & Crystal, G. S. (1988). CEO compensation as tournament and social comparison: A tale of two theories. *Administrative Science Quarterly*, 33(2), 257–274.
- Palmer, D., & Barber, B. M. (2001). Challengers, elites, and owning families: A social class theory of corporate acquisitions in the 1960s. *Administrative Science Quarterly*, 46(1), 87–120.
- Pathak, S., Hoskisson, R. E., & Johnson, R. A. (2014). Settling up in CEO compensation: The impact of divestiture intensity and contextual factors in refocusing firms. *Strategic Management Journal*, 35(8), 1124–1143.
- Petkova, A. P., Rindova, V. P., & Gupta, A. K. (2013). No news is bad news: Sensegiving activities, media attention, and venture capital funding of new technology organizations. *Organization Science*, 24(3), 865–888.
- Robins, J. M., Hernan, M. A., & Brumback, B. (2000). Marginal structural models and causal inference in epidemiology. *Epidemiology*, 11(5), 550–560.

- Rosenzweig, P. M. (2007). *The halo effect...and the eight other business delusions that deceive managers*. New York, NY: Free Press.
- Salancik, G. R., & Meindl, J. R. (1984). Corporate attributions as strategic illusions of management control. *Administrative Science Quarterly*, 29(2), 238–254.
- Sanders, W. M. G., & Hambrick, D. C. (2007). Swinging for the fences: The effects of CEO stock options on company risk taking and performance. *Academy of Management Journal*, 50(5), 1055–1078.
- Shi, W., & Connelly, B. L. (2018). Is regulatory adoption ceremonial? Evidence from lead director appointments. *Strategic Management Journal*, 39(8), 2386–2413.
- Shi, W., Connelly, B. L., & Cirik, K. (2018). Short seller influence on firm growth: A threat-rigidity perspective. *Academy of Management Journal*, 61(5), 1892–1919.
- Shi, W., Zhang, Y., & Hoskisson, R. (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. (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.
- Shinkle, G. A., & McCann, B. T. (2014). New product deployment: The moderating influence of economic institutional context. *Strategic Management Journal*, 35(7), 1090–1101.
- Staw, B. M., McKechnie, P. I., & Puffer, S. M. (1983). The justification of organizational performance. *Administrative Science Quarterly*, 28(4), 582–600.
- Tang, J., Crossan, M., & Rowe, W. G. (2011). Dominant CEO, deviant strategy, and extreme performance: The moderating role of a powerful board. *Journal of Management Studies*, 48(7), 1479–1503.
- Tetlock, P. E. (2000). Cognitive biases and organizational correctives: Do both disease and cure depend on the politics of the beholder? *Administrative Science Quarterly*, 45(2), 293–326.
- Tetlock, P. E., Vieider, F. M., Patil, S. V., & Grant, A. M. (2013). Accountability and ideology: When left looks right and right looks left. *Organizational Behavior and Human Decision Processes*, 122(1), 22–35.
- Tosi, H. L., Werner, S., Katz, J. P., & Gomez-Mejia, L. R. (2000). How much does performance matter? A meta-analysis of CEO pay studies. *Journal of Management*, 26(2), 301–339.
- Wade, J. B., O'Reilly, C. A., & Pollock, T. G. (2006). Overpaid CEOs and underpaid managers: Fairness and executive compensation. *Organization Science*, 17(5), 527–544.
- Wade, J. B., Porac, J. F., Pollock, T. G., & Graffin, S. D. (2006). The burden of celebrity: The impact of CEO certification contests on CEO pay and performance. *Academy of Management Journal*, 49(4), 643–660.
- Waldman, D. A., Ramirez, G. G., House, R. J., & Puranam, P. (2001). Does leadership matter? CEO leadership attributes and profitability under conditions of perceived environmental uncertainty. *Academy of Management Journal*, 44(1), 134–143.
- Walker, O. (2016). *Barbarians in the boardroom: Activist investors and the Battle for control of the world's most powerful companies*. Upper Saddle River, NJ: FT Press.
- Walsh, J. P., & Seward, J. K. (1990). On the efficiency of internal and external corporate control mechanisms. *Academy of Management Review*, 15(3), 421–458.
- Weber, L., & Wiersema, M. (2017). Dismissing a tarnished CEO? Psychological mechanisms and unconscious biases in the board's evaluation. *California Management Review*, 59(3), 22–41.
- Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review*, 92(4), 548–573.
- Westphal, J. D. (1999). Collaboration in the boardroom: Behavioral and performance consequences of CEO-board social ties. *Academy of Management Journal*, 42(1), 7–24.
- Westphal, J. D., & Bednar, M. K. (2005). Pluralistic ignorance in corporate boards and firms' strategic persistence in response to low firm performance. *Administrative Science Quarterly*, 50(2), 262–298.
- Westphal, J. D., & Zajac, E. J. (1995). Who shall govern? CEO/board power, demographic similarity, and new director selection. *Administrative Science Quarterly*, 40(1), 60–83.
- Wiersema, M. F., & Bantel, K. A. (1992). Top management team demography and corporate strategic change. *Academy of Management Journal*, 35(1), 91–121.
- Wiersema, M. F., & Bowen, H. P. (2009). The use of limited dependent variable techniques in strategy research: Issues and methods. *Strategic Management Journal*, 30(6), 679–692.

- Wiersema, M. F., & Zhang, Y. (2011). CEO dismissal: The role of investment analysts. *Strategic Management Journal*, 32(11), 1161–1182.
- Wiseman, R. M., & Gomez-Mejia, L. R. (1998). A behavioral agency model of managerial risk taking. *Academy of Management Review*, 23(1), 133–153.
- Yue, L. Q., Luo, J., & Ingram, P. (2013). The failure of private regulation elite control and market crises in the Manhattan banking industry. *Administrative Science Quarterly*, 58(1), 37–68.
- Zhang, Y., & Wiersema, M. F. (2009). Stock market reaction to CEO certification: The signaling role of CEO background. *Strategic Management Journal*, 30(7), 693–710.
- Zhu, D. H., & Chen, G. (2015). Narcissism, director selection, and risk-taking spending. *Strategic Management Journal*, 36(13), 2075–2098.

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

How to cite this article: Shi W, Connelly BL, Mackey JD, Gupta A. Placing their bets: The influence of strategic investment on CEO pay-for-performance. *Strat Mgmt J*. 2019;40: 2047–2077. <https://doi.org/10.1002/smj.3050>