

Star CEOs: Influence on Competitor CEOs' Risk-Taking

Abstract

This study explores how a star CEO winning a prestigious award and prior firm performance relative to competitive aspirations, defined as the performance of industry peers, influence competitor CEOs' risk-taking. Using a difference-in-differences methodology, we find that when a star CEO wins a prominent award, competitor CEOs increase their risk-taking. The proclivity becomes stronger when their prior firm performance rises above competitive aspirations. In sum, these findings support our argument that a star CEO winning a prominent award can serve as a striving aspiration, inducing competitor CEOs to perceive a loss and take risks. Furthermore, better firm performance relative to competitive aspirations underscores the salience of striving aspiration, enhancing the proclivity of these competitor CEOs to take risks. Hence, this study contributes to the literature by showing that a critical event at a rival firm can affect a CEO's perceptions and subsequent risk-taking.

Keywords: risk-taking, firm performance, star CEOs, competitor CEOs, aspirations

1. Introduction

Strategic leadership research has provided strong empirical evidence that chief executive officers (CEOs) impact a firm's strategic decisions, as their cognitive base and values shape their perceptions of a situation, leading to different decision-making among them (Hambrick, 2007; Hambrick and Mason, 1984). Drawing on the research, scholars have shown that managerial risk-taking is influenced by various CEO related factors, including overconfidence (Malmendier and Tate, 2009), narcissism (Chatterjee and Hambrick, 2011), political orientation (Christensen, Dhaliwal, Boivie, and Graffin, 2015) and star status (Cho, Arthurs, Townsend, Miller, and Barden, 2016). Despite existing research primarily focusing on the antecedents that influence the risk-taking of CEOs themselves, there has been little attention paid to how an important occurrence at a rival firm can impact a CEO's risk-taking. It is surprising that this topic has received little attention, given that top executives closely monitor their peers and compare themselves to their counterparts in the industry (e.g., Haunschild, 1993; O'Reilly, Main, and Crystal, 1988).

Recent research has begun to examine how a CEO's risk-taking is influenced by a critical event at a rival firm (Cho, Choi, Park, and Kwon, forthcoming; Connelly, Li, Shi, and Lee, 2020). For example, drawing on the concept of job insecurity, a recent study shows that CEOs reduce risk-taking to strengthen their job security when a CEO is dismissal at a rival firm (Connelly *et al.*, 2020). Similarly, anchoring on the valence expectancy model, recent research shows that CEOs embrace higher levels of risks to attack a rival firm when its CEO suddenly passes away (Cho *et al.*, forthcoming). While scholars have started to examine the under-researched topic, there is a limited focus on understanding how these events can influence CEOs' inclination for risk-taking by shaping their aspirations, which play a key role in influencing managerial risk-taking. To fill the research gap in the study of a CEO's risk-taking and enrich the emerging research, this study

aims to unpack the underlying mechanism by employing novel theoretical perspectives. Specifically, building on the literature on prospect theory and multiple aspirations, it seeks to offer insight into how an important event at a rival firm can influence a CEO's propensity for risk-taking by shaping their aspirations.

This study focuses on a prestigious CEO award won by a CEO at a direct rival firm as an ideal context to develop our theory because it has the potential to impact CEOs' aspirations, perceptions, and risk-taking. Specifically, this study seeks to answer the following two questions: (1) How does winning a prestigious CEO award influence the risk-taking by *competitor CEOs* (the focus of this study)? (2) How does prior firm performance relative to aspirations influence the relationship? In our study, those CEOs who have not received prestigious CEO awards are referred to as *competitor CEOs*, while CEOs at a direct rival firm who have won prominent CEO awards are referred to as *star CEOs*.¹ We propose that prominent CEO awards won by star CEOs may serve as competitor CEOs' striving aspirations, i.e., what competitor CEOs would like to achieve in the future, and influence their risk-taking. We also propose that competitor CEOs' prior firm performance relative to competitive aspirations, defined as the performance of industry peers, could play an important part in moderating this relationship.

In order to examine how witnessing winning an award can influence competitor CEOs' risk-taking behavior, we employed a differences-in-differences (DiD) approach to examine a matched sample of 372 S&P 1500 firms between 2004 and 2018. We find that competitor CEOs increase their risk-taking when they witness a star CEO winning an award. This proclivity is enhanced when their firm performance rises above competitive aspirations. These findings indicate

¹ Prior studies have referred winners of "CEO certification contests" as star CEOs (Wade, Porac, Pollock, and Graffin, 2006) or superstar CEOs (Malmendier and Tate, 2009; Shi, Zhang, and Hoskisson, 2017). Following this research, this study adopts the terminology "star CEOs" for those who have won a prominent CEO award.

that star CEOs gaining accolades and social acclaim serve as competitor CEOs' striving aspirations and strengthen their perception of losses, leading them to take more risks. Furthermore, better firm performance relative to competitive aspirations enhances the salience of striving aspirations, resulting in an increased inclination toward risk-taking by competitor CEOs.

This study contributes to the strategic leadership literature by enhancing the behavioral understanding of a firm's strategic decision-making. First, it enriches the literature on CEO risk-taking (Chatterjee and Hambrick, 2011; Cho *et al.*, 2016; Cho *et al.*, forthcoming; Christensen *et al.*, 2015; Connelly *et al.*, 2020; Malmendier and Tate, 2009) by demonstrating that competitor CEOs take more risks when they witness star CEOs winning a prestigious award. This finding suggests that striving aspirations bolstered by star CEOs winning accolades and social acclaim may be a key driver for how and why competitor CEOs perceive a loss and take more risks. Thus, by employing the literature on prospect theory and multiple aspirations, this study develops theoretical argument to delve into the underlying mechanism that explains how significant events experienced by peer CEOs can shape their aspirations, serving an antecedent that promotes the risky behavior of competitor CEOs. Second, this study contributes to the literature by showing that the risk-taking behavior of decision-makers is influenced by multiple aspirations (e.g., Berchicci and Tarakci, 2022; Greve, 1998; Keum and Ryan, 2023; Luger, 2023; Mezas *et al.*, 2002). Extant literature primarily examined a firm's social aspirations and historical aspirations. This study enriches this line of research by suggesting that striving aspirations play an important role in influencing a CEO's risk-taking behavior (Keum and Ryan, 2023; Labianca *et al.*, 2009; Martins, 2005). In addition, it shows that striving and competitive aspirations interact to influence competitor CEOs' risk-taking. The finding suggests that competitor CEOs perceive striving aspirations as more salient when they achieve better performance relative to competitive

aspirations. Therefore, this study enhances the perspective that the manner in which striving and competitive aspirations impact CEOs' risk-taking is contingent upon how they perceive these aspirations (Baum, Rowley, Blettner, He, Hu, and Bettis, 2005; Greve, 2008; Labianca *et al.*, 2009).

2. Theory and Hypotheses

2.1. Competitor CEOs, striving aspirations and risk-taking

According to the upper echelon theory, CEOs can strongly influence a firm's strategic decisions because boundedly rational CEOs bring a cognitive base and values to their strategic decision-making process. Due to the cognitive base and values, CEOs develop varying perceptions of a situation, leading to a broad spectrum of strategic choices (Hambrick, 2007; Hambrick and Mason, 1984). Building on this argument, scholars have demonstrated that CEOs' characteristics can impact managerial risk-taking (e.g., Chatterjee and Hambrick, 2011; Christensen *et al.*, 2015; Cho *et al.*, 2016; Malmendier and Tate, 2009). In line with this existing research, this study develops theoretical arguments regarding the effects of competitor CEOs' striving aspirations formed by a star CEO being awarded on their risk-taking. The literature on prospect theory offers theoretical and empirical guidance that suggests that the risk-taking of competitor CEOs may be influenced by a star CEO winning an award. This study employs the lens of prospect theory to examine how factors such as accolades bestowed upon a star CEO and competitive rivalry can impact the perceptions, reference points, and risk-taking of competitor CEOs. According to prospect theory, individuals evaluate situations against a certain reference point. If they frame situations as a loss, they take more risks, whereas if individuals frame them as a gain, they avoid taking risks (Kahneman and Tversky, 1979; Wiseman and Gomez-Mejia, 1998). Thus, the choice of reference point can play a critical role in such framing effects. Research suggests that decision makers have

multiple aspirations, and that their focus of attention determines how reference points influence their strategic decision making (e.g., Berchicci and Tarakci, 2022; Greve, 1998; Keum and Ryan, 2023; Luger, 2023; Mezias *et al.*, 2002). For example, firms adjust and select their reference points in situations of greater uncertainty concerning a firm's own relative abilities and position (Luger, 2023). Likewise, environmental volatility can impact the way decision-makers assess multiple aspirations, leading them to prioritize one type of aspiration over others (Berchicci and Tarakci, 2022).

This line of research suggests that decision makers can have “striving” aspirations, defined as what they aspire to become in the future, and that the discrepancies between striving aspirations and their current standing motivate them to take an action to achieve their stretching goals (Keum and Ryan, 2023; Labianca *et al.*, 2009; Martins, 2005). For instance, business schools make extensive and radical changes when they perceive discrepancies between their current standing and striving aspirations (Labianca *et al.*, 2009). Similarly, graduate schools of business undertake organizational changes when their own perception of their school’s current standing is discrepant from their rankings published by external constituencies (Martins, 2005). Furthermore, firms that set striving goals engage in acquisitions and increase the number of employees. These firms attain substantial improvements in performance and visibility (Keum and Ryan, 2023). Since top executives at the top of the corporate hierarchy are often driven by a desire for achievement, power, prestige, and social status (Davis, Schoorman, and Donaldson, 1997; Park and Westphal, 2013), they are likely to have an upward striving to pursue managerial roles with greater status, distinction, and compensation (Festinger, 1954). Thus, top executives may be influenced by striving aspirations, affecting the way they perceive the disparities between striving aspirations and their current standing, which in turn motivates them to take action.

CEO awards can create sharp distinctions between a small number of award winners and a large number of also-rans (Rossman and Schilke, 2014). Winning such an award can bring substantial personal gains for star CEOs, including increased compensation, more board directorships, and enhanced social recognition (Graffin *et al.*, 2008; Malmendier and Tate, 2009; Wade *et al.*, 2006). Since success, power, fame, and social status are important motivational factors driving CEOs' decisions and subsequent behavior (Davis *et al.*, 1997; Park and Westphal, 2013), a star CEO winning a prestigious CEO award may shape competitor CEOs' aspirations and perceptions, thereby influencing their strategic decisions. A recent study shows that competitor CEOs undertake acquisitions after a star CEO at a direct rival firm receives prizes and social acclaim (Shi, Zhang, and Hoskisson, 2017). Thus, competitor CEOs may focus on star CEOs who receive accolades and social recognition, and that these star CEOs may become their striving aspirations (Keum and Ryan, 2023; Labianca *et al.*, 2009; Martins, 2005).

Building on the literature, this study proposes that competitor CEOs may interpret the situation as a "loss" when they observe a star CEO winning prominent awards. Since star CEOs often achieve social distinction and enjoy substantial personal gain (Graffin *et al.*, 2008; Malmendier and Tate, 2009; Wade *et al.*, 2006), competitor CEOs' relative standing in terms of pay, employment prospects and social recognition may decrease, heightening any perceived discrepancies between their current standing and striving aspirations. As a result, competitor CEOs may perceive this situation as a loss, emboldening them to take more risks.

Specifically, we propose that a star CEO winning prominent awards may lead competitor CEOs to increase their financial investments in acquisitions, research and development (R&D), and capital expenditures (Connelly *et al.*, 2020; Hambrick and Finkelstein, 1987; Sanders and Hambrick, 2007). Making such financial investments can be a risky endeavor because they require

a substantial commitment of firm resources, and any returns from them give rise benefits only in the long term. However, such financial investments can contribute to a firm's performance and its shareholder value. For example, acquisitions can aid firms in achieving economies of scale and scope (Haleblian, Devers, McNamara, Carpenter, and Davison, 2009), R&D investments can foster firm innovations, (Hall, Jaffe, and Trajtenberg, 2005), and capital expenditures can enable a firm to expand its capacity (Henderson and Cool, 2003), thereby enhancing a firm's value.

In sum, while financial investments entail risks, they can enhance a firm's value, thereby increasing the likelihood of achieving striving aspirations (Malmendier and Tate, 2009; Wade *et al.*, 2006). Consequently, the decision to increase financial investments can be a strategic choice for competitor CEOs who perceive a loss due to the differences between their current standing and the elevated striving aspirations triggered by the accolades bestowed upon a star CEO. Therefore, competitor CEOs may increase their financial investments when they observe a star CEO winning a prominent award.

Hypothesis 1: *Competitor CEOs will increase financial investments in the post-award than in the pre-award period.*

2.2. Competitor CEOs, striving aspirations, competitive aspirations and risk-taking

In the previous section this study proposes that discrepancies between “striving” aspirations and current standing may lead competitor CEOs to perceive a loss and take on more risks. In this section, we examine how prior firm performance relative to “competitive” aspirations, defined as the performance of industry peers, may moderate the way striving aspirations affect the risk-taking by competitor CEOs who witness a star CEO winning prominent awards. This study delves into the moderating effect because prior firm performance relative to competitive aspirations has been shown to impact decision-makers' perceptions of a situation (e.g., Kahneman and Tversky, 1979; Wiseman and Gomez-Mejia, 1998; Lant, 1992; Labianca and Fairbank, 2015). This study expects

that prior firm performance relative to competitive aspirations will play a role in shaping how competitor CEOs perceive the discrepancies between striving aspirations and their current standing, thereby influencing their inclination toward risk-taking. Specifically, drawing upon prior research showing that striving aspirations and competitive aspirations can interact to influence risk-taking, this study proposes that prior firm performance relative to competitive aspirations may positively moderate the relationship between competitor CEOs who experience a star CEO winning an award and their risk-taking.

This section begins by explaining the moderating effect of *better* firm performance relative to competitive aspirations (i.e., the right-hand side of a positive linear line). Prior research suggests that striving aspirations become a more salient reference point when firms experience better firm performance relative to competitive aspirations (Labianca *et al.*, 2009). The effect may occur because better performance relative to competitive aspirations escalate their aspirations rapidly, giving rise to an optimistic bias. These aspirations can take the form of either self-aspirations or social aspirations. For instance, studies have shown that the teams of MBA students tend to increase their aspiration levels after receiving positive performance feedback (Lant,1992). Similarly, a business school immediately raised its striving aspirations upon successfully accomplishing its goals (Labianca and Fairbank, 2015). Furthermore, better performance relative to aspirations may contribute to CEOs' overconfidence bias, which refers to the tendency of decision makers to overestimate their managerial abilities. Overconfident CEOs are inclined to overestimate their own ability and underestimate the riskiness of strategic decisions, consequently engaging in risk behavior. For instance, they often undertake value-destroying acquisitions (Malmendier and Tate, 2008), overestimate the returns of their investment (Malmendier and Tate,

2005), engage in more innovation activities (Glasso and Simcoe, 2011) and exhibit a reduced willingness to improve their forecasting accuracy (Li and Tang, 2010).

Following these logics, we propose that when firm performance rises above competitive aspirations, competitor CEOs who witness a star CEO winning an award may take on more risks. When firm performance rises above competitive aspirations, competitor CEOs who observe a star CEO receiving an award may pay greater attention to their striving aspirations. This is because better performance relative to aspirations may lead them to have an optimistic bias of their aspirations, leading to heightened awareness and prominence of their striving aspirations. As a result, this may amplify any perceived discrepancies between their current standing and striving aspirations. This, in turn, can enhance their motivation to actively pursue their striving aspirations. In addition to the optimistic bias, better performance relative to competitive aspirations may contribute to the overconfidence bias of competitor CEOs who witness a star CEO winning an award. They may be prone to overestimating their abilities to generate profitable returns through engaging in strategic actions, while underestimating the potential downside risks associated with such actions. As a result, they may take on more risks, driven by the belief that they can achieve their striving aspirations without facing negative consequences. In sum, better performance relative to competitive aspirations can give rise to an optimistic bias and overconfidence bias. This, in turn, leads competitor CEOs who witness a star CEO winning an award to exhibit a heightened inclination toward risk-taking. In our research context, competitor CEOs who witness a star CEO winning prominent awards will increase their financial investments when firm performance rises above competitive aspirations.

This section also examines the moderating effect of *poorer* firm performance relative to competitive aspirations on the risk-taking of competitor CEOs who observe a star CEO receiving

an award (i.e., the left-hand side of a positive linear line). It is unclear how poorer firm performance relative to competitive aspirations might affect the risk-taking by competitor CEOs who observe a star CEO winning an award because it may have a mixed effect on their striving aspirations and current standing. Previous research has shown that poorer firm performance relative to competitive aspirations that signals survival threats can have greater primacy and gain more attention than striving aspirations under certain conditions (e.g., Greve, 2008; Labianca *et al.*, 2009; Blettner *et al.*, 2015). For example, firms tend to prioritize addressing performance shortfalls that pose survival threats (i.e., competitive aspirations) over pursuing firm growth (i.e., striving aspirations) (Greve, 2008). Organizations make changes in response to discrepancies between their striving aspirations and current standing only after they address lower firm performance relative to competitive aspirations that triggers survival threats (Labianca *et al.*, 2009).

Competitor CEOs who witness a star CEO winning an award may consider firm performance falling below competitive aspirations a threat to their own firm's survival (Greve, 2008, Labianca *et al.*, 2009). They may allocate more attention and resources to improve poor firm performance, which reduces the salience and importance of their striving aspirations and dampens their motivation to achieve them. This, in turn, may lower their striving aspirations. In addition, poorer firm performance relative to competitive aspirations can have a negative impact on a CEO's employment security and job market prospects because boards of directors tend to hold CEOs accountable for such performance (e.g., Coughlan and Schmidt, 1985; Denis and Kruse, 2000). In this case, competitor CEOs who observe a star CEO winning an award may perceive a drop in their current standing with regard to employment, job market prospects and social distinction. In summary, when firm performance falls below competitive aspirations, competitor CEOs who witness a star CEO winning an award may experience a decline in both their striving aspirations

and current standing, but the extent of these declines is unclear. It is ambiguous how poorer firm performance relative to competitive aspirations will affect the competitor CEOs' perceived discrepancies between their striving aspirations and current standing. Therefore, we do not hypothesize how competitor CEOs who witness a star CEO winning an award will change their financial investments when firm performance falls below competitive aspirations.

In conclusion, in our research context, we hypothesize that competitor CEOs who observe a star CEO winning a national award will increase their financial investments when firm performance rises above competitive aspirations.

Hypothesis 2: *Prior firm performance relative to competitive aspirations will positively moderate the relationship between competitor CEOs who witness a star CEO winning an award and their risk-taking, such that competitor CEOs will increase financial investments when firm performance relative to competitive aspirations is better.*

3. Methodology

3.1. Sample

We drew our sample from several data sources: (1) Standard & Poor's ExecuComp, (2) data on CEO awards hand-collected from magazines, (3) BoardEx database, (4) Standard & Poor's Compustat, (5) Institutional Brokers Estimates System (IBES), and (6) Hoberg-Phillips Text-based Network Industry Classification (TNIC). Our initial sample consisted of U.S. public firms covered by ExecuComp. Prior studies on competitor CEOs (e.g., Shi, Zhang, and Hoskisson, 2017; Connelly *et al.*, 2020) also utilized samples from ExecuComp, as it provides top executive compensation data for S&P 1,500 firms. Access to this data is essential for a study on competitor CEOs, considering our study's focus on rivalries between star CEOs and competitor CEOs. Therefore, following the methodology of previous studies (e.g., Shi, Zhang, and Hoskisson, 2017; Connelly *et al.*, 2020), we identified competitor CEOs from this dataset and extracted their

financial data. We obtained firm-level accounting information from Standard & Poor's Compustat and analyst coverage data from the IBES.

To construct the initial sample of star CEOs who won a CEO award, we manually collected "CEO of the year" publications in a few magazines, including *Business Week*, *Chief Executive*, *Forbes*, *CNN*, and *Harvard Business Review* between 2004 and 2018, following prior studies (Shi, Zhang, and Hoskisson, 2017; Ammann, Horsch, and Oesch, 2016; Malmendier and Tate, 2009). Firm performance plays key role in their selection process. One of the major criteria for awarding star CEOs of *Harvard Business Review* and *Forbes* is the appreciation of market capitalization.² We then matched the star CEO data with ExecuComp and identified 402 star CEO firms between 2004-2018.

After identifying 402 star CEO firms, we identified competitor CEO firms (i.e., competitors whose CEOs experience star CEOs winning awards). It is important to accurately identify the competitor CEO firms of star CEO firms (i.e., direct rival firms with star CEOs winning awards). Following prior competitor studies that also implemented the DiD approach (Ammann *et al.*, 2016; Connelly *et al.*, 2020; Shi, Zhang, and Hoskisson, 2017), we obtained CEO data of S&P 1,500 firms from ExecuComp, and within this dataset, we identified competitor CEOs by using the TNIC database (Hoberg and Phillips, 2016). The TNIC database measures two firms' pairwise product similarity by examining the language in the business description of the public firms' annual reports and identifies competitive intensity between a pair of public firms. Specifically, TNIC categorizes a pair of firms with product similarity of 21.32% or above as competitors, and with this criterion, 2% of all paired firms are classified as competitors, which is

² For instance, *Harvard Business Review* notes that it calculates a firm's total shareholder return (including dividends) for the CEO's tenure. Similarly, *Forbes* describes that a firm's stock performance (including dividends) relative to its industry peers over the past six years is one of the factors that determines the award winners.

comparable to the 3-digit SIC code. TNIC can accurately identify competitors for the following reasons. First, the business description of the annual report reports significant products of the firm offered to customers, a requirement by Securities and Exchange Commission (SEC) regulations. Second, the non-transitivity properties of TNIC identify only direct competitors of the firm. For instance, if Firms A and B have 27% product similarity, Firms B and C have 36% product similarity, and Firms A and C have 5% product similarity; the SIC would classify all of them as competitors in an industry but TNIC classifies only Firms A and B and Firms B and C as competitors, while Firms A and C would not be classified as competitors. Last, since TNIC examines a firm's annual report, it captures market changes over time and a firm's degree of product diversification (Hoberg and Phillips, 2016).

Using the TNIC database, we matched star CEO firms with their competitor CEO firms. As noted, we limited our sample to star CEO firms from 2004 to 2018 because, in the main regression models, we used panel data of seven firm-year observations, including three years before the event year (i.e., the year that a star CEO wins a CEO award), the event year, and three years after the event year. Since BoardEx data is available starting from 2000 and Execucomp data is complete until 2021, we constructed our sample using data from 2004 to 2018, enabling the generation of seven-year firm-year observations. For instance, if a firm is a rival of a star CEO who received a CEO award in 2004/2018, we measured control variables for each year from 2000/2014 to 2006/2020, while the dependent variable was measured for each year from 2001/2015 to 2007/2021.

We matched the star CEO firms with its competitor CEO firms one year before the award year. Because managers often categorize firms of similar size as competitors (Porac *et al.*, 1995; Shi, Zhang, and Hoskisson, 2017), we limited the sample of competitor CEO firms to those firms

whose total assets lie within 50%-150% of the star CEO firms, as per a prior study (Shi, Zhang, and Hoskisson, 2017). The star CEO firms without such competitors were excluded from the sample and we were left with 324 star CEO firms and 2,295 competitor CEO firms. We obtained the competitor CEO firms that did not experience a CEO succession between one year before the event year through one year after the event year since such a succession may influence the managerial decision about risk-taking. We were left with 306 star CEO firms and 1,780 competitor CEO firms. In case that competitor CEOs had multiple experiences of star CEOs winning a prestigious award, we focused on the first experience within the sample period, following a prior study (Shi, Hoskisson, and Zhang, 2017). Only the first experience of the competitor CEOs that experienced star CEOs winning an award multiple times was retained. This left 227 star CEO firms whose CEOs won a prestigious CEO award and 692 competitor CEO firms that met the criteria. Because winning a prestigious award can influence firm risk behavior for up to three years following the award (Cho *et al.*, 2016), we added a condition in our sample selection that competitor CEOs did not win a CEO award during the sample period, and 19 competitor CEOs that did not meet this condition were dropped and we were left with 673 competitor CEO firms.

Then, we matched competitor CEO firms with control firms. As noted, we employed a DiD approach in our study, which assumes that competitor CEO firms and control firms would exhibit similar trends in relation to the variable of interest, i.e., firm risk-taking, in the absence of the treatment event, i.e., a star CEO winning an award. Therefore, it is crucial for us to identify a control firm that has a comparable degree of firm risk-taking and similar characteristics to competitor CEO firms during the pre-treatment period. To achieve this, we utilized one-to-one coarsened exact matching (CEM) which employs monotonic imbalance bounding to mitigate potential biases caused by the correlation between observable and unobservable variables (Altonji,

Elder, and Taber, 2005). Furthermore, CEM may reduce concerns regarding causal estimation error, model dependence, and bias (Iacus, King, and Porro, 2011). When we matched competitor CEO firms with control firms, in addition to firm risk-taking variable, we included *firm size* (measured as natural logarithm of sales), *firm performance* (industry-adjusted return on asset (ROA), measured as the ratio of net income to total assets) (Barnett and Salomon, 2012; Chang *et al.*, 2013) and *financial slack* (measured as a composite slack variable constructed by standardizing and summing available slack, recoverable slack and potential slack variables) (see details in the control variables section). To avoid a potential endogeneity issue, we used the three-year average value of these variables before the CEO-award year, and the 484 competitor CEO firms without missing variables were retained. We were left with 192 CEOs that win a prestigious CEO award. Regarding our control group, the firms that experienced their direct rival firms whose CEOs winning a CEO award within the sample period or those whose CEOs won a CEO award during the sample period were excluded. Among those firms, 372 competitor CEO firms were matched with control firms in the CEM matching. Thus, our final sample included 172 star CEOs and 4,729 firm-year observations from 372 competitor-control firm pairs.

3.2. *Dependent variable*

Consistent with prior studies (e.g., Shi *et al.*, 2019; Connelly *et al.*, 2020), we used standardized measure of firm risk-taking. Specifically, firm risk-taking was operationalized as the sum of R&D, capital expenditures, and acquisitions scaled by revenue. As a robustness check, we used an alternative measure of risk-taking, which was operationalized as the summation of R&D, capital expenditures, and acquisitions without normalization (Chatterjee and Hambrick, 2011). The results remained similar to our primary analysis. Due to the high correlation between firm size and the latter measure, we used the former measure in our main analysis.

3.3. Moderating variables

We operationalized *performance relative to competitive aspirations* as a competitor CEO firm's return on assets (ROA) minus the median ROA value of firms within the same TNIC competitor group, excluding the focal competitor CEO firm following prior research (Iyer and Miller, 2008; Washburn and Bromiley, 2012). ROA was measured as the ratio of net income to total assets (Barnett and Salomon, 2012; Chang *et al.*, 2013). Our results were robust when alternative ROAs were used. Prior studies have examined two different aspiration levels — a firm's recent performance relative to the performance of industry peers (social aspirations) and relative to the firm's past performance (historical aspirations) (e.g., Harris and Bromiley, 2007; Mishina *et al.*, 2010). This study focuses on a firm's performance relative to social aspirations, since our research examines how social peers winning an award influence competitor CEOs' social aspiration and risk-taking.

To test the robustness of our results, we also conducted additional regressions using spline variables (Greve, 1998; Audia and Greve, 2006). Specifically, *better/poorer performance relative to competitive aspirations* receives the value of industry-adjusted ROA (i.e., ROA minus industry median ROA) if a firm's ROA is higher/lower than the industry median ROA among the TNIC competitor group and zero otherwise.

3.4 Control variables

We included the following control variables to account for the effects of firm, CEO, and industry characteristics on firm risk-taking. We controlled for *firm size*, measured as natural logarithm of sales (Chatterjee and Hambrick, 2011) because larger firms tend to have different propensities in making investments in R&D, capital expenditures and acquisitions. *Firm age* was included because mature firms are less likely to engage in risky exploration (Lavie and Rosenkopf, 2006).

It was measured as the logarithm of the number of years since a firm's incorporation. We obtained firm age information from Professor Jay Ritter's website.³ In case that firm age information is unavailable from the website, we used the first year that a firm appeared on the Compustat database as a proxy for a founding year. *Financial slack* was included as a control variable because it may lead firms to engage in slack search (Cyert and March, 1963). The extant literature suggests that firms can utilize three types of slack resources (Bromiley, 1991; Greve, 2003; Kuusela *et al.*, 2017; Tyler and Caner, 2016), including available slack (measured as current ratio) (Bromiley, 1991), recoverable slack (measured as accounts receivable and inventory divided by sales) (e.g., Bradley *et al.*, 2011; Vanacker *et al.*, 2017), and potential slack (measured as equity to debt) (Tyler and Caner, 2016). Available slack refers to the resources that firms can deploy as needed. Recoverable slack represents the potential resources absorbed in a firm's operations that can be deployed. Finally, potential slack reflects a firm's ability to borrow additional debt. We constructed a composite measure of slack by standardizing and summing the three variables, following prior studies (Tyler and Caner, 2016; Vanacker *et al.*, 2017; Lim and McCann, 2014).

Since CEOs have wide discretion in taking firm risks, we also controlled for competitors (treatment group) and their control group's CEO characteristics. *CEO ownership*, *CEO tenure* and *CEO duality* are proxies for CEO power so they may affect a firm's decision to allocate resources to risky investments (Chatterjee and Hambrick, 2011). We operationalized *CEO ownership* as a proportion of the number of shares owned by the CEO to the total number of shares outstanding. This data was obtained from ExecuComp. *CEO tenure* was operationalized as the number of years that an individual serves as CEO of a firm. *CEO duality* was a dummy variable and it received one if the CEO is the board chair and zero otherwise.

³ <https://site.warrington.ufl.edu/ritter/files/founding-dates.pdf>

CEO age, an indicator of CEO's career horizon, is often negatively associated with risky activities (Cho and Kim, 2017; Matta and Beamish, 2008). *CEO gender* may influence a firm's risk behavior (Palvia, Vähämaa, and Vähämaa, 2015). We also included *CEO cash pay*, *CEO in the money exercisable*, and *CEO in the money un-exercisable* to control for the effects of CEO compensation on firm risk behavior. *CEO cash pay* was operationalized as the sum of salary and bonus weighted by total compensation. CEO stock option often gives incentives to CEOs to increase risky investments (Sanders and Hambrick, 2007). *CEO in the money exercisable* was operationalized as the natural logarithm of the Black-Scholes value of vested in-the-money options held by a CEO, while *CEO in the money un-exercisable* was operationalized as the natural logarithm of the Black-Scholes value of unvested in-the-money options held by a CEO.

We also controlled for *analyst coverage*, *board size*, and *board outsider ratio*. We included *analyst coverage* to control for the monitoring role of analysts (Chen, Harford, and Lin, 2015). We operationalized this variable as the number of analysts that follow sample firms. The data was obtained from the IBES. Because the board of directors often influences the CEO's strategic decisions, we controlled for *board size* and *board outsider ratio*. *Board size* was operationalized as the total number of board members and *board outsider ratio* as the ratio of outside board members to the total number of board members. Finally, all continuous variables were winsorized at 1% and 99% to mitigate the impact of outliers.

3.5. Difference-in-Differences analyses and coarsened exact matching

As noted, we implemented a DiD approach to test our hypotheses. Our model treats competitor CEO firms as a treatment group and compares their risk-taking with that of the control group, those firms where the CEO did not experience a star CEO winning an award. The following is our DiD specification:

$$\text{Firm risk-taking}_{i,t+1} = \alpha_j + \alpha_t + \beta_1 \text{Competitors}_i \times \text{Post-award period}_t + \beta_2 \text{Competitors}_i + \beta_3 \text{Post-award period}_t + \gamma X_{i,t} + \varepsilon_{i,t+1}$$

where i indexes firm, j indexes industry and t indexes year. *Competitors* is a dummy variable that receives a value of one if the focal firm is a competitor whose CEO experiences a star CEO winning an award and zero otherwise. Control firms (i.e., those firms whose CEO do not experience a star CEO winning an award) always receive zero. *Post-award period* is a dummy variable that receives a value of one only if the observation occurs in the firm-year of the CEO award or following the CEO award year, and zero if the observation takes place in the firm-year prior to the year of the CEO award. The interaction between *Competitors* \times *Post-award period* is the primary variable of interest in our study. The coefficient of interest is β_1 and it measures the effect of a star CEO winning a CEO award on competitor CEOs' risk-taking and, in Hypothesis 1 we propose that the coefficient β_1 should be positive. α_t denotes year fixed effects and α_j denotes industry fixed effects, which were included to account for temporal effects and broad industry characters (at the two-digit SIC level), respectively. $\varepsilon_{i,t+1}$ is the error term and standard errors were clustered at the matched pairs level, following prior study (Shi, Zhang, and Hoskisson, 2017). To test our hypotheses, we ran ordinary least square (OLS) regressions with industry and year fixed effects.

4. Results

4.1. Regression results

In Table 1, we report the univariate and multivariate imbalance between competitor CEO firms and control firms. *L1 statistics* measures the imbalance between competitor CEO firms and control firms and it ranges between zero and one – the lower values represent the higher balance between competitor CEO firms and control firms (Iacus *et al.*, 2011). Table 1 shows that both statistics including multivariate and univariate L1 statistics substantially decrease after the CEM procedure. Likewise, Table 2 reports the t -test of univariate differences in means between the competitor CEO

firms and control firms and our results show that there is no substantial difference between the two groups.

----- Insert Tables 1 and 2 about here -----

Table 3 provides descriptive statistics and correlations between variables. Variance Inflation Factor falls within the range of 1.03 and 1.77, suggesting that multicollinearity is not a concern. We tested the pre-trend assumption of the DiD model by plotting the average values of risk-taking for both competitor CEO firms and control firms from $t - 3$ to $t + 3$. Figure 1 shows that the risk-taking of both groups followed a parallel trend prior to the award event. It indicates that yearly mean differences between competitor CEO firms and control firms were statistically insignificant until one year before the CEO award year. However, the differences in risk-taking between competitor CEO firms and control firms became significant in the following year – the year of the CEO award (year $t + 0$).

-----Insert Figure 1 and Table 3 about here-----

Table 4 shows results from the OLS regressions. Model 1 is the baseline model without the interaction between *competitors* and *post-award period* and Model 2 shows the positive and significant effect of the interaction between *competitors* and *post-award period* on firm risk-taking, which supports Hypothesis 1 ($\beta = 0.027$, $p = 0.028$). The finding is economically significant. Competitor CEOs increase their risk-taking by 3.73% (\$65.32 million) after controlling for control variables. Hypothesis 2 suggests that prior firm performance relative to competitive aspirations may strengthen risk-taking by competitor CEOs who witness a star CEO winning a prominent award. In Model 3, the coefficient estimate for the interaction between *competitors*, *post-award period*, and *performance relative to competitive aspirations* is positive and significant ($\beta = 0.484$, $p = 0.015$). In Figure 2, we plotted *performance relative to competitive aspirations* at mean

plus/minus one standard deviation. Figure 2 shows that competitor CEOs who experience a star CEO winning an award increase their risk-taking when firm performance is better relative to competitive aspirations. The slope difference tests provide further support for these findings. Notably, the slope for line [4] (representing performance relative to competitive aspirations +1 SD \times competitors \times post-award period) significantly differs from the other lines (p -value < 0.05), while the slope for line [2] (representing performance relative to competitive aspirations -1 SD \times competitors \times post-award period) does not significantly differ from the other lines (p -value > 0.10). These results highlight that our findings are primarily driven by competitor CEOs whose performance are better relative to competitive aspirations. Thus, Hypothesis 2 is supported. The finding is economically significant. Competitor CEOs increase their risk-taking by 4.11% (\$71.97 million) when performance relative to competitive aspirations is at +1 SD.

We used spline variables to examine whether better and/or poorer performance drives our results. As shown in Model 4, the coefficient estimate for the interaction between *competitors*, *post-award period* and *better performance relative to competitive aspirations* is positive and significant ($\beta = 0.542$, $p = 0.021$), whereas the coefficient estimate for the interaction between *competitors*, *post-award period* and *poorer performance relative to competitive aspirations* is positive but not significant ($\beta = 0.059$, $p = 0.889$). In Figures 3a and 3b, we present the relationship between competitor CEOs' risk-taking and their performance relative to competitive aspirations, specifically plotting poorer and better performance at mean minus and plus one standard deviation, respectively. The figures demonstrate that better performance relative to competitive aspirations leads to an increase in the risk-taking of competitor CEOs who have witnessed a star CEO winning an award. Consistent with the results from the main analysis in Table 4, the slope difference tests support these findings. Notably, the slope for line [4] of Figure 3b (representing competitors \times

post-award period \times better performance relative to competitive aspirations +1 SD) significantly differs from the other lines (p -value < 0.05), while the slope for line [2] of Figure 3a (representing competitors \times post-award period \times poorer performance relative to competitive aspirations -1 SD) does not significantly differ from the other lines (p -value > 0.10).

-----Insert Figures 2, 3a, 3b and Table 4 about here-----

4.2. Robustness checks

We ran additional regression analyses to check the robustness of our results. First, we conducted placebo tests to mitigate any concerns about endogeneity bias due to omitted variables, following prior studies (e.g., Flammer and Ioannou, 2021; Younge *et al.*, 2015). Specifically, we created two pseudo treatments including one pseudo treatment measured two years before the actual event and the other two years after the actual event. If macro trends in the competitor industries led to higher risk-taking regardless of a star CEO winning a prestigious CEO award, firms in pseudo treatments would take more risks in these analyses. Similarly, if competitor CEOs were more competitive or had more capability regardless of a star CEO winning a prominent CEO award, they would take more risks in these analyses using the pseudo treatments. Table 5 reports the results of the placebo tests, and the results were different from the results in main regression models. This indicates that our main results were not driven by such omitted variables. Specifically, the coefficient estimates for the interaction between *competitors* t-2 (two year before the actual event) and *post-award period* and *competitors* t+2 (two years after the actual event) and *post-award period* are not significant (Model 1: $\beta = 0.012$, $p = 0.392$; Model 3: $\beta = 0.017$, $p = 0.184$), and the coefficient estimates for the interaction between *competitors*, *post-award period* and *performance relative to competitive aspirations* are not significant (Model 2: $\beta = 0.352$, $p = 0.214$; Model 4: $\beta = -0.212$, $p = 0.410$).

We conducted another placebo test by using “prior competitors”. Specifically, we selected the competitors of star CEO firms during the three years prior to the year when the star CEO firm was matched with competitor CEO firms. As the TNIC captures market changes over time, the competitors of a firm can vary over time. Therefore, these prior competitors were the competitors of the star CEO firms before the star CEO received a CEO award, but they were not the competitors of the star CEO firm at the time when the CEO won the award. If macro market trends or the competitiveness of CEOs in the industry influenced our primary results, the prior competitors would exhibit similar increased risk-taking. However, the regression outcomes using the prior competitors suggest that our main findings were not driven by such effects. Specifically, the coefficient estimate for *competitors* is not significant (Model 5: $\beta = 0.017$, $p = 0.379$), and the coefficient estimate for the interaction between *competitors* and *performance relative to competitive aspirations* is not significant (Model 6: $\beta = 0.336$, $p = 0.196$).

Second, following Chatterjee and Hambrick’s (2011) approach, we created an alternative dependent variable by summing R&D, capital expenditures, and acquisitions without standardizing these variables. Our results remained consistent with our main findings. Specifically, the coefficient estimate for *competitors* is positive and significant (Model 7: $\beta = 0.104$, $p = 0.035$), and the coefficient estimate for the interaction between *competitors* and *performance relative to competitive aspirations* is positive and significant (Model 8: $\beta = 1.469$, $p = 0.015$).

Third, we used alternative variables of financial slack, firm size, and performance relative to competitive aspirations. Specifically, we performed regressions using alternative firm size, operationalized as the logarithm of the number of employees and total assets. We also used an alternative composite measure of financial slack, calculated using available slack measured as cash and cash equivalents divided by total assets (Kim and Bettis, 2014; Vanacker *et al.*, 2017),

absorbed slack as the ratio of selling, general, and administrative expenses to sales (Greve, 2003), and potential slack (measured as equity to debt). We obtained similar regression results when we used each of the alternative variables, as compared to our original findings.

Following prior studies, we constructed two alternative measures of ROA. The first measure is earnings before income and tax scaled by total assets (Burchard *et al.*, 2021). The second measure is operating income before depreciation scaled by total assets (Flammer, 2015). Similar to our main analysis, we adjusted these variables by subtracting the industry median value. Our regression results based on two alternative measures of ROA remained similar to our main findings. The coefficient estimates for the interaction between *competitors* and *post-award period* in both regression models are positive and significant ($\beta = 0.028$, $p = 0.023$; $\beta = 0.026$, $p = 0.030$). The coefficient estimates for the interaction between *competitors*, *post-award period* and *performance relative to competitive aspirations* in both regression models are positive and significant ($\beta = 0.421$, $p = 0.067$; $\beta = 0.407$, $p = 0.060$).

We ran regression with industry-adjusted return on sales (ROS). Specifically, we constructed three measures of ROS by scaling net income, earnings before income and tax, and operating income before depreciation by sales. Similar to our main analysis, these variables were adjusted by the industry median value. Our results using these measures were consistent with our main findings. The coefficient estimates for the interaction between *competitors* and *post-award period* of regression models with each of the three ROS are positive and significant ($\beta = 0.027$, $p = 0.025$; $\beta = 0.026$, $p = 0.034$; $\beta = 0.025$, $p = 0.035$). The coefficient estimates for the interaction between *competitors*, *post-award period* and *performance relative to competitive aspirations* of regression models with each of the three ROS are positive and significant ($\beta = 0.229$, $p = 0.045$; $\beta = 0.199$, $p = 0.034$; $\beta = 0.216$, $p = 0.050$).

We also ran regression with ROA adjusted by the industry mean value (e.g., Audia and Greve, 2006) instead of the industry median value. Our results using this measure remained similar to our main findings. The coefficient estimate for the interaction between *competitors* and *post-award period* of regression model is positive and significant ($\beta = 0.027$, $p = 0.028$). The coefficient estimate for the interaction between *competitors*, *post-award period* and *performance relative to competitive aspirations* of regression model with the mean-adjusted ROA is positive and significant ($\beta = 0.264$, $p = 0.036$). We also used spline variables to examine whether better and/or poorer performance drives our results. The coefficient estimate for the interaction between *competitors*, *post-award period* and *better performance relative to competitive aspirations* is positive and marginally significant ($\beta = 0.265$, $p = 0.058$), whereas the coefficient estimate for the interaction between *competitors*, *post-award period* and *poorer performance relative to competitive aspirations* is positive but not significant ($\beta = 0.065$, $p = 0.885$).

Finally, we replaced ROA with Tobin's Q, which is a stock market-based measure. Following Peters and Taylor (2017) and recent management studies (e.g., Jung *et al.*, 2023; Belderbos, Park and Carree, 2021), we constructed an improved version of Tobin's Q and adjusted it by industry median. Unlike Tobin's Q defined in prior studies (e.g., Chung and Pruitt, 1994) that estimates a firm's market value based on tangible assets, the improved version of Tobin's Q estimates a firm's market value by accounting for both tangible and intangible (knowledge) assets. The coefficient estimates for *competitors* is positive and significant ($\beta = 0.029$, $p = 0.020$), and the coefficient estimates for the interaction between *competitors* and *performance relative to competitive aspirations* are positive but not significant ($\beta = 0.011$, $p = 0.262$).⁴

⁴ This may not be a surprising finding. Prior studies have documented that, after accounting for the positive effect that the cost of capital tends to have on both stock prices and business investment, decision-makers tend to prioritize internally derived financial measures over stock prices (e.g., Rappaport, 1987; Roll, 1986; Jennings and Mazzeo,

-----Insert Table 5 about here-----

5. Discussion

Upper echelon theory proposes that CEOs can have a strong influence on a firm's strategic decisions because CEOs' cognitive base and values shape their perceptions of a situation, affecting a firm's strategic decisions (Hambrick, 2007; Hambrick and Mason, 1984). Building upon the premise, this study explores how a CEO winning a prominent CEO award influences competitor CEOs' risk-taking. It then examines how prior firm performance relative to competitive aspirations moderates the relationship between a star CEO winning an award and competitor CEOs' risk behavior. In line with our theoretical arguments, this study finds that competitor CEOs' striving aspirations formed by a star CEO being awarded appear to induce competitor CEOs to become risk-seeking. Furthermore, the proclivity becomes stronger when their prior firm performance rises above competitive aspirations. In sum, these findings support our theoretical argument that a star CEO winning a prominent award leads competitor CEOs to perceive the situation as a loss due to the perceived discrepancies between their current standing and the elevated striving aspirations. This perception of a loss drives these competitor CEOs to take more risks. Furthermore, better firm performance relative to competitive aspirations enhances their risk-taking by increasing the salience of striving aspirations and perceived discrepancies.

This study makes several contributions to the literature on strategic leadership by enhancing the behavioral understanding of a firm's strategic decision-making. It delineates an underlying mechanism that explains how an important event at a rival firm can affect a CEO's aspirations, perceptions and risk-taking. The extant literature has primarily focused on various

1991). Thus, competitor CEOs might believe that internally derived private financial information is of better quality than the public information available to stockholders.

CEO-related factors such as overconfidence, narcissism, political orientation, and star status, which impact on the risk-taking of CEOs themselves (Cho *et al.*, 2016; Chatterjee and Hambrick, 2011; Christensen *et al.*, 2015; Malmendier and Tate, 2009). Recent research has started to explore the impact of critical events encountered by a CEO at a rival firm on a CEO's risk-taking. For instance, based on the literature on job insecurity, prior research has shown that CEOs curtail risk-taking to enhance their job security when a peer CEO undergoes dismissal (Connelly *et al.*, 2020). Likewise, building upon the valence expectancy model, recent research has shown that CEOs take risky actions to attack a direct rival firm when its CEO unexpectedly dies (Cho *et al.*, forthcoming). Although recent research has started to shed light on the understudied subject, there has been insufficient focus on understanding how these occurrences can impact a CEO's risk-taking by shaping their aspirations and reference points, which play a pivotal role in influencing their approach to risk-taking. To address the void in the evolving debate, this study utilizes literature on prospect theory and multiple aspirations to elucidate an underlying mechanism. It suggests that a star CEO achieving social distinction and enjoying personal benefits via prominent CEO awards can elevate competitor CEOs' striving aspirations. This, in turn, leads them to perceive discrepancies between their current standing and the elevated striving aspirations. Consequently, competitor CEOs perceive a loss, motivating them to engage in risk-taking behaviors. In sum, it contributes to the literature by identifying significant events experienced by peer CEOs as an antecedent that promotes risky behavior of competitor CEOs, as these events can shape the aspirations of competitor CEOs, which serve as their behavioral reference points.

This study contributes to the literature on the effects of multiple aspirations on risk-taking (e.g., Berchicci and Tarakci, 2022; Greve, 1998; Keum and Ryan, 2023; Luger, 2023; Mezas *et al.*, 2002). Prior research mainly focused on a firm's social aspirations and historical aspirations.

It enhances this line of research by underscoring the critical role that striving aspirations play in influencing risk behavior (Keum and Ryan, 2023; Labianca *et al.*, 2009; Martins, 2005). This study also contributes to the literature by examining how striving and competitive aspirations interact to influence competitor CEOs' risk-taking. It suggests that competitive aspirations influence how competitor CEOs perceive heightened striving aspirations, impacting their inclination for risk-taking. Prior research has shown that multiple aspirations influence strategic decisions simultaneously (Baum *et al.*, 2005) and sequentially (Greve, 2008), and that some aspirations have greater primacy under certain contexts (Labianca *et al.*, 2009; Blettner *et al.*, 2015). This study enriches this line of the ongoing debate by showing that the proclivity of competitor CEOs to undertake risks, driven by the heightened striving aspirations, becomes stronger when their firm performance rises above competitive aspirations. This is because better firm performance relative to competitive aspirations leads competitor CEOs to pay increased attention to their striving aspirations and believe in their own ability to achieve the aspirations. This finding lends support to the perspective that striving aspirations attract more attention from boundedly rational decision makers, as they perceive these aspirations as more salient when their firm performance rises above competitive aspirations. Thus, this study sheds light on the important role decision-makers' perceptions of striving and competitive aspirations play in the context of making risky decisions.

This study is not without its limitations, which suggest potential directions for future research. First, this study suggests that an important event of CEOs at a direct rival firm affect the risk-taking by competitor CEOs. To generalize our study, it would be interesting to examine how *negative* incidents experienced by CEOs at a peer firm affect the decision making of competitor CEOs. For instance, if a CEO is nominated as the worst manager of the year, this might lead competitor CEOs to reduce their risk-taking, since it would enhance their standing relative to their

social peers, leading them to perceive the incident as a gain. Additionally, it would be interesting to examine how observing a CEO at a direct rival firm losing his or her accolades might influence competitor CEOs' strategic decisions. Second, this study shows that striving aspirations and competitive aspirations interact to affect decision makers' risk behavior. It reveals that competitive aspirations gain more prominence than striving aspirations when firm performance is poor relative to competitive aspirations. This finding is consistent with the previous study (e.g., Greve, 2008; Labianca *et al.*, 2009) that shows organizations tend to use competitive aspirations as a primary reference point in the face of survival threats. Conversely, striving aspirations become a more relevant reference point than competitive aspirations when firm performance rises above competitive aspirations. This finding supports the prior study (Labianca *et al.*, 2009) that shows organizations' risk-taking is contingent upon their striving aspirations when firm performance rises above competitive aspirations. Future researchers could explore how organizational contingencies influence the degree of attention and salience decision-makers attribute to either competitive aspirations or striving aspirations over the other.

This study has implications for management practice. It suggests that a critical event at a rival firm can affect decision-makers' risk-taking by shaping their striving aspirations. When a star CEO wins prominent awards, it attracts the attention of competitor CEOs, inducing them to choose the star CEO as striving aspirations and, as a result, leading them to take risks. Given this insight, firms should recognize that the salience and prominence of a critical event at a rival firm can significantly impact decision-makers' aspirations and reference points, thereby impacting their strategic decisions involving risks. This study shows that striving aspirations have the potential to lead competitor CEOs to increase their financial investments by \$65.32 million. Thus, firms need to closely monitor a critical event at a rival firm and evaluate decision-makers' exposure to such

an event strategically. This study also suggests that their strategic decisions are influenced by multiple aspirations by showing that striving and competitive aspirations interact to influence competitor CEOs' risk-taking. Specifically, an increased inclination towards risk-taking by competitor CEOs becomes stronger when their firm outperforms competitors in the same industry. Firms should consider the interconnected nature of multiple aspirations, as they can jointly influence the risk-taking of their decision-makers. Thus, this study aids firms in more effectively evaluating the interactive effects of these multiple aspirations on the risk-taking tendencies of their decision-makers.

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Table 1. Coarsened exact matching (CEM): univariate and multivariate L1 statistics

	Before CEM	After CEM
Univariate L1 statistics		
Firm size	0.469	0.075
Firm performance	0.174	0.049
Financial slack	0.181	0.071
Firm risk-taking	0.149	0.082
Multivariate L1 statistics	0.992	0.719

Notes. Variables are defined in the Methodology section.

Table 2. Coarsened exact matching (CEM): *t*-test difference in mean for the matched sample

	Competitor CEO firms	Control Firms	p-value	t-value
Firm size	8.606	8.566	0.660	-0.440
Firm performance	0.033	0.032	0.953	-0.060
Financial slack	-0.393	-0.395	0.985	-0.019
Firm risk-taking	0.165	0.157	0.551	-0.596

Notes. The final CEM-matched sample consists of 372 pairs of treatment (competitor CEO firms) and control firm groups. 3-year average value of the variables are used in the CEM matching and variables are defined in the Methodology section.

Table 3. Descriptive statistics and correlations

Variable	Mean	Std. Dev.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.
1. Firm risk-taking	0.165	0.247	1.00																	
2. Post-award period	0.574	0.495	0.02	1.00																
3. Competitors	0.510	0.500	0.04	0.01	1.00															
4. Firm size (log)	8.690	1.324	-0.31	0.07	0.02	1.00														
5. Firm age (log)	3.482	0.806	-0.13	0.05	-0.06	0.22	1.00													
6. Performance relative to competitive aspirations	0.032	0.085	0.11	0.01	0.01	-0.03	-0.10	1.00												
7. Financial slack	-0.390	1.198	-0.26	0.02	0.02	0.15	0.04	0.03	1.00											
8. CEO ownership	0.008	0.022	-0.04	0.04	0.01	-0.10	0.01	0.01	0.01	1.00										
9. CEO tenure	7.151	6.406	-0.01	0.00	0.05	-0.10	0.00	0.07	0.02	0.43	1.00									
10. CEO age	55.034	6.462	-0.05	0.03	0.01	0.16	0.14	0.03	0.04	0.22	0.43	1.00								
11. CEO gender	0.964	0.185	0.01	-0.01	-0.02	-0.06	-0.03	-0.03	-0.02	0.04	0.07	0.01	1.00							
12. CEO duality	0.480	0.500	-0.04	-0.01	-0.07	0.16	0.19	-0.01	0.03	0.05	0.16	0.22	-0.04	1.00						
13. CEO cash pay	0.246	0.237	-0.02	-0.15	-0.06	-0.21	-0.04	-0.10	-0.02	0.00	-0.03	-0.06	0.03	0.04	1.00					
14. CEO in the money exercisable (log)	6.208	4.178	-0.02	-0.06	0.03	0.16	0.09	0.16	0.01	0.03	0.14	0.07	0.02	0.14	-0.05	1.00				
15. CEO in the money unexercisable (log)	4.657	4.006	-0.03	-0.07	0.01	0.13	0.08	0.16	0.04	-0.03	0.02	-0.02	0.04	0.08	-0.02	0.62	1.00			
16. Analyst coverage	8.671	7.476	0.06	0.00	0.02	0.24	0.06	0.05	-0.06	-0.02	-0.06	-0.04	0.07	0.04	-0.07	0.10	0.08	1.00		
17. Board size	14.135	3.583	-0.12	-0.02	0.08	0.49	0.24	-0.02	-0.04	-0.13	-0.05	0.08	0.01	0.13	-0.03	0.18	0.13	0.18	1.00	
18. Board outsider ratio	0.633	0.144	0.05	0.04	-0.10	-0.18	-0.07	-0.07	0.00	-0.03	-0.11	-0.04	0.00	-0.08	-0.06	-0.10	-0.10	-0.17	-0.41	1.00

Notes. All correlations with an absolute value equal to or greater than 0.05 are statistically significant at $P < 0.05$.

N = 4,729; Continuous variables winsorized at 1% and 99% to eliminate outliers

Table 4. Ordinary least square regression analysis (Hypotheses 1 and 2)

	(1)	(2)	(3)	(4)
Competitors × Post		0.027**	0.011	0.005
		(0.012)	(0.011)	(0.012)
Post-award period (Post)		-0.005	-0.003	-0.002
		(0.009)	(0.009)	(0.010)
Competitors		0.001	0.007	0.017
		(0.010)	(0.010)	(0.011)
Competitors × Post × Performance relative to competitive aspirations			0.484**	
Post × Performance relative to competitive aspirations			-0.065	
			(0.152)	
Competitors × Performance relative to competitive aspirations			-0.193	
			(0.118)	
Competitors × Post × Better performance				0.542**
				(0.234)
Post × Better performance				-0.066
				(0.185)
Competitors × Better performance				-0.304**
				(0.136)
Better performance relative to competitive aspirations (Better performance)				0.297*
				(0.168)
Competitors × Post × Poorer performance				0.059
				(0.421)
Post × Poorer performance				0.068
				(0.344)
Competitors × Poorer performance				0.491
				(0.330)
Poorer performance relative to competitive aspirations (Poorer performance)				-0.296
				(0.306)
Firm size	-0.054***	-0.054***	-0.055***	-0.054***
	(0.009)	(0.009)	(0.009)	(0.009)
Performance relative to competitive aspirations	0.225**	0.223**	0.214	
	(0.094)	(0.095)	(0.145)	
Firm age	-0.012	-0.011	-0.011	-0.011
	(0.008)	(0.008)	(0.008)	(0.008)
Financial slack	-0.029***	-0.029***	-0.030***	-0.030***
	(0.007)	(0.007)	(0.006)	(0.007)
CEO ownership	-0.343**	-0.339**	-0.334**	-0.333**
	(0.164)	(0.165)	(0.163)	(0.161)
CEO tenure	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
CEO age	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
CEO gender	-0.030	-0.026	-0.024	-0.023
	(0.021)	(0.022)	(0.022)	(0.022)
CEO duality	0.014	0.014	0.015*	0.015*
	(0.009)	(0.009)	(0.009)	(0.009)
CEO cash pay	-0.040**	-0.039**	-0.037**	-0.040**
	(0.017)	(0.016)	(0.016)	(0.016)
CEO in the money exercisable	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
CEO in the money unexercisable	0.000	-0.000	-0.000	-0.000

	(0.001)	(0.001)	(0.001)	(0.001)
Analyst coverage	0.003***	0.003***	0.003***	0.003***
	(0.001)	(0.001)	(0.001)	(0.001)
Board size	0.001	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)
Board outsider ratio	-0.028	-0.025	-0.026	-0.025
	(0.052)	(0.052)	(0.052)	(0.052)
Constant	0.731***	0.722***	0.724***	0.713***
	(0.106)	(0.107)	(0.107)	(0.105)
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	4,729	4,729	4,729	4,729
R-squared	0.360	0.362	0.365	0.366
F statistics	5.74***	5.98***	6.00***	5.47***

*** p<0.01, ** p<0.05, * p<0.1; two-tailed tests

Notes. Robust standard errors in parentheses are clustered at matched pairs level.

Table 5. Robustness checks: Placebo tests and alternative dependent variable

Variables	(1) Placebo test (competitors at t-2)	(2) Placebo test (competitors at t+2)	(3) Placebo test (competitors at t+2)	(4) Placebo test (competitors at t+2)	(5) Placebo test (prior competitors)	(6) Placebo test (prior competitors)	(7) Firm risk-taking without normalization	(8) Firm risk-taking without normalization
Competitors × Post	0.012 (0.014)	0.002 (0.015)	0.017 (0.012)	0.023* (0.012)	0.017 (0.019)	0.006 (0.020)	0.104** (0.049)	0.054 (0.050)
Post-award period (Post)	-0.007 (0.012)	-0.007 (0.012)	-0.010 (0.010)	-0.015 (0.010)	0.009 (0.011)	0.014 (0.011)	-0.098** (0.043)	-0.096** (0.044)
Competitors	0.006 (0.015)	0.011 (0.015)	0.012 (0.010)	0.006 (0.010)	-0.002 (0.009)	0.006 (0.009)	0.148** (0.059)	0.155** (0.062)
Competitors × Post × Performance relative to competitive aspirations		0.352 (0.283)		-0.212 (0.257)		0.336 (0.259)		1.469** (0.600)
Post × Performance relative to competitive aspirations		0.021 (0.237)		0.189 (0.175)		-0.148 (0.154)		-0.021 (0.500)
Competitors × Performance relative to competitive aspirations		-0.204 (0.267)		0.171 (0.147)		-0.243 (0.166)		-0.277 (0.538)
Performance relative to competitive aspirations	0.222** (0.094)	0.154 (0.235)	0.220** (0.095)	0.113 (0.125)	0.221** (0.098)	0.330*** (0.124)	1.483*** (0.373)	1.199** (0.559)
Constant	0.716*** (0.106)	0.719*** (0.104)	0.715*** (0.105)	0.719*** (0.106)	0.641*** (0.091)	0.642*** (0.092)	-0.175 (0.402)	-0.160 (0.400)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,729	4,729	4,729	4,729	4,859	4,859	4,729	4,729
R-squared	0.361	0.362	0.361	0.362	0.340	0.341	0.657	0.658
F statistics	6.02***	5.83***	6.13***	5.89***	5.674	5.350	41.10***	39.47***

*** p<0.01, ** p<0.05, * p<0.1; two-tailed tests

Notes. Robust standard errors in parentheses are clustered at matched pairs level.

Figure 1. Leads and lags of firm risk-taking



T-test of differences in means between competitor CEO firms (competitors) and control firms							
Event year	t-3	t-2	t-1	Award year	t+1	t+2	t+3
t-statistics	-0.24	-0.98	0.03	-2.14	-0.70	-1.72	-1.75
p-value	0.81	0.33	0.97	0.03	0.48	0.09	0.08

Figure 2. The moderating effects of performance relative to competitive aspirations (performance) on the relationship between competitor CEO firms (competitors) in the pre/post-award period and firm risk-taking

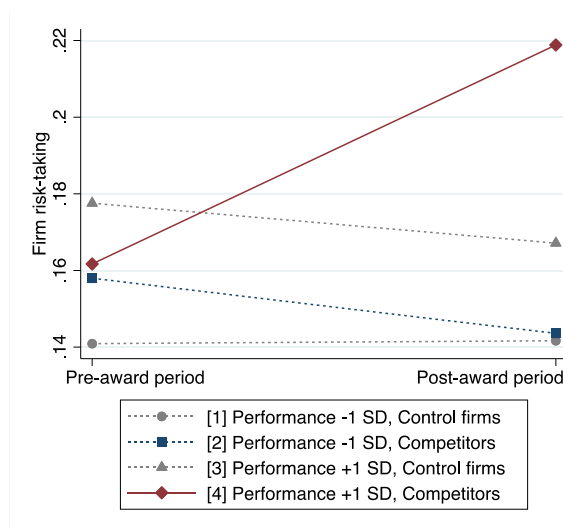


Figure 3a/3b. The moderating effects of poorer/better performance relative to competitive aspirations (poorer/better performance) on competitor CEO firms (competitors) in the pre/post-award period and firm risk-taking

