

Does Founder CEO Status Affect Firm Risk-Taking?

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ABSTRACT

Grounded in the strategic leadership literature and upper echelons theory, this study proposes that founder CEOs tend to take more risks than agent CEOs because of the former's overconfidence. We further suggest that the relationship between founder CEO status and firm risk-taking can be moderated by certain internal or external factors that influence just how overconfident a CEO might be. Our theoretical predictions are well supported by a large survey data set on Chinese CEOs. Specifically, the positive relationship between founder CEO status and firm risk-taking weakens when the CEO is younger, when the CEO also chairs the board of directors, and when the CEO's task environment is less uncertain, less complex, and more munificent.

Key words: Founder CEOs, Risk-taking, Overconfidence, Upper echelons theory, Chinese firms

INTRODUCTION

Many of today's most prominent firms (such as Google, Facebook, and Amazon) were or are still being run by founder CEOs. Both researchers and practitioners have sought to understand how founder CEOs affect firm-level outcomes such as financial performance (Fahlenbrach, 2009; He, 2008; Jayaraman et al., 2000), corporate turnaround strategy (Abebe, Angriawan, & Ruth, 2012), governance structures (Nelson, 2003), and investment decisions (Fahlenbrach, 2009; Souder et al., 2012). One of the most intriguing findings has been that founder CEOs tend to be more risk-tolerant than agent CEOs (Amid & Lev, 1981, 1999; Eisenmann, 2002). The conventional explanation goes that “the function relating [risky] investment outcomes to owner-managers' personal wealth is likely to be steeper at all points than the curve for agent CEOs” (Eisenmann, 2002, p. 516).

Insightful as this economically scrupulous calculation is (Eisenmann, 2002), since CEOs are like any other decision makers with bounded rationality (March and Simon, 1958), other mechanisms might be at work behind founder CEOs' tendency to take more risks. This study examines the potential psychological mechanism linking founder CEO status to firm risk-taking, knowing that founder CEOs “differ substantially from agents for the knowledge, values, and attitudes they bring to bear in managing the firm” (Souder et al., 2012, p. 24). In particular, grounded in the recent development in the strategic leadership literature (Forbes, 2005; Hiller & Hambrick, 2005; Li & Tang, 2010), we highlight the role of overconfidence—the general belief that one has superior knowledge, predictions, or abilities to one's peers—in founder CEOs' risk-taking behavior (Griffin & Varey, 1996; Navis & Ozbek, 2015). Specifically, we consider overconfidence as a process mechanism linking CEO founder status and firm risk-taking and argue that founder CEOs take more risks because they are likely to be the overconfident type.

Directly assessing executive overconfidence is difficult as it involves surveying corporate executives about their psychological characteristics. So instead we test this mechanism by exploring the contingent scope of the relationship between founder CEO status and firm risk-taking (cf. Wang & Qian, 2011). We examine those internal and external factors that can modify the effect of corporate leaders' psychological characteristics. Under certain conditions, the association between their psychological characteristics and firm decision and outcomes may strengthen (Hambrick, 2007). For instance, it has been shown that overconfident decision makers become even more so when facing challenges marked by greater uncertainty (e.g., Odean, 1998; Taylor & Brown, 1988; Weinstein, 1980). Therefore, if the proposed overconfidence mechanism holds, the impact of founder CEO status on firm risk-taking should vary according to how strong those internal and external factors are.

This study makes two specific contributions to the strategic leadership literature and the firm risk-taking research. First, this study contributes to the field by exploring the linkage between founder CEO status and firm risk-taking from an overconfidence perspective. Previous research has shown that risk-taking is fundamental to firm survival and development (Bromiley, 1991; Shapira, 1995), and has also identified founder CEO status as a major driver of firm risk-taking (e.g., Eisenmann, 2002). These efforts have tended to highlight the economic explanation behind the observed relationship (Amid & Lev, 1981, 1999; Eisenmann, 2002). Recent developments in the strategic leadership literature have been paying increasing attention to the potential role that a corporate leader's psychological characteristics play in a firm's risk-taking behavior (Li & Tang, 2010). This study thus supplements the research on the relationship between founder CEO status and firm risk-taking from a psychological perspective. In particular,

we focus on an overconfidence mechanism and suggest that this alternative approach may also help account for the influence of founder CEO status on risky firm strategic decisions.

Second, our study contributes to the strategic leadership field by empirically testing the boundary condition governing the relationship between founder CEO status and firm risk-taking. In order to validate the proposed overconfidence mechanism, we test the moderating effects of a set of factors that can arguably influence the extent of overconfidence. According to upper echelons theory (Hambrick & Mason, 1984), executive psychological characteristics can greatly affect a CEO's decision-making process under certain internal or external conditions. This study identifies both executive- and environmental-level factors determining the extent to which overconfidence affects a founder CEO's decision-making and tests the moderating role of these factors in the proposed relationship between founder CEO status and firm risk-taking.

THEORY AND HYPOTHESES

Founder CEOs and firm risk-taking

The strategic leadership literature has documented that the characteristics of CEOs have important implications for firm decision-making and performance (Hambrick & Mason, 1984). One important CEO characteristic is whether he or she is hired as an agent by shareholders or is in fact a founder of the firm (Abebe et al., 2012; Jayaraman et al., 2000). Indeed, many firms are managed by founder CEOs who maintain significant ownership in the firms (Fahlenbrach, 2009). Founder CEOs play considerably different roles in firm strategy and performance than agent CEOs, because the two types of CEOs possess substantially different knowledge, values, and attitudes in managing the firms and they receive vastly different economic pay-offs for their efforts (Amihud & Lev, 1981; Eisenmann, 2002; He, 2008; Souder et al., 2012).

For instance, in terms of firm strategy, by studying 2,327 US public firms, Fahlenbrach (2009) showed that founder CEOs invested more in R&D, approved higher capital expenditures, and pursued more focused M&As. In a study of 173 cable operators, Souder et al. (2012) found that founder CEOs were less likely to continue market expansion during their mid-tenure and their strategic decisions were more severely constrained by market complexity. In terms of firm performance, by studying 94 US public firms, Jayaraman et al. (2000) found that founder CEOs led smaller and younger firms to better performance than agent CEOs were able to. In a study of 1,143 US firms that went public during 1998-2002, He (2008) found that firms with founder CEOs exhibited better financial performance, especially those with more powerful founder CEOs, such as those who also chaired the boards of directors. Fahlenbrach (2009) also found that firms with founder CEOs have both higher valuation and better stock market performance.

Prior research has also explored how founder CEOs affect firm risk-taking. A preponderance of empirical research has suggested a positive relationship between founder CEO status and risk-taking. For instance, in a study of mergers in the US cable television industry, Eisenmann (2002) found that owner-managed firms take more risks than agent-led firms as measured by horizontal expansion through acquisitions, and this effect is stronger as the business environment grows more turbulent. However, this stream of efforts has often attributed the positive relationship between founder CEO status and firm risk-taking to CEOs' economic concerns about personal pay-offs. For example, Eisenmann (2002, p. 515) believes that “[d]ifferences in the personal pay-offs to owner-managers [such as founder CEOs] and agent CEOs from sponsoring risky investments may explain such a relationship”. An agent CEO is likely to receive a substantially smaller pay-off from a positive but risky investment as a

percentage of his or her personal wealth than a founder CEO, and he or she could face dismissal if the risky investment fails.

The existing studies relying on economic explanations have yielded a useful but one-sided understanding of the relationship between founder CEO and risk-taking. We supplement the theoretical thrust of previous work by proposing and testing a psychological mechanism linking founder CEO status to firm risk-taking. Specifically, grounded in the recent development in the strategic leadership literature and firm risk-taking research (Forbes, 2005; Hiller & Hambrick, 2005; Li & Tang, 2010), we argue that founder CEOs are more likely to be overconfident and to lead their firms to take more risks. In particular, we treat overconfidence as the process mechanism linking CEO founder status and firm risk-taking.

Overconfidence has been described as one of the many managerial biases characterizing corporate leaders (Hiller & Hambrick, 2005). Displaying extreme self-potency, overconfident CEOs tend to be highly optimistic about the outcomes of their leadership and often overestimate their likelihood of success (Hayward & Hambrick, 1997). Their inflated egos drive them to take more risks than they should (Li & Tang, 2010; Simon & Houghton, 2003). For example, in a study of Chinese CEOs, Li and Tang (2010) found that overconfident CEOs pursued more risky projects.

Interestingly, and also more relevant to our main research question is that, founder CEOs are more likely to be susceptible to cognitive biases like overconfidence (Forbes, 2005, p. 627). This may be partly due to the fact that founder CEOs to a large extent think and behave as entrepreneurs (Begley, 1995), and overconfidence is simply their response to such essential aspects of entrepreneurship as information overload, high uncertainty, and intense time pressure (e.g., Busenitz & Barney, 1997; Hmieleski & Baron, 2009). Indeed research has consistently

shown overconfidence to be one of the most prominent individual-level qualities that distinguish founder CEOs from their non-founder counterparts (Wooldridge, 2009; Lee, Hwang, & Chen, 2015). This is because “starting a company is extraordinarily difficult, even agonizing. You need self-confidence and ego to get through it” (Kiger, 2014). For example, using survey data on 2,994 founding executives, Cooper et al. (1988) showed that founders often perceive the odds of success of their new ventures to greatly exceed those of similar ventures. In contrast, agent CEOs in existing firms rely on more rational decision-making processes and are more analytical, realistic, and logical than founder CEOs (Busenitz & Barney, 1997; Fraser & Greene, 2006; Hayes & Abernathy, 1980). Indeed a recent study by Lee and his colleagues (2015) based on a sample of large S&P 1,500 companies revealed that, founder CEOs are more overconfident than their nonfounder counterparts.¹

Therefore, we propose that overconfidence serves as the key mechanism linking CEO founder status and firm risk-taking. Although we do not directly assess this mechanism, a logical inference can be drawn based on our previous reasoning. So as founder CEOs are more likely to be overconfident and thus take more risks, we propose the following baseline hypothesis:

Hypothesis 1: A positive relationship exists between founder CEO status and firm risk-taking.

The moderating effect

We are unable to directly model and measure executive overconfidence, but it is possible to assess this mechanism by identifying some contingent factors that would modify its impact (cf.

¹ There might be a competing mechanism accounting for the relationship between founder CEO status and firm risk-taking: founder CEOs tend to be emotionally and psychologically attached to their firms and may even consider their firms as their major life achievement (Nelson, 2003; Fisher & Pollock, 2004). Accordingly, founder CEOs would think more carefully before taking any risks that would jeopardize the future of their firms. This “emotional attachment” mechanism coexists with the “overconfidence” mechanism we propose in this study. Our focus in this study is on the second mechanism and our empirical evidence renders it support. Certainly, future research should consider both mechanisms simultaneously and examine the conditions under which one mechanism may outweigh the other. We thank one anonymous reviewer for raising this insightful issue.

Tang, Li, & Yang, 2015). If the proposed overconfidence mechanism holds, the impact of founder CEO status on risk-taking should vary with certain variables that affect the proposed mechanism. It is equally meaningful to identify those factors that may mitigate the impact of founder CEO status on firm risk-taking as taking too much risk will expose firms to substantial losses (Sanders & Hambrick, 2007). This study highlights those factors at the individual CEO and environmental levels. At the individual CEO level, we examine the CEO's age and his or her control over the board of directors; at the environmental level, we examine environmental uncertainty, complexity, and munificence (Dess & Beard, 1984).

CEO age. One factor determining the extent to which executive psychological characteristics influence a CEO's decision-making is the CEO's age, which is closely tied to one's performance aspirations (Hambrick, Finkelstein, & Mooney, 2005). Although CEOs are generally portrayed as highly motivated individuals with strong desires to lead their firms to lofty outcomes (Donaldson & Lorsch, 1983), they actually vary widely in their drive and aspirations. Those who are strongly motivated to take their firms to new heights may demand more of themselves, and those who are driven to achieve high levels of performance may experience great pressure (Hambrick et al., 2005). When experiencing intense pressure, the CEO must make a sustained cognitive or emotional effort. Since individual decision makers are "boundedly rational" (Cyert & March, 1963), the greater the pressure experienced, the less ideally they are able to perform. Therefore, CEOs who face high job demands will economize in their strategic decision-making by drawing on what fits their cognitive schema (Hambrick & Mason, 1984; Mischel, 1977; Starbuck & Hedberg, 1977).

Aspirations to deliver maximum firm performance could depend on one's age. Compared with veteran CEOs, younger executives may feel a greater need to prove themselves and to

establish a reputation and foothold (Hambrick & Fukutomi, 1991). Based on these observations, we propose that younger CEOs would experience greater pressure. Accordingly, they will rely more on their personal mental models and will be drawn to what they find familiar and comfortable when searching for and interpreting information and selecting among options (Axelrod, 1976). Thus, decisions made by CEOs who are facing significant job challenges will closely reflect their psychological dispositions and biases (overconfidence in our context) (Hambrick et al., 2005). Based on this line of reasoning, we predict that the younger the CEO is, the more positive the relationship between founder CEO status and firm risk-taking.

Hypothesis 2a: As CEOs age, the positive relationship between founder CEO status and firm risk-taking grows weaker.

Board chair-CEO duality. Hambrick et al. (2005) also suggested that the more powerful the CEOs are relative to the shareholders, the less pressure they face. CEOs differ in how well they are able to meet the expectations of firm shareholders and directors. Shareholders exert their influence over corporate executives through the board of directors (Jensen & Meckling, 1976). When the board is doing a more vigilant job monitoring its CEO, the CEO would be facing greater job pressure. Nevertheless, the board's monitoring function is largely weakened if it is chaired by the CEO (Mizruchi, 1983). A CEO who is also the chair of the board enjoys greater power. In other words, board chair-CEO duality strengthens the CEO's power relative to that of the firm's shareholders and lowers the CEO's executive job demands. A more powerful CEO faces less job pressure, and the role of overconfidence in the strategic decision-making process will likely be weakened. This is because when CEOs enjoy more power, they can afford to take their time and make more comprehensive decisions, without relying on their personal mental models. In contrast, when CEOs are less powerful, they will fall back on the more familiar and comfortable cognitive schemata when searching for information and making decisions (Axelrod,

1976). Thus, decisions made by CEOs who are more powerful (such as those who are also board chairs) will reflect their overconfidence to a less extent. Therefore,

Hypothesis 2b: When CEOs are also board chairs, the positive relationship between founder CEO status and firm risk-taking is weaker.

The extent to which a CEO's overconfidence is reflected in his or her strategic decisions can also depend on what tasks the CEO is performing, and task challenges can arise from the environment (Hambrick et al., 2005). Following Dess and Beard (1984), we explore three important environmental characteristics: environmental uncertainty, complexity, and munificence.

Environmental uncertainty. Environmental uncertainty describes the extent to which a CEO faces an unpredictable and unstable environment (Finkelstein & Boyd, 1998). Environmental uncertainty creates means-ends ambiguity, and this increases the task difficulty for the CEO. For instance, environmental uncertainty can obscure the linkages between tasks and performance outcomes (i.e., considerable means-ends ambiguity exists) (Simsek, Heavey, & Veiga, 2010, p. 112), so that it becomes more difficult for executives to make the correct decisions. In contrast, the availability of stable and reliable market information can simplify a CEO's job substantially. Therefore, as environmental uncertainty increases, so does the pressure experienced by top executives. When that happens, CEOs may rely more on personal experiences and cognitive shortcuts (Hambrick & Mason, 1984). Accordingly, the role of overconfidence intensifies in a CEO's strategic decisions, and the main relationship between founder CEO status and firm risk-taking becomes stronger.

Hypothesis 3a: When environmental uncertainty is higher, the positive relationship between founder CEO status and firm risk-taking is stronger.

Environmental complexity. Beyond environmental uncertainty, the complexity of an environment also affects a CEO's task challenges. Environmental complexity defines the extent to which a firm's operating environment is competitive and heterogeneous (Dess & Beard, 1984). Some environments are characterized by numerous variables and contingencies, imposing considerable information-processing demands on CEOs, yet others are simple and homogeneous (Aldrich, 1979). For example, an industry composed of many direct and indirect competitors, in which the product is sold through a large number of channels to heterogeneous customers, is complex and poses considerable challenges to the CEO (Hambrick et al., 2005, p. 476). In such a situation, CEOs must resort to their personal mental models which are often shaped by their own psychological biases. Therefore environmental complexity should strengthen the role of overconfidence in one's strategic decision-making process and in turn bolster the relationship between founder CEO status and firm risk-taking.

Hypothesis 3b: When environmental complexity is higher, the positive relationship between founder CEO status and firm risk-taking is stronger.

Environmental munificence. Environments can be hostile or munificent. Environmental munificence describes whether growth can be sustained in an environment (Dess & Beard, 1984). A munificent environment provides more resources to firms and hence more opportunities and freedom to their CEOs (Hambrick et al., 2005). In a munificent environment, the likelihood of success is much higher, and both the task and performance challenges for the CEOs are significantly reduced. In contrast, in a harsh environment, where resources are scarce, the CEOs would have to overcome many more obstacles before their strategic decisions can be implemented. So in a munificent environment, CEOs will experience fewer challenges in their decision-making process. This situation allows the CEOs to proceed with the available information in a more comprehensive way and rely less on their cognitive shortcuts. On the

contrary, decisions made by CEOs in a hostile environment will closely reflect their psychological biases such as overconfidence (Hambrick et al., 2005). Therefore environmental munificence should weaken the role of overconfidence and undermine the relationship between founder CEO status and firm risk-taking.

Hypothesis 3c: When environmental munificence is higher, the positive relationship between founder CEO status and firm risk-taking is weaker.

METHOD

Data

We tested our predictions with a sample of Chinese founder CEOs. China, as an important transition economy, is undoubtedly different from developed markets in certain respects. Its unique culture would be expected to influence the risk-taking behavior of local CEOs. Therefore, our empirical context serves as a meaningful setting to test and generalize our theoretical predictions that are derived mainly from management theories developed in Western contexts.

For the purpose of understanding the problems firms encounter (e.g. market competition and technological innovation) during China's transition into a market-driven economy, China's government-funded Entrepreneurs Survey System has been surveying Chinese CEOs on a regular basis since the late 1990s. The firms surveyed constitute a proportional sample in terms of industry, location, ownership, and size. This study uses part of the data from the survey conducted in 2000. The survey involved three key steps. First, a questionnaire was mailed out to each of 15,000 firms from multiple industries across provinces based on a valid sampling procedure. Second, phone calls were made to remind firms to return the completed questionnaire and eventually 5,126 responses were received. Finally, those responses with a significant portion of information missing were deleted, leaving behind 5,075 usable responses. The survey reported

no significant industry, location, ownership or size difference between respondents and nonrespondents.

To maintain comparability while avoiding excessive loss of generality, this study focuses on the 3,073 firms in manufacturing industries surveyed at the time. These firms made up 60.55% of the full sample. After excluding those firms for which data were missing for measuring our key variables, the final sample consisted of 2,820 firms with which we tested our predictions. Unpaired t-tests indicated no significant difference in firm size or performance between firms included in the analyses and those excluded.

Measures

Firm risk-taking. To adjust for industry-level risk-taking, we look at whether a firm takes more risk than its industry peers (Li & Tang, 2010; Sanders & Tuschke, 2007). We first consider a firm's decision to invest in a new, high-technology project as a proxy for firm risk-taking. New high-technology initiatives generally involve uncertainties and unusual risks (Anderson & Tushman, 1990). Indeed, whether or not to enter high-tech industries has been used as a measure of firm risk-taking in previous research (Carpenter, Pollock, & Leary, 2003). Of greater relevance to our research purpose is that, high-tech investments during our study period were particularly risky for Chinese firms, as China's technological and institutional environment was still poorly developed in the early 2000s (Maskus, 2000). In the survey, the CEOs were asked "whether their firms have entered or have the intent to enter the high tech industry". "1" represents "no intent", "2" "have intent to enter", and "3" "have entered". Upon checking the data distribution, no serious skewness was detected (the percentages for "1", "2", and "3" are 23.44%, 58.09%, and 18.47% respectively). Following the logic of Li and Tang (2010), "have entered" implies the largest amount of risk-taking and "no intent" the smallest amount. We

further measured a firm's risk-taking in our context by considering whether the firm took more risk than its industry peers.

The focal firm's *risk-taking* was thus conceived as the difference between its risk-taking level and the average risk-taking level of peer firms. For instance, early entrants or pioneers are taking significant risks when they enter a new market while their peers adopt a wait-and-see approach (Sanders & Tuschke, 2007). We define a peer as a firm in the same industry as the

focal firm. We calculate the relative risk-taking level as $R_i - \frac{\sum_{j=1}^{n-1} R_j}{n-1}$, $i \neq j$, where R_i denotes the risk-taking score of firm i (from 1 to 3), R_j is the risk-taking score of a peer firm j (also from 1 to 3), and n is the total number of firms in the same industry. The risk-taking level ranges from -2 (when the focal firm has a risk-taking value of 1 while its peers all have a 3) to 2 (when the focal firm has a risk-taking value of 3 while its peers all have a 1)².

Founder CEO status. A dummy variable was created indicating whether the CEO was also the founder of the firm. In the sample, 18.9 percent of the CEOs had founded their firms³.

Moderating variables. We examine five moderators: CEO age, board chair-CEO duality, environmental uncertainty, munificence, and complexity. To avoid common method bias (Doty & Glick, 1998), the data measuring environmental uncertainty, complexity, and munificence were drawn from the *Chinese Statistics Yearbooks* for 1996 to 2000. These environmental variables were measured based on a firm's primary industry.

² It would have been more useful if we could measure firm risk-taking in other ways, such as by unrelated diversification or acquisitions. However, due to the data limitation, such supplementary analyses were not feasible. Future research should try to confirm our findings with other firm risk-taking measures. We thank an anonymous reviewer for raising this important issue.

³ Some founders may initiate multiple businesses during their careers. It has been shown that there is a critical difference in risk perception between novice and serial entrepreneurs (Podoyntsyna, Van der Bij, & Song, 2012). For instance, positive vs. negative emotions will play a greater role in the risk assessments of serial entrepreneurs than in those of novice entrepreneurs. However, we do not have information about whether the founders in our sample have started multiple businesses. Future research should consider this additional factor. We thank one anonymous reviewer for raising this important issue.

The data on the individual CEO- and firm-level moderating variables were obtained from the CEO survey. *CEO age* was reported by the respondents. *Board chair-CEO duality* was measured by a dummy variable indicating whether the CEO also chaired the board.

Environmental uncertainty was measured by changes in sales profits in each firm's industry over the prior five years (Bergh & Lawless, 1998; Keats & Hitt, 1988). Industry sales profits were regressed against time and the standard errors of the regression slope coefficients were divided by the mean sales profits (Dess & Beard, 1984). Larger values indicated greater environmental uncertainty (Keats & Hitt, 1988; Palmer & Wiseman, 1999).

Environmental complexity was measured by the number of competitors (measured in thousands) in an industry, following Palmer and Wiseman (1999). This measure counted the number of rivals identified in each year from the *Chinese Statistics Yearbook* and averaged over the prior five years. Prior research has used either industry concentration or the number of competitors to measure market complexity (Aldirch, 1979; Keats & Hitt, 1988; Palmer & Wiseman, 1999). We chose the latter because of data availability.

Environmental munificence was measured by the average growth in industry sales over the prior five years (Keats & Hitt, 1988).

Control variables. To rule out alternative explanations, control variables at three levels were included in the analysis: individual CEO, firm, and geographic location. The CEO's education level was included because research has shown that managers' personal demographics can and do influence their risk-taking behavior (MacCrimmon & Wehrung, 1990). CEO education level was measured by a categorical variable ranging from 1 to 6, with each indicating an ascending level of formal education. We controlled for CEO overseas experience, which is a dichotomous variable indicating whether the focal CEO possessed overseas experience of no less

than three months. CEOs with more overseas experience tend to be more open to new ideas and so may be predisposed to take more risk (Filatotchev, Liu, Buck, & Wright, 2009). We controlled for a set of firm-level factors that might influence risk-taking. Firm age was coded as the number of years from the founding of the firm to year 2000. Firm size was the logarithm of the firm's total assets. We also controlled for firm performance, measured as the return on sales (ROS) over the most recent half-year period, because prior performance may influence the CEO's perception of the gain/loss situation and hence firm risk-taking (Kahneman & Tversky, 1979; Wiseman & Gomez-Mejia, 1998). R&D intensity was measured by the ratio of R&D expenditure to sales. We also controlled for firm slack, measured as the ratio of debt to equity, reverse coded, since a higher level of debt lowers a firm's borrowing capacity (Bourgeois, 1981; Singh, 1986). Human resources (HR) training expenditure was controlled for, represented by the ratio of HR training expenditures to sales. A dummy variable for state ownership was included, with about 46% of the sampled firms being wholly state-owned or state-controlled. We included one dummy variable indicating whether the firm was publicly listed. In addition, we also controlled for CEO compensation, which should also influence firm risk-taking (Wiseman & Gomez-Mejia, 1998). CEO compensation was measured by a value ranging from 1 to 9, with 1 indicating the lowest level (i.e., below 20,000 yuan), and 9 indicating the highest level (i.e., above 1 million yuan). Finally, dummy variables representing the 31 provinces in China were included in all models.

Models

For analyzing our data, as the value of the risk-taking variable was restricted to between -2 and 2, a Tobit censored normal regression model was employed (Wooldridge, 2002). The

structural equation of a Tobit model is $y_i = X_i\beta + \varepsilon_i$, where y_i is a latent variable that is observed for values greater than τ (in our context $\tau=0$) and is censored otherwise.

Endogeneity check

We checked for any possible endogenous relationship between founder CEO status and firm risk-taking, as whether or not the CEO is also the founder may be influenced by endogenous factors. To this end, we conducted a Durbin-Wu-Hausman endogeneity test (Wooldridge, 2002) using the CEO's academic major as the instrumental variable. A good instrumental variable should be correlated with the independent variable but not the dependent variable (Wooldridge, 2002; Kennedy, 2008). Academic major may affect one's intent to found a new venture, but it may not necessarily be linked to a firm's risk-taking behavior. We included a set of dummy variables indicating whether the CEO majored in a particular field of study (e.g., business, literature, engineering, etc.) in college. The Durbin-Wu-Hausman test failed to refute the null hypothesis, suggesting that endogeneity should not be a serious concern in our study (Hausman, 1978).

RESULTS

Table 1 presents the descriptive statistics and the correlation coefficients among the key study variables. The correlations among the independent variables are not particularly high and a further investigation of the variance inflation factors (the mean VIF is 1.27 and the maximum VIF is 1.50) did not reveal any serious multicollinearity issue.

Table 2 presents the Tobit estimates based on the empirical analyses. For the control variables, CEO education is shown to be positively related to firm risk-taking ($p < .001$). CEO overseas experience is positively related to firm risk-taking ($p < .001$). The larger the firm is, the greater the extent of risk-taking ($p < .001$). R&D intensity is positively related to firm risk-taking

($p < .001$), as is firm slack ($p < .001$). State-owned firms in general take fewer risks than non-state-owned firms ($p < .05$). Publicly-listed firms on average take more risks than non-listed firms ($p < .01$). CEO compensation is positively related to firm risk-taking ($p < .001$). The older the CEO is, the more risks the firm will take ($p < .05$). Firms whose CEOs also chair the boards of directors are likely to take more risks than firms whose CEOs do not chair the board ($p < .05$).

Model 1 displays the main effect of founder CEO status. The finding renders support to our baseline hypothesis (Hypothesis 1): when the CEO is also the founder of the firm, the firm is more likely to engage in risk-taking behavior ($p < .05$). Models 2-3 display the moderating effects of the individual CEO-level factors. Model 2 includes the interaction between founder CEO status and CEO age. The coefficient is negative and marginally significant ($p < .1$), yielding tentative support for Hypothesis 2a. Model 3 includes the interaction between founder CEO status and board chair-CEO duality. As expected, the coefficient is negative and significant ($p < .05$), firmly supporting Hypothesis 2b: board chair-CEO duality weakens the effect of founder CEO status on firm risk-taking. Models 4-6 present the moderating effects of the environmental-level factors. Model 6 includes the interaction between founder CEO status and environmental uncertainty. The coefficient is positive but not significant. We conducted another split sample analysis by splitting the full sample into two subsamples based on the median value of environmental uncertainty (which is equal to 0.019). In the subsample with above-median environmental uncertainty, founder CEO status has a positive and significant effect on firm risk-taking ($\beta = 0.144$, $p < .01$); in the subsample with below-median environmental uncertainty, founder CEO status also has a positive and significant effect, but the magnitude and significance level are lower ($\beta = 0.095$, $p < .05$). We further generated two dummy variables, indicating whether environmental uncertainty is above or below the median value. Then we generated two

new variables by multiplying the two dummy variables with the founder CEO status variable. We ran another regression on firm risk-taking by including these two new variables. The results show that the new variable that comes from multiplying the high uncertainty dummy variable with founder CEO status is positive and significant ($p < .001$), while the new variable that comes from multiplying the low uncertainty dummy variable with founder CEO status is not significant. An F-test further suggests that the first new variable is greater in magnitude than the second ($p < .05$, one-tailed test). This evidence shows that environmental uncertainty indeed positively moderates the relationship between founder CEO status and firm risk-taking to some extent, and so Hypothesis 3a is generally supported. Indeed, in the full model (Model 7), the coefficient of the interaction between founder CEO status and environmental uncertainty becomes significant ($p < .05$).

Model 5 includes the interaction of founder CEO status with environmental complexity, and the coefficient is positive and significant ($p < .05$). This supports Hypothesis 3b: environmental complexity strengthens the positive relationship between founder CEO status and firm risk-taking. Model 6 includes the interaction between founder CEO status and environmental munificence. The coefficient of the interaction is negative and significant ($p < .05$), supporting Hypothesis 3c: environmental munificence weakens the effect of founder CEO status on firm risk-taking. Model 7 includes all moderating effects and the results generally remain.

[Insert Tables 1-2 about here]

The significant interaction effects (significant at the $p < .05$ level or greater) supporting the hypotheses are plotted in Figures 1-3 using one standard deviation above and below the mean

to represent high and low levels of the moderating variables (Aiken & West, 1991)⁴ based on the coefficients in Model 7 (Hoetker, 2007). Figure 1 shows that the slope reverses (statistically non-significant) when the CEO also chairs the board. Figures 2 and 3 show that the slopes are much steeper when environmental uncertainty and complexity are high.

[Insert Figures 1-3 about here]

DISCUSSION

Despite its grand ambitions back in summer 2014 when it was first introduced, Amazon's Fire Phone is now widely seen as a fiasco. Originally priced at \$199 (with contract) and intended as an iPhone competitor, in December 2014 the phone sold for just 99 cents and Amazon was forced to take a \$170 million write-down for unsold inventory (Carr, 2015). Yet Jeff Bezos, the founder CEO of Amazon, defended the Fire Phone as a "bold bet." He argued in an interview that it's "going to take many iterations" and "some number of years" to get it right (*Business Insider*, 2015). When questioned about the phone's failure, Bezos remarked that "I've made billions of dollars of failures at Amazon.com. Literally billions of dollars of failures...None of those things are fun. But they also don't matter" (*GeekWire*, 2015). So even after heavy losses, Amazon's founder CEO plans to take more risk.

Is this combination of CEO founder status and risk-taking a coincidence? This paper suggests that the two go hand in hand. Many firms are run by founder CEOs who have the power to influence or make firm strategic choices, such as risk-taking. Grounded in the strategic leadership literature (Hambrick, 2007; Hambrick & Mason, 1984) and with a focus on executive overconfidence (Li & Tang, 2010), this study offers evidence that firms managed by founder CEOs tend to take more risks than agent-led firms. This study also shows that the positive relationship between founder CEO status and firm risk-taking weakens when the CEO is younger,

⁴ The moderating effect of chair-CEO duality was plotted based on the two cases of "duality=1" and "duality=0".

when the CEO also chairs the board of directors, and when the CEO's task environment is less uncertain, less complex, and more munificent.

Theoretical Implications

This study has some important implications for the strategic leadership research. First of all, we use an important psychological factor—overconfidence—to explain the impacts of corporate executives on firms. Back in the 1980s, Hambrick and Mason had already highlighted the importance of digging into the psychological factors: “The decision maker brings a cognitive base and values to a decision, which creates a screen between the situation and his or her eventual perception of it.” They advocated “an emphasis on background characteristics, rather than on psychological dimensions, in the development of an upper echelons perspective” (Hambrick & Mason, 1984, p. 195-196). More recently, Hambrick (2007) stressed the need to explore the actual psychological mechanisms. Finkelstein et al. (2009, p. 50) pointed out that “psychological constructs have the advantage of conceptual clarity and they provide a pointed causal link to the executive behaviors or choices being explained”. Indeed, recent empirical efforts in the field have started responding to this call (Chatterjee & Hambrick, 2007; Li & Tang, 2010). This study, although not able to directly measure psychological disposition, joins the discussion by exploring the potential role of one psychological mechanism—overconfidence—in explaining the relationship between founder CEO status and firm risk-taking, going beyond the traditional economic considerations.

Second, we examine the potential important moderators in the association between corporate leaders' characteristics and firm strategic choices and outcomes (Hambrick, 2007; Hambrick et al., 2005). Identifying the boundary of executive effect is important for upper echelons theory. For instance, Hambrick (2007) claimed that decisions made by executives who

face high job demands or have more managerial discretion will closely reflect their psychological dispositions. Therefore both managerial discretion and executive job demands can play an important role in shaping the influence of executives' personal characteristics on firms (Hambrick et al., 2005; Li & Tang, 2010). However, the existing research has not made enough efforts to empirically test the circumstances under which certain types of moderators will exert a particular influence in corporate executives' decision-making processes (cf. Li & Tang, 2010). Different types of moderators will exert a different influence. For instance, under certain conditions, environmental uncertainty, complexity, and munificence can enhance executives' influence by increasing a CEO's managerial discretion (Li & Tang, 2010); under other conditions, some environmental factors may reduce an executive's job demands, weakening his or her influence over firms (Hambrick et al., 2005). This indeed resonates with the "effectuation" model of entrepreneurship (Sarasvathy, 2001). According to this model, founder characteristics (founder CEO status in our context) form the primary set of means that combine with contingencies (internal and external moderators in our context) to create an entrepreneurial opportunity (firm risk-taking in our context)⁵. The implication thus is that strategic leadership researchers should also analyze the boundary conditions governing the role of executive demographic and psychological characteristics in other contexts.

Third, this study also demonstrates how to overcome the handicap of cross-sectional data in survey-type research. Everyone knows it is difficult to collect longitudinal survey data from corporate leaders. Many scholars studying corporate leaders therefore resort to survey data of a cross-sectional nature, which could lead to common method bias (Li & Tang, 2010). This concern does not apply in our study, however, because the key independent variable—founder CEO status—is factual information. Cross-sectional data are also frequently attacked for reverse

⁵ We thank one anonymous reviewer for this insightful comment.

causality, but given that the CEO's gender or race are also facts, this issue is nonexistent. With research questions such as ours, cross-sectional data can offer reliable answers. This study serves as an example for other strategic leadership researchers who might want to use cross-sectional data to study research questions of a similar nature.

Managerial Implications

Our findings may also offer important implications for practice. Many prominent firms are still managed by founder CEOs (Birger, 2006; Certo et al., 2001; Fahlenbarach, 2009). This phenomenon is especially prevalent in China, where a market reform that spanned three decades has only recently been completed (Zhang & Ma, 2009). Therefore it is important to understand the potential factors driving a founder CEO's firm strategic decisions.

Our findings suggest that a founder CEO, due to his or her innate overconfidence, tends to take more risks for the firm than an agent CEO. As excessive risks may expose a firm to potential dangers, it is critical for the firm to manage the risk-taking process and take only a reasonable amount of risk. It is also important for founder CEOs themselves to realize that sometimes their strategic decisions may not be fully driven by economic reasons, but that in many cases their personal characteristics can account for some unwise decisions that could hurt the firm. Our findings also suggest that certain factors, both internally and externally, may curb the influence of founder CEOs' personal mental models on risky decisions. For instance, when a young founder CEO is running the firm, his or her personal characteristics may affect the strategic decision process; in contrast, when the CEO is taking more duties such as chairing the board of directors, whether or not he or she is the founder may not be that relevant. In addition, CEOs should also realize that the market environment where the firm is doing business also matters: when the market is more dynamic and competitive, the role of the founders will be more

prominent and their influence on firms will become more salient. Therefore, founder CEOs are advised to perform another round of ego-check before making the final decision for their firms.

Limitations and future research

This study is not without its limitations and future research should try to address them. First, we proposed that it is the overconfidence mechanism that explains the effect of founder CEO status on firm risk-taking, but we did not directly measure this mechanism. Instead we tested the moderating effect of multiple factors on this main relationship: if the overconfidence mechanism works, the main relationship should vary according to the size of the factors that can modify the overconfidence mechanism. A more direct measure of overconfidence would help confirm these speculations. Indeed, most strategic leadership researchers have relied on unobtrusive measures to proxy for the underlying psychological factors, given the difficulty associated with collecting psychological data from executives (Chatterjee & Hambrick, 2007). Nevertheless, to enrich our understanding of the strategic leadership research and to verify the theoretical propositions, it is important for researchers to keep collecting and utilizing well-established psychometric tools. Some recent efforts in the field have strived to achieve this goal (e.g., Simsek et al., 2010).

Second, future research can consider broader factors influencing the overconfidence mechanism. Hambrick et al. (2005) proposed multiple factors related to task challenges, performance challenges, and executive performance aspirations. This study has highlighted some of these factors. Future efforts could improve upon this aspect. For example, future research can explore such factors as environmental situations and organizational conditions in relation to task challenges, and governance structures for corporate control in relation to performance challenges.

In addition, the data utilized in this study was collected back in the year 2000. Since then, the Chinese market has evolved substantially and the corporate world in China has no doubt matured. Nevertheless, our theoretical predictions were not developed based on contextual idiosyncrasies and so should not be too influenced by changes in the context. In any case, the development in the Chinese market probably serves to reinforce the important role of founder CEOs in firms. But we do encourage future research to collect more updated data and reconfirm our findings.

On a final note, the fact that Chinese CEOs were surveyed and that the research was conducted in a single country may limit the applicability of the results in other contexts to some extent. China is a transition economy and differs from developed markets in many ways. Its unique culture would certainly have an influence on the behavior of local CEOs. Nevertheless, we still believe that China is an appropriate experimental setting for testing the generalizability of theoretical constructs and propositions largely developed in Western contexts. It would be interesting to explore whether or not factors indigenous to the Chinese context also affect firm risk-taking decisions (cf. Li & Tang, 2013). Future research along this line can contribute to universal theories by modifying, enriching, or supplementing Western management concepts or theories (Tsui, 2007).

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TABLE 1
Descriptive Statistics and Correlation Matrix

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Firm Risk-taking	0.02	0.62																	
2. CEO Age	3.28	0.93	0.10																
3. CEO Overseas Experience	0.30	0.46	0.18	0.18															
4. Firm Age	25.59	17.54	-0.08	0.11	-0.10														
5. Firm Size	8.12	3.05	0.10	0.21	0.17	0.11													
6. Firm Performance	7.18	24.25	0.05	-0.01	0.04	-0.09	0.02												
7. R&D Intensity	3.42	7.09	0.13	-0.02	0.02	-0.03	-0.03	0.08											
8. Firm Slack	0.47	0.43	0.11	-0.04	0.10	-0.17	-0.25	0.07	0.06										
9. HR Expenditure	1.33	3.92	0.08	-0.04	-0.01	-0.03	-0.05	0.07	0.53	0.06									
10. If State-owned	0.46	0.50	-0.09	0.24	-0.10	0.41	0.16	-0.11	-0.07	-0.17	-0.11								
11. If Publically Listed	0.03	0.17	0.10	0.09	0.12	0.03	0.09	0.03	-0.02	0.06	-0.01	0.02							
12. CEO Compensation	2.68	2.10	0.17	-0.04	0.34	-0.31	0.05	0.13	0.06	0.21	0.07	-0.34	0.08						
13. CEO Age	47.07	9.01	0.03	-0.13	0.12	0.07	0.07	-0.00	0.02	0.01	-0.02	0.04	0.04	-0.03					
14. CEO Duality	0.37	0.48	0.07	-0.06	0.06	-0.03	0.01	0.03	0.01	0.01	-0.00	-0.18	0.00	0.08	0.01				
15. Environ. Uncertainty	0.02	0.01	0.00	-0.05	-0.03	-0.04	0.03	-0.03	-0.07	-0.01	-0.06	0.05	0.05	-0.01	-0.01	0.01			
16. Environ. Complexity	15.05	8.91	0.00	-0.07	-0.10	0.05	-0.01	-0.06	-0.03	-0.02	-0.02	0.02	-0.03	-0.08	-0.02	0.03	-0.21		
17. Environ. Munificence	0.07	0.05	-0.01	0.08	0.11	-0.13	-0.05	0.06	0.07	0.06	0.04	-0.09	0.03	0.12	0.02	-0.03	-0.08	-0.48	
18. CEO Founder Status	0.19	0.39	0.10	-0.25	0.09	-0.34	-0.11	0.10	0.11	0.17	0.13	-0.41	-0.06	0.41	-0.07	0.10	-0.01	-0.03	0.06

N=2,826

Correlation coefficients above 0.04 are significant at the $p < .05$ level

TABLE 2
Tobit Estimates of Firm Risk-taking

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
CEO Education	.069 *** (.013)	.069 *** (.013)	.069 *** (.013)	.069 *** (.013)	.068 *** (.013)	.069 *** (.013)	.068 *** (.013)
CEO Overseas Experience	.124 *** (.027)	.124 *** (.027)	.124 *** (.027)	.123 *** (.027)	.124 *** (.027)	.125 *** (.027)	.124 *** (.027)
Firm Age	-.001 (.001)	-.001 (.001)	-.001 + (.001)	-.001 + (.001)	-.001 (.001)	-.001 (.001)	-.001 + (.001)
Firm Size	.021 *** (.004)	.021 *** (.004)	.021 *** (.004)	.021 *** (.004)	.021 *** (.004)	.021 *** (.004)	.022 *** (.004)
Firm Performance	.0003 (.0005)	.0002 (.0005)	.0002 (.0005)	.0003 (.0005)	.0002 (.0005)	.0003 (.0005)	.0002 (.0005)
R&D Intensity	.010 *** (.002)	.011 *** (.002)	.010 *** (.002)	.010 *** (.002)	.010 *** (.002)	.011 *** (.002)	.010 *** (.002)
Firm Slack	.108 *** (.027)	.106 *** (.027)	.107 *** (.027)	.110 *** (.027)	.108 *** (.027)	.108 *** (.027)	.106 *** (.027)
HR Expenditure	.002 (.003)	.002 (.003)	.002 (.003)	.002 (.003)	.002 (.003)	.002 (.003)	.002 (.003)
If State-owned	-.060 * (.027)	-.060 * (.027)	-.056 * (.027)	-.058 * (.027)	-.061 * (.027)	-.059 * (.027)	-.055 * (.027)
If Publicly Listed	.219 ** (.068)	.220 ** (.068)	.219 ** (.068)	.220 ** (.068)	.219 ** (.068)	.219 ** (.068)	.220 ** (.067)
CEO Compensation	.025 *** (.007)	.024 *** (.007)	.024 *** (.007)	.025 *** (.007)	.025 *** (.007)	.024 *** (.007)	.024 *** (.007)
CEO Age	.002 (.001)	.002 (.001)	.002 * (.001)	.002 (.001)	.002 (.001)	.002 (.001)	.002 (.001)
CEO Duality	.047 * (.023)	.047 * (.023)	.050 * (.023)	.047 * (.023)	.049 * (.023)	.048 * (.023)	.051 * (.023)
Environmental Uncertainty	.454 (.867)	.501 (.867)	.449 (.867)	.365 (.869)	.509 (.867)	.458 (.867)	.430 (.867)
Environmental Complexity	.001 (.001)	.001 (.001)	.001 (.001)	.001 (.001)	.001 (.001)	.001 (.001)	.001 (.001)
Environmental Munificence	-.383 (.254)	-.380 (.254)	-.381 (.254)	-.382 (.254)	-.384 (.254)	-.372 (.254)	-.375 (.254)
CEO Founder Status	.072 * (.034)	.068 * (.034)	.081 * (.034)	.072 * (.034)	.073 * (.034)	.078 * (.034)	.081 * (.035)
CEO Founder Status × CEO Age		-.005 + (.003)					-.005 + (.003)
CEO Founder Status × CEO Duality			-.112 * (.057)				-.112 * (.057)
CEO Founder Status × Uncertainty				3.011 (1.988)			4.297 (2.091)
CEO Founder Status × Complexity					.007 * (.003)		.008 * (.004)
CEO Founder Status × Munificence						-1.016 * (.535)	-.315 (.621)
Constant	-.560 *** (.118)	-.563 *** (.118)	-.554 *** (.118)	-.562 *** (.118)	-.557 *** (.118)	-.566 *** (.118)	-.559 *** (.118)
Location Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	2826	2826	2826	2826	2826	2826	2826
LR Chi ²	322.97 ***	325.73 ***	326.85 ***	325.27 ***	328.36 ***	326.57 ***	339.75 ***

N=2,826; *** $p < .001$, ** $p < .01$, * $p < .05$, + $p < .1$ (two-tailed test)

FIGURE 1
The Moderating Effect of CEO Duality

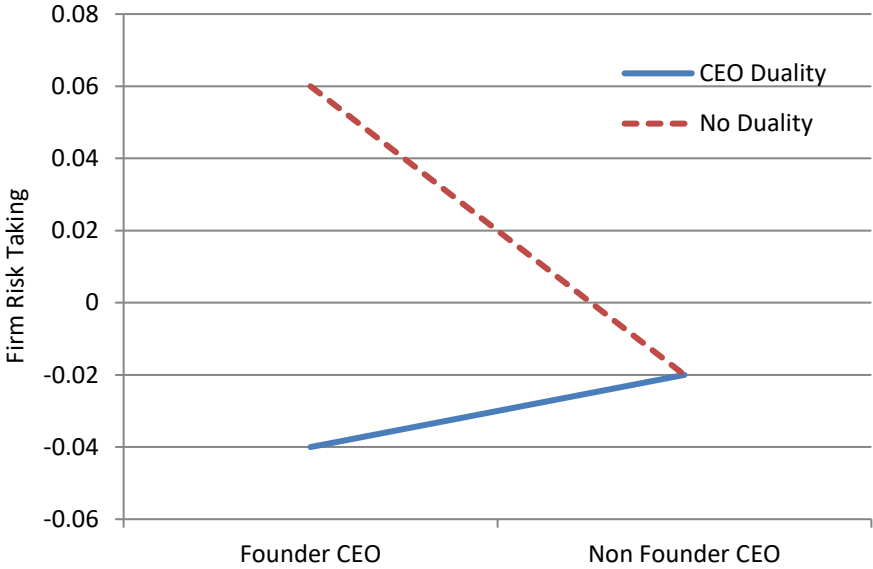


FIGURE 2
The Moderating Effect of Environmental Uncertainty

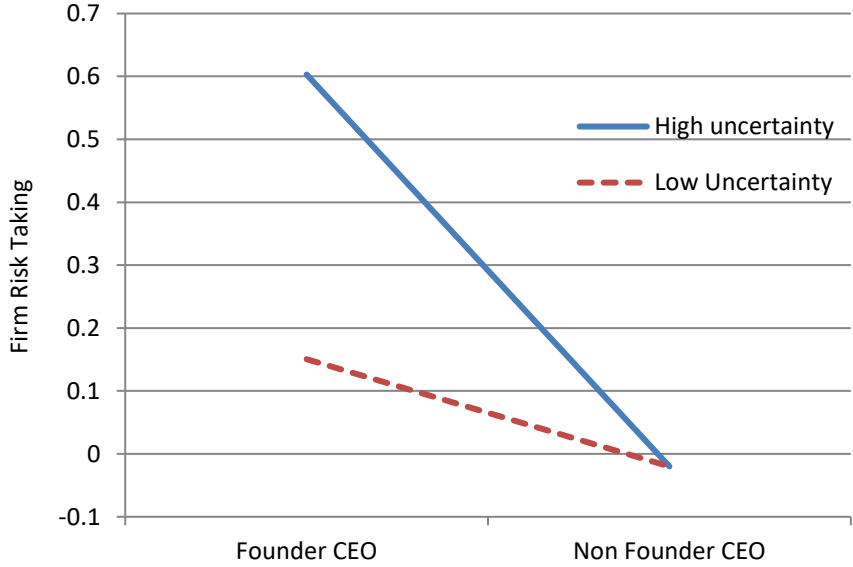


FIGURE 3
The Moderating Effect of Environmental Complexity

