

## **CEO Incentives, Socioemotional Wealth and Risk Taking Among Founder and Family Firms**

### **ABSTRACT**

We integrate behavioral agency and socioemotional wealth literature to analyze the role of dominant firm principals in the managerial agent's (CEO's) response to equity-based pay. We combine these literatures in order to enhance the behavioral agency model's (BAM's) predictive validity with regard to firm risk-taking as a function of both agent and principal risk preferences. We argue that founders' and family owners' risk behavior is driven by concentrated socioemotional and financial firm-specific risk bearing. Our theory and empirical findings suggest that CEOs of family and founder firms are less likely than CEOs of non-family and non-founder firms to respond to incentives created by stock options.

Keywords: agent risk-taking, behavioral agency, family/ founder principal, mixed gamble, socioemotional wealth, synoptic losses

## INTRODUCTION

The behavioral agency model (BAM) draws on the concept of loss aversion to predict that managerial agents take less risk as their risk bearing (defined as wealth exposed to potential loss) increases (Wiseman and Gomez-Mejia, 1998). Loss aversion derives from prospect theory and predicts that individuals will be more concerned with preserving existing wealth from loss than with pursuing uncertain future gains in wealth (Kahneman and Tversky, 1979; Tversky and Kahneman, 1992). This logic has been used to examine the unique risk bearing (and associated risk preferences) of family principals, where the firm-specific endowment of family owners includes a combination of financial and socioemotional wealth (SEW), with the latter defined as “the stock of affect related value the family has invested in the firm” (Gomez-Mejia et al., 2007: 107). According to this literature, the dual set of utilities of family principals—that is, financial and socioemotional, as opposed to the singular focus on financial risk bearing by non-family principals—serves to explain differences in family principals’ strategic choices relative to non-family principals, such as those regarding diversification (Gomez-Mejia et al., 2010), R&D investments (Chrisman and Patel, 2012), pollution control and prevention efforts (Berrone et al., 2010), divestitures (Feldman and Amit, 2014), and business exit (Zellweger et al., 2012).

A parallel literature drawing on BAM analyzes strategic choices made by CEOs, based on the risk bearing associated with their accumulated firm equity wealth (with a focus on stock options), which is argued to lead to higher levels of CEO risk aversion in an effort to protect that wealth (e.g., Sanders, 2001; Devers et al., 2008; Larraza-Kintana et al., 2007). This literature has provided a framework for predicting responses of the managerial agent to equity grants. For instance, stock options can create incentives for agents to become: (1) risk seeking on behalf of the firm, in pursuit of a prospective increase in their option wealth (if risk taking is a success); or

(2) risk averse to decrease the risk of loss in their option wealth, due to the aforementioned loss aversion effect (cf., Martin, Gomez-Mejia, and Wiseman, 2013). Said differently, agents are confronted with a mixed gamble: one in which they can both gain and lose wealth, leading them to take more or less risk, depending on the relative magnitude of potential gains and losses.

Despite its insights in predicting CEOs' reaction to equity based pay, BAM research has overlooked how the risk preferences – and wealth-at-risk of loss (or risk bearing) – of dominant principals may influence CEO responses to these incentives. We suggest that the risk bearing of the firm's dominant principals has consequences for BAM's predictions with regard to CEO response to equity based pay. Our focus is upon the additional risk bearing of family and founder principals, relative to other firm owners. We group founder and family given both have the added burden of socioemotional risk bearing – in addition to their financial risk bearing – and therefore share higher levels of synoptic risk bearing (SEW and financial wealth-at-risk) in the event of failed strategic choices. Hence, we describe founder and family owners as a category of principals designated as “SEW intensive”.<sup>1</sup>

We offer three related yet important unique contributions to the SEW and behavioral agency literatures. First, we refine BAM's predictions – and in particular, the mixed gamble approach to behavioral agency (cf., Martin et al., 2013) – with regard to agent (CEO) risk-taking by demonstrating the influence of the firm's ownership structure upon the relationship between agent risk bearing (option wealth at risk) and risk taking. Our core hypotheses, supported by empirical findings, suggests that CEOs of firms dominated by SEW intensive principals (ie., family and founders) are less likely to be responsive to option incentives, due to: (1) constraints placed on CEOs by these principals, and (2) the high personal risk bearing of SEW intensive principals and CEOs who belong to this group, attributed to a combination of financial wealth

and SEW that could potentially be lost in the event of poor decisional outcomes. Behavioral agency research has focused on CEOs' exposure to losses when responding to equity incentives (c.f., Devers et al., 2008; Martin et al. 2013), without considering the concurrent vulnerability to losses of dominant principals. We shift this focus by examining the vulnerability to financial and socioemotional losses of SEW intensive principals (family and founder) relative to non-SEW intensive principals (non-family and non-founders) as a function of the CEO's incentive structure.

We argue that SEW intensive principals (ie., family and founders) bear higher synoptic risks associated with strategic decisions than non-family and non-founder principals and other shareholders; thus, SEW intensive principals are more likely to look for heuristics (such as signs of bankruptcy) to assess their vulnerability to synoptic losses (that is, financial and socioemotional) that may be created due to excessive risk aversion or excessive risk seeking behaviors. This in turn shapes the family and founder principals' desire to acquiesce in the "mixed gamble" decisions of CEOs, such as to: (1) adopt risk seeking strategies in pursuit of prospective option wealth; or (2) pursue risk averse strategies to preserve current wealth embedded in their options. Similarly, where the CEOs are founders or family members, their additional socioemotional risk bearing is likely to limit the extent of risk seeking or risk aversion adopted in response to their option incentives.

Second, we provide insight into a paradoxical question that arises from our theory and results: why do publicly traded SEW intensive firms adopt equity-based incentives as their non-SEW intensive counterparts, but not allow the CEO to respond to these risk incentives in the same manner? Our empirically supported theory suggests that there are occasions when equity incentives lead to divergence in the risk preferences of CEO and SEW intensive principals,

making the granting of stock options more symbolic. Refining the conclusions of Zajac and Westphal (1994), who attributed the “decoupling phenomena” to CEO opportunism, our theory suggests that SEW intensive principals enable or thwart the substantive use of equity-based incentives.

Lastly, as noted in numerous prior publications, the form of ownership analyzed in this paper (family and founder) represents 60 to 90 percent of firms around the world (see review by Amit and Villalonga, 2014) and hence from a corporate governance perspective, this phenomenological context to study the motivational impact of equity based incentives is interesting and important in its own right.

## **THEORY AND HYPOTHESES**

### **The Behavioral Agency Model, CEO Incentives and Firm Risk-Taking**

An agency relationship exists whenever “one party (the principal) delegates work to another (the agent), who performs that work” (Eisenhardt, 1989: 545). According to traditional agency writings, because CEOs’ (or agents’) personal wealth and reputation are tightly connected to the firm, they have significant firm-specific wealth and are considered *risk averse* (Eisenhardt, 1989). On the other hand, shareholders (or principals) are considered risk-neutral as they can diversify their portfolios in order to protect themselves against major financial hazards and prefer riskier strategic actions associated with high economic returns (Fama and French, 1992). Outcome-based contracts have been proposed as a potential solution to this agency problem (characterized by divergence in the risk profiles of principal and agent), with equity-based compensation being a preferred means of creating so-called incentive alignment or the prospects of “win/win” situations for CEOs and shareholders (Jensen and Murphy, 1991; Nyberg et al., 2010).

By combining elements from traditional agency theory with behavioral research examining decision-making under risk, BAM challenges the assumption of fixed CEO risk-taking preferences. Specifically, utilizing the concepts of loss aversion and risk bearing from behavioral research (March and Shapira, 1992; Bazerman, 1994; Kahneman and Tversky, 1979; Tversky and Kahneman, 1991), BAM proposes that CEOs' risk preferences are context-dependent and that their risk bearing (wealth-at-risk) will negatively influence risk-taking (Wiseman and Gomez-Mejia, 1998). Accordingly, based on the assumption that agents are loss averse, BAM hypothesizes that CEOs are predisposed to take greater risk in order to prevent possible wealth losses and avoid risk-taking in order to minimize the loss of wealth that is considered assured (Larraza-Kintana et al., 2007; Wiseman and Gomez-Mejia, 1998).

Given the need to reconcile the two views (those of agency theory and behavioral agency theory), a refinement of BAM by Martin and colleagues (2013)—building on Bromiley's (2010) notion of mixed gambles—notes that CEOs should be aware of the potential for both *gains and losses* to option wealth when making strategic decisions. The agent (or CEO) could lose accumulated equity (current wealth) if risk-taking fails, which would tend to promote risk-averse strategic choices. Yet on the other hand, the agent could further increase the value of equity wealth if risk-taking is successful (prospective wealth), which would tend to foster higher-risk strategic choices. This dynamic reflects the logic that the vast majority of strategic decisions will have the potential to both negatively and positively influence the firm's stock price and suggests that the agent's conservatism (loss aversion to current wealth) will be attenuated by the prospect of increasing wealth in the future.

We conclude from the above brief review of behavioral agency research that senior executives are prone to manage firm risk to (1) protect their personal wealth, becoming more

risk-averse, or (2) enhance their prospects of greater future wealth, becoming more risk-seeking (agency scholars such as Jensen and Meckling [1976] and Nyberg et al. [2010] espouse the latter as a primary intended objective of awarding the agent with equity pay). However, what is missing from this theoretical framework is the possible intervention of dominant principals who, in response to their risk bearing, might weaken or strengthen the predicted behavioral effect of the agent's current or prospective wealth. We attend to this issue by discussing the influence of prevalent SEW intensive principals (family and founders) in curbing or allowing CEOs' discretionary risk behavior in response to equity-based pay.

For several reasons we propose that the dimensions of SEW for family owners (see Berrone et al., 2012) overlap with those of founders when it comes to firm-specific risk bearing and thus for our purposes, we describe both as SEW intensive principals. First, founders, much like family owners, have a strong emotional attachment to the firm that they created, perhaps at least as strong as the equivalent attachment of family owners (Arthurs and Busenitz, 2003; Pierce et al., 2001; Shepherd, 2003). This means that founders will also suffer strong emotional losses if "their baby" does not survive. Second, founders' close identification with the firm they have created also raises the potential loss of social capital and a tarnished personal image in the event of failure. According to a recent review of the entrepreneurship literature on the consequences of business failure by Ucbasaran and colleagues (2013:163), "people hear of highly successful entrepreneurs extolling the virtues of failure as a valuable teacher. Yet the aftermath of failure is often fraught with psychological, social and financial turmoil". Third, the distinction between founder and family firm is further blurred by the fact that founders may also have dynastic intentions with their relatives in mind as potential successors. This may be inferred by the finding that 77% of founder firms go on to become family controlled and managed firms (Chua

et al., 2004) and that founders very often groom family members for future management roles (Long and Chrisman, 2013). Lastly, family members may be an intricate part of the social fabric of the so-called “lone founder” firm (by providing support and advice, as a source of capital, by offering a helping hand as needed) even if this involvement is informal and not captured through typical archival proxies such as relatives in the board or in managerial positions (McConaughy and Phillips, 1999; McConaughy, Mathews, and Fialko, 2008; Sirmon and Hitt, 2003). Hence binding social ties between founder and family centered on the firm may also be ruptured in case of firm failure, leading to relationship conflict such as anger, frustration, distrust, and blame (Jehn, 1995, 1997).

### **Behavioral Agency, Family/Founder Control and Socioemotional Wealth**

Gomez-Mejia and colleagues (2007, 2010) developed a “socioemotional wealth model” as a general extension of BAM to explain decision-making in family firms. According to this model, family owners face dual SEW and economic reference points when framing contexts of gains and/or losses. Because SEW depends on the economic viability of the firm, its reference point takes priority as long as firm survival is not in question. However, as the firm’s probability of failure increases, family firms may make economically driven decisions designed to keep the firm afloat, thus attempting to preserve the overall stock of SEW as well as ensuring the family’s economic sustenance (that is, attempting to avoid what we call synoptic losses). For instance, under financial distress the family firm may boost R&D investments even if this implies dependence on experts from outside the family circle (Gomez-Mejia et al., 2014), engage in greater diversification which dilutes family influence (Gomez-Mejia et al., 2010), join a co-op which gives power to an external party (Gomez-Mejia et al., 2007), or replace a long-tenured family CEO with someone from outside the family (Gomez-Mejia et al., 2001).



There is mounting evidence that family firms' risk-aversion depends on the need to preserve family SEW, avoid economic losses, or both, since SEW cannot exist independent of the firm's economic viability (see review by Gomez-Mejia et al., 2011). For instance, to retain control, the family may neglect lucrative opportunities such as joining a co-op (Gomez-Mejia et al., 2007) or avoid investing in R&D, given R&D increases information asymmetries for the family and potentially dilutes family control (Chrisman and Patel, 2012; Gomez-Mejia et al., 2014). Yet family owners reconsider this conservative posture when performance hazards increase (Gomez-Mejia et al., 2007, 2010, 2014; Patel and Chrisman, 2014). Other elements of SEW—such as dynastic succession, maintenance of binding social ties within the firm, the perpetuation of family identity embedded in the firm, and the continued exercise of control into the future—demand that the firm remains competitive in order to ultimately survive over the long term (Chrisman and Patel, 2012). As noted earlier, founder principals would tend to share similar SEW attributes as family principals, or at least be much closer to family than non-family principals in the importance attached to avoiding SEW related losses. Thus, the challenge for SEW intensive principals (founder and family) is to find a risk level whereby the firm takes sufficient, but not excessive risks, to improve its survival odds and hence avoid synoptic losses. This challenge in turn means that the SEW intensive principal would need to consider the extent to which agent risk behaviors, induced by the incentive system, are congruent with their own risk preferences. If these are congruent—that is, if the risk preferences of SEW intensive principals and the managerial agent are in alignment—one would expect the SEW intensive principal to give managerial agents greater autonomy to respond (without constraint) to the incentive system (thus it is substantive); if not, the SEW intensive principal may use its monitoring capacity to curtail an excessive risk-taking response by the agent to their incentives (either inordinate risk-

aversion or excessive risk-seeking) in an attempt to prevent synoptic losses. This implies that in this situation the incentive system becomes less relevant (ie., more symbolic) in terms of its decisional impact on risk taking.

### **Risk Bearing of SEW Intensive Principals**

Compared to other owners, the SEW intensive principal (founder or family) faces higher risk bearing and vulnerability to loss as a result of CEO risk behavior (either risk-averse or risk-seeking) perceived as inconsistent with the SEW intensive principals' risk preferences for three related reasons. First, the SEW intensive principal has idiosyncratic firm-specific socioemotional endowment (Gomez-Mejia et al., 2007), which is less likely to be diversified relative to principals who are less SEW intensive that may benefit from high-risk/high-return strategies across all firms in their portfolio (Anderson and Reeb, 2003). In the event of firm failure, psychological and social consequences for SEW intensive principals include the loss of control and influence over their firm (Feldman and Amit, 2014; Zellweger et al., 2012), diminished reputation among the local community (Berrone et al., 2010), and the loss of employment opportunities for friends and family members engaged by the firm (Kets de Vries, 1993). Thus, the SEW intensive principal incurs synoptic (financial and socioemotional) risk bearing due to placing a higher subjective value on the firm than principals who are less SEW intensive (Zellweger et al., 2012). Second, SEW intensive owners are reluctant to exit the business because of the presence of an "affective handcuff", or the owner's emotional attachment to and strong identification with the firm they or their ancestors founded (Gomez-Mejia et al., 2003). Lastly, the SEW intensive principal's fate is generally tied to a single organization, unlike diversified non-SEW intensive shareholders; thus threats to the former may imply catastrophic losses both in terms of SEW and economic welfare (synoptic losses).

Family and founder principals also bear more risk than agents who take risks on behalf of the firm for three reasons. First, the (non-family or non-founder) CEO has the option to leave the firm and search for alternative employment possibilities, without the same psychic or economic downside than the SEW intensive principal would face if it were forced to exit the firm (Amit and Villalonga, 2014). Kaplan and Minton (2012) report that during 2000 to 2007 approximately 51% of CEOs in Fortune 500 firms left their posts in any given three years period (at an annual rate of 16.8 %) and most of them landed good jobs elsewhere. Thus, the typical CEO is highly mobile and hence prone to have lower firm-specific synoptic risk bearing than SEW intensive principals (or family and founder CEOs) who tend to be handcuffed to one firm (Gomez-Mejia et al., 2003; Cruz et al., 2010). Second, CEOs can manage their loss exposure better than the SEW intensive principal (family or founder principals) due to their informational advantage, allowing them to decide when might be the best time to exit the firm to minimize private losses in personal wealth; for example, the CEO may uniquely have access to internal data suggesting that a new product launch may not be as successful as expected or that a crucial milestone may not be met (Mishra and McConaughy, 1999). Lastly, CEOs may adopt short-term defensive maneuvers (such as shifting reported earnings to the current period) to project a positive image in the executive labor market as a way to manage their exit into a new job (DeFond and Park, 1997). These short-term strategies that could make a CEO attractive to competitors, given information asymmetries, are of little value to SEW intensive principals (or founder and family CEOs) who are wedded to the firm over the long haul and who are most likely to suffer the negative consequences to firm image and reputation of the accounting manipulation (even when it might not be illegal) if it is eventually discovered (Ronen and Sadan, 1981; Haw et al., 2004; Martin, Campbell, and Gomez-Mejia, in press).

We now develop hypotheses concerning how SEW intensive principals' higher levels of risk bearing will moderate the CEOs' response to their option wealth (as predicted by BAM) and the alignment of that response with their risk preferences.

### **PRINCIPAL SOCIOEMOTIONAL RISK BEARING**

We argue that the higher levels of SEW intensive principals' risk bearing will lead them to be more vigilant – relative to non-SEW intensive principals – in monitoring CEO risk behaviors. Specifically, we suggest that SEW intensive principals (family and founder) will be more sensitive to both CEO risk aversion and CEO risk seeking in response to current and prospective wealth (respectively), given that excessive levels of both risk aversion and risk seeking could pose existential threats to the firm that could in turn lead to the aforementioned synoptic losses. With regard to risk aversion, excessive avoidance of risk is likely to threaten the firm's competitive position, given that risk increasing investments such as R&D and capital expenditure are necessary to establish or sustain competitive advantage (Bowman, 1980; Bromiley, Miller and Rau, 2001; Jensen and Meckling, 1976). Regarding risk seeking, higher levels of risk are associated with more extreme negative outcomes that are often associated with firm failure (Sanders and Hambrick, 2007). The higher levels of risk bearing of SEW intensive owners, who face potential synoptic losses, is likely to make them more sensitive to both of these potential sources of firm failure. For instance, as referred to above, business failure as a result of excessive risk aversion or risk seeking could lead to catastrophic loss of SEW, given the resulting: (1) diminished control and influence (Zellweger et al., 2012); (2) inability to pass the business to the next generation (Berrone et al., 2012); and (3) reduced social capital due to the damaged reputation and possible infliction of harm upon creditors and employees (Christensen et al., 2015). Thus, SEW intensive owners are more likely (than their non-SEW intensive

counterparts) to vigilantly monitor CEO strategic choices to ensure they are not excessively: (1) risk averse; or (2) risk seeking.

In sum, family and founder owners are inclined to closely monitor the CEO's risk response to incentive alignment mechanisms, such as the granting of stock options, in an attempt to ensure that their firm achieves a level of risk less prone to expose the family or founder to synoptic losses. Thus, we expect CEOs of firms with SEW intensive principals to exhibit lower levels of risk aversion and risk seeking in response to the incentives offered by their stock options than their non-family or non-founder counterparts. This suggests the potential for options to encourage risk aversion or risk seeking, as suggested by the mixed gamble approach to BAM (Martin et al., 2013), is likely to be contingent upon the risk preferences of dominant firm principals (family and founders in our case). Hence:

*Hypothesis 1a.* CEOs of firms with SEW intensive principals (family or founders) are less likely than CEOs of non-SEW intensive (non-family or non-founder) firms to exhibit risk aversion in response to current option wealth.

*Hypothesis 1b.* CEOs of firms with SEW intensive (family or founders) principals are less likely than CEOs of non-SEW intensive (non-family or non-founder) firms to exhibit risk seeking in response to prospective option wealth.

### **Monitoring Versus Self-Regulation**

Where the CEO is from the family or is the founder, their personal levels of loss aversion with regard to synoptic losses will mean that they are also less inclined to adopt risk averse or risk seeking strategies in response to their option incentives (relative to non-family or non-founder CEOs). Thus, the family or founder CEO will be less responsive to option incentives due to their symmetrical risk bearing with the firm's dominant SEW intensive owners (family or founder principals). It follows that when the family or founder CEO is at the helm of the business, equity based pay is more likely to be awarded with the objective of increasing equity

ownership of the business relative to minority shareholders, which preserves the control aspect of SEW, rather than to motivate particular CEO behaviors. This equates to a more symbolic (relative to substantive) use of equity incentives. Another way of looking at this is that family and founder CEOs will self-regulate their own risk behavior in response to their option incentives, acting in a way that is congruent with the preferences of the group they belong to (ie., SEW intensive owners). Thus:

*Hypothesis 2a.* SEW intensive (family or founder) CEOs are more likely than non-SEW intensive (non-family or non-founder) CEOs to self-regulate risk aversion in response to current option wealth.

*Hypothesis 2b.* SEW intensive (family or founder) CEOs are more likely than non-SEW intensive (non-family or non-founder) CEOs to self-regulate risk seeking in response to prospective option wealth.

### **Firm Vulnerability and Bankruptcy Risk**

In this section, we argue that the aforementioned family and founder influence upon the CEO's response to incentive alignment systems is contingent upon firm bankruptcy risk. That is, firm vulnerability accentuates the family and founder's risk bearing in terms of potential synoptic losses (SEW and financial) and therefore augments the predicted constraint of CEO risk aversion or risk-seeking. Bankruptcy risk represents a severe manifestation of the SEW intensive owners' vulnerability to catastrophic synoptic losses. CEOs who may lose their job and shareholders who may see their investments vanish are also vulnerable to the threat of bankruptcy. But for all the reasons discussed earlier, the SEW intensive principal has much higher levels of risk bearing. Even if the firm might eventually restructure and survive in a different form, bankruptcy proceedings mean that control of the firm is given over to creditors and administrators and the family or founder's strong identification with the failed firm will likely lead to image loss; both are important sources of SEW (Berrone et al., 2012). Inertia as a

result of an overly conservative risk posture to preserve current wealth is unlikely to reverse the prospects of bankruptcy threat. On the other hand, a more aggressive risk posture to pursue prospective wealth (what Sanders and Hambrick, 2007:1055, refer to as “swinging for the fences”) might exacerbate the possibility of total firm failure. Thus, a higher threat of bankruptcy is likely to mobilize family and founder principals to closely monitor CEOs to prevent both of these scenarios; or if the family or founder CEO is at the helm, they themselves are likely to be more sensitive to the potential negative consequences of risk aversion or risk seeking. This means that the predictions of Hypotheses 1a and 1b should hold stronger at higher rather than lower levels of bankruptcy risk:

*Hypothesis 3a.* The weaker responsiveness of CEOs at SEW intensive (family or founder) firms to current option wealth will be accentuated at higher levels of bankruptcy risk.

*Hypothesis 3b.* The weaker responsiveness of CEOs at SEW intensive (family or founder) firms to prospective option wealth will be accentuated at higher levels of bankruptcy risk.

## METHODS

### Data

To test our hypotheses we extract data from five separate independent sources for the period 2004 through 2011: Execucomp, Compustat, Corporate Library, Option Metrics, and the EDGAR database. We merged these data sources (that contain firm-level information about all publically traded U.S. firms) and out of the resulting sample we included in the analysis only the publicly traded companies from the manufacturing sector (SIC code from Compustat with values between 2000 and 4000) to ensure the relevance of the measures of strategic risk-taking, as described below (Devers et al., 2008; Martin, et al. 2013; Miller and Bromiley, 1990). We identified all SEW-intensive (family and founder) firms in the resulting sample through the

ownership information offered by the Corporate Library database (we offer more details when describing the family and founder variable below) and we created a dummy variable that was coded as one when the firm is SEW-intensive (family or founder) and zero otherwise. We then gathered information on each SEW intensive firm (family and founder) regarding those cases when the CEO is also family member or founder, the percentage of family ownership and the firm's family generation. We collected these data from the annual proxy statements published by the U.S. Securities and Exchange Commission (SEC) through the EDGAR database. We also validated this identification process by accessing the firms' websites and searching for the information regarding the name of the founder or founding family, the year the firm was founded, the number of generations involved in the business and the family ties between the founder(s), the CEO and other shareholders. In total, we test our hypotheses on a sample of 504 companies and 1,989 firm years, over a period of 8 years.

As noted earlier, given that our purpose is to analyze CEOs' risk taking decisions in response to the incentive system as a function of the dominant principals' utilities subject to losses, we group founders and family firms together as "SEW intensive" firms. That is, given that both family and founder firms have SEW invested in the firm, we are interested in testing the effect of SEW intensive principals on the risk taking decisions of their CEOs in response to option wealth. However, similar to the previous studies, we account for the possible differences between founder and next generation family firms (e.g., Cannella et al., 2015; Miller et al., 2007, 2011; Villalonga and Amit, 2006) by including a control for firm stage as a robustness test.

## **Measures**

*CEO strategic risk-taking.* In order to obtain our measure of CEO strategic risk-taking, consistent with prior behavioral agency research examining agent and firm risk-taking, we



calculate a single factor using three variables that have been positively associated with firm risk: R&D expenditures, long-term debt, and capital expenditures (CAPX) (Devers et al., 2008; Martin et al., 2013). Factor analysis shows that the single factor explains 70.1% of the total variance, while the values for the factor loading are 0.86 for long-term debt, 0.81 for R&D expenditures, and 0.84 for capital expenditures. The factor is standardized.

*Family and founder control.* Following the Corporate Library's definition, founder/family control is measured as a dummy variable taking the value 1 if the firm is family or founder controlled (88 firms, for 227 firm years) and 0 otherwise (416 firms, for 1,771 firm years). A family-controlled firm is defined by the Corporate Library as "a company where family ties, most often going back a generation or two to the founder, play a key role in both ownership and board membership. Family members may not have full control of the shareholder vote (greater than 50%) but will generally hold at least 20%". Founder controlled firms are defined by Corporate Library as a company where the founder remains as a principal shareholder (holds more than 10% of total voting power) and is actively involved in the firm's affairs as CEO or Chairman of the Board. The fact that half the CEOs in firms coded as 1 are from the controlling family or are the founder (as identified through proxy statements, an independent data source) lends credence to the Corporate Library's categorization. A dichotomous measure of family or founder control has been used in numerous family business studies (e.g., Allen and Panian, 1982; Berrone et al., 2010; Gomez-Mejia et al., 2003; Schulze et al., 2001). Also, the 20% cutoff used by the Corporate Library to define a firm as family owned should be interpreted in light of a long stream of research on control of large publicly traded firms as well as SEC reporting requirements that use an ownership threshold as low as 5% to proxy a principal's capacity to exert major influence over the firm's affairs (e.g., Feldman et al., 2013; Hambrick and

Finkelstein, 1995; McEachern, 1975; Salancik and Pfeffer, 1980). Lastly, a recent study of the entire population of Swedish firms by Gomez-Mejia and colleagues (2014) reveals that both a family dummy and a continuous family ownership measure correlate in the mid 0.90s with other indicators of family influence such as the composition of the top management team, number of relatives working for the firm, intergenerational transitions, and family dominated boards.

*Current wealth.* The variable current wealth measures the potential for option wealth loss in the CEO's mixed gamble (that is, one with prospective gains and losses). Current wealth is calculated using the number of options from each option grant, multiplied by their corresponding spread (market price minus exercise price) on the final day of the fiscal year for unexercisable and exercisable options (Martin et al., 2013). Options are exercisable if the CEO has taken ownership of them (typically after four years of receiving them), yet both exercisable and unexercisable options are believed to be endowed by CEOs, meaning it will add to their risk bearing (Wiseman and Gomez-Mejia, 1998).

*Prospective wealth.* The variable prospective wealth is an estimate of the potential for option wealth gains in the CEO's mixed gamble and it represents the potential future increase in CEO option wealth due to successful risk-taking leading to increases in the price and value of CEO stock options, over and above the current cash value of the stock options (current wealth). Data for both current wealth and prospective wealth are obtained from Execucomp. Consistent with Martin and colleagues (2013), the formula used for computing prospective wealth is:

$$\text{Prospective wealth} = \text{Number of Options Held} \times [(1.053^{\text{time}} \times \text{Stock Price}) - \text{Stock Price}] \quad (1)$$

The *number of options held* by the CEO (in the prospective wealth calculation) represents the sum of the number of exercisable and unexercisable options; *time* represents a weighted average of the time to expiry of the exercisable, unexercisable, and new grants options and is

computed after the steps proposed by Core and Guay (2002); and *stock price* represents the price of company's stock options at the end of the fiscal year. We estimate potential future increases in the value of stock options due to successful risk-taking using the average annual increase in the Dow Jones index over the period of data analysis, which is 5.3% (Martin et al., 2013).

*Bankruptcy risk.* We estimate bankruptcy risk based on the Altman's Z value (Altman, 1983), which is used to predict the probability of firm bankruptcy within two years. The formula for computing the Altman's Z is the following:

$$Z = 1.2T_1 + 1.4T_2 + 3.3T_3 + 0.6T_4 + 0.999T_5,$$

where  $T_1$  represents the firm's working capital divided by total assets,  $T_2$  is the firm's retained earnings divided by total assets,  $T_3$  represents the firm's earnings before interest and taxes divided by total assets,  $T_4$  is the market value of equity divided by total liabilities, and  $T_5$  is the firm's sales divided by total assets. The lower the value of the Altman Z, the greater the bankruptcy threat. In order to ensure that our bankruptcy measure is positively related to bankruptcy, we calculate the variable as 1 divided by the Altman Z value.

*Family or founder CEO.* Family or founder CEO is a dummy variable taking the value 1 if the CEO is either member of the family owning the firm or founder and 0 otherwise; these are manually identified through yearly proxy statements published by the SEC.

*Control variables.* Consistent with prior studies of firm risk-taking, we include several control variables: *firm size* as the natural logarithm of firm's total assets in the reporting year, *stock price volatility* as the standard deviation of firm's stock price over the previous 3 years, *prior industry diversification* (Hitt et al., 1997; Gomez-Mejia et al., 2010), *CEO salary* as the fixed component of CEO's pay, the *value of shares owned by the CEO*, *CEO age*, *CEO duality* as a dummy recorded as 1 in situations where the CEO is also the board chairman and 0

otherwise, *CEO hedging* as a dummy recorded as 1 where the firm trades put options and 0 otherwise, *CEO vulnerability* which is a dummy variable recorded as one if the firm has reported three consecutive years of decreases in both share price and return on assets, and zero otherwise (Martin et al., 2013), *firm performance* (using ROA), *CEO tenure*, and *year dummies*.

### **Analysis**

We winsorize our data at the 1% level to control for extreme outliers. Furthermore, we standardize our variables with a mean of 0 and standard deviation of 1. Because we are using panel data in our model we use the Hausman test to assess whether fixed effects and random effects influenced the data (Certo and Semadeni, 2006). Our significant results ( $p\text{-value} < 0.001$ ,  $X^2 = 106$ ) indicate the need to use a fixed effects model. We run the regressions using the *xtreg* function from STATA, with the *fe* (fixed effects) option.

## **RESULTS**

Table I shows the *descriptive statistics* (mean and standard deviation before being standardized) and the *correlation matrix*. Tables II (total sample), Table III (SEW intensive subsample), and Table IV (bankruptcy risk median split) contain the results of the regression models with strategic risk-taking as the dependent variable. Our graphs of the interaction effects use percentiles to reflect the low (25<sup>th</sup> percentile) and high (75<sup>th</sup> percentile) values of the moderator variables. As shown in Table II, prospective wealth and current wealth are significant and in the directions previously theorized by BAM (leading to CEO risk-seeking and CEO risk aversion respectively) in the main effects model. In the interactions model (Model 3, Table II), current wealth's interaction with SEW intensive principals is significant and positive (0.04) at  $p < 0.05$ ; that is, the negative effect of CEO risk bearing upon CEO risk aversion is attenuated when there is a dominant family or founder owner (for a graphic representation, see Figure 1A). This

provides support for Hypothesis 1a. Supporting Hypothesis 1b, family or founder ownership also constrains CEO prospective wealth's positive effect upon CEO risk-seeking; family or founder ownership constrains risk-taking by CEOs (the interaction coefficient of  $-0.05$ , at  $p < 0.01$ , significantly constrains the main effect coefficient of  $0.05$ , at  $p < 0.001$ , Table II, Models 2 and 3) in response to their prospective wealth when predicting strategic risk-taking (see Figure 1B).

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INSERT TABLES I & II AND FIGURES 1A & 1B HERE  
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Model 3 in Table III tests Hypotheses 2a and 2b. Please note that the sample used for this empirical test differs from that used for prior testing, given that we now use only the sub-sample of family and founder firms to see if the family or founder CEO (a dummy variable) effect is stronger than for non-family/non-founder CEOs, and thus whether the family CEO self-regulates, as suggested by our theory. Hypothesis 2a is not supported, as the response to current wealth does not differ if the CEO is family or founder. Hypothesis 2b predicts that family or founder control will have a greater attenuating effect on the relationship between CEO prospective wealth and strategic risk-taking when the CEO is a family member or founder; this is strongly supported, as reflected by the negative ( $b = -0.10$ ,  $p < 0.001$ ) coefficient for the two-way interaction of the family or founder CEO dummy with prospective wealth in Table III, Model 3, which significantly constrains the main effect of CEO prospective wealth (for a graphic representation, see Figure 1C). It follows that in firms with a dominant family or founder owner, family or founder CEOs will be less inclined to make egocentric, higher-risk strategic decisions aimed at increasing their prospective option wealth.

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INSERT TABLE III AND FIGURE 1C HERE  
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The differences between family/founder and non-family/non-founder firms, as described in Hypotheses 1a and 1b, are predicted to be accentuated under conditions of higher bankruptcy threat by Hypotheses 3a and 3b (Figures 1D and 1E). Hypothesis 3a is strongly supported by the direction and significance of coefficients of the interaction terms in the higher bankruptcy threat models ( $b = 0.04$ ,  $p < 0.001$ ), along with the absence of significance of these interactions in the low bankruptcy threat models (Table IV, Models 1 and 2). Family or founder ownership interacts negatively with prospective wealth ( $b = -0.01$ ,  $p < 0.001$ ) and is insignificant in the low bankruptcy threat model, which supports Hypothesis 3b (Table IV, Models 1 and 2). In both cases, the family or founder firms exhibit weaker CEO responses to option incentives when bankruptcy risk is higher. We conclude that bankruptcy risk further weakens the responsiveness of CEOs to option incentives at SEW intensive (family or founder) firms.

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 INSERT TABLE IV AND FIGURES 1D & 1E HERE  
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### **Robustness Tests**

We conduct additional analyses to check the robustness of our results across different model specifications. We use a two-stage least squares (2SLS) regression model to control for the endogeneity of our independent variables (current wealth, and prospective wealth) in our models predicting risk taking. We use the lag of both current and prospective wealth as instrumental variables for each of current and prospective wealth. We test the validity of the instruments with the value of the F-statistic and the significance of the instrumental variables predicting the endogenous variables (current wealth and prospective wealth), followed by the evaluation of the Sargan-Hansen test of overidentification to account for their exogeneity (Martin, Gözübüyük, and Becerra, 2013). The F-statistic in the first-stage analysis of 2SLS and

the Sargan-Hansen test are both within the bounds of acceptability for most of our models. The exception was that the interaction coefficients corresponding to historical aspiration were significant for both the above and below median splits. We also conduct a robustness test using a dependent variable calculated as the addition of standardized R&D expenditures, capital expenditures, and long-term debt. The results of the corresponding regression models using the alternate dependent variable are substantially the same as those presented below. Furthermore, we tested the robustness of our family and founder dummy variable: we included the *firm's generational stage* in a one to six range (lone founder firm [1] or family firm generation, namely first [2], second [3], third [4], fourth [5] and fifth or beyond family generation [6]) as a control variable given that the family's influence may wane in the second, third or later generations (e.g., Schulze et al., 2001; Gomez-Mejia et al., 2007); thus, we also control for possible differences between founder firms and all stages family firms in our subsample of family and founder firms. Lastly, we have used alternative dummy variables as a robustness test. That is, we have defined one new dummy for lone founder or family with more than 25% family ownership and another dummy for lone founder or family firm with more than 30% family ownership. We have used these two dummies instead of our initial dummy for lone founder or family firms with more than 20% family ownership (the Corporate Library Definition) and the results are substantially unchanged.

## **DISCUSSION AND CONCLUSIONS**

Our study aims to examine the effect of ownership structure—specifically, the effect of family and founder ownership—on managerial agents' (or CEOs') risk-taking behaviors in response to an option-based incentive alignment plan. To do so, we combine behavioral agency research examining agent risk-taking and family firm research examining family and founder

principals' risk preferences relative to non-family and non-founder principals. Our findings demonstrate that family or founder ownership attenuates: (1) the negative risk bearing (current wealth) effect on CEO strategic risk-taking, and (2) the positive prospective wealth effect upon CEO strategic risk-taking. These findings make important theoretical and practical contributions to both literatures, which we expand upon below.

The field of behavioral agency in the management literature has sought to enhance the predictive validity of models that forecast agent risk-taking. For example, BAM has drawn upon behavioral decision research, such as the concept of loss aversion from prospect theory, to allow us to understand how equity-based pay influences agent risk-taking (c.f., Denya et al., 2005). Recent refinements in this field also demonstrate that prospective wealth may incentivize agents to take greater risk, acting as a separate heuristic that coexists with the concepts of loss aversion and risk bearing (Martin et al., 2013). What this theory currently lacks is an appreciation of the role of dominant principal risk bearing in this process. Our study underlines the importance of the SEW intensive principal's risk preferences in restraining and shaping agents' risk-taking efforts, for example in limiting or acquiescing to the motivational effect of the incentive system.

We show that firms with SEW intensive owners (family and founder firms) are not consistently more risk-averse than firms without the same levels of SEW endowment when it comes to their preferences for agents' strategic choices (a generally accepted premise in much of the family business literature; c.f., Anderson and Reeb, 2003; Fan and Wong, 2002; Gomez-Mejia et al., 2001, 2010). On the contrary, our findings suggest family or founder firms may be less risk averse than non-family or non-founder firms given the family or founder CEOs' tendency to be less responsive to current wealth. At the same time, family or founder firms whose CEOs have high prospective wealth, will be more risk-averse than non-family/non-



founder firms whose CEOs have the same levels of prospective wealth. Thus, our findings advance our understanding of family and founder firm risk preferences relative to non-family firms by considering the risk preferences of the managerial agent relative to the principals'. Further, differences in family/founder and non-family/non-founder firm risk-taking is contingent upon the family or founder's vulnerability to synoptic losses (as reflected by higher bankruptcy risk, which is a hazard to both SEW and financial wealth), meaning that SEW intensive principals are more likely to acquiesce in CEO risk responses to stock options at lower levels of vulnerability. Thus, family/founder and non-family/non-founder firm risk preferences are more prone to converge at lower levels of SEW intensive principals' vulnerability to loss.

Our study also contributes to the literature that provides an institutional explanation for the adoption of certain corporate governance practices, such as long-term income plans, that are consistent with a prevailing "agency logic" (Zajac and Westphal, 1994; Westphal and Zajac, 1995). Family or founder firms are not immune to institutional pressures if they wish to attract and retain competent CEOs who may have alternative employment opportunities. In fact, we found no difference in the distribution of this type of incentive plan in our population of firms by family/founder ownership status. Our theory indicates that SEW intensive firms may adopt equity-based incentive plans for CEOs both substantively (when there is alignment of risk preferences) and symbolically (when there is misalignment of risk preferences). This refines previous research which documented the symbolic adoption of equity incentives—that is, the failure to actually use incentives despite the firm's apparent embrace of them—and attributed it to the opportunistic use of CEO power (c.f., Zajac and Westphal, 1994). Our results show that the firm's principals influence the extent to which incentives are substantively or symbolically embraced. That is, when agent and principal risk preferences are aligned, firm principals tend not

to constrain the behavioral effects on the CEO after the incentives are adopted, reflecting substantive use of equity-based pay. Conversely, when risk preferences are misaligned, the adoption of equity-based pay appears more symbolic, as reflected by deviation from BAM's predictions due to dominant principals' constraining behavior (greater limitations are placed on CEO risk-taking when the family or founder principal is more vulnerable to losses). In other words, family or founding owners of publicly traded firms appear to enjoy the legitimacy that comes from adopting a ubiquitous governance mechanism, but when their risk bearing is higher (exposing them to synoptic SEW and financial losses), adoption of this governance mechanism appears to be—at least relative to non-family/non-founder firms—neutralized in practice.

To our knowledge this is the first study that bridges BAM's research on CEO risk-taking with BAM's research on firm risk-taking driven by ownership configuration. Concerning the special case of family firms, Chrisman and Patel (2012: 977) note that “prior studies indicate that family firms will embrace risky decisions that preserve socioemotional wealth even if they are expected to decrease long term economic wealth, yet also avoid risky decisions that might increase long term economic wealth but reduce socioemotional wealth.” This discourse has not considered the role of CEO incentives, which takes center stage in most of the corporate governance literature dealing with firm risk-taking, including those based on BAM (e.g., Devers et al., 2008; Larraza-Kintana et al., 2007; Sanders, 2001; Martin et al., 2013). We address this issue directly in the context of family or founder firms. By offering the CEO options, while at the same time monitoring the CEO to ensure that the family/founder firm adopts a risk posture less likely to expose them to synoptic losses, the family or founder principal reconciles the need to preserve SEW with long-term economic welfare. This approach to designing a “pay mix” for CEOs also helps the family or founder firm comply with prevailing corporate governance

practices, with its attendant benefits (for instance, making competitive offers to potential CEO candidates, gaining positive market reactions, and winning the approval of current and potential investors).

This study also makes important contributions to our understanding of agency costs as a function of ownership structure. Agency and family firm research examining agency problems unique to family firms has provided conflicting arguments regarding the implications of concentrated ownership for agency costs. Some scholars have argued that concentrated ownership leads to more intense monitoring, reducing the agency costs associated with opportunistic agent behavior (Jensen and Meckling, 1976). However, others have made a strong case that family ownership is associated with unique types of agency costs, such as family altruism and entrenchment of family employees tainting hiring and firing decisions (Schulze et al., 2001) and other forms of expropriation from minority shareholders (Fan and Wong, 2002). Our findings contribute to this discourse by demonstrating that family or founder ownership may reduce shareholder agency costs by neutralizing the downside of principal-agent incentive alignment mechanisms through constraining CEO risk responses (risk aversion or risk-seeking) to option wealth. That is, per our theory the SEW intensive principals' restriction of CEOs risk aversion (to protect their accumulated option wealth) or CEO risk seeking (in pursuit of further wealth) should alleviate agency costs (see, for example, the literature we cited suggesting that both risk aversion and risk-seeking can have adverse firm performance effects [Sanders and Hambrick, 2007]). These findings provide a novel perspective from which to consider the implications of family and founder ownership for the unique nature of agency problems and associated costs within family/founder firms relative to non-family/non-family firms.

Our theory offers additional insight into circumstances leading to goal alignment and goal divergence of agent and principal. Although goal alignment has been central to agency theory, empirical analysis of goal alignment and its consequences for agent (CEO) behaviors has been sparse (Corbetta and Salvato, 2004). Prior research has demonstrated that goal alignment is likely to reduce reliance upon formal control mechanisms, such as monitoring using a large board of directors (Jaskiewicz and Klein, 2007). We advance this discourse by suggesting that risk bearing of agent and principal is an important consideration when attempting to establish goal alignment and the governance mechanism that is most appropriate. When goal alignment due to risk bearing and risk profile divergence are larger, monitoring (by family or founder principals) is indeed effective in constraining CEO risk behaviors. Yet our findings also are a reminder of the inherent shortcomings of monitoring, given we demonstrate that CEO risk taking in response to option incentives differs between family/founder CEOs and non-family/non-founder CEOs, suggesting that even with intensive monitoring, the non-family/non-founder CEO's risk behavior is still inferior to having a family or founder in the CEO role.

In light of the recent financial crisis, the constraining effect of family or founder ownership on CEOs' ability to take additional risks (that is, limiting the effect of CEO prospective wealth on risk-taking) may be considered socially desirable, contrary to the tenets of agency theory. Many prominent public figures (including U.S. President Barack Obama, members of the U.S. Congress, and the head of the European Union) have attributed the financial crisis to careless risk-taking by executives motivated by personal enrichment. Our study provides the important insight that family and founder firms are more likely to minimize this type of agency cost. This is a valuable insight for investors aiming to avoid firms with a greater risk of

indulging in the excessive risk-taking regulators have criticized as partly responsible for the crisis.

### **Limitations and Future Directions**

As with most studies relying on archival sources, ours is subject to some limitations. Our sample is limited to publicly listed firms due to the databases we have access to. We also use a single and binary measure of family and founder firm categorization from the Corporate Library database (that is robust to various levels of family and founder ownership). However, there is no clear consensus regarding the threshold necessary to indicate family ownership, and 20% is more conservative than the standard used in most prior studies of publicly traded companies (Berrone et al., 2010). Furthermore, as noted earlier, (1) half of the CEOs in these firms are family members, supporting the validity of the family classification, and (2) results remain robust when using alternative ownership cut-offs. We measure the control aspect of SEW inferentially given that this is a conceptual construct that is purportedly more salient for family or founder principals and not amenable to direct observation via archival data. This application is very similar to the use of such widely known concepts as transaction costs, tacit knowledge, technological intensity, marginal productivity, risk bearing, and the like that are measured at best through very indirect proxies, an unavoidable compromise in the absence of behavioral data.

We restrict our measures of equity wealth to stock options. This is because: (1) stock options continue to be ubiquitous in CEO pay at publicly listed firms, and now exceed more than two-thirds of the typical CEO's compensation package (Nyberg et al., 2010; Martin et al., 2013); (2) the majority of BAM literature has focused on the role of stock options (and the associated heuristics) in influencing CEO behavior and agency costs (Devers et al., 2008; Martin et al., 2013); and (3) stock options are likely to have a stronger effect on CEO behaviors than

other forms of CEO wealth due to the more extreme sensitivity of stock options to share price movements (Sanders, 2001). Future studies could look at how family and founder ownership affects the behavioral influence of other forms of CEO firm-specific wealth.

Our research paper compares family and founder principals with non-family/non-founder principals. For the purpose of our paper, using separate treatment of various blockholder non-family groups (e.g., pension plans, institutional investors, government) would make the analysis very complex. However, future research papers could further explore such differences by analyzing multiple shareholder groups. As a final note, we would not have sufficient statistical power if we were to separate the sub-samples of family and founder firms to see if their behaviors would differ. However, we have compelling theoretical reasons, as discussed earlier, to group these firms (family and founder) together under the SEW intensive umbrella. Future research studies could try analyze how the two types of firm ownership (and other ownership categories) differ in the control and influence they exercise on the CEO's strategic decision.

## **END NOTES**

1. Previous studies have examined the effects of founder and family ownership separately, such as to examine the difference in performance between founder and later generation family firms (for eg., Amit and Villalonga, 2006) or to predict how their control structures manifest as organizational identity (for eg., Cannella et al., 2015). Given we are examining how ownership structure moderates behavioral agency predictions regarding risk taking in response to equity incentives, we are interested in the risk bearing of family and founders relative to other types of owners. A similarity in these two ownership categories is that both have emotional attachment to their firm and are vulnerable to significant loss of social capital – the founder as an individual (Ucbasaran et al., 2013) and the family as a collective (Gomez-Mejia et al., 2007) – in the event of firm failure. Thus, we group these two ownership forms together in examining how they differ from other owners – driven by their larger perceived potential (synoptic) losses – when constraining their CEOs or responding themselves to their equity compensation.

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**TABLE I**  
**Descriptive Statistics and Correlation Matrix**

Variables <sup>a</sup>	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1 Strategic risk-taking	0.03	0.69																	
2 Current wealth	12,183	23,735	0.15																
3 Prospective wealth	72,558	138,661	0.31	0.36															
4 Family/Founder control	0.11	0.32	-0.09	0.05	0.07														
5 Bankruptcy risk	0.00	0.00	-0.18	-0.16	-0.14	0.04													
6 Family CEO	0.06	0.24	-0.08	0.04	0.09	0.70	0.04												
7 CEO salary	6.58	0.42	0.48	0.27	0.36	-0.10	-0.41	-0.09											
8 Stock price volatility	7.38	6.32	-0.02	0.31	0.13	-0.02	-0.22	-0.01	0.27										
9 Firm diversification	0.93	0.73	0.20	0.05	0.06	-0.13	-0.21	-0.09	0.39	0.13									
10 Firm size	7.34	1.59	0.60	0.27	0.30	-0.16	-0.48	-0.16	0.81	0.27	0.49								
11 CEO tenure	6.82	6.21	-0.09	0.19	0.10	0.31	0.01	0.45	-0.06	-0.03	-0.12	-0.17							
12 CEO age	55.45	6.41	0.07	0.08	0.04	0.03	0.01	0.12	0.11	0.02	0.14	0.04	0.40						
13 CEO duality	0.50	0.50	0.15	0.09	0.10	-0.16	-0.12	-0.09	0.32	0.11	0.18	0.28	0.13	0.23					
14 Performance	0.04	0.11	0.11	0.20	0.12	-0.05	-0.45	-0.04	0.22	0.18	0.11	0.33	0.03	0.02	0.09				
15 CEO hedging	0.93	0.25	0.10	0.08	0.03	-0.03	-0.34	-0.04	0.18	0.13	0.08	0.23	-0.09	-0.10	0.04	0.14			
16 CEO vulnerability	0.09	0.29	0.02	-0.09	-0.04	-0.02	0.13	-0.02	-0.02	0.07	-0.02	-0.01	0.03	0.01	0.00	-0.25	-0.01		
17 CEO shares	29,590	52,821	0.24	0.44	0.41	0.16	-0.18	0.20	0.29	0.13	0.06	0.28	0.31	0.11	0.11	0.16	0.10	-0.03	

N = 1,989

\* Correlations with an absolute value greater than 0.03 are significant at  $p < 0.05$ .

<sup>a</sup> Variables 2, 3 and 17 are expressed in thousands. Variable 10 is expressed in millions. Firm size was measured as the natural logarithm of firm sales. Performance was measured as ROA.

**TABLE II**  
**Regression Models Predicting Strategic Risk-Taking: Family/ Founder Moderator**

Independent Variables	Control Variables		Main Effects		Family/Founder Control Interaction	
	Model 1		Model 2		Model 3	
	<i>Beta</i>	<i>S.E.</i>	<i>Beta</i>	<i>S.E.</i>	<i>Beta</i>	<i>S.E.</i>
Firm size <sub>t-1</sub>	0.28***	(0.04)	0.28***	(0.04)	0.27***	(0.04)
Performance <sub>t-1</sub>	-0.00	(0.01)	-0.00	(0.01)	-0.00	(0.01)
Stock price volatility <sub>t-1</sub>	-0.01	(0.01)	-0.01	(0.01)	-0.01	(0.01)
Firm diversification <sub>t-1</sub>	0.01	(0.02)	0.02	(0.02)	0.02	(0.02)
CEO salary <sub>t-1</sub>	-0.01	(0.02)	-0.00	(0.02)	-0.00	(0.02)
CEO shares <sub>t-1</sub>	0.03***	(0.01)	0.02*	(0.01)	0.02*	(0.01)
CEO age <sub>t-1</sub>	0.02	(0.01)	0.02	(0.01)	0.02	(0.01)
CEO duality <sub>t-1</sub>	-0.02	(0.02)	-0.02	(0.02)	-0.03	(0.02)
CEO hedging <sub>t-1</sub>	-0.08*	(0.04)	-0.07	(0.04)	-0.07	(0.04)
CEO vulnerability <sub>t-1</sub>	-0.02	(0.02)	-0.02	(0.02)	-0.02	(0.02)
Bankruptcy risk <sub>t-1</sub>	0.01	(0.02)	0.01	(0.02)	0.01	(0.02)
CEO tenure <sub>t-1</sub>	-0.01	(0.02)	-0.01	(0.01)	-0.00	(0.01)
Family or founder control	-0.06	(0.04)	-0.06	(0.04)	-0.06	(0.04)
CEO family	0.00	(0.05)	-0.01	(0.05)	0.00	(0.05)
CEO current wealth <sub>t-1</sub>			-0.03***	(0.01)	-0.04***	(0.01)
CEO prospective wealth <sub>t-1</sub>			0.05***	(0.01)	0.06***	(0.01)
Family or founder control X CEO current wealth <sub>t-1</sub>					0.04*	(0.02)
Family or founder control X CEO prospective wealth <sub>t-1</sub>					-0.05**	(0.02)
Constant	0.02	(0.04)	0.02	(0.04)	0.02	(0.04)
R squared (within)	0.14		0.17		0.17	
R squared (between)	0.44		0.44		0.44	
R squared (overall)	0.14		0.17		0.17	
N	1,989		1,989		1,989	

Key: \*\*\* denotes p value of less than 0.001; \*\* denotes p value of less than 0.01; \* denotes p value of less than 0.05. Please note that the change in R squared for main effects and interactions models is significant at p < 0.05. Year dummies are included in the regressions but not listed in this table.

**TABLE III**  
**Regression Models Predicting Strategic Risk-Taking in Family/ Founder Firms:**  
**Family/ Founder CEO Moderator (Family and Founder Subsample)**

Independent Variables	Control Variables		Main Effects		Family CEO	
	Model 1		Model 2		Model 3	
	<i>Beta</i>	<i>S.E.</i>	<i>Beta</i>	<i>S.E.</i>	<i>Beta</i>	<i>S.E.</i>
Firm size <sub>t-1</sub>	0.22***	(0.05)	0.21***	(0.05)	0.22***	(0.04)
Performance <sub>t-1</sub>	-0.03*	(0.01)	-0.03*	(0.01)	-0.03*	(0.01)
Stock price volatility <sub>t-1</sub>	-0.03**	(0.01)	-0.03**	(0.01)	-0.02*	(0.01)
Firm diversification <sub>t-1</sub>	0.02	(0.02)	0.02	(0.02)	0.02	(0.01)
CEO salary <sub>t-1</sub>	-0.01	(0.02)	-0.01	(0.02)	-0.01	(0.02)
CEO shares <sub>t-1</sub>	0.04***	(0.01)	0.04***	(0.01)	0.02**	(0.01)
CEO age <sub>t-1</sub>	-0.07***	(0.02)	-0.07***	(0.02)	-0.06***	(0.02)
CEO duality <sub>t-1</sub>	-0.01	(0.02)	-0.01	(0.02)	0.00	(0.02)
CEO hedging <sub>t-1</sub>	-0.06	(0.10)	-0.06	(0.10)	-0.21*	(0.09)
CEO vulnerability <sub>t-1</sub>	0.00	(0.02)	-0.01	(0.02)	-0.01	(0.02)
CEO tenure <sub>t-1</sub>	0.01	(0.01)	0.01	(0.01)	0.00	(0.01)
CEO family or founder	0.02	(0.04)	0.02	(0.04)	0.09**	(0.03)
Bankruptcy risk <sub>t-1</sub>	0.00	(0.01)	0.00	(0.01)	0.00	(0.01)
CEO current wealth <sub>t-1</sub>			-0.01	(0.01)	0.04	(0.02)
CEO prospective wealth <sub>t-1</sub>			0.00	(0.01)	0.09***	(0.02)
CEO family or founder X CEO current wealth <sub>t-1</sub>					-0.04	(0.02)
CEO family or founder X CEO prospective wealth <sub>t-1</sub>					-0.10***	(0.02)
Constant	-0.09	(0.12)	-0.10	(0.12)	-0.01	(0.10)
R squared (within)	0.50		0.51		0.66	
R squared (between)	0.39		0.36		0.48	
R squared (overall)	0.50		0.51		0.66	
N	224		224		224	

Key: \*\*\* denotes p value of less than 0.001; \*\* denotes p value of less than 0.01; \* denotes p value of less than 0.05. Please note that the change in R squared for main effects and interactions models is significant at p < 0.05. Year and dummies are included in the regressions but not listed in this table.

**TABLE IV**  
**Regression Models Predicting Strategic Risk-Taking in Family/ Founder Firms:**  
**Bankruptcy Risk Median Split**

<b>Independent Variables</b>	<b>BANKRUPTCY RISK</b>			
	<b>Below median</b>		<b>Above median</b>	
	<b>Model 1</b>		<b>Model 2</b>	
	<i>Beta</i>	<i>S.E.</i>	<i>Beta</i>	<i>S.E.</i>
Firm size <sub>t-1</sub>	0.72***	(0.10)	0.04***	(0.01)
Performance <sub>t-1</sub>	-0.01	(0.03)	0.00	(0.00)
Stock price volatility <sub>t-1</sub>	-0.01	(0.01)	0.00	(0.00)
Firm diversification <sub>t-1</sub>	0.03	(0.03)	-0.01	(0.00)
CEO salary <sub>t-1</sub>	-0.01	(0.03)	0.00	(0.00)
CEO shares <sub>t-1</sub>	-0.02	(0.01)	0.00	(0.00)
CEO age <sub>t-1</sub>	0.04	(0.02)	0.00	(0.00)
CEO duality <sub>t-1</sub>	-0.05	(0.03)	0.00	(0.00)
CEO hedging <sub>t-1</sub>	-0.14	(0.23)	0.00	(0.00)
CEO vulnerability <sub>t-1</sub>	-0.07	(0.05)	-0.01	(0.00)
Bankruptcy risk <sub>t-1</sub>	1.46*	(0.65)	0.00	(0.00)
CEO tenure <sub>t-1</sub>	0.03	(0.03)	-0.00	(0.00)
Family or founder control	-0.16*	(0.08)	0.01	(0.01)
CEO family or founder	0.00	(0.10)	0.01	(0.01)
CEO current wealth <sub>t-1</sub>	-0.03*	(0.01)	-0.04***	(0.00)
CEO prospective wealth <sub>t-1</sub>	0.08***	(0.01)	0.00	(0.00)
Family or founder control X CEO current wealth <sub>t-1</sub>	0.04	(0.03)	0.04***	(0.01)
Family or founder control X CEO prospective wealth <sub>t-1</sub>	-0.01	(0.04)	-0.01***	(0.00)
Constant	0.57	(0.35)	-0.34***	(0.01)
R squared (within)	0.27		0.30	
R squared (between)	0.54		0.28	
R squared (overall)	0.27		0.30	
N	998		991	

Key: \*\*\* denotes p value of less than 0.001; \*\* denotes p value of less than 0.01; \* denotes p value of less than 0.05.

Please note that the change in R squared for main effects and interactions models is significant at p < 0.05.

Year and dummies are included in the regressions but not listed in this table.

**FIGURE 1**  
**Interaction Graphs**

