Strategic Management Journal
Strat. Mgmt. J., **37**: 1968–1989 (2016)
Published online EarlyView 16 September 2015 in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1002/smj.2425
Received 5 June 2014; *Final revision received 20 July 2015*

HEAVY LIES THE CROWN? HOW JOB ANXIETY AFFECTS TOP EXECUTIVE DECISION MAKING IN GAIN AND LOSS CONTEXTS

MICHAEL J. MANNOR,[1]* ADAM J. WOWAK,[2] VIVA ONA BARTKUS,[3] and LUIS R. GOMEZ-MEJIA[4]
[1] *365 MCOB, University of Notre Dame, Notre Dame, Indiana, U.S.A.*
[2] *353 MCOB, University of Notre Dame, Notre Dame, Indiana, U.S.A.*
[3] *357 MCOB, University of Notre Dame, Notre Dame, Indiana, U.S.A.*
[4] *360 MCOB, University of Notre Dame, Notre Dame, Indiana, U.S.A.*

Research summary: *Despite abundant anecdotal evidence that many top executives experience anxiety in their jobs, the upper echelons literature has remained largely silent on the organizational implications of executive job anxiety. In this study, we theorize that job anxiety will cause executives to (1) create a social buffer against threats by surrounding themselves with supportive decision-making teams, and (2) pursue lower-risk firm strategies. We further argue that these effects will vary depending upon whether strategic decisions occur in gain versus loss contexts. We test our ideas using a novel multisource, multimethod approach that includes data from 84 top executives of large organizations, their decision-making teams, their friends and families, and archival sources. Results from an analysis of 154 major strategic decisions provide general support for our theory.*

Managerial summary: *Although many top executives experience anxiety in their jobs, some struggle more with anxiety than others. Our paper is the first to focus on how job anxiety affects executives' decisions. We analyze 154 major strategic decisions made by 84 top executives of large organizations in a range of industries, collecting data from personal interviews with executives and surveys of their decision-making teams, spouses, and friends. We find that anxious executives take fewer strategic risks, especially when things are going well. We further argue that anxious executives focus more on "buffering" themselves from threats, and find that they surround themselves with close supporters when times are tough. Our results demonstrate a pattern through which anxiety causes top executives to focus more heavily on avoiding potential threats.*

INTRODUCTION

Many top executives operate under great pressure in their jobs. They engage in a dizzying array of tasks (Mintzberg, 1973), contend with ambiguity and incomplete information (Eisenhardt, 1989), and encounter far more stimuli than they can adequately process (Cyert and March, 1963). Further adding to the burden, and to a much greater extent than at lower organizational levels, executives' missteps on the job can cause irreparable harm to their organizations (Finkelstein, 2003) and their own careers (Sutton and Callahan, 1987). It thus seems axiomatic that some of these individuals experience anxiety in their jobs. For instance, anxiety was cited—by the company, no less—as the reason for the 2011 resignation of Robert Loudermilk, Jr., who had

Keywords: upper echelons; CEOs; job anxiety; strategic decision making; behavioral decision theory
*Correspondence to: Michael J. Mannor, University of Notre Dame, 365 Mendoza College of Business, Notre Dame, IN 46556, U.S.A. E-mail: mikemannor@nd.edu

served as chief executive officer (CEO) of specialty retailer Aaron's, Inc. since 2008 (Kass, 2011). Anxiety is known to influence how people think and act (Eysenck, 1992; Maner *et al.*, 2007; Raghunathan and Pham, 1999), which suggests that it will affect how executives perceive, make sense of, and behave in strategic decision contexts. Yet despite this intuition, the organizational implications of executive anxiety remain largely speculative.

This is somewhat puzzling given the robust literature on top executives, although the difficulty in obtaining data on sensitive psychological attributes has likely contributed to the absence of research on the topic. Most studies of top executives rely upon archival proxies for underlying psychological attributes, and numerous investigations have shown that observable characteristics such as work experience, age, tenure, and education can affect an executive's decisions and actions (for a review, see Finkelstein, Hambrick, and Cannella, 2009). But the central premise of upper echelons theory holds that it is the personal biases and dispositions of top executives that influence strategic decision making and the organizational outcomes that follow (Hambrick and Mason, 1984), and research in this domain has begun to shift away from archival proxies and toward a focus on more fundamental psychological constructs (e.g., Nadkarni and Herrmann, 2010; Simsek, Heavey, and Veiga, 2010). Job anxiety, which we define as the general level of worry experienced in connection with one's job over time, is one such psychological construct that has been shown to influence a variety of outcomes among lower-level employees (c.f., Abdel-Halim, 1978; Griffith and Hebl, 2002; Muschalla, Linden, and Olbrich, 2010). Yet no studies to date have explored its implications for top executives, even though abundant research suggests that it will meaningfully affect their decisions and actions.

In this study, we integrate perspectives from strategic management and cognitive psychology to investigate how job anxiety in senior corporate leaders (such as CEOs, strategic business unit [SBU] presidents, and other executives in leadership positions) manifests in their decisions and actions. Our study complements recent scholarship on executive job demands (e.g., Hambrick, Finkelstein, and Mooney, 2005) and personality (e.g., Nadkarni and Herrmann, 2010) in developing new insight into how executives respond to the challenges of their jobs. Psychology researchers have shown that anxiety causes individuals to fixate on potential threats and downside outcomes, which in turn promotes responses aimed at lowering their vulnerability to threat (Maner *et al.*, 2007). Underscoring the notion that executives are "humanly finite … just like the rest of us" (Hambrick, 2007: 341), we argue that job anxiety will cause top executives to take actions that reduce both their own personal risk bearing and their organizations' risk taking. Our hypothesized outcomes align with two of the most common behavioral responses to anxiety according to the psychology literature: creating a social buffer against potential threats (Cohen and McKay, 1984) and avoiding high-risk courses of action (Maner and Schmidt, 2006).

First, we posit that anxious executives will attempt to reduce their personal exposure to risk by surrounding themselves with supportive decision teams who will present a common front to deal with threats. This is consistent with the "buffering hypothesis," which refers to the tendency for anxious individuals to seek help from personal supporters when facing stressful environments (Cohen and McKay, 1984). Relatedly, supportive teams will be less likely to engage in opportunistic behaviors directed toward the top executive (Cruz, Gomez-Mejia, and Becerra, 2010). We build on these ideas to hypothesize that anxious executives will aim to reduce their risk bearing[1] by surrounding themselves with supportive decision teams, a dynamic we refer to as "social buffering." In this sense, our theory addresses recent calls for research examining why top management teams (TMTs) look the way they do (Hambrick, 2007).

Next, we hypothesize that anxious executives will show a reluctance to take risks in their organizations' strategies. Micro-level research suggests that anxiety causes individuals to focus predominantly on avoiding negative outcomes, which translates into decreased risk taking (Maner *et al.*, 2007; Maner and Schmidt, 2006). Applying this logic to the strategic decision-making context, we propose that anxious top executives will favor risk-averse strategies.

In addition to these two general relationships, we argue that the effects of job anxiety will vary depending upon whether decisions occur in gain versus loss contexts. Behavioral decision theory holds that situational characteristics affect how

[1] We treat the terms "risk bearing" and "exposure to risk" synonymously, as both refer to an executive's perceived vulnerability in his or her position (Cruz *et al.,* 2010).

DOI: 10.1002/smj

individuals make decisions (Kahneman and Tversky, 1979; Wiseman and Gomez-Mejia, 1998), and numerous studies have shown that context influences strategic decision making (e.g., Gomez-Mejia *et al.*, 2007; Martin, Gomez-Mejia, and Wiseman, 2013; Souder and Bromiley, 2012). But most of this research does not address the possibility that individual differences between executives will affect their responses to situations. The upper echelons literature, on the other hand, has shown that executive characteristics influence their decisions and actions (Finkelstein *et al.*, 2009). We integrate these two views to argue that the effects of job anxiety will depend on whether decisions occur in gain versus loss contexts. Specifically, we hypothesize that the positive effect of job anxiety on social buffering will be amplified in perceived loss contexts (and vice versa in perceived gain contexts) and that the negative effect of job anxiety on strategic risk taking will be amplified in perceived gain contexts (and vice versa in perceived loss contexts).

As we discuss in a later section, our multisource, multimethod research design afforded us a unique opportunity to test our ideas. Data sources included in-person structured interviews with 84 executive leaders from major organizations; ratings of executive job anxiety collected from executives' spouses, family members, and close friends; assessments of gain and loss context derived from executives' speech patterns during our interviews; team-level ratings of strategic decisions from 257 subordinates reporting to the executives in our sample; and archival measures of firm and industry characteristics. This comprehensive approach reflects our attempt at overcoming a common criticism of upper echelons studies: the inability to get inside the "black box" of strategic decision making (e.g., Lawrence, 1997). Addressing this shortcoming, Hambrick noted that "[o]ur desire—our need—to open up the black box is not just a matter of scholarly curiosity; it is essential for ultimately improving the insights we can provide … " (2007: 337). We believe our study represents a significant step in this direction.

Our study offers several contributions. First, we highlight job anxiety as an important predictor of executive decisions and actions. Abundant anecdotal evidence suggests that many top executives experience anxiety in their jobs, but until now the implications of executive job anxiety have remained speculative. Second, we integrate perspectives from two literature streams—upper echelons theory and behavioral decision theory—both of which address executive decision making but each has followed a distinct, separate path. By showing that the effects of job anxiety differ across decision contexts, we highlight the potential in combining these two complementary perspectives. Finally, we offer a methodological contribution by developing a new set of techniques for studying top executives. As the upper echelons literature continues to move toward more direct measurement of executive psychology, techniques such as ours can help strategy researchers add to their methodological toolkits.

THEORY AND HYPOTHESES

The nature of job anxiety

Anxiety is a complex phenomenon that has been studied from two broad perspectives, one of which focuses on the effects of anxiety in the general population (Eysenck, 1992).[2] Many people experience anxiety, especially in connection with their jobs. A recent survey of more than 1,000 people found that nearly 70 percent of workers experienced job anxiety, with over 40 percent reporting feeling "tense or stressed out during the workday" (American Psychological Association, 2010). Given such widespread prevalence, it is not surprising that scholars have devoted substantial effort to studying the effects of job anxiety (e.g., Abdel-Halim, 1978; Doby and Caplan, 1995; Griffith and Hebl, 2002; Hunter and Thatcher, 2007; Muschalla *et al.*, 2010).

Research suggests that job anxiety is relatively stable over time and "similar to a trait" (Zalewska, 2011: 978). Along these lines, it has been found to be strongly correlated ($r = 0.69$) with trait anxiety, which reflects an individual's overall (i.e., occurring across all situations) tendency to worry about perceived threats (Muschalla *et al.*, 2010). This suggests that while the two forms of anxiety are not identical, individuals with high levels of trait anxiety will be predisposed to perceive threats in their job environments (i.e., they will have high levels of job anxiety). We focus specifically on job anxiety

[2] The other broad perspective focuses on the treatment of clinical anxiety disorders, which are estimated to affect approximately 18 percent of American adults (cited in Stossel, 2013). As our theory pertains to how anxiety affects the general population of top executives, we leave it to future research to investigate whether executives experience (and how they respond to) clinical anxiety disorders.

DOI: 10.1002/smj

because of its closer alignment with our theoretical outcomes of interest, which represent executives' job-related decisions and actions in the domain of strategic decision making. This is consistent with the idea that domain-specific (compared to generalized measures) of anxiety are better predictors of outcomes in the corresponding domain (Muschalla, Heldmann, and Fay, 2013; Zalewska, 2011).

Job anxiety in top executives

The absence of empirical studies of executives notwithstanding, management scholars have speculated that executives' decisions and behaviors will be influenced by job-related worries and fears. Manfred F. R. Kets de Vries, the renowned psychoanalyst who did some of the pioneering research on executive psychology (cf. Kets de Vries and Miller, 1984; Miller, Kets de Vries, and Toulouse, 1982), noted in an interview that "executives tend to be an anxious bunch. At any given time, there are many things going on that the executives feel they have little control over" (Coutu, 2004: 70). Kets de Vries makes an important point: executives can have a lot to worry about. First, and most obviously, some executives will find their job responsibilities arduous or overwhelming (Hambrick *et al.*, 2005). Others may perceive that they have little margin for error and become preoccupied with the belief that failing to meet high expectations will result in their sanction or dismissal. And still other executives may have personalities or genetic backgrounds that predispose them to experiencing job anxiety (e.g., Nadkarni and Herrmann, 2010). Regardless of its causes, job anxiety tends to be relatively stable over time, and executives with greater job anxiety will be more prone to worrying about downside outcomes. We build on this logic to argue that differences in job anxiety will help explain differences in behavior.

Social buffering

Our first hypothesis concerns the decision-making teams that top executives surround themselves with when facing strategic situations. A central tenet of the upper echelons perspective is the notion that the dominant coalition—e.g., the group of decision-makers (often the TMT) with the most influence over firm strategy and structure—is a meaningful source of variation between and among organizations (Child, 1972; Cyert and March, 1963). Some examples of decision-making team attributes that influence firm strategy include TMT education (Bantel and Jackson, 1989), tenure (Wiersema and Bantel, 1992), and work experience (Carpenter and Fredrickson, 2001). These and other studies suggest that team composition plays a role in shaping organizational outcomes. Less well understood, however, are the factors that affect the composition of the decision-making team itself (Beckman and Burton, 2011; Hambrick, 2007).

Among these factors are the preferences of the top executive (e.g., the CEO), who tends to have the strongest input into the selection, evaluation, and dismissal of team members (Finkelstein, 1992). Beyond the obvious need to select individuals whose human capital offers the best fit with the environment (Wiersema and Bantel, 1992), top executives also incorporate their own personal preferences into team personnel decisions. Scholars have shown, for instance, that CEOs with diverse career backgrounds tend to churn (i.e., add to and subtract from) their teams to a greater degree than CEOs with more homogenous career backgrounds (Crossland *et al.*, 2014). This lends support to the idea that the makeup of the dominant coalition can be influenced, at least in part, by the preferences of the top executive.

We extend this logic to argue that executives with high levels of job anxiety will aim to lower their exposure to risk by engaging in a social buffering process. Specifically, we propose that anxious executives will create a social buffer around themselves by staffing their decision-making teams[3] with subordinates who are supportive of the executive and of each other, as such teams will be more likely to present a common front when facing threats. This prediction builds on the idea that anxious individuals prefer to surround themselves with supportive others who can serve as a shield against the threatening environment (e.g., Gino, Brooks, and Schweitzer, 2012; Ognibene and Collins, 1998). The "buffering hypothesis" specifically argues that supportive inner circles provide tangible and intangible resources that (1) help anxious individuals

[3] Our theorizing focuses on the decision-making team that an executive relies upon when making a particular strategic decision. This is related to, but not necessarily the same as, the TMT. We base our argument on the concept of the dominant coalition (Child, 1972; Cyert and March, 1963), which can vary depending on the type of decision being made (Jackson, 1992). Our approach is notable in light of Hambrick's observation that "attention to the varying involvement of different executives in different decision domains could be one of the next research frontiers for upper echelons scholars" (2007: 336).

DOI: 10.1002/smj

emotionally cope with real or perceived environmental threats by offering social support and/or (2) defuse or reduce the potential for real or perceived harm posed by the environment (Cohen and Wills, 1985).

Psychology researchers usually describe social buffering in terms of activities such as spending time with family members and soliciting advice from close friends (Folkman and Lazarus, 1985). Applying this logic to our context, we argue that anxious top executives will engage in social buffering by relying upon trusted advisors when facing difficult strategic decisions. For example, a CEO we interviewed who scored in the top quartile of our social buffering survey measure (detailed in a later section) described his efforts to recruit a trusted friend to serve as his chief operating officer as follows: "He's like my brother … I said, 'You want to come home? We need you at home. I need you.' … So then he quit and came to work for us."

We therefore argue that anxious executives will tend to surround themselves with supportive decision-making teams. Anxious executives will feel inherently vulnerable when facing important strategic decisions, but they can cope with perceived threats by choosing supportive teams that can provide the resources discussed above. An extension of this idea is that less-supportive team members who are actively excluded from an anxious top executive's inner circle may leave the organization voluntarily. This would actually enhance the social buffering of the top executive, and is consistent with our theorized relationship. Thus

Hypothesis 1: Job anxiety will induce top executives to choose decision-making teams that provide a higher level of social buffering.

Strategic risk taking

Our second hypothesis pertains to the level of risk that top executives are willing to accept in their firms' strategies. Upper echelons researchers have argued that executive characteristics manifest in strategic risk taking through two primary mechanisms: executives' perceived probabilities of possible outcomes and the relative attractiveness of these outcomes to executives (Chatterjee and Hambrick, 2007: 357). The first of these mechanisms involves the executive's cognitive estimate of the likelihood that a given course of action will result in a large loss, a large gain, or any outcome in between. In this vein, scholars have argued that one of the key components of risk is the relative likelihood of substantial loss (March and Shapira, 1987; Sanders and Hambrick, 2007). To the extent that top executives vary in their estimates of the likelihood of a large loss, they will also vary in their willingness to pursue risky strategic initiatives. The second mechanism concerns the relative attractiveness of strategic alternatives. When deciding among different courses of action, an executive will naturally gravitate toward choices that most closely align with his or her inherent preferences (Finkelstein *et al.*, 2009).

We contend that job anxiety will affect executives' assessments of risk, as well as their preference for safer (as opposed to higher-riskier) courses of action, such that highly anxious executives will tend to pursue risk-averse strategies. Evidence from the psychology literature indicates that anxious individuals fixate on threatening cues (Eysenck *et al.*, 2007; Mathews and MacLeod, 1994; Stöber, 1997), which in turn leads them to make risk-averse choices (Maner *et al.*, 2007; Maner and Schmidt, 2006). By focusing on potential negative outcomes, a highly anxious executive will assign a higher probability of loss to a proposed strategic action—which will, in turn, lower the likelihood that the executive will pursue the initiative. Similarly, risk-averse courses of action will appeal to the anxious executive's innate desire to avoid threats. This logic is consistent with the arguments of Maner and colleagues (2007: 672), whose findings led them to conclude that "risk-avoidant decision making can be viewed as the output of a motivational process—initiated by the experience of anxiety—that leads individuals to avoid threats associated with potentially risky courses of action."

Both of these processes align with our prediction that high levels of job anxiety will cause executives to pursue intentionally lower-risk (as opposed to higher-risk) strategic initiatives. Executives with abundant job anxiety will be especially attuned to potential downside outcomes when evaluating strategic alternatives, and their innate desire to avoid these downside outcomes at all costs will manifest in a preference for risk-averse strategies. Accordingly

Hypothesis 2: Job anxiety will induce top executives to pursue lower-risk strategies.

The moderating influence of decision context

Our arguments thus far are direct extensions of upper echelons theory logic, which holds that executive psychology will influence decisions and behaviors. But we also anticipate that the effects of job anxiety will vary by decision context. Behavioral decision theory scholars have shown that situational characteristics affect how executives make decisions (e.g., Larraza-Kintana *et al.*, 2007; Souder and Bromiley, 2012), particularly in the domain of risk (e.g., Chattopadhyay, Glick, and Huber, 2001; Matta and Beamish, 2008; Wiseman and Gomez-Mejia, 1998). Although upper echelons theory and behavioral decision theory both address executive decision making and risk taking, the two literatures have developed largely in parallel. We integrate ideas from the two complementary perspectives to argue that job anxiety and decision context will operate in tandem to influence executive decisions and actions.

We specifically argue that the effects of job anxiety will differ depending on whether an executive is operating in a gain context versus a loss context.[4] Behavioral decision theory holds that executives' decisions depend, at least in part, on the extent to which they frame their situations as generally favorable relative to a given reference point (e.g., when the firm has recently outperformed its peers) or generally unfavorable relative to the reference point (e.g., when the firm has recently underperformed its peers) (Bromiley and Harris, 2014; Holmes *et al.*, 2011). Decision context is thus a function of both backward- and forward-looking perceptions, as what has happened in the recent past will influence the degree to which an executive frames the decision at hand—including the characteristics and probabilities of specific future outcomes—as an opportunity to protect a gain versus an opportunity to undo or avoid a loss. A central tenet of this view is that individuals are more sensitive to losses than to gains of equal magnitude (a phenomenon known as "loss aversion"), where losses (gains) represent outcomes below (above) the reference point. Individuals in a loss context are motivated to take actions that can erase or avoid losses, whereas individuals in a gain context are driven by a desire to protect gains.

Subjectivity is key in both contexts: people can vary widely in their subjective probabilities of positive and negative outcomes, as well as in their preferences for (or desire to avoid) a given outcome. Along these lines, studies have shown that individual attributes such as gender (Fagley and Miller, 1997), personality (Lauriola and Levin, 2001), motives (De Dreu and McCusker, 1997), emotions (Druckman and McDermott, 2008), and family ties to dominant owners (Gomez-Mejia, Makri, and Larraza-Kintana, 2010b) can influence how individuals behave in gain and loss contexts (i.e., the effects of individual attributes on behaviors will depend on the decision context). But existing research at the TMT level has largely overlooked the possibility that executives will vary in how they respond in a given context, even though ample evidence from psychology suggests that decision context will moderate the link between executive characteristics (including job anxiety) and subsequent behaviors.

Our first hypothesis argued that anxious top executives will socially buffer themselves by relying upon supportive teams that limit the executives' perceived vulnerability. We posit that this effect will become even more pronounced when executives perceive themselves to be operating in a loss context. For an anxious executive who already tends to fixate on negative cues, loss contexts may make downside outcomes particularly salient (e.g., Dutton and Jackson, 1987). Bloom and Milkovich (1998: 285–286) noted that executives who perceive threats to their jobs will adopt "entrenching" practices that reduce risk bearing. Loss contexts are generally associated with an increased vulnerability to threat, but a given executive's level of job anxiety should influence the perceived severity of (and the subsequent behavioral response to) the threat. We thus argue that perceived loss contexts will amplify, or strengthen, the positive relationship between executive job anxiety and social buffering in and among the executives' appointed decision-making teams.

The corollary to this argument is that perceived gain contexts will attenuate, or weaken, the influence of executive job anxiety on social buffering. The executive's felt need to create a social buffer in his or her decision-making team should be less

[4] As a point of clarification (and consistent with behavioral decision theory), we conceptualize decision context as a continuum reflecting the extent to which an executive frames his or her overall situation at a given time as generally favorable (i.e., gain context) or unfavorable (i.e., loss context) relative to a reference point. For ease of argument, we refer to gain and loss contexts as if they are discrete (opposing) states, but it should be understood that a given executive could potentially find him- or herself at any point on the continuum. We detail our measurement of this construct in the Research Methods section.

DOI: 10.1002/smj

pressing in a gain context, as even an anxious executive will simply have fewer threats to worry about when environmental conditions are favorable. Recall that Hypothesis 1 was based on the logic of the "buffering hypothesis," which holds that anxious individuals tend to surround themselves with supportive others that can (1) help the anxious individual emotionally cope with real or perceived environmental threats by offering social support and/or (2) defuse or reduce the potential for real or perceived harm posed by the environment (Cohen and Wills, 1985). In gain contexts, the immediate environmental threats are likely to be fewer and less salient (Gomez-Mejia, Welbourne, and Wiseman, 2000). It follows that executives will feel less vulnerable in gain contexts, which will weaken the positive effect of job anxiety on the desire to form decision-making teams with high levels of social buffering. Therefore

Hypothesis 3: The influence of top executive job anxiety on social buffering will be stronger (more positive) in perceived loss contexts than in perceived gain contexts.

We similarly anticipate that top executives' perceptions of decision context will moderate the influence of job anxiety on strategic risk taking. Prior work has argued that loss contexts encourage risk taking (Kahneman and Tversky, 1979), a prediction that has been supported across many studies (for a meta-analysis, see Kühberger, 1998). Closer to our domain, scholars have shown that CEOs are more inclined to take risks when facing losses such as performance below aspirations (Wiseman and Bromiley, 1996) and abundant out-of-the-money stock option holdings (Zhang *et al.*, 2008). Gain contexts, on the other hand, exacerbate executive risk aversion. Existing research at the executive level suggests that CEOs do indeed avoid risky strategies in favor of safer alternatives when making decisions in gain contexts (e.g., Devers *et al.*, 2008; Devers, Wiseman, and Holmes, 2007).

We argue that the effect of executive job anxiety on risk taking will depend on the decision context. Our second hypothesis argued that job anxiety would lead to decreased risk taking, and we posit that this effect will become even more pronounced in a gain context. The desire to protect gains should be particularly salient to anxious executives, who tend to be more strongly driven to avoid uncertain courses of action. Gain contexts exacerbate risk aversion in general, but we expect that anxious top executives will be especially sensitive to this influence given their naturally increased apprehension about losing their gains.

An extension of this logic is that a perceived loss context should somewhat offset the negative relationship between job anxiety and strategic risk taking. Although an anxious executive will generally avoid risky strategies, a perceived loss context will exert an opposing influence. In contrast to an anxious executive facing a gain context, who acts conservatively to preserve gains, an anxious executive facing a loss context will feel more vulnerable to impending harm and should be more willing to take risks to undo the loss. Consequently

Hypothesis 4: The influence of top executive job anxiety on strategic risk taking will be stronger (more negative) in perceived gain contexts than in perceived loss contexts.

RESEARCH METHODS

Sample and data sources

We used a multisource, multimethod data collection approach to test our ideas. This involved gathering data from a wide variety of sources, including recorded in-person structured interviews with every top executive in our sample; online surveys administered to the executives' decision-making teams; hard-copy surveys administered to the executives' friends and families; and archival company and industry data. Testing our theory required gaining access to the black box of strategic decision making, and our methodology was designed with this goal in mind.

At the outset of our data collection, we established three criteria to govern the recruitment of top executives for our study. First, we required that the companies in our sample have annual revenues of at least $20 million (e.g., Sharma, 2000). As most studies of top executives focus on large organizations, we wanted to maximize the generalizability of our results. Second, and consistent with the upper echelons definition of a top executive (Finkelstein *et al.*, 2009: 9–12), we required that each executive in our sample hold a senior leadership position with ultimate authority over strategic decisions in their organization or business unit. Finally, each executive had to be willing to fully participate in our

DOI: 10.1002/smj

somewhat intrusive research design by providing us with access to themselves, their spouses and family members, and their decision-making teams for additional data collection.

Recognizing the challenge of the last criterion in particular, we used four methods to recruit participants. First, several key advocates for our research served on the boards of Fortune 500 companies and agreed to contact as many of their director colleagues as possible on our behalf. Second, several partners at a premier global strategy consulting firm put us in touch with their clients. Third, the development office of a major private university in the United States connected us with alumni who fit our criteria. Finally, we asked existing participants to introduce us to any executive colleagues willing to participate in the research. This last method, sometimes referred to as "chain referral" or the "snowball method," has proved effective for scholars studying sensitive topics in difficult-to-access populations (Atkinson and Flint, 2001). These four techniques allowed us to recruit 84 top executives to take part in our study. The 84 top executives served in the following positions in their organizations: 79 percent were the named CEO or head of their SBU, and 21 percent held the title of "president" or another corporate-level leadership position with final authority over key strategic decisions. Fifty-two percent of the executives worked in public corporations; 38 percent worked in private corporations; and 10 percent held executive positions in large nonprofit organizations.

It is also important to note that our theory and empirics focus on the *decision* level of analysis. We asked executives to each describe two major strategic decisions they had faced in their roles as leaders, preferably within the most recent few years. Most executives heeded our request to focus on recent decisions (the majority of decisions in our sample occurred within five years of the interview), although not everyone did. The mean time since decision was approximately seven years. We thus took steps to ensure that the lengthier time horizon for some of the decisions did not introduce retrospective bias into our study. First, and as we discuss later, we controlled for executives' self-ratings of decision quality and recent performance in all models. To the extent that any sort of affective halo existed in connection with the executives' recollection of the decisions, these controls would help partial out that variance. Second, we examined how the qualitative data from our interview notes aligned with the quantitative assessments reflected in our social buffering survey measure (described below) for a small sample of decisions older than five years that scored in the top 20 percent or bottom 20 percent of the social buffering distribution. While such an analysis is only suggestive, we did find a high degree of alignment between the qualitative descriptions of the situations and the quantitative measures for these older decisions. Finally, evidence from a supplementary analysis of 117 public company CEOs using an entirely different measurement approach (described in a later section) provided further confidence that retrospective bias did not influence our results.

We obtained useable data on 154 unique strategic decisions, for an average of 1.8 decisions per executive. These decisions represented six types of strategic situations: new product launches (25% of all decisions); acquisitions (18%); major organizational restructurings (21%); divestitures (16%); new market or international entries (14%); and other strategic issues (6%). In all regression models, we controlled for decision category.

Dependent variables

Social buffering

Our first hypothesis involved the degree to which top executives appoint decision-making teams whom they perceive as providing a supportive inner circle, which we refer to as social buffering. It was thus necessary to measure this construct from the perspective of the focal top executive. At a broad level, our measure was conceptually similar to Cruz *et al.*'s (2010) measure of TMT benevolence,[5] which focuses on the degree to which the leader believes that his or her team wishes the leader more good than harm (Mayer and Davis, 1999). Our

[5] To assess the degree to which our social buffering measure aligned with the TMT benevolence measure used by Cruz and colleagues (2010), we surveyed executive MBA students at a major private university in the United States. We were able to collect data from 51 students, who averaged 38 years of age and 16 years of work experience (and 18% of whom were female). Each student was asked to reflect on a team that he or she was currently leading and over which he or she had control of team membership. We then asked each student to rate the team using both our four-item social buffering scale as well as the four-item TMT benevolence scale used by Cruz and colleagues (2010). Principal component analysis revealed that only one factor with an eigenvalue greater than 1.0 explained 80 percent of the variance across all items, which suggests considerable overlap between social buffering and TMT benevolence.

DOI: 10.1002/smj

measure was also consistent with the loyalty scale used by Dooley and Fryxell (1999) in their study of strategic decision-making teams in hospitals, although ours was more specifically focused on the quality of prior relationships and cohesion. The four items were assessed by each top executive during our interview, during which they described (for each major decision) the degree to which their team members (1) knew each other before the decision; (2) were friends before the decision; (3) were loyal to each other; and (4) were loyal to the executive personally. The items were rated on a scale of 1 (not at all) to 7 (to a very great extent), and the alpha for these four items was 0.91, indicating high reliability.[6] As a point of clarification, this measure pertains to the specific team involved in each decision. Because most of our sample executives described two decisions occurring at two different points in time, this measure could vary across the decisions for each top executive.

Strategic risk taking

Similar to the social buffering measure, our theoretical focus for this measure involved the perception of firm risk associated with a given strategic decision. To measure this perception, we gathered data from both the focal top executive leading the team as well as the subordinate members of the team. During each interview, we asked the executive to reflect upon the degree to which the final decision exposed the firm to strategic risk. This was rated on a scale ranging from 1 (decreased firm risk substantially) to 7 (increased firm risk substantially). In a separate online survey, we asked the decision-making team members to make the same assessment. The ICC(1) between evaluators was 0.48, and the ICC(1,k) was 0.65. As principal component analysis confirmed that these two assessments (leader-rated risk and team-rated risk) were largely driven by a single factor (eigenvalue = 1.3; 64% variance explained), we used the average value of leader and team perceptions as our measure of strategic decision risk.

Independent variable

Executive job anxiety

As described earlier, job anxiety represents the general level of worry experienced in connection with one's job over time. We assessed this construct by surveying the spouses, families, and friends of the top executives in our sample. The logic of using an external third-party rating of job anxiety rather than the executive's own rating (or their team's perception) was threefold. First, recent research has shown that the predictive power of other-rated individual characteristics is often stronger than self-rated measures (Connelly and Ones, 2010), particularly for sensitive characteristics such as job anxiety. Second, by assessing the perceptions of others with deep and longstanding relationships with the executive, we maximized our likelihood of gaining a broad view of the executive's stable expression of job anxiety while he or she was in the position. And third, this method helped guard against social desirability bias (Nederhof, 1985), or the possibility that executives might not want to admit that they were apprehensive or distressed in their jobs.

With these factors in mind, we used two criteria to identify individuals whose assessments of executive anxiety would be most appropriate for this study. We required that these individuals (1) had to have known the executive for more than 15 years and (2) was not involved in the strategic decisions under study (this latter requirement protected against common method bias in our hypothesis tests). At the end of each executive interview, we provided two hard-copy surveys in self-addressed stamped envelopes that we asked the executives to give to family and friends meeting our two criteria. This process yielded an average of 1.7 responses from the family and friends of each top executive.

The survey measure of job anxiety was modified from the six-item short form of Spielberger's anxiety measure (e.g., Marteau and Bekker, 1992), which we adapted to assess job anxiety in the context of top executives. Our measurement technique is similar to other studies of job anxiety in populations of lower-level workers (e.g., Abdel-Halim, 1978; Doby and Caplan, 1995; Griffith and Hebl, 2002), many of which used the same measure upon which ours was based.

[6] We conducted several additional tests using our primary sample of top executives to examine the convergent validity and predictive validity of our social buffering measure. As would be expected given its theoretical underpinnings, social buffering was significantly positively correlated ($r = 0.43$) with a two-item measure of team trust (demonstrating convergent validity). It also logically follows that members of supportive teams would have a lower desire to leave the team, a prediction that was borne out in the significant negative correlation ($r = -0.18$) between social buffering and team-rated turnover intention (demonstrating predictive validity).

The four items (each of which ranged from one to seven) assessed the extent to which the executive's friends and family perceived that the executive (1) often worried about making major mistakes in his or her job; (2) appeared concerned that he or she was not the best person for the job; (3) appeared apprehensive about the threats and challenges he or she faced in the job; and (4) appeared nervous making tough decisions in the job. The scale demonstrated good reliability, with an alpha of 0.84. The ICC(1) between evaluators was 0.29, and the ICC(1,k) was 0.45.[7] Job anxiety was calculated as the mean of these four items (aggregated across evaluators). We then performed a natural log transformation on this variable to account for positive skew.[8]

Moderator variable

Perceived gain/loss context

Most existing studies assess gain/loss contexts using objective archival measures such as performance relative to industry peers or the degree to which executives' stock options are in-the-money versus out-of-the-money (for a review, see Holmes *et al.*, 2011). These types of measures reflect the notion that positive deviations from a reference point lead to gain contexts while negative deviations lead to loss contexts. Such an approach has clear merit, but one potential limitation is the assumption that executives' reference points are correctly identified by researchers (Fiegenbaum, Hart, and Schendel, 1996). Indeed, an exclusive reliance on archival data assumes that executives will be more or less uniform in their selection of reference points (i.e., they will use the same reference points in assessing gains or losses) (for exceptions, see Devers *et al.*, 2007; Short and Palmer, 2003). Scholars have suggested using subjective data provided by the executives making the decisions as a way of overcoming these limitations (Holmes *et al.*, 2011), which echoes Lopes' (1996: 184) statement that "[t]o get a sense for how subjects are reasoning, it is useful to let them speak for themselves."

We thus used a psycholinguistic approach (Pennebaker, Francis, and Booth, 2001) aimed at measuring perceived gain/loss context based on the language executives used during our in-person interviews. Automated text analysis, which has been increasingly used in studies of executive decision making (for a review, see Duriau, Reger, and Pfarrer, 2007), involves analyzing executives' verbal or written communications to pinpoint the use of specific words that reflect underlying cognitions. For example, scholars have employed this approach to assess executive cognition as reflected in letters to shareholders (e.g., Abrahamson and Park, 1994) and CEO interviews with journalists (e.g., Chatterjee and Hambrick, 2007). Closer to our domain, Short and Palmer (2003) analyzed letters to shareholders to identify whether CEOs used internal or external referents when judging performance relative to aspirations.

Our in-person structured interviews with the 84 top executives formed the basis for measuring decision context. During each interview, which lasted an average of one hour, we asked the executive to describe two major strategic decisions they had been involved with in their role as a leader. All interviews were then professionally transcribed. Importantly, our focus on the decision level of analysis required that we capture the context at the time of *each strategic decision*; we thus treated each discussion of a strategic decision as a discrete body of text.

Once we deleted all passages not spoken by the executive (such as our own questions and comments), we used the Linguistic Inquiry and Word

[7] We recognize that this ICC(1,k) value would ideally be higher. As a robustness check, we re-ran our models using only the single evaluations corresponding to the most knowledgeable evaluator of job anxiety for each executive. Our default choice was the executive's spouse, and in the absence of spouse data we used data from another family member. Using this measurement technique, which included no aggregation, our results remained the same. It is also worth noting that the somewhat restricted range of job anxiety across our sample executives (discussed in more detail in the Limitations and opportunities for future research section) may have depressed the ICC(1,k), which compares across-unit variance to within-unit variance.

[8] Although we took a variety of steps (e.g., independent raters, situational control variables) to insulate our measure of job anxiety from situational factors that might bias measurement, we nevertheless conducted an additional analysis to investigate whether this was occurring. Because the temporal stability of job anxiety is central to our theorizing, we set out to compare our job anxiety measure with the Spielberger (2010) trait anxiety measure, which has been demonstrated to be stable across adulthood. We collected data on 64 students from the same Executive MBA population described in Footnote 5, taking the additional step of collecting third-party data from the students' friends, families, and coworkers (for an average of 2.6 raters per student). We asked these individuals, each of whom knew the focal student well, to evaluate the focal student's trait anxiety using the Spielberger (2010) 20-item STAI measure, as well as the student's job anxiety using our measure. Principal component analysis showed that only one factor with an eigenvalue greater than 1.0 was present, explaining 74 percent of the variance across these items. The considerable overlap with trait anxiety offers further support for our argument that job anxiety is an enduring characteristic.

DOI: 10.1002/smj

Count (LIWC) software program (e.g., Nadkarni and Chen, 2014; Pfarrer, Pollock, and Rindova, 2010) to analyze each executive's word usage during the entire portion of the interview pertaining to the focal strategic decision (approximately 30 minutes of speech). LIWC contains established dictionaries of words that have been validated by Pennebaker and colleagues (2001) to reflect underlying cognitions. For example, Nadkarni and Chen (2014) used LIWC to measure CEOs' past orientations (reflected in words like "had", "was", and "were") and future orientations (e.g., "will", "might", and "shall").

We followed a similar approach in constructing our measures for gain and loss contexts. Gain contexts occur when one approaches a decision from a position of being above a given reference point (e.g., when a company is performing better than its peers), and emphasize achieving a positive outcome, i.e., protecting a gain. We captured this by assessing each executive's use of positive emotion language (including assent), as well as words associated with achievement, in describing a decision. The combinations of words in these dictionaries had an average coefficient alpha[9] of 0.83 (Pennebaker *et al.*, 2001), and our final gain context dictionary included 622 words (such as *good*, *great*, and *well*). This component was calculated as the relative percentage of words spoken by the executive contained in the gain context dictionary.

Loss contexts, on the other hand, occur when an individual approaches a decision from a position below a given reference point (e.g., when a company is performing worse than its peers) and place an emphasis on avoiding a negative outcome. We thus measured this by assessing each executive's use of negative affective language and words associated with inhibition, which comprised an aggregate dictionary of 610 words (such as *awful*, *bad*, and *lose*) whose average coefficient alpha was 0.94 (Pennebaker *et al.*, 2001). This component was calculated as the relative percentage of words spoken by the executive that were contained in the loss context dictionary.

[9] Alpha calculations are described on the LIWC website (http://www.liwc.net/descriptiontable1.php) as follows: "Alphas refer to the Cronbach alphas for the internal reliability of the specific words within each category. The binary alphas are computed on the occurrence/non-occurrence of each dictionary word … All alphas were computed on a sample of 2,800 randomly selected text files from our language corpus." As an estimate of the reliability of the combined dictionaries we used, we averaged the listed binary alphas for the dictionaries included in this measure.

Next, we standardized the gain and loss context scores. We then used these standardized scores to create a net perceived gain/loss context score, which was calculated as gain minus loss. This yielded a single parsimonious indicator of the degree to which the executive's speech was more indicative of a gain context (positive scores) or a loss context (negative scores). Real-world gains and losses are not processed in a mutually exclusive fashion (i.e., executives may perceive a given scenario as having numerous elements of both gains and losses) (Wu and Markle, 2008), as it is the net combination of the two that will determine whether an executive approaches a decision from a predominantly loss context, a predominantly gain context, or somewhere in between. Results were also robust to using separate gain and loss measures.

A few examples from our interviews help illustrate how decision context manifested in executives' speech. In describing the decision to acquire a rival, the CEO of a large financial services firm said,

> "Our credit card business was working well, our retail brokerage was working well … our stock price had tripled from the time we went public, and we had a lot of momentum."

While this is only one quote from a larger body of speech, it suggests an emphasis on protecting a gain. Our measurement technique scored this decision in the 84th percentile (i.e., indicative of a relatively gain-oriented context) of our sample for perceived gain/loss context scores.

As another example, the CEO of a large energy company described the decision to restructure 2 billion dollars of debt by saying,

> "We were at a really vulnerable point and trying to turn the company around. The earnings were continuing to go down. We were really trying to stabilize the company … everybody is freaking out. So our CDS [credit default swap] spreads blow out. Our stock price plummets and it is a big deal … So what do you do?"

As before, this is only one excerpt from almost 30 minutes of speech describing the decision, but it emphasizes that the firm was in a situation where avoiding a negative outcome was paramount. According to our measurement technique, this

DOI: 10.1002/smj

decision was scored in the 18th percentile (i.e., indicative of a relatively loss-oriented context) of all decision context scores in our sample.

Control variables

We included a wide range of control variables to help rule out alternative explanations. At the organization level, we controlled for size, age, prior performance, profit versus nonprofit status, and family ownership. *Firm size* was measured as the natural logarithm of the number of employees, and *firm age* was measured as number of years since founding (based on data from Capital IQ). These two controls help account for the influence of organizational inertia on firm strategy (Hambrick and Finkelstein, 1987). *Prior performance*, which can affect how executives frame their situations and make decisions (Bromiley and Harris, 2014), reflected the decision teams' perceptions of prior performance over the year before each decision. This variable was measured as the average of two survey items ($\alpha = 0.95$) rated on a seven-point scale ("In the year prior to this decision, how would you characterize the firm's [a] sales performance [b] profitability?"). *Profit versus nonprofit status* was assessed using a binary variable (1 = profit; 0 = nonprofit), as was *family ownership* (1 = family-owned; 0 = nonfamily-owned). These two variables help control for the effects of organizational purpose and ownership structure on strategic decision making.

At the individual level, we included controls for executive level and tenure in the position. The *executive level* control was a variable ranging from 1 to 5, with higher levels indicating increasing levels of authority (e.g., a CEO was listed as a 5, a president or chief operating officer was listed as a 4, etc.). *Tenure* was measured as years in the position.

Because our focus was on the decision level of analysis, we also included several decision-level control variables. These consisted of perceived decision quality, decision team diversity, and type of decision. *Perceived decision quality* was the average of two items completed by the top executive ($\alpha = 0.83$), *decision team diversity* was assessed using a six-item measure completed by the top executive ($\alpha = 0.78$), and *decision type* was a series of binary indicators reflecting the nature of the strategic decision under study. Decision categories included acquisitions, divestitures, new product launches, international market entries, organizational restructurings, and other decisions (this was the excluded reference group).[10]

Estimation methods and endogeneity

We tested our hypotheses using hierarchical linear regression. To account for the nonindependence in our data (i.e., the multiple strategic decisions per executive), we specified Huber/White/sandwich standard errors using the "robust" option in Stata 12. Decisions were clustered by executive. We also centered the variables included in the interaction terms (executive job anxiety and perceived gain/loss context) to aid in interpretation of results.

Although we did not anticipate problems of endogeneity in our models, it is theoretically possible that executives of a given anxiety level were selected for their roles based on characteristics that are systematically related to our dependent variables. In other words, pre-entry conditions might predict both job anxiety and our dependent variables. We explored this possibility. Because our sample included private firms, we could not gather the necessary pre-entry data on the full sample; however, for the subsample of firms that were public prior to the appointment of our sample executives to their positions ($n = 44$), we were able to examine this possibility. Following recent studies (e.g., Crossland *et al.*, 2014), we regressed top executive anxiety on a battery of contextual characteristics assessed in the year before the executive's arrival, including company age (years); firm performance (ROA); firm size (logged employees); and recent change in performance (change in ROA). None of these variables were significant predictors of executive anxiety, which gives confidence that endogeneity did not bias our results.

RESULTS

Descriptive statistics and correlations are shown in Table 1. All means and standard deviations are reported as untransformed and uncentered values, but correlations apply to the transformed and centered variables used in the models.

[10] We also tested our model for robustness to a variety of other controls, including industry munificence and dynamism, public vs. private ownership structure, executive gender, executive duality, and time since decision. None of these additional controls were significant predictors of our dependent variables, and model results were identical to those reported in the paper.

DOI: 10.1002/smj

Table 1. Descriptive statistics and correlations[a]

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Social buffering	4.74	1.01																	
2. Strategic risk taking	4.56	1.11	0.08																
3. Company size (000s employees)[b]	37.68	88.11	−0.21	0.02															
4. Company age	56.33	53.76	−0.16	−0.19	0.52														
5. Company prior performance	4.54	1.25	0.18	0.07	0.01	−0.10													
6. Company is for-profit	0.90	0.31	−0.12	−0.10	−0.07	−0.01	−0.15												
7. Company is family-owned	0.08	0.28	0.35	0.08	−0.31	−0.03	0.02	0.10											
8. Executive level	4.26	1.08	0.19	0.00	−0.15	−0.15	0.01	−0.10	0.06										
9. Executive tenure	7.53	7.96	0.31	0.00	−0.22	−0.06	0.14	−0.07	0.31	0.09									
10. Perceived decision quality	5.06	0.85	0.05	−0.20	0.10	−0.08	−0.02	−0.13	−0.11	−0.02	0.06								
11. Decision team diversity	3.06	0.72	−0.15	0.02	0.31	0.13	−0.03	−0.32	−0.19	−0.07	−0.07	0.15							
12. Decision is acquisition	0.18	0.39	−0.04	0.16	−0.08	−0.05	0.20	0.16	0.04	0.04	0.00	−0.10	−0.21						
13. Decision is divestiture	0.16	0.37	0.10	−0.23	0.02	0.12	−0.02	0.09	−0.01	−0.04	0.08	0.07	−0.08	−0.21					
14. Decision is new product	0.25	0.44	0.05	0.12	−0.07	−0.13	0.05	−0.05	−0.07	0.01	−0.05	0.08	0.18	−0.27	−0.26				
15. Decision is international	0.14	0.35	−0.01	0.13	0.08	0.02	−0.01	−0.10	0.01	−0.03	0.09	−0.01	0.11	−0.19	−0.18	−0.24			
16. Decision is restructuring	0.21	0.41	−0.06	−0.12	0.05	0.03	−0.19	−0.09	−0.04	0.03	−0.13	−0.06	0.00	−0.24	−0.23	−0.30	−0.21		
17. Perceived gain/loss context	0.05	1.42	−0.18	−0.14	−0.01	0.00	0.01	0.12	0.00	−0.07	−0.16	−0.03	0.11	−0.04	−0.15	0.05	−0.03	0.17	
18. Executive job anxiety[b]	2.68	1.05	0.02	−0.16	−0.08	0.13	−0.13	−0.07	−0.04	−0.16	0.03	−0.15	0.10	0.06	0.02	0.06	0.07	−0.17	−0.08

[a] $n = 154$. Correlations above |0.15| are significant at $p < 0.05$.
[b] Natural log transformed.

DOI: 10.1002/smj

Table 2. Top executive job anxiety and social buffering

	Social buffering		
Independent variables	**(1)**	**(2)**	**(3)**
Company size	0.00	0.01	0.02
	(0.04)	(0.04)	(0.04)
Company age	−0.00	−0.00	−0.00+
	(0.00)	(0.00)	(0.00)
Company prior performance	0.11	0.12+	0.12+
	(0.07)	(0.07)	(0.07)
Company is for-profit	−0.40+	−0.37+	−0.44*
	(0.23)	(0.21)	(0.21)
Company is family-owned	1.11**	1.14**	1.21**
	(0.29)	(0.28)	(0.28)
Executive level	0.11	0.12	0.12+
	(0.08)	(0.08)	(0.07)
Executive tenure	0.02*	0.02*	0.02*
	(0.01)	(0.01)	(0.01)
Perceived decision quality	0.06	0.08	0.07
	(0.09)	(0.10)	(0.10)
Decision team diversity	−0.17	−0.18	−0.21
	(0.13)	(0.13)	(0.13)
Decision is acquisition	0.26	0.22	−0.03
	(0.40)	(0.40)	(0.39)
Decision is divestiture	0.67+	0.64+	0.47
	(0.37)	(0.37)	(0.36)
Decision is new product	0.60	0.57	0.39
	(0.38)	(0.39)	(0.38)
Decision is international	0.41	0.38	0.32
	(0.41)	(0.41)	(0.40)
Decision is restructuring	0.48	0.50	0.31
	(0.39)	(0.39)	(0.40)
Perceived gain/loss context	−0.08	−0.08	−0.08
	(0.06)	(0.06)	(0.06)
Executive job anxiety		0.24	0.23
		(0.27)	(0.22)
Executive job anxiety × perceived gain/loss context			−0.38**
			(0.12)
Constant	3.70**	3.49**	3.77**
	(0.93)	(0.95)	(0.93)
Observations	154	154	154
F value	4.29**	4.30**	5.57**
R^2	0.288	0.295	0.334
Change in R^2 (vs. previous model)		0.007	0.039**

+p < 0.10; *p < 0.05; **p < 0.01. Two-tailed tests.
Robust standard errors in parentheses.

Table 2 reports results of our models predicting social buffering and Table 3 reports results of our models predicting strategic risk taking. We begin with the social buffering models in Table 2. Model 1 includes controls only, Model 2 adds the job anxiety main effect, and Model 3 adds the interaction with decision context. Hypothesis 1 proposed a positive relationship between executive job anxiety and social buffering in decision-making teams. Although the coefficient was in the expected positive direction, Model 2 shows that job anxiety was not a significant predictor of social buffering ($\beta = 0.24$, n.s.). Hypothesis 1 was thus not supported.

Hypothesis 3 stated that this relationship would become weaker (less positive) in more gain-oriented contexts. As a reminder, a low value of the perceived gain/loss context variable represents a loss context whereas a high value represents a gain context. The significant negative coefficient on the interaction term in Model 3 ($\beta = -0.38$, $p < 0.01$) lends support to Hypothesis

DOI: 10.1002/smj

Table 3. Top executive job anxiety and strategic risk taking

	Strategic risk taking		
Independent variables	(1)	(2)	(3)
Company size	0.10*	0.07+	0.08+
	(0.04)	(0.04)	(0.04)
Company age	−0.01**	−0.01*	−0.01**
	(0.00)	(0.00)	(0.00)
Company prior performance	−0.04	−0.08	−0.08
	(0.08)	(0.07)	(0.07)
Company is for-profit	−0.49+	−0.59*	−0.65**
	(0.26)	(0.24)	(0.24)
Company is family-owned	0.64*	0.55*	0.61**
	(0.25)	(0.21)	(0.21)
Executive level	−0.06	−0.10	−0.10
	(0.06)	(0.06)	(0.07)
Executive tenure	−0.00	−0.00	0.00
	(0.01)	(0.01)	(0.01)
Perceived decision quality	−0.32**	−0.37**	−0.38**
	(0.11)	(0.11)	(0.10)
Decision team diversity	0.01	0.05	0.03
	(0.14)	(0.13)	(0.13)
Decision is acquisition	1.00*	1.13**	0.94*
	(0.44)	(0.40)	(0.42)
Decision is divestiture	0.14	0.20	0.06
	(0.40)	(0.36)	(0.38)
Decision is new product	0.88*	0.97*	0.83*
	(0.41)	(0.38)	(0.39)
Decision is international	0.89*	0.99**	0.94*
	(0.40)	(0.37)	(0.38)
Decision is restructuring	0.36	0.31	0.16
	(0.42)	(0.39)	(0.40)
Perceived gain/loss context	−0.11+	−0.12*	−0.12*
	(0.06)	(0.05)	(0.05)
Executive job anxiety		−0.71**	−0.71**
		(0.20)	(0.17)
Executive job anxiety × perceived gain/loss context			−0.31**
			(0.11)
Constant	5.92**	6.56**	6.78**
	(0.94)	(0.93)	(0.92)
Observations	154	154	154
F value	4.20**	4.80**	6.29**
R^2	0.261	0.311	0.332
Change in R^2 (vs. previous model)		0.050**	0.021*

+p < 0.10; *p < 0.05; **p < 0.01. Two-tailed tests.
Robust standard errors in parentheses.

3. To explore this relationship further, we calculated the marginal effect of job anxiety at low and high levels (−1 and +1 standard deviation) of perceived gain/loss context. This analysis revealed a significant positive effect of job anxiety in loss contexts ($dy/dx = 0.75$, $p < 0.05$) but no significant effect in gain contexts ($dy/dx = -0.34$, n.s.). Figure 1 illustrates this interaction at low and high levels of job anxiety and perceived gain/loss context, with the dotted line representing a loss context and the solid line representing a gain context. The graph is consistent with our regression results, which suggest that while there is no overall main effect of job anxiety on social buffering, the effect does become increasingly positive in loss contexts.

We turn next to the strategic risk taking models in Table 3. As before, Model 1 contains controls only, Model 2 adds the job anxiety main effect, and Model 3 adds the interaction with decision context. In Hypothesis 2, we predicted a negative main effect of job anxiety on strategic risk taking. As can be seen by the significant negative coefficient

DOI: 10.1002/smj

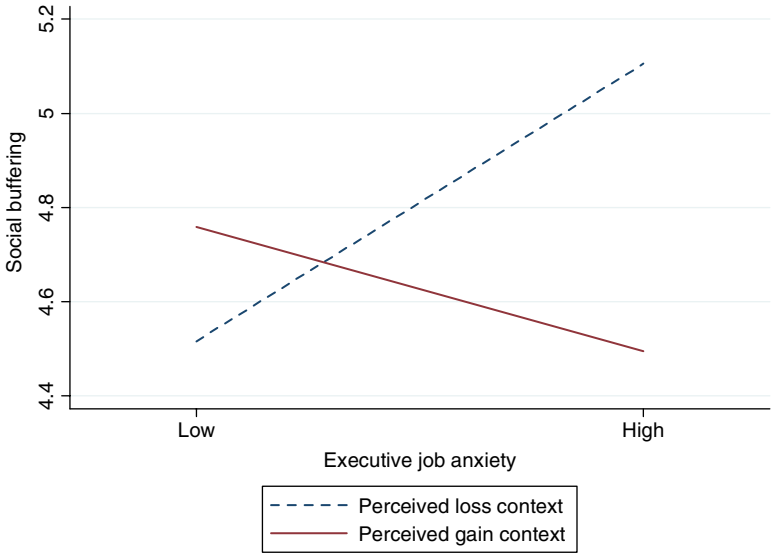

Figure 1. The joint effect of job anxiety and decision context on social buffering

in Model 2 ($\beta = -0.71$, $p < 0.01$), this hypothesis was supported. Hypothesis 4 argued that this relationship would become stronger (more negative) in more gain-oriented contexts, and the significant negative coefficient on the interaction term in Model 3 ($\beta = -0.31$, $p < 0.01$) supports this hypothesis. Here, too, we calculated marginal effects. We found a significant negative marginal effect of job anxiety in gain contexts ($dy/dx = -1.16$, $p < 0.01$) but no significant effect in loss contexts ($dy/dx = -0.29$, n.s.). Figure 2 plots this relationship at low and high levels of job anxiety and perceived gain/loss context. As before, the dotted line represents a loss context and the solid line represents a gain context. The collective evidence thus suggests that job anxiety is a more potent (negative) predictor of risk taking in gain contexts than in loss contexts.

Supplementary analysis

We performed a supplementary analysis to investigate whether our strategic risk taking results were robust to alternative study contexts and measurement techniques. To do so, we constructed a sample of public company CEOs listed in the Execucomp database who began their tenures in 2008 and remained in their positions for at least four years. After removing observations for which we had insufficient data (described below), this new sample comprised 117 public company CEOs whose firms averaged more than $5.8 billion in sales and employed an average of more than 21,000 people.

We measured job anxiety using a historiometric technique (e.g., Deluga, 1997; Wowak *et al.*, in press) in which third-party raters analyzed earnings conference call transcripts to assess CEO job anxiety. This method entailed collecting transcripts of the first few earnings calls that each CEO conducted with analysts and investors, and subsequently having trained research assistants read the transcripts and evaluate a given CEO's job anxiety using the four-item scale from our primary study. Although all of our sample CEOs started in 2008, to avoid idiosyncratic issues associated with transition years we collected the transcripts of earnings calls they conducted during the years 2009 and 2010. We were able to collect complete transcripts (using www.seekingalpha.com, an online database of earnings call transcripts) for an average of six out of a possible eight quarterly earnings calls conducted over this span. We removed all material from the transcripts other than the CEO's own words, which allowed our third-party raters to focus exclusively on the CEO's language.

Strategic risk taking was assessed with an archival-based composite measure that has been used in prior studies (Devers *et al.*, 2008; Miller and Bromiley, 1990). This approach combines into one measure three elements of firm resource allocation decisions that have been shown to align strongly with firm strategic risk taking: R&D spending,

DOI: 10.1002/smj

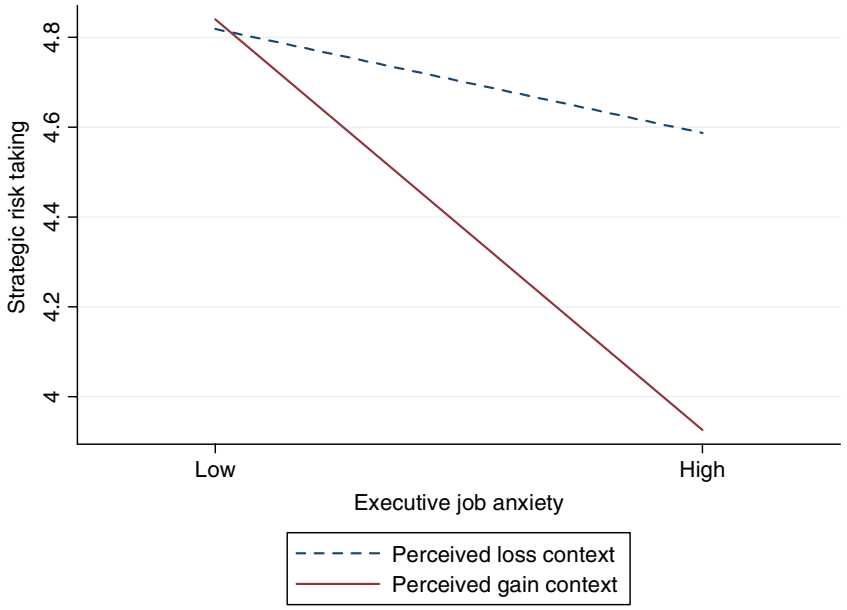

Figure 2. The joint effect of job anxiety and decision context on strategic risk taking

capital expenditures, and firm debt. This measurement is consistent with both the broader literature on firm risk taking (Miller and Bromiley, 1990) and more focused work investigating executives' effects on strategic risk taking (Devers *et al.*, 2008; Sanders and Hambrick, 2007). To measure gain/loss context, we created a binary measure assessing whether the focal firm's ROA was above or below the industry-average ROA in a given year (1 = above; 0 = below). This reflects the idea that performance above expectations corresponds to a gain context whereas performance below expectations corresponds to a loss context (e.g., Bromiley and Harris, 2014). We also accounted for a variety of contextual factors (lagged one year) that could influence risk taking. These included controls for firm size (log-transformed number of employees), recent performance (total shareholder return), company age (years), industry dummy variables (two-digit GICS codes), and industry-average values for each of the components of the dependent variable.

In sum, job anxiety was measured using earnings calls data from 2009 and 2010, the firm- and industry-level controls were measured in 2010, and the dependent variable was measured in 2011. Consistent with the tests of Hypothesis 2 in our main study, we found that CEOs rated higher in job anxiety tended to engage in less risk taking ($p < 0.05$). We also found that this effect was amplified in gain contexts (as opposed to loss contexts), as the interaction of CEO job anxiety and gain/loss context was negative and significant ($p < 0.05$). This is consistent with our main study results in support of Hypothesis 4.

DISCUSSION

Our aim in this study was to shed light on a compelling yet unexplored question: How does job anxiety affect executive decision making and behavior? Psychologists have shown that anxiety influences how people think and act, yet the strategic implications of executive job anxiety have remained a mystery. The substantial variance in job anxiety we observed in our sample underscores the notion that some executives worry quite a bit about making mistakes in their jobs, and our results indicate that anxious top executives take steps to reduce their personal exposure to risk as well as their organizations' strategic risk taking. We also show that anxiety's effects depend on whether decisions occur in gain or loss contexts. In doing so we integrate two theoretical perspectives—upper echelons theory and behavioral decision theory—that have followed parallel paths despite their shared focus on executive decision making.

We specifically demonstrate that more anxious top executives tend to avoid risks in their strategic decisions. An abundance of studies have examined

DOI: 10.1002/smj

the factors that compel executives to take (or avoid) risks (Finkelstein *et al.*, 2009), but ours is the first of which we are aware to show that executive anxiety plays a direct role in strategic risk taking. As such, and in addition to shedding light on a previously unexplored executive characteristic, our study can inform future research on the consequences of executive compensation. For instance, numerous studies have shown that executive stock options lead to more risk taking (for a review, see Gomez-Mejia, Berrone, and Franco-Santos, 2010a), but scholars have also argued that incentives' effects will vary depending on attributes of executives themselves (Wowak and Hambrick, 2010). Our results suggest that stock options might not have their intended effects on anxious executives, as these executives' risk-averse tendencies may offset the incentive properties of options.

Our study also integrates two related theoretical perspectives that have (somewhat oddly) not often intersected. In combining ideas from upper echelons theory and behavioral decision theory, we were able to develop more nuanced predictions than if we had relied exclusively on one or the other perspective. Although we did not find support for the main effect of executive job anxiety on social buffering, the negative interaction between anxiety and perceived gain/loss context (along with the marginal effects analyses) suggests that anxious executives do take steps to buffer themselves from perceived threats—but only when facing a loss context. When environmental threats are few, as is the case in gain contexts, high- and low-anxiety executives do not substantially differ in their social buffering behaviors. A similar effect was observed for risk taking, as our results indicate that gain contexts amplify risk aversion in highly anxious executives. Loss contexts, on the other hand, appear to largely nullify any anxiety-induced risk aversion, as the prospect of pending losses spurs both high- and low-anxiety executives to take risks that can avoid or undo the loss. We thus highlight the promise in considering these two complementary perspectives in tandem, rather than separately, in studies of top executives.

Our findings have practical implications as well. For example, the fact that anxious executives tend to surround themselves with supportive teams in loss context conditions should be relevant to boards of directors tasked with monitoring CEOs and TMTs. To the extent that a loyal TMT is more willing to provide cover for an underperforming CEO (perhaps by withholding negative information about the CEO), boards may have difficulty performing their monitoring duties. Also, an anxious CEO's preference for risk-averse strategies may run counter to the wishes of owners. In these cases, the board may attempt to overcome the anxious CEO's risk aversion by granting equity-based pay; or, in more extreme cases, the board may need to replace the CEO. Although job anxiety might be difficult for boards to detect, directors could be taught to look for its signs (perhaps via informal conversations with close affiliates of the CEO).

Limitations and opportunities for future research

Our study is subject to certain limitations. First, we used a sampling approach that was intended to maximize the number of executives participating in our research, but ours was not a random sample. Although our supplementary tests help address this concern, future studies of executive anxiety using different sampling and measurement approaches would help establish the generalizability of our findings. Also, we did not examine the antecedents of executive job anxiety, although prior research (which we used as the basis for our arguments) reveals much overlap between the anxiety that individuals experience in their jobs and the person-specific trait anxiety that they bring to their positions. We were likewise unable to examine the precise mechanism(s) through which anxious top executives shaped their decision teams. Future studies investigating voluntary versus involuntary turnover in response to executive preferences would be beneficial in shedding more light on the causal mechanisms driving TMT change.

It is worth noting that we observed few instances of very high job anxiety levels in our sample, meaning that our results most readily generalize to executives with low-to-moderate job anxiety. That said, there is reason to anticipate a restricted distribution of anxiety in the top executive population. In describing executive core self-evaluation (CSE), which refers to how individuals broadly evaluate themselves and their relationship with the environment (Judge, Locke, and Durham, 1997), Hiller and Hambrick (2005) argued that executives will exhibit range restriction (in terms of clustering toward the high end of the scale) as a result of a selection process in which high-CSE individuals are disproportionately likely to advance in the series of

DOI: 10.1002/smj

promotion tournaments through which executives achieve their positions (Lazear and Rosen, 1981). The authors go on to argue that high-CSE executives will be "free of anxiety and have little concern about negative outcomes" (Hiller and Hambrick, 2005: 308). We did not have CSE data for our executives, but this range restriction argument is consistent with what we observed in both our main sample as well as our supplementary analysis sample of Executive MBAs. We thus believe that our findings will apply to a significant majority of top executives.

Our study also provides a logical first step in showing that job anxiety manifests in executives' decisions and behaviors, but future studies examining its influence on performance would be illuminating. Psychologists have shown that the relationship between anxiety and task performance follows an inverted U-shaped curve, with the highest levels of performance occurring at moderate levels of anxiety, in a phenomenon known as the Yerkes-Dodson law. Perhaps moderate anxiety prompts executives to attend to threats they might otherwise ignore, which may be what former Intel CEO Andy Grove was referring to when he famously noted that "only the paranoid survive." But our results suggest that higher levels of job anxiety may cause executives to act timidly and avoid risks, which could be detrimental to performance. It is also possible that anxiety is beneficial in certain contexts (e.g., stable industries where change occurs slowly) and harmful in others (e.g., turbulent industries where change occurs rapidly).

CONCLUSION

Scholars and practitioners alike have speculated that many executives experience anxiety in their jobs, but the strategic management literature has remained largely silent on the organizational implications of executive job anxiety. We integrate multiple perspectives to show that job anxiety influences executive decisions and behaviors in the domains of personal risk bearing and strategic risk taking. We also draw upon behavioral decision theory to show that anxiety's effects depend upon the context in which strategic decisions occur. By getting inside the strategic decision-making black box, we illustrate that executive job anxiety matters for organizations.

ACKNOWLEDGEMENTS

We thank Phil Bromiley, Cindy Devers, Don Hambrick, Geoff Martin, and Bob Wiseman for their helpful comments on earlier drafts of this manuscript.

REFERENCES

Abdel-Halim AA. 1978. Employee affective responses to organizational stress: moderating effects of job characteristics. *Personnel Psychology* **31**(3): 561–579.

Abrahamson E, Park C. 1994. Concealment of negative organizational outcomes: an agency theory perspective. *Academy of Management Journal* **37**(5): 1302–1334.

American Psychological Association. 2010. Psychologically healthy workplace program fact sheet: by the numbers. Available at: http://www.phwa.org/dl/2010 phwp_fact_sheet.pdf (accessed 20 December 2013).

Atkinson R, Flint J. 2001. Accessing hidden and hard-to-reach populations: snowball research strategies. *Social Research Update* **33**(1): 1–4.

Bantel KA, Jackson SE. 1989. Top management and innovations in banking: does the composition of the top team make a difference? *Strategic Management Journal* **10**(S1): 107–124.

Beckman CM, Burton MD. 2011. Bringing organizational demography back in: time, change and structure in top management team research. In *The Handbook of Research on Top Management Teams*, Carpenter MA (ed). Edward Elgar: Northampton, MA; 49–70.

Bloom M, Milkovich GT. 1998. Relationships among risk, incentive pay, and organizational performance. *Academy of Management Journal* **41**(3): 283–297.

Bromiley P, Harris JD. 2014. A comparison of alternative measures of organizational aspirations. *Strategic Management Journal* **35**(3): 338–357.

Carpenter MA, Fredrickson JW. 2001. Top management teams, global strategic posture, and the moderating role of uncertainty. *Academy of Management Journal* **44**(3): 533–545.

Chatterjee A, Hambrick DC. 2007. It's all about me: Narcissistic CEOs and their effects on company strategy and performance. *Administrative Science Quarterly* **52**(3): 351–386.

Chattopadhyay P, Glick WH, Huber GP. 2001. Organizational actions in response to threats and opportunities. *Academy of Management Journal* **44**(5): 937–955.

Child J. 1972. Organizational structure, environment and performance: the role of strategic choice. *Sociology* **6**(1): 1–22.

Cohen S, McKay G. 1984. Social support, stress and the buffering hypothesis: a theoretical analysis. In *Handbook of Psychology and Health.* Baum A, Singer JE, Taylor SE (eds.). Erlbaum: Hillsdale, NJ; 253–267.

Cohen S, Wills TA. 1985. Stress, social support, and the buffering hypothesis. *Psychological Bulletin* **98**(2): 310–357.

Connelly BS, Ones DS. 2010. An other perspective on personality: meta-analytic integration of observers' accuracy and predictive validity. *Psychological Bulletin* **136**(6): 1092–1122.

Coutu DL. 2004. Putting leaders on the couch: a conversation with Manfred F.R. Kets de Vries. *Harvard Business Review* **82**: 64–71.

Crossland C, Zyung J, Hiller NJ, Hambrick DC. 2014. CEO career variety: effects on firm-level strategic and social novelty. *Academy of Management Journal* **57**(3): 652–674.

Cruz CC, Gomez-Mejia LR, Becerra M. 2010. Perceptions of benevolence and the design of agency contracts: CEO-TMT relationships in family firms. *Academy of Management Journal* **53**(1): 69–89.

Cyert RM, March JG. 1963. *A Behavioral Theory of the Firm*. Blackwell: Cambridge, MA.

De Dreu CKW, McCusker C. 1997. Gain–loss frames and cooperation in two-person social dilemmas: a transformational analysis. *Journal of Personality and Social Psychology* **72**(5): 1093–1106.

Deluga RJ. 1997. Relationship among American presidential charismatic leadership, narcissism, and rated performance. *Leadership Quarterly* **8**(1): 49–65.

Devers CE, McNamara G, Wiseman RM, Arrfelt M. 2008. Moving closer to the action: examining compensation design effects on firm risk. *Organization Science* **19**(4): 548–566.

Devers CE, Wiseman RM, Holmes RM. 2007. The effects of endowment and loss aversion in managerial stock option valuation. *Academy of Management Journal* **50**(1): 191–208.

Doby VJ, Caplan RD. 1995. Organizational stress as threat to reputation: effects on anxiety at work and at home. *Academy of Management Journal* **38**(4): 1105–1123.

Dooley RS, Fryxell GE. 1999. Attaining decision quality and commitment from dissent: the moderating effects of loyalty and competence in strategic decision-making teams. *Academy of Management Journal* **42**(4): 389–402.

Druckman J, McDermott R. 2008. Emotion and the framing of risky choice. *Political Behavior* **30**(3): 297–321.

Duriau VJ, Reger RK, Pfarrer MD. 2007. A content analysis of the content analysis literature in organization studies: research themes, data sources, and methodological refinements. *Organizational Research Methods* **10**(1): 5–34.

Dutton JE, Jackson SE. 1987. Categorizing strategic issues: links to organizational action. *Academy of Management Review* **12**(1): 76–90.

Eisenhardt KM. 1989. Making fast strategic decisions in high-velocity environments. *Academy of Management Journal* **32**(3): 543–576.

Eysenck MW. 1992. *Anxiety: The Cognitive Perspective*. Lawrence Erlbaum Associates: Hove, UK.

Eysenck MW, Derakshan N, Santos R, Calvo MG. 2007. Anxiety and cognitive performance: attentional control theory. *Emotion* **7**(2): 336–353.

Fagley NS, Miller PM. 1997. Framing effects and arenas of choice: your money or your life? *Organizational Behavior and Human Decision Processes* **71**(3): 355–373.

Fiegenbaum A, Hart S, Schendel D. 1996. Strategic reference point theory. *Strategic Management Journal* **17**(3): 219–235.

Finkelstein S. 1992. Power in top management teams: dimensions, measurement, and validation. *Academy of Management Journal* **35**(3): 505–538.

Finkelstein S. 2003. *Why Smart Executives Fail*. Penguin: New York.

Finkelstein S, Hambrick DC, Cannella AA. 2009. *Strategic Leadership: Theory and Research on Executives, Top Management Teams, and Boards*. Oxford University Press: New York.

Folkman S, Lazarus RS. 1985. If it changes it must be a process: study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology* **48**(1): 150–170.

Gino F, Brooks AW, Schweitzer ME. 2012. Anxiety, advice, and the ability to discern: feeling anxious motivates individuals to seek and use advice. *Journal of Personality and Social Psychology* **102**(3): 497–512.

Gomez-Mejia LR, Berrone P, Franco-Santos M. 2010a. *Compensation and Organizational Performance*. M.E. Sharpe: Armonk, NY.

Gomez-Mejia LR, Makri M, Larraza-Kintana M. 2010b. Diversification decisions in family-controlled firms. *Journal of Management Studies* **47**(2): 223–252.

Gomez-Mejia LR, Haynes KT, Nunez-Nickel M, Jacobson KJL, Moyano-Fuentes J. 2007. Socioemotional wealth and business risks in family-controlled firms: evidence from Spanish olive oil mills. *Administrative Science Quarterly* **52**(1): 106–137.

Gomez-Mejia LR, Welbourne TM, Wiseman RM. 2000. The role of risk sharing and risk taking under gainsharing. *Academy of Management Review* **25**(3): 492–507.

Griffith KH, Hebl MR. 2002. The disclosure dilemma for gay men and lesbians: 'Coming out' at work. *Journal of Applied Psychology* **87**(6): 1191–1199.

Hambrick DC. 2007. Upper echelons theory: an update. *Academy of Management Review* **32**(2): 334–343.

Hambrick DC, Finkelstein S. 1987. Managerial discretion: a bridge between polar views on organizations. In *Research in Organizational Behavior*, Cummings LL, Staw BM (eds). JAI Press: Greenwich, CT; 369–406.

Hambrick DC, Finkelstein S, Mooney AC. 2005. Executive job demands: new insights for explaining strategic decisions and leader behaviors. *Academy of Management Review* **30**(3): 472–491.

Hambrick DC, Mason PA. 1984. Upper echelons: the organization as a reflection of its top managers. *Academy of Management Review* **9**(2): 193–206.

Hiller NJ, Hambrick DC. 2005. Conceptualizing executive hubris: the role of (hyper-) core self-evaluations in strategic decision-making. *Strategic Management Journal* **26**: 297–319.

Holmes RM, Bromiley P, Devers CE, Holcomb TR, McGuire JB. 2011. Management theory applications of prospect theory: accomplishments, challenges, and opportunities. *Journal of Management* **37**(4): 1069–1107.

Hunter LW, Thatcher SMB. 2007. Feeling the heat: effects of stress, commitment, and job experience on job

performance. *Academy of Management Journal* **50**(4): 953–968.
Jackson SE. 1992. Consequences of group composition for the interpersonal dynamics of stratetic issue processing. In *Advances in Strategic Management*, Dutton J, Huff A, Shrivastava P (eds). JAI Press: Greenwich, CT; 345–382.
Judge TA, Locke EA, Durham CC. 1997. The dispositional causes of job satisfaction: a core evaluations approach. In *Research in Organizational Behavior*, Staw BM, Cummings LL (eds). JAI Press: Greenwich, CT; 151–188.
Kahneman D, Tversky A. 1979. Prospect theory: an analysis of decisions under risk. *Econometrica* **47**: 263–291.
Kass A. 2011. Aaron's cites 'anxiety' in CEO exit. *Atlanta Journal-Constitution*. Available at: http://www.ajc.com/news/business/aarons-cites-anxiety-in-ceo-exit/nQNRy/ (accessed 6 December 2013).
Kets de Vries MFR, Miller D. 1984. Neurotic style and organizational pathology. *Strategic Management Journal* **5**(1): 35–55.
Kühberger A. 1998. The influence of framing on risky decisions: a meta-analysis. *Organizational Behavior and Human Decision Processes* **75**(1): 23–55.
Larraza-Kintana M, Wiseman RM, Gomez-Mejia LR, Welbourne TM. 2007. Disentangling compensation and employment risks using the behavioral agency model. *Strategic Management Journal* **28**(10): 1001–1019.
Lauriola M, Levin IP. 2001. Personality traits and risky decision-making in a controlled experimental task: an exploratory study. *Personality and Individual Differences* **31**(2): 215–226.
Lawrence BS. 1997. The black box of organizational demography. *Organization Science* **8**(1): 1–22.
Lazear EP, Rosen S. 1981. Rank-order tournaments as optimum labor contracts. *Journal of Political Economy* **89**(5): 841–864.
Lopes LL. 1996. When time is of the essence: averaging, aspiration, and the short run. *Organizational Behavior and Human Decision Processes* **65**(3): 179–189.
Maner JK, Richey JA, Cromer K, Mallott M, Lejuez CW, Joiner TE, Schmidt NB. 2007. Dispositional anxiety and risk-avoidant decision-making. *Personality and Individual Differences* **42**(4): 665–675.
Maner JK, Schmidt NB. 2006. The role of risk avoidance in anxiety. *Behavior Therapy* **37**(2): 181–189.
March JG, Shapira Z. 1987. Managerial perspectives on risk and risk-taking. *Management Science* **33**(11): 1404–1418.
Marteau TM, Bekker H. 1992. The development of a six-item short-form of the state scale of the Spielberger State—Trait Anxiety Inventory (STAI). *British Journal of Clinical Psychology* **31**(3): 301–306.
Martin GP, Gomez-Mejia LR, Wiseman RM. 2013. Executive stock options as mixed gambles: revisiting the behavioral agency model. *Academy of Management Journal* **56**(2): 451–472.
Mathews A, MacLeod C. 1994. Cognitive approaches to emotion and emotional disorders. *Annual Review of Psychology* **45**: 25–50.
Matta E, Beamish PW. 2008. The accentuated CEO career horizon problem: evidence from international acquisitions. *Strategic Management Journal* **29**(7): 683–700.
Mayer RC, Davis JH. 1999. The effect of the performance appraisal system on trust for management: a field quasi-experiment. *Journal of Applied Psychology* **84**(1): 123–136.
Miller KD, Bromiley P. 1990. Strategic risk and corporate performance: an analysis of alternative risk measures. *Academy of Management Journal* **33**(4): 756–779.
Miller D, Kets de Vries MFR, Toulouse J-M. 1982. Top executive locus of control and its relationship to strategy-making, structure, and environment. *Academy of Management Journal* **25**(2): 237–253.
Mintzberg H. 1973. *The Nature of Managerial Work*. Harper & Row: New York.
Muschalla B, Heldmann M, Fay D. 2013. The significance of job-anxiety in a working population. *Occupational Medicine* **63**(6): 415–421.
Muschalla B, Linden M, Olbrich D. 2010. The relationship between job-anxiety and trait-anxiety—A differential diagnostic investigation with the Job-Anxiety-Scale and the State-Trait-Anxiety-Inventory. *Journal of Anxiety Disorders* **24**(3): 366–371.
Nadkarni S, Chen J. 2014. Bridging yesterday, today, and tomorrow: CEO temporal focus, environmental dynamism, and rate of new product introduction. *Academy of Management Journal* **57**(6): 1810–1833.
Nadkarni S, Herrmann P. 2010. CEO personality, strategic flexibility, and firm performance: the case of the Indian business process outsourcing industry. *Academy of Management Journal* **53**(5): 1050–1073.
Nederhof AJ. 1985. Methods of coping with social desirability bias: a review. *European Journal of Social Psychology* **15**(3): 263–280.
Ognibene TC, Collins NL. 1998. Adult attachment styles, perceived social support and coping strategies. *Journal of Social and Personal Relationships* **15**(3): 323–345.
Pennebaker JW, Francis ME, Booth RJ. 2001. *Linguistic Inquiry and Word Count: LIWC2001*. Erlbaum: Mahwah, NJ.
Pfarrer MD, Pollock TG, Rindova VP. 2010. A tale of two assets: the effects of firm reputation and celebrity on earnings surprises and investors' reactions. *Academy of Management Journal* **53**(5): 1131–1152.
Raghunathan R, Pham MT. 1999. All negative moods are not equal: motivational influences of anxiety and sadness on decision making. *Organizational Behavior and Human Decision Processes* **79**(1): 56–77.
Sanders WG, Hambrick DC. 2007. Swinging for the fences: the effects of CEO stock options on company risk-taking. *Academy of Management Journal* **50**(5): 1055–1078.
Sharma S. 2000. Managerial interpretations and organizational context as predictors of corporate choice of environmental strategy. *Academy of Management Journal* **43**(4): 681–697.
Short JC, Palmer TB. 2003. Organizational performance referents: an empirical examination of their content and influences. *Organizational Behavior and Human Decision Processes* **90**(2): 209–224.
Simsek Z, Heavey C, Veiga JF. 2010. The impact of CEO core self-evaluation on the firm's entrepreneurial

orientation. *Strategic Management Journal* **31**(1): 110–119.

Souder D, Bromiley P. 2012. Explaining temporal orientation: evidence from the durability of firms' capital investments. *Strategic Management Journal* **33**(5): 550–569.

Spielberger CD. 2010. State-trait anxiety inventory. In *The Corsini Encyclopedia of Psychology*. John Wiley & Sons, Inc: Hoboken, NJ; 1698–1699.

Stöber J. 1997. Trait anxiety and pessimistic appraisal of risk and chance. *Personality and Individual Differences* **22**(4): 465–476.

Stossel S. 2013. *My Age of Anxiety: Fear, Hope, Dread, and the Search for Peace of Mind*. Alfred A. Knopf: New York.

Sutton RI, Callahan AL. 1987. The stigma of bankruptcy: spoiled organizational image and its management. *Academy of Management Journal* **30**(3): 405–436.

Wiersema MF, Bantel KA. 1992. Top management team demography and corporate strategic change. *Academy of Management Journal* **35**(1): 91–121.

Wiseman RM, Bromiley P. 1996. Toward a model of risk in declining organizations: an empirical examination of risk, performance and decline. *Organization Science* **7**(5): 524–543.

Wiseman RM, Gomez-Mejia LR. 1998. A behavioral agency model of managerial risk taking. *Academy of Management Review* **23**(1): 133–153.

Wowak AJ, Hambrick DC. 2010. A model of person-pay interaction: how executives vary in their responses to compensation arrangements. *Strategic Management Journal* **31**(8): 803–821.

Wowak AJ, Mannor MJ, Arrfelt M, McNamara G. 2016. Earthquake or glacier? How CEO charisma manifests in firm strategy over time. *Strategic Management Journal* in press.

Wu G, Markle AB. 2008. An empirical test of gain-loss separability in prospect theory. *Management Science* **54**(7): 1322–1335.

Zalewska AM. 2011. Relationships between anxiety and job satisfaction—Three approaches: 'bottom-up', 'top-down' and 'transactional'. *Personality and Individual Differences* **50**(7): 977–986.

Zhang X, Bartol KM, Smith KG, Pfarrer MD, Khanin DM. 2008. CEOs on the edge: earnings manipulation and stock-based incentive misalignment. *Academy of Management Journal* **51**(2): 241–258.