Something to Lose and Nothing to Gain: The Role of Stress in the Interactive Effect of Power and Stability on Risk Taking

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Abstract
The current investigation explores how power and stability within a social hierarchy interact to affect risk taking. Building on a diverse, interdisciplinary body of research, including work on non-human primates, intergroup status, and childhood social hierarchies, we predicted that the unstable powerful and the stable powerless will be more risk taking than the stable powerful and unstable powerless. Across four studies, the unstable powerful and the stable powerless preferred probabilistic over certain outcomes and engaged in more risky behaviors in an organizational decision-making scenario, a blackjack game, and a balloon-pumping task than did the the stable powerful and the unstable powerless. These effects appeared to be the result of the increased stress that accompanied states of unstable power and stable powerlessness: these states produced more physiological arousal, a direct manipulation of stress led to greater risk taking, and stress tolerance moderated the interaction between power and stability on risk taking. These results have important implications for the way social scientists conceptualize the psychology of power and offer a theoretical framework for understanding factors that lead to risk taking in organizations.

Keywords: power, stability, stress, risk taking, physiology, primates

History is replete with examples of powerful actors engaging in risky behaviors. President Harry Truman, amidst a precipitous drop in approval ratings, from a high of 87 percent in June of 1945 to low of 36 percent in April of 1948, championed civil rights initiatives that were wildly unpopular given the social

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conservatism of the day. Specifically, during the election year of 1948, when his electoral fortunes seemed bleak, Truman issued two executive orders, one that banned segregation in the armed forces and another ensuring fair employment practices within the government. The powerless have also displayed audacious acts of risk. Hopelessly oppressed by the Ottoman Empire for nearly 400 years, the Serbs waged a violent uprising in the sixteenth century. This rebellion was ultimately crushed, and many of the Serbians fled into exile. Although these decisions and behaviors are often dismissed as vagaries of power or powerlessness, we suggest these risky actions are specifically motivated by the instability of power and the stability of powerlessness.

Power is often viewed conceptually as a static, dichotomous construct (e.g., see Galinsky, Gruenfeld, and Magee, 2003; Magee, Galinsky, and Gruenfeld, 2007; Fast et al., 2009). Indeed, individuals can have large amounts of power or have no power—with no expectation of change. Power can also vary on a continuum of stability, however, with some forms of power being precariously unstable. The current investigation seeks to understand the psychological and behavioral effects of stable versus unstable power and powerlessness by examining their impact on individuals’ stress and resulting risk-taking behavior.

We propose that unstable power (i.e., uncertain and precarious control over valued resources) and stable powerlessness (i.e., persistent lack of control over valued resources) motivate greater risk taking than do stable power (i.e., enduring control over valued resources) and unstable powerlessness (i.e., the potential to have control over valued resources) via their differential effects on individuals’ stress experience.

POWER, STABILITY, AND RISK TAKING

Having power transforms individuals, producing systematic effects on thought and behavior. Power is defined as the asymmetric control over valued resources by one or more parties in a social relationship (Mechanic, 1962; Westphal and Zajac, 1995; Magee and Galinsky, 2008). It captures the relative state of dependence between two or more parties (individuals or groups) (Salancik and Pfeffer, 1974; Pfeffer and Moore, 1980; Dencker, 2009): the low-power party is dependent on the high-power party to obtain rewards and avoid punishments, whereas the high-power party is less dependent on the low-power party (Emerson, 1962). The freedom afforded by power results in increased illusions of control (Fast et al., 2009), optimism (Anderson and Galinsky, 2006), and action (Galinsky, Gruenfeld, and Magee, 2003; Magee, Galinsky, and Gruenfeld, 2007). An actor’s control over resources (Galinsky, Gruenfeld, and Magee, 2003) and lack of dependence on others to achieve desired aims (Emerson, 1962; Blau, 1964) lead the powerful to think and act without inhibition and the powerless to think and act with constraint (Galinsky et al., 2008). The conceptual lens of the behavioral-approach theory of power is often invoked to explain this pattern of effects (Keltner, Gruenfeld, and Anderson, 2003; see also Hirsh, Galinsky, and Zhong, 2011). According to this theory, the effects of power are the result of increased activation of the Behavioral Approach System for those in power and increased activation of the Behavioral Inhibition System for those who lack power (Carver and White, 1994; Higgins, 1998). The Behavioral Approach System is posited to regulate behavior associated with rewards, such as food, achievement, sex, safety,
social attachment (Carver and White, 1994; Gray, 1994; Higgins, 1997, 1998). The Behavioral Inhibition System, in contrast, has been equated to an alarm system: once activated, it triggers heightened vigilance for threats in the environment (Gray, 1991; Higgins, 1997).

Building on the power-approach theory (Keltner, Gruenfeld, and Anderson, 2003), Anderson and Galinsky (2006) were the first to examine how power and powerlessness affected risk taking. Decision making under risk involves a choice between alternative actions associated with particular probabilities (i.e., prospects) or gambles (Kahneman and Tversky, 1979). When controlling for expected outcomes, the more certain option is considered less risky than the probabilistic option. That is, risk taking occurs when a decision choice engenders variances in the possible gains and losses that could result from that particular choice (March and Shapira, 1987). Anderson and Galinsky (2006) found that those primed or endowed with power endorsed and pursued risky plans of action, such as expressing a greater willingness to engage in unprotected sex with a stranger, than did those lacking power.

Following up on Anderson and Galinsky’s (2006) work, Maner et al. (2007) examined the moderating roles of instability and individual differences in power motivation (Schultheiss, 2007) on risk-taking behavior. Power motivation is the extent to which an individual considers possessing power to be a focal goal (Winter, 1973). Maner and colleagues (2007) found that power motivation increased risk-taking behavior, but only for those who were not experimentally endowed with power (i.e., control participants); those placed in high-power roles were less risk taking if they were high, rather than low, in power motivation. The authors explained these findings by proposing that those high in power motivation acted with greater risk aversion in order to maintain the status quo and preserve the longevity of their power. In a second study, they explicitly manipulated the stability of power and replicated this interaction between power and power motivation on risk taking, but only when power was unstable.

Although Anderson and Galinsky’s (2006) and Maner et al.’s (2007) works are important first steps, they leave several important questions unanswered. First, one of the limitations of Anderson and Galinsky’s (2006) investigation, as well as most existing research on power (e.g., Galinsky, Gruenfeld, and Magee, 2003; Magee, Galinsky, and Gruenfeld, 2007; Fast et al., 2009), are that they conceptualize power as a static, dichotomous variable. Within organizations and institutions, power is seldom an either-or construct—at some points it is perceived as stable and unlikely to be altered and at other points it is conceived as unstable and holding the potential for fluctuation. Stability is defined as the magnitude of actual or perceived constancy in one’s currently possessed position or property (Cummings, 1980; Tajfel and Turner, 1979, 1986). Although power and stability are conceptually distinct, stability cannot exist without another construct—it must modify an entity. Given that power is control over resources, the longevity of that control can be certain or it can be in question, with a perceived chance of alteration or loss. The same goes for powerlessness: lacking control of valued resources is distinct from stability, but such powerlessness can be modified by stability—either having little to no perceived chance of being altered or holding the possibility of gaining control over valued resources. To address this limitation, the current study examines power in the context of both stability and instability.
Second, by priming power and then measuring behavior in an unrelated context, Anderson and Galinsky (2006) examined risk taking that was divorced from the power context and unrelated to the acquisition, retention, or loss of power. In many contexts, from the jungle to the boardroom, risk-taking behaviors can have material consequences for one’s subsequent level of power. Thus the current investigation manipulates stability in contexts in which it is both salient and relevant to the loss, gain, or maintenance of power.

Third, Maner et al. (2007) did not investigate the role of stability among those lacking power. The behavior of those who have nothing to gain (i.e., the stable powerless) and those with something to gain (i.e., the unstable powerless) hold equally important insights as the behavior of those already in power. For example, archival research on the Holocaust revealed that it was the members of the Jewish ghetto in Warsaw, who had lost all hope for emancipation (i.e., the stable powerless), who waged a risky and violent uprising against their Nazi captors. Such behavior can be contrasted with the comparatively hopeful members of the Lodz ghetto (i.e., the unstable powerless), who were compliant with their Nazi captors (Tiedens, 1997). Thus the current study compares the powerful and the powerless in both stable and unstable contexts.

These methodological features of past research are important because these previous findings showing that power leads to greater risk taking (Anderson and Galinsky, 2006) are inconsistent with the risk-taking behavior witnessed in non-human species (e.g., Sapolsky and Share, 1994, 2004; Blanchard, Parmigiani et al., 1995; Manuck et al., 1995), human groups (Scheepers et al., 2006), and childhood social hierarchies (e.g., Cillessen et al., 1992; Pettit et al., 1996; Haselager et al., 2002). In these domains, it is the unstable powerful and the stable powerless who demonstrate the greatest risk-taking behavior.

The current investigation attempts to reconcile the findings from previous research with those found in the jungle, the intergroup context, and the playground. We propose that power, when primed psychologically, emancipates individuals to pursue risk by activating the behavioral approach system (Galinsky, Gruenfeld, and Magee, 2003; Keltner, Gruenfeld, and Anderson, 2003; Hirsh, Galinsky, and Zhong, 2011). When the stability (or instability) of such power is salient and the potentially risky decisions or behaviors are relevant to the gain or loss of power, however, we predict results consistent with those found in non-human species, human groups, and childhood social hierarchies: the unstable powerful and the stable powerless will demonstrate greater risk taking than the stable powerful and the unstable powerless. We conducted a series of five studies to test these predictions.

THE INTERACTIVE EFFECTS OF POWER AND STABILITY ON STRESS AND RISK TAKING ACROSS SPECIES

Studies with non-human populations (see Sapolsky, 2005) and human groups (Scheepers, 2009) have identified stress as a potential factor through which power and stability interact to produce risk taking. Following this work, we propose that the relationship between power and stability on risk taking is a function of the amount of stress that the individual experiences. The potential for loss of power (i.e., unstable power) or the inability to gain control over valued resources (i.e., stable powerlessness) will create stress in individuals, and this
increase in stress will lead to greater risk taking by these individuals (Sapolsky, 1995). Overall, both the unstable powerful and the stable powerless should experience increased stress and engage in greater risk taking than their stable powerful and unstable powerless counterparts. We draw on evidence pointing to the effects of power and stability on stress and risk taking for non-human species, human groups, and childhood social hierarchies.

**Non-human species.** In his work with non-human primates, Sapolsky (2005) observed that in stable hierarchies, it is the powerless who must constantly vie for access to valued resources and, as a result, suffer the greatest stress-related physiological reactions (Barnett, 1955; Sapolsky, 1993). In contrast, when the hierarchy is unstable, it is the powerful, faced with the potential loss of access to resources and prospective mates, who experience the greatest stress-related physiology (Sapolsky and Share, 1994, 2004; Manuck et al., 1995). Sapolsky (1995: 632) summarized this relationship for unstable hierarchies:

More unstable interactions with those just below an animal in the hierarchy are indeed associated with hypercortisolism but more unstable interactions with those just above the hierarchy are not. This is, in fact, readily explained. Unstable interactions with lower ranking animals [are] abundantly bad news—they are gaining on you, a clear-cut stressor. In contrast, unstable interactions with those higher ranking represent the good news that you are gaining on them.

Similarly, Kaplan and colleagues (1982) found that the interaction between the stability of a cynomolgus monkey’s hierarchy and its power within the hierarchy affected the monkey’s physiological stress. When placed in an unstable hierarchy, where power could be usurped by another member lower down in the hierarchy, the monkey experienced extreme physiological stress, so much so that it developed two times the amount of coronary atherosclerosis, a plaque buildup similar to that found in humans, than did dominant monkeys housed in a stable hierarchy.

Furthermore, studies have also established an array of stress-induced, risk-taking behavior among these non-human primates. We conceptualize risk taking within non-human species as behavior that may run counter to the animal’s likelihood of survival—that is, the behavior may hold the promise of future benefits, but, on average, it tends to produce deleterious outcomes (e.g., Caraco 1980; Kamil and Roitblat, 1985). For instance, monkeys displaying cardiovascular stress were also those who demonstrated the greatest aggression (Manuck, Kaplan, and Clarkson, 1983; Manuck et al., 1989), a potentially risky behavior because although it can produce the acquisition or retention of important resources, it can also incite retaliatory actions from other members of the group. These aggressive behaviors were especially evident among dominant members of unstable hierarchies (e.g., Creel, Creel, and Monfort, 1996; Cavagelli, 1999) and non-dominant members of stable hierarchies (Sapolsky, 1993). Likewise, Long-Evans rats, which develop a hierarchical system early on and then maintain this hierarchical arrangement throughout the lifespan of the group (Blanchard, Flannelly, and Blanchard, 1988), not only show greater physiological indices of stress when they are in subordinate positions (Blanchard, Spencer et al., 1995), but they also demonstrate greater voluntary alcohol
consumption (Blanchard et al., 1987), a behavior associated with disinhibited behavior and risk taking in humans (Steele and Southwick, 1985; Hirsh, Galinsky, and Zhong, 2011). Taken together, this research across animal species shows that hierarchical position and the stability of that hierarchy interact to affect both physiological stress and risk-taking behavior.

Human intergroup context. Research on humans within an intergroup context shows similar interactive effects between power and stability on both stress and risk-taking behavior. This research demonstrates that being in an unstable high-status group or a stable low-status group leads to the greatest physiological indices of threat-based stress, relative to their stable- and unstable-status counterparts (Scheepers and Ellemers, 2005). When the group’s status is stable, members of low-status groups show greater evidence of physiological stress in the form of high systolic blood pressure and mean arterial pressure compared with members of high-status groups. Conversely, when their group’s status is unstable, it is members of high-status groups who display greater indices of stress compared with members of low-status groups (Scheepers, 2009).

A similar pattern of results to those found on stress responses was also evident on risk-taking behavior. Scheepers and colleagues (2006) found that in comparison with unstable low-status groups, stable low-status groups used drastic measures to allocate scarce resources between their ingroup and the higher-status outgroup. For example, members of stable low-status groups, tried to maximize their group’s resources through an active attempt to minimize the payoff to the outgroup—even when their own group could be harmed in the process. In contrast, members of unstable low-status groups tried to maximize their group’s resources independent of the payoff awarded to the outgroup.

Childhood social hierarchies. Research on childhood social hierarchies also provides evidence for our proposed interaction between power and stability on risk-taking behavior. Peer interactions among children demonstrate that stable peer rejection leads to risky externalizing behaviors. For example, children chronically rejected by their peers (i.e., stable powerless) are more aggressive (Pettit et al., 1996), disruptive, and impulsive (Cillessen et al., 1992; Haselager et al., 2002) than their non-rejected counterparts. In contrast, children whose rejected-status improves over time (i.e., unstable powerless) demonstrate a decrease in antisocial behaviors, whereas those whose status declines (i.e., unstable powerful) show an increase in such behaviors (Pettit et al., 1996). Similarly for adolescents, sociometric and perceived popularity, which serve as fairly stable social status markers (Prinstein and Cillessen, 2003; Cillessen and Borch, 2006), are negatively related to risky sexual behavior (Prinstein, Meade, and Cohen, 2003). Finally, Harris, Duncan, and Boisjoly (2002) found that adolescents who had a “nothing to lose” attitude about their future, characterized by excessive hopelessness about improving their low-status social position (i.e., stable powerlessness), were more likely to engage in risky behaviors such as selling drugs.
Stress as the Psychological Driver of Risk Taking

As mentioned above, the research on non-human (Barnett, 1955; Sapolsky, 1993; Sapolsky and Share, 1994, 2004; Blanchard, Parmigiani et al., 1995; Manuck et al., 1995) and human (Scheepers, 2009) groups suggests that risky behavior is a byproduct of the stress induced by the relative stability or instability of power hierarchies. If this hypothesis is accurate, then one would also expect to find a direct link between stress and risk taking among humans, but much of the existing data related to this direct link is contradictory or inconclusive. Some evidence demonstrates that stress leads to risk taking. For example, exposure to terrorism-related stressors is positively associated with risky social behaviors among Israeli adolescents (Pat-Horenczyk et al., 2007). In addition, female adolescents and adults with greater life stressors are more likely to have had sexually transmitted infections from unprotected sexual intercourse (Mazzaferro et al., 2006). But other studies have found either opposite (e.g., Mather, Gorlick, and Lighthall, 2009) or inconclusive effects (e.g., Baker et al., 1966; Rosario, Schrimshaw, and Hunter, 2006). Because these contradictory and inconsistent findings may be partially due to the correlational, non-experimental nature of these studies’ designs, the current investigation establishes an experimentally based link from stress to risk taking.

Based on findings from the systematic observations of non-human social hierarchies and the experimental results for human groups, we offer the theoretical claim that stress is a precipitating cause of risk-taking behavior. This proposition is consistent with research in the decision-making literature. For example, the idea that stress and risk are related is implicitly at the core of Tversky and Kahneman’s (1981) prospect theory. This theory proposes that individuals favor risk in an effort to stem the suffering of losses. In addition, several streams of research document a negativity bias inherent in all human thought and action: losses have a more powerful effect on the human system than do gains (Cacioppo and Gardner, 1999; Baumeister et al., 2001; Rozin and Royzman, 2001). The current investigation aims to provide direct empirical evidence for this hypothesis by manipulating stress and examining its effects on risk taking.

Overall, we seek to integrate our knowledge from non-human species (e.g., Blanchard et al., 1987; Creel, Creel, and Monfort, 1996; Cavagelli, 1999), human groups (e.g., Scheepers et al., 2006), and childhood social hierarchies (e.g., Cillessen et al., 1992; Pettit et al., 1996) with work from prospect theory (e.g., Tversky and Kahneman, 1981) and negativity biases (e.g., Rozin and Royzman, 2001), with the aim of demonstrating that the stress that accompanies the instability of power and the stability of powerlessness leads to greater risk taking.

Hypotheses and Research Overview

Based on the research reviewed above, we hypothesize that power and stability will have interactive effects on risk taking:

**Hypothesis 1 (H1):** Power and stability will interact to affect risk taking such that the powerful unstable and the powerless stable will be more risk taking than the powerful stable and the powerless unstable.
Further, we hypothesize that these risk-taking effects are a function of the greater stress experienced by the powerful unstable and the powerless stable. This latter hypothesis leads to three specific predictions. First, we predict that being put into a position of unstable power or stable powerlessness will produce more physiological stress than will stable power or unstable powerlessness.

Hypothesis 2 (H2): Power and stability will interact to affect stress, such that the powerful unstable and the powerless stable will experience more physiological stress than the powerful stable and the powerless unstable.

Second, we hypothesize that stress is directly related to risk taking such that experimentally inducing stress will lead to greater risk taking.

Hypothesis 3 (H3): Increases in stress will lead to increases in risk taking.

Third, we predict that those with a lower stress tolerance—a greater tendency to perceive situations as distressing (Simons and Gafer, 2005)—will be more likely to demonstrate the interaction between power and stability than those with higher stress tolerance.

Hypothesis 4 (H4): Stress tolerance will moderate the interaction between power and stability on risk taking, such that this interaction will occur only for those with a low tolerance toward stress.

To test our hypotheses that power and stability will have interactive effects on both stress and risk taking, we used three distinct paradigms: preference for a probabilistic over a certain decisional outcome (Study 1), risky play in a blackjack game (Studies 2 and 4), and willingness to pump virtual balloons at the risk of explosion (Study 5). To explore the role of stress in this relationship, we examined the amount of physiological arousal produced by the interactive effects of power and stability (Study 3). We directly manipulated stress to examine its effects on risky moves in a blackjack game (Study 4); and we explored whether tolerance for stress moderated the interaction between power and stability on risk taking (Study 5).

STUDY 1: POWER, STABILITY, AND RISK TAKING

To investigate the effects of power and stability on risk taking, Study 1 employed the seminal risk paradigm from prospect theory (Tversky and Kahneman, 1981) in which participants expressed their preference for a probabilistic versus certain outcome that had the same expected value. A preference toward the probabilistic outcome was indicative of a preference for risk. We predicted that the unstable powerful and stable powerless would have a greater preference for risk than would the stable powerful and unstable powerless.
Method

Participants and design. Two hundred and eighty-six individuals participated in this study: 229 undergraduate (61 percent female) and 57 first-year MBA students (58 percent female). We randomly assigned them to a 2 (powerful, powerless) × 2 (stable, unstable) between-participants design.

Procedures

Power and stability manipulations. We instructed participants that they would complete a decision-making task. We assigned them to the role of a vice-president (powerful), who had a “substantial” amount of control over organizational resources, or a low-level manager (powerless), who had a “meager” amount of control over organizational resources. Participants in the stable conditions read that regardless of the outcome of their upcoming decision, their standing in the organizational hierarchy would remain unchanged. Those in the unstable conditions read that they could be demoted (i.e., if a vice-president) or promoted (i.e., if a low-level manager) based on the outcome of their decision.

Risk-taking measure. Participants then completed a variation of Tversky and Kahneman’s (1986) Asian Disease Paradigm (Anderson and Galinsky, 2006). Confronted with economic difficulties that forced employee cutbacks, participants needed to make a choice between Plan A, which presented a certainty of saving 2000 jobs, or Plan B, which presented a 1/3 probability that 6000 jobs would be saved, and a 2/3 probability that no jobs would be saved. Although both plans had the same expected value, Plan B had a probabilistic outcome and was therefore considered a more risky option than Plan A, which had a certain outcome. Using the same 6-point scale used by Anderson and Galinsky (2006) and Lerner and Keltner (2001), participants then indicated their preference, ranging from very risk averse (1 = “very much prefer Plan A”) to very risk seeking (6 = “very much prefer Plan B”).

Results and Discussion

As predicted (H1), a two-way ANOVA on preference revealed a significant interaction between power and stability, F(1, 282) = 7.79, p = .006, η² = .03. The unstable powerful (mean = 3.39, S.D. = 1.23) and the stable powerless (mean = 3.57, S.D. = 1.29) preferred the risky plan (i.e., Plan B) more than did the stable powerful (mean = 2.99, S.D. = 1.19) and unstable powerless (mean = 3.12, S.D. = 1.32). Main effects of power and stability on risk preference were non-significant (both Fs < 1.16, ps > .27). Comparing the unstable powerful and stable powerless with the stable powerful and unstable powerless, planned contrasts demonstrated a significant difference in risk preference, t(282) = 2.79, p = .009.

As hypothesized (H1), Study 1 matched the risk-taking pattern found among non-humans (Blanchard et al., 1987; Creel, Creel, and Monfort, 1996; Cavagelli, 1999), human groups (Scheepers et al., 2006), and children (Cillessen et al., 1992; Pettit et al., 1996). When power was unstable and powerlessness was stable, individuals expressed a greater preference for the risky option than
when power was stable and powerlessness was unstable. Although supporting our predicted pattern of results and revealing the effect of the power × stability interaction on risk taking, these results were based on scenario-based organizational roles. In addition, these results demonstrate hypothetical, not behavioral, evidence of risk taking. Thus we conducted Study 2 to directly manipulate actual role-based power and its stability while also measuring actual risk-taking behavior.

STUDY 2: ROLE-BASED POWER, STABILITY, AND RISK TAKING

Study 2 extended the findings of Study 1 in two important ways. First, we wanted to examine participants’ risk taking using actual behavior that had real material consequences. Second, we endowed participants with actual control over valued resources. Specifically, we assigned participants to a powerful or powerless role before playing a game of blackjack and told them that their performance in the blackjack game could either alter (in the unstable conditions) or not alter (in the stable conditions) their hierarchical role.

Method

Participants and design. Forty-three male undergraduate students (mean age = 19.41, S.D. = 0.96) were randomly assigned to a 2 (powerful, powerless) × 2 (stable, unstable) between-participants design. Because men report more positive attitudes (Delfabbro, 2000; McDaniel and Zuckerman, 2003) and familiarity (Wolfgang, 1988; Potenza et al., 2001) toward gambling and games of chance than do women, numerous studies that use blackjack as a dependent variable only involve male participants (e.g., Blascovich and Ginsburg, 1974; Phillips and Ogeil, 2007, 2010). Thus we sampled only male participants in this experiment.

Procedures. Participants arrived in groups of four to six. We instructed them that they were participating in a study on leadership and decision making.

Power manipulation. Participants first completed a leadership questionnaire, which purportedly assigned them to the role of a manager or builder in an upcoming group task (see Anderson and Berdahl, 2002; Galinsky, Gruenfeld, and Magee, 2003). Simulating actual power situations in an organizational context, we instructed managers (powerful) that they would be responsible for directing the upcoming group task and deciding the builders’ compensation, whereas builders (powerless) would have no input into how the task was performed and no ability to evaluate others. The group task was building a Tanagram puzzle. Prior to engaging in this task, participants played a game of blackjack (Blascovich and Ginsburg, 1974; Chau and Phillips, 1995).

Stability manipulation. We informed participants in the stable conditions that their assigned role would not be altered regardless of their performance in blackjack. In the unstable conditions, we informed participants that their role could be altered based on their performance in blackjack (i.e., builders could be...
promoted to managers, managers could be demoted to builders); thus, we emphasized that participants’ outcomes on the blackjack game were directly linked to their ability to lose or gain power in the powerful and powerless conditions, respectively.

**Risk-taking measure.** Participants next played a modified version of blackjack. Each participant was given a pot of $10 and allowed to bet in increments of $0.25. To ensure that all participants had an incentive to maximize their pot of money, they were informed that each remaining dollar would be exchanged for a raffle ticket for a prize worth $100.

We provided participants with the general rules of the game and instructed them on how these departed from standard blackjack (e.g., one deck containing no aces, cards were played with replacement). In addition, the computer provided basic-strategy recommendations for each hand. These recommendations appeared at the top of the computer screen with each new hand that was dealt to participants. Prior to the start of the game, we instructed participants that following the basic-strategy recommendations would maximize their chances of beating the dealer (Thorp, 1966). Participants played three practice hands before the 16-hand game.

We used two measures of risk-taking behavior: (1) overall deviations from basic-strategy recommendations (Chau, Phillips, and Von Baggo, 2000) and (2) tendency to “hit” and over-score the dealer when instructed to “stand,” referred to as “rebel hitting” and regarded as risky play (see Wagenaar, 1988).

Upon conclusion of the game, and before debriefing participants, we administered manipulation checks of power (four items measuring power and control over resources, \( \alpha = .95 \)), one item assessing stability, and two items assessing participants’ familiarity with blackjack.

**Results and Discussion**

**Manipulation checks.** Using the 4-item composite variable, managers reported having more power (mean = 5.18, S.D. = 2.00) than builders (mean = 3.30, S.D. = 2.35), \( F(1, 41) = 8.04, p = .001, \eta^2 = .16 \). Compared with those in the unstable conditions (mean = 4.50, S.D. = 1.79), those in the stable conditions (mean = 1.29, S.D. = 0.72) believed that retaining their role had little to do with their performance in the blackjack game, \( F(1, 41) = 58.51, p < .001, \eta^2 = .59 \). Power and stability did not affect participants’ reported familiarity with blackjack (mean = 5.28, S.D. = 1.70) nor their understanding of basic strategy (mean = 5.42, S.D. = 1.52), all \( F_s < 2.68, ps > .10 \).

**Risk taking.** As hypothesized (H1), power and stability interacted to affect individuals’ overall willingness to follow basic strategy, \( F(1, 39) = 3.84, p = .057, \eta^2 = .02 \). The unstable powerful (mean = 10.33, S.D. = 1.66) and the stable powerless (mean = 10.38, S.D. = 1.92) followed overall basic-strategy recommendations less than the stable powerful (mean = 12.08, S.D. = 2.33) and unstable powerless (mean = 11.54, S.D. = 2.99), \( t(39) = -1.96, p = .057 \). There were no main effects of power or stability on individuals’ overall willingness to follow basic strategy (both \( F_s < .16, ps > .69 \)).
Similarly, power and stability interacted to affect “rebel hitting” (i.e., hitting when explicitly instructed to stand), \( F(1, 39) = 7.09, p = .011, \eta^2 = .15 \). The unstable powerful (mean = 6.22, S.D. = 2.54) and the stable powerless (mean = 5.88, S.D. = 2.47) were more likely to “hit” when explicitly instructed to “stand” compared with the stable powerful (mean = 3.00, S.D. = 2.48) and the unstable powerless (mean = 4.62, S.D. = 3.10), \( t(39) = 2.66, p = .011 \). There were no main effects of power or stability on rebel hitting (both \( Fs < 1.36, ps > .25 \)).

Using a role-based manipulation of power and employing a behavioral measure of risk taking, Study 2 replicated the pattern found in Study 1. Specifically, in support of hypothesis 1, the unstable powerful and the stable powerless made riskier decisions (i.e., were less willing to follow the basic-strategy recommendations and more likely to “hit” when instructed to “stand”) than were the stable powerful and the unstable powerless.

STUDIES 3–5: POWER, STABILITY, STRESS, AND RISK TAKING

In addition to hypothesizing that power and stability interact to affect risk taking (H1), we also propose that residing in an unstable powerful or stable powerless position is more stressful than residing in a stable powerful or an unstable powerless position (H2). Furthermore, it is this experience of greater stress that leads to greater risk taking (H3).

The next three studies sought to establish both the important role that power and stability play in affecting stress and demonstrate that stress has direct effects on risk taking. In Study 3, we aimed to establish that the experimental paradigm used in Study 2 directly affected individuals’ (physiological) stress. We predicted that unstable power and stable powerlessness would increase physiological stress relative to stable power and unstable powerlessness (H2).

Study 4 then manipulated stress independently of the power-stability context to examine its direct effect on risk-taking behavior (H3). As pointed out by Spencer, Zanna, and Fong (2005), one can demonstrate process by experimentally manipulating a purported mediator and observing its direct effect on the outcome variable of interest. Thus evidence that experimentally induced stress increases risk taking would support our claim that stress is the mediating mechanism driving risk taking. Across Studies 3 and 4, we examined if the interactive effects of power and stability increased stress (H2), as well as whether stress, in and of itself, directly affected risk taking (H3).

Finally, Study 5 examined whether the interaction between power and stability on risk taking would be moderated by individuals’ stress tolerance. We proposed that those who had a greater tendency to experience stress would be most likely to demonstrate greater risk taking when in conditions of unstable power or stable powerlessness (H4). Stress tolerance is the ability to endure undesirable, distressing psychological states (Daughters et al., 2005; Simons and Gaher, 2005). Stress tolerance is not uniform across individuals; people with high stress tolerance experience less negative psychological and physiological consequences when facing potentially stressful situations and show more facilitative coping strategies. In contrast, people with low stress tolerance take whatever actions are necessary to remove the distressing stimulus or situation, even if such actions are risky and deleterious (e.g., alcohol-
1992, or tobacco-usage, Brown et al., 2002). Therefore, we predicted that power and stability would interact to predict risk-taking behavior for those with a low, but not a high, tolerance for stress.

**Study 3: Power, Stability, and Stress**

To examine if our manipulations of power and stability affected individuals’ physiological stress (H2), we used heart rate, a measure of arousal (e.g., Wright et al., 1997; Harris, 2000), as an indicator of physiological stress. We predicted that those in the unstable power and stable powerless conditions would demonstrate greater physiological stress (i.e., greater increases from initial heart rate to heart rate following the experimental role manipulations) than those in the stable powerful and unstable powerless conditions.

**Method.** We randomly assigned 35 undergraduate students (60 percent female, mean age = 19.91, S.D. = 1.42) to conditions in a 2 (powerful, powerless) × 2 (stable, unstable) between-participants design.

The power and stability manipulations were the same as those used in Study 2. Participants believed they were participating in a study on leadership and decision making. Upon arrival, the experimenter sent them to separate workrooms where the experimenter asked them to sit quietly for 3–5 minutes. The experimenter then took participants’ resting heart rate (resting) using an Omron® electronic monitor. Heart rate was always taken two consecutive times to increase measurement reliability. After measuring resting heart rate, we assigned participants to their power (powerful/powerless) and stability (stable/unstable) conditions. After being assigned to their condition, the experimenter took participants’ second (post role-assignment) heart rate measurement before debriefing them.

**Results.** The two consecutive resting heart rate measurements showed high test-retest reliability ($r = .93, p < .001$) and therefore we combined them to form an average resting heart rate. Similarly, the two consecutive measurements post role-assignment ($r = .85, p < .001$) showed high test-retest reliability and therefore we combined them to form an average post role-assignment heart rate. We subtracted the average resting heart rate from the average post role-assignment heart rate to capture the change in heart rate following role assignment (Gross and Levenson, 1997; Gross, 1998).

Only the interaction between power and stability significantly predicted changes in heart rate (H3), $F(1, 30) = 5.80, p = .022, \eta^2 = .16$. Both main effects were non-significant, $F$s < .67, $ps > .42$. There was a significant increase in heart rate for the unstable powerful (mean = 5.80, S.D. = 8.74) and the stable powerless (mean = 4.11, S.D. = 6.98) compared with their stable powerful (mean = –0.50, S.D. = 3.32) and unstable powerless (mean = 1.00, S.D. = 3.43) counterparts, $t(30) = –2.41, p = .022$.

Consistent with research on non-humans (Blanchard, Spencer et al., 1995; Sapolsky, 2005) and human group status hierarchies (Scheepers, 2009), the unstable powerful and the stable powerless exhibited greater physiological indicators of stress relative to their stable and unstable counterparts, respectively. Consistent with hypothesis 2, the heart rate pattern found in Study 3 parallels
that found in monkey populations: dominant monkeys who were facing a reorganiza-
tion of their group’s status hierarchy showed a heightened heart rate rela-
tive to those in a stable hierarchy (Manuck et al., 1991). Likewise, Scheepers (2009) found that powerful unstable and powerless stable groups showed greater physiological indices of threat relative to their stable and unstable counterparts, respectively. These findings provide preliminary support for our assertion that stress is the mechanism underlying the relationship between power and stability and risk taking. We further examine this assertion in Studies 4 and 5.

Study 4: Stress and Risk Taking

In the current investigation, we propose that the interaction between power and stability on risk-taking behavior is a function of the stress that individuals experience in their respective roles. Thus far we have supported this argument by demonstrating that unstable power and stable powerlessness produce greater physiological stress (H2, Study 3). But we have yet to demonstrate the direct relationship between our proposed mechanism and risk taking (H3).

Thus, in Study 4 we sought to provide direct experimental evidence for the role of stress on risk-taking behavior. Instead of measuring this mediating variable, we employed an approach of demonstrating the process by manipulating the purported mediator (see Spencer, Zanna, and Fong, 2005). This is a commonly prescribed approach by experimentalists to elucidate the effect of a proposed intervening variable (i.e., stress) on the dependent variable (i.e., risk taking). Study 4 experimentally manipulated stress and measured risk-taking behavior using the blackjack task employed in Study 2.

Participants and design. We randomly assigned 36 male undergraduate students (mean age = 20.81, S.D. = 3.09) to either a high- or low-stress condition.

Procedures. Participants came to the lab two at a time and completed all materials in separate rooms. We manipulated stress through a public speaking manipulation (Dickerson and Kemeny, 2004) and then had participants engage in the risk-taking task used in Study 2, blackjack.

Stress manipulation. A commonly used experimental manipulation to elicit stress is engagement in public speaking (Dickerson and Kemeny, 2004). Studies have shown that public speaking (Leary and Kowalski, 1995; Savitsky and Gilovich, 2003), including its mere expectation (Levenson et al., 1980), elicits considerable stress and anxiety. Thus, in the high-stress condition, we told participants that they would be giving a five-minute speech to a panel of judges. We also told participants that they were paired with another participant who was in the lab at the same time and that before they made their speech they would play a game of blackjack. If they had more money in their final pot relative to the other participant, they would be able to pick the topic of their speech, but if they had less money than the other participant, the panel of judges would pick the topic for them.

We told those in the low-stress condition that they would be required to complete a simple puzzle, involving counting the appearance of a single letter

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(e.g., an “H”) in a box of letters. But before completing the puzzle task, they would play a game of blackjack. We also told these participants that if they had more money in their final pot relative to the other participant, they would only have to do one, instead of five, puzzles.

We wanted to keep the two possible outcomes equally desirable in both the high- and low-stress conditions. To establish that we had done that, we conducted a pilot test with an independent sample and had participants rate the desirability of the outcomes of the blackjack game. Participants rated both the self-chosen topic (mean = 4.17, S.D. = 1.63) and the single puzzle (mean = 4.40, S.D. = 1.19) as significantly more desirable than the panel-chosen speech (mean = 3.17, S.D. = 1.44) and the five puzzles (mean = 3.30, S.D. = 1.46), F(1, 23) = 5.87, p = .024, η² = .20 and F(1, 19) = 5.49, p = .030, η² = .22, respectively.

*Risk-taking measure.* Participants played the same modified blackjack task used in Study 2, which included three practice hands and sixteen actual hands. As done in Study 2, we used two measures of risk-taking behavior: (1) overall deviations from the basic-strategy recommendations (Chau, Phillips, and Von Baggo, 2000) and (2) “rebel hitting” (see Wagenaar, 1988).

*Manipulation check.* Immediately before completing the risk-taking task, participants indicated the amount of stress they were experiencing at the present time on a 7-point scale (1 = “not at all”; 7 = “extremely”).

**Results and discussion.** *Manipulation check.* As predicted, participants in the anticipated speech condition reported experiencing more stress (mean = 4.12, S.D. = 1.32) than did participants in the puzzle condition (mean = 2.74, S.D. = 1.33), F(1, 34) = 9.78, p = .004, η² = .22.

*Risk taking.* As hypothesized (H3), using participants’ unwillingness to follow basic strategy recommendations as the dependent measure, stress increased risk-taking behavior, F(1, 34) = 4.65, p = .038, η² = .12. Participants in the high-stress (i.e., speech) condition were less likely to follow basic-strategy recommendations (mean = 10.00, S.D. = 1.84), compared with those in the low-stress (i.e., puzzle) condition (mean = 11.53, S.D. = 2.34). We found similar, although marginally significant results on the “rebel hitting” variable, F(1, 34) = 2.91, p = .097, η² = .08. Those in the high-stress condition (mean = 5.71, S.D. = 1.99) were more likely to request a new card when explicitly instructed to stand than were those in the low-stress condition (mean = 4.21, S.D. = 3.08).

Study 4 provides experimental evidence of the proposed mechanism of stress on risk-taking behavior (Spencer, Zanna, and Fong, 2005). Participants who experienced experimentally induced stress were more likely to demonstrate risk-taking behavior during a blackjack game than those who did not (H3).

**STUDY 5: POWER, STABILITY, AND STRESS TOLERANCE**

Studies 3 and 4 provided evidence that power and stability interact to predict stress (H2), and stress plays a direct role in increasing risk-taking behavior (H3). In Study 5, we further elucidate the proposed mediating mechanism of stress in the relationship between power and stability by examining the moderating role of individuals’ abilities to tolerate stress (Daughters et al., 2005; Simons and Gaher, 2005). Furthermore, to examine the robustness of our effects,
Study 5 also employed a third measure of risk-taking behavior, the Balloon Analog Risk Task (BART) (Lejuez et al., 2002).

Participants and design. We randomly assigned 111 undergraduate students (67 percent female, mean age = 19.88, S.D. = 1.42) to conditions in a 2 (powerful, powerless) × 2 (stable, unstable) between-participants design. We also measured participants’ stress tolerance (Simons and Gaher, 2005).

Procedures

Power and stability manipulations. The task used to assign participants to conditions was the same as that used in Studies 2 and 3. After being assigned to their roles (as manager or builder), we told participants that they would be completing a “balloon task” prior to the interaction between managers (powerful) and builders (powerless) and that this balloon task could either not affect the retention of their role (stable) or could alter their role depending on performance (unstable).

Risk-taking measure. We used the BART (Lejuez et al., 2002) to measure risk-taking behavior. We presented participants with 16 electronic balloons. By clicking on the indicated button they could pump up each balloon as much as desired. Each pump earned them 5 cents, which was placed in a temporary bank. At any point, they could stop pumping the balloon and collect the money accrued for that balloon, which transferred the money from their temporary bank to their permanent bank. The money from this permanent bank was ultimately cashed in for raffle tickets toward a $100 lottery. Although participants could pump up the balloon as much as desired, each balloon was programmed to explode at a random threshold. If the balloon exploded before the participant collected the money, the money was lost and the participant proceeded to the next balloon.

We measured risk taking using the average pumps that the participant made per balloon on those balloons for which the participant collected the money prior to the balloon exploding (pumps adjusted average) (Lejuez et al., 2002). This variable was then log-transformed to normalize its distribution (Tabachnick and Fidell, 2001).

After completing the balloon task, participants completed a measure of stress tolerance, which contained fifteen questions about an individual’s general ability to tolerate distressing situations (Simons and Gaher, 2005). Using a 5-point Likert scale, (1 = “strongly agree”; 5 = “strongly disagree”), we instructed participants to “think of times that you feel distressed or upset” and indicate how much they agreed with statements like, “I can’t handle feeling distressed or upset,” or “My feelings of distress are so intense that they completely take over.” Higher scores indicated greater tolerance toward distressing situations. We administered this individual difference measure following the BART to prevent the questions from priming stress or thoughts about stress in our participants prior to measuring our dependent variable of interest. We averaged these items (α = .87) to create a total stress tolerance score (mean = 3.57, S.D. = 0.66). We tested whether our experimental manipulations affected stress tolerance. Consistent with the notion that the stress-tolerance scale
measures a stable individual difference, neither power, stability, nor their interaction affected stress tolerance (all Fs < 2.36, ps > .13). Participants then completed manipulation checks of power (α = .97) and stability. Lastly, we debriefed participants.

Results and Discussion

**Manipulation checks.** Using the same four-item scale used in Study 2, managers (mean = 5.84, S.D. = 0.82) reported having more power than builders (mean = 1.80, S.D. = 0.99), F(1, 109) = 545.84, p < .001, η² = .83. Compared with those in the unstable conditions (mean = 5.16, S.D. = 1.50), those in the stable conditions (mean = 1.48, S.D. = 1.08) believed that retaining their role had little to do with their performance on the BART, F(1, 109) = 223.14, p < .001, η² = .67.

**Risk taking.** We first regressed the adjusted average number of pumps per balloon on our independent variables of power, stability, and the continuous stress-tolerance variable. We contrast coded the categorical variables of power and stability, and we scale-centered the continuous stress-tolerance variable to reduce multicollinearity and provide greater ease of interpreting first-order terms.

For the adjusted average number of pumps, simple slopes for power and stability were not significant (both ts < 1.57, ps > .12). Consistent with hypothesis 1, however, we again found the predicted two-way interaction between power and stability, B = −.042, S.E. = .022, t(103) = −1.97, p = .051. In addition, as predicted by hypothesis 4, the two-way interaction was qualified by the predicted three-way interaction between power and stability and stress tolerance, B = .052, S.E. = .025, t(103) = 2.09, p = .039. Thus stress tolerance moderated the relationship between power and stability in the predicted direction. The results are graphed in figure 1. For those with a low tolerance for stress, the simple slope for the power × stability interaction was significant, and the pattern matched the data from the previous experiments: the powerful unstable and the powerless stable were more risk taking than their powerful stable and powerless unstable counterparts, B = −.061, S.E. = .013, t(103) = −4.77, p < .001. For those with a high tolerance for stress, however, the interaction between power and stability was not significant, B = .214, S.E. = .174, t(103) = 1.23, p = .52. Neither the main effect of power nor stability was significant for those with low or high tolerance for stress, all ts < 1.26, ps > .22.

Study 5 replicated the interaction between power and stability found in the two previous studies (H1). But consistent with the important role physiological stress plays in producing risk-taking behavior as a function of power and stability among non-human primates (Sapolsky, 2005) and human groups (Scheepers, 2009), individuals who had a low tolerance for stressful situations demonstrated the predicted interaction between power and stability on risk taking. In contrast, the interaction between power and stability disappeared for individuals with a high tolerance for stressful situations (H4).

**GENERAL DISCUSSION**

The current research demonstrates that both the unstable powerful and the stable powerless take more risks than their stable and unstable counterparts.
In addition, it appears that the stress experienced in the former roles is an important contributor to this relationship. Specifically, unstable power and stable powerlessness produced more physiological stress (H2), a manipulation of stress directly affected risk taking (H3), and the interactive effect of power and stability on risk-taking behaviors only emerged for those who had a low tolerance for distressing situations (H4). Notably, the current pattern of data mirrors the pattern documented in non-human species, human intergroup contexts, and childhood social hierarchies.

The current research makes a number of important contributions. Perhaps most importantly, our results have meaningful implications for the way social scientists conceptualize the psychology of power. The data suggest that conceiving of power as a dynamic rather than a static construct yields deeper insights into its effects on decisions and behavior. Our studies demonstrate that power interacts with stability to produce a systematic and predictable pattern of risky choice and behavior. Across the studies, unstable power and stable powerlessness consistently produced greater stress and risk taking than stable power and unstable powerlessness.

Second, the current findings correspond to behavior witnessed in non-human primates and other animal species, suggesting that invoking research on non-human species can provide valuable insights into the origins, mechanisms, and outcomes of power-related behavior among humans. Specifically, non-humans engage in risk-taking behaviors as a function of the stress

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*The above graphs are based on –1 (top) and +1 S.D. (bottom) of the mean for stress tolerance.
produced from maintaining the resources associated with their current dominant positions (i.e., the powerful in unstable hierarchies) or to ensure that they receive minimal access to food and mates (i.e., the powerless in stable hierarchies). Our work suggests that humans also demonstrate the same behavioral and physiological outcomes when placed in comparable roles, even when those roles are experimentally induced.

Third, the current findings mirror those from the intergroup status literature (Scheepers et al., 2006). When stability is made relevant and salient, it has transformative effects on the behavior of the powerful and the powerless, propelling the powerful toward risk when they have something to lose and encouraging the powerless to take risks when they have nothing to gain. Moreover, these findings suggest that when a dynamic approach is applied, power (the current findings) and status (Scheepers et al., 2006) have similar effects on risk taking. Although power (i.e., the asymmetric control over valued resources) and status (i.e., an individual’s or group’s relative respect or standing) are closely related, they remain distinct constructs (see Magee and Galinsky, 2008). Thus the current findings provide an additional insight into the intimate connection between power and status and their similar effects on behavior.

Power, Stability, and Alterations in Perceptions of Power

Altering the stability of one’s power or powerlessness naturally introduces the question of whether such alterations affect the perceptions of one’s own power. Because power can manifest itself as a psychological property (Magee and Galinsky, 2008), altering the stability of one’s power may also consequently alter perceptions of one’s overall level of power. We examined this possibility empirically by controlling for participants’ perceived power (using their self-reported power manipulation checks) to see if this eliminated the effect of our experimental manipulations on risk taking in Studies 2 and 5. The significance of the two-way interaction in Study 2 and the three-way interaction in Study 5 was not reduced nor altered when controlling for perceived power.1 These results demonstrate that perceptions of power resulting from the stability or instability of power do not appear to account for our current risk-taking results.

Although the current results stand in contrast to those found in Anderson and Galinsky (2006), in which power had a direct effect on risk taking, we offer a parsimonious integration of these competing findings. In Anderson and Galinsky, power was primed or activated in one context and the risk-taking behavior was measured in a context that was unrelated to having or lacking power. In the current investigation, not only did we bring stability to bear on power, but the risk-taking measure was also linked to our experimental manipulations of power and stability (i.e., the gain or loss of power was related to an

1 When controlling for participants’ perceptions of power following their role assignment, the interaction between power and stability remained significant in Study 2; overall willingness to follow basic strategy: F(1, 38) = 4.09, p = .050, η² = .10; rebel hitting: F(1, 38) = 6.42, p = .016, η² = .15. Similarly, perceptions of power did not reduce the two-way interaction between power and stability, B = .043, S.E. = .022, t(102) = −1.98, p = .051, nor the three-way interaction of power, stability, and stress tolerance, B = .052, S.E. = .025, t(102) = 2.07, p = .041, in Study 5, as the interactions continued to be significant even when the variable, perceptions of power, was entered into the model.
individual’s outcome on the risk-taking task, and this connection was made salient across all studies).

Integrating these two separate approaches produces the following synthesis: when power/powerlessness is merely primed and risk taking is unrelated to the context of power, the relative activation of the Behavioral Approach System and Behavioral Inhibition System dominates, leading to a main effect of power on risk taking. When power is altered by stability, and risk taking is materially relevant to the stability of power, then the effects of stress resulting from the interaction between stability and power come to bear, and it is the unstable powerful and the stable powerless who display the greatest risk-taking behavior.

Future Directions

Any examination of the psychology of risk taking would be remiss not to integrate the central tenets of prospect theory (Tversky and Kahneman, 1981). As mentioned earlier, prospect theory asserts that a loss is more psychologically aversive than a gain of the same magnitude is psychologically rewarding. Thus when risk taking can stem losses or bring gains, individuals are more likely to engage in risk-taking behavior when in the domain of losses than when in the domain of gains. Although we do not have empirical evidence to discuss individuals’ perceptions of gains versus losses, prospect theory’s predictions are consistent with the current results. Namely, it is the unstable powerful, whose potential losses are looming large (Sivanathan, Pillutla, and Murnighan, 2008), and the stable powerless, who are focused on the enduring losses confronting them, who demonstrate the greatest risk. And it is the stable powerful, those who are focused on rewards and the available gains, and the unstable powerless, those who have the possibility of gaining access to rewards, who show the least amount of risk taking. Future research might examine whether power and stability alter one’s focus on gains and losses and if this change in focus helps to explain the risk-taking behaviors we observed. Future investigations could also manipulate a focus on gains or losses, along with power and stability, to determine if the effects witnessed in the current investigation hold even when, for example, the stable powerful are independently placed in a loss frame or the stable powerless are placed in a gain frame prior to making their decisions.

In addition, although we manipulated power and its stability using two distinct procedures, the current investigation consistently equated the instability of power with the possibility of losing power and the instability of powerlessness with the possibility of gaining power. Future research should examine if risk-taking behavior is altered when the unstable powerful have the opportunity to gain greater power and the unstable powerless can descend further into powerlessness (Handgraaf et al., 2008; Sivanathan, Pillutla, and Murnighan, 2008).

The current investigation also did not address what exactly constitutes stable and unstable in the minds of those who have or lack power. Just as power exists on a continuum, stability is rarely all or nothing. For example, external signals of instability (e.g., impending competition or board dissent) may begin to erode one’s perception of stability without completely eliminating it. Future research could examine the potential varying effects of moving along the
continuum from complete stability to complete instability on the resulting risk-taking behavior.

Although we have explored how power and stability interact to affect risk taking, in many cases the opposite relationship holds: risk taking affects both the level of power and its stability. It is often through risky behavior, in fact, that power is acquired or lost: risk-taking behavior can be an avenue by which the once powerless usurp power and the once powerful fall from grace. Future research might examine situations in which risk taking alters power or makes current hierarchical arrangements more or less stable. For example, successful risk taking by the powerful may strengthen their hold over valued resources and reduce their instability, but risk taking that fails may weaken their position and intensify its instability. In contrast, successful risk taking by the powerless may allow them to capture valued resources and create an unstable hierarchy, but their failure may put them into even greater deprivation and despair.

Finally, future work might examine how individual differences in hormonal physiology, such as cortisol (Wirth, Welsh, and Schultheiss, 2006) or testosterone (Mazur and Booth, 1998) affect the power, stability, and risk-taking relationship. For example, research on testosterone (T) production, a hormone that is related to aggression in both males and females (Rivers and Josephs, 2010; Ronay and Galinsky, 2011), demonstrates that being in a dominant position is not desirable if it is mismatched with an individual’s T-profile (Josephs et al., 2006). When a high-T individual is in a low-dominance position or a low-T individual is in a high-dominance position, this mismatch between social position and hormonal profile creates negative arousal. It is possible that T exacerbates, as well as transforms, the effects witnessed in the current studies. For example, high-T individuals may experience more stress and thus take greater risks than low-T individuals when they are in stable low-power positions, whereas low-T individuals may find being in an unstable, high-power situation particularly stressful, leading to greater risk-taking behavior. In addition, researchers (e.g., van Honk et al., 1999; Newman, Sellers, and Josephs, 2005) have demonstrated that high-T individuals are more likely than their low-T counterparts to be attuned to cues that could be perceived as a threat to their social positions. High-T individuals may be more sensitive to even minor changes in the stability of their power and thus perceive more situations as engendering instability.

**Practical Implications**

These results have important implications for how power and its stability affect an actor’s risk-taking behavior and how organizations may encourage or assuage such behavior. Some organizations want to encourage risk taking among their employees (e.g., highly munificent bio-tech firms), whereas others want to stem risk taking (i.e., rogue traders in non-regulated financial markets). First, our results suggest that making the enduring and stable nature of one’s power salient might reduce risk taking. One approach to doing so would be to set labor contracts with longer time horizons. Likewise, making the instability of one’s powerlessness salient by highlighting options for promotion or growth may also stymie risk taking. Conversely, making the instability of one’s power salient may increase risk taking. For example, a board that wishes to encourage its CEO to be less conservative in his or her initiatives, a common dilemma faced by organizations (Levinthal, 1988), may wish to undermine the stability of
his or her position by signaling tempered support from the board or granting a shorter employment contract (Finkelstein, 1992). Finally, regulating the psychological mechanism of stress that drives the current risk taking remains a final avenue by which organizations can modify the risk taking behavior of its employees. For instance, if an organization wishes to encourage top managers who are facing a loss in their coveted positions to take fewer risks, attenuating the mechanism (i.e., stress), may offer a way to curb such risky behavior.

These results also raise questions about the implications of the interaction between power and stability at the organizational level. Although the current findings are based on individual-level data, we can theoretically generalize the results to a macro-level. The organizational domain has numerous examples of the unstable powerful engaging in inflated risk and the stable powerful avoiding risk. For example, amidst growing pressure from shareholders, the executives of Boston Scientific hastily acquired the troubled medical device maker, Guidant, at an extremely inflated price. Conversely, the once-dominant film producer, Kodak, ignored the impending revolution in digital photography and thus disastrously lost its footing in the photographic film industry (Finkelstein, 2003) and had to declare bankruptcy. The current results shed light on the potential mechanisms behind these organizational examples of risk taking and risk aversion of those in unstable and stable power positions, respectively. They suggest that it may have been the stress resulting from industry pressure that led to executives’ foolish corporate acquisition and the lack of stress resulting from being the stable industry leader that led to executives’ technological intransigence.

Conclusion

Power can be static and stable. The president of a fourth generation, family-owned business likely feels little, if any threat of losing his or her position of influence. Similarly, a neophyte entrepreneur who failed to get funding for his or her last three business ideas and is now facing foreclosure on his or her personal home, is unlikely to feel hopeful about gaining access to the necessary resources. But power can also be in a state of flux (Sivanathan, Pillutla, and Murnighan, 2008). A once hot-shot chief executive officer (CEO) can be ousted by an unsupportive board. Following a debate, a candidate can be rocketed from being an “unknown” to a political front-runner. The current investigation has established that both the unstable powerful and the stable powerless take more risks than their stable and unstable counterparts. From the jungle to inter-group relations to the playground to the blackjack table, the most audacious acts often come from those who seemingly have something to lose or nothing to gain.

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