



UvA-DARE (Digital Academic Repository)

No Guts, No Glory? How Risk-Taking Shapes Dominance, Prestige, and Leadership Endorsement

van Kleef, G.A.; Heerdink, M.W.; Cheshin, A.; Stamkou, E.; Wanders, F.; Koning, L.F.; Fang, X.; Georgeac, O.A.M.

DOI

[10.1037/apl0000868](https://doi.org/10.1037/apl0000868)

Publication date

2021

Document Version

Final published version

Published in

Journal of Applied Psychology

License

Article 25fa Dutch Copyright Act (<https://www.openaccess.nl/en/in-the-netherlands/you-share-we-take-care>)

[Link to publication](#)

Citation for published version (APA):

van Kleef, G. A., Heerdink, M. W., Cheshin, A., Stamkou, E., Wanders, F., Koning, L. F., Fang, X., & Georgeac, O. A. M. (2021). No Guts, No Glory? How Risk-Taking Shapes Dominance, Prestige, and Leadership Endorsement. *Journal of Applied Psychology*, *106*(11), 1673-1694. <https://doi.org/10.1037/apl0000868>

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

UvA-DARE is a service provided by the Library of the University of Amsterdam (<https://dare.uva.nl>)

No Guts, No Glory? How Risk-Taking Shapes Dominance, Prestige, and Leadership Endorsement

Gerben A. van Kleef, Marc W. Heerdink, Arik Cheshin, Eftychia Stamkou, Florian Wanders, Lukas F. Koning, Xia Fang, and Oriane A. M. Georgeac
Department of Social Psychology, University of Amsterdam

Risk-taking can fuel innovation and growth, but it can also have devastating consequences for individuals and organizations. Here we examine whether risk-taking affords social-hierarchical benefits to risk-takers. Specifically, we investigate how risk-taking influences perceived dominance, prestige, and the willingness to endorse risk-takers' leadership. Integrating insights from costly signaling theory and the dominance/prestige framework of social rank, we theorized that risk-taking increases leadership endorsement to the degree that it fuels perceptions of prestige, but decreases leadership endorsement to the degree that it fuels perceptions of dominance. However, we also hypothesized that risk-induced perceptions of dominance do translate into leadership endorsement in competitive (rather than cooperative) intergroup settings. We tested these hypotheses in four studies involving different samples, methods, and operationalizations. In Study 1, participants performed an implicit association test (IAT) that revealed that people associate risk with leader positions, and safety with follower positions. Study 2 was a longitudinal field survey conducted during the September 2019 Israeli elections, which showed that voters' perceptions of politicians' risk-taking propensities prior to the elections positively predicted perceived dominance and prestige as well as voting behavior during the elections. Finally, Studies 3 and 4 demonstrated that people are willing to support risk-takers as leaders in the context of competitive (as opposed to cooperative) intergroup situations, because perceived dominance positively predicts leadership endorsement in competitive (but not cooperative) intergroup settings. We discuss implications for understanding the social dynamics of organizational rank and the perpetuation of risky behavior in organizations, politics, and society at large.

Keywords: risk-taking, costly signaling, dominance, prestige, leader endorsement

Supplemental materials: <https://doi.org/10.1037/apl0000868.supp>

When facing decisions, people often have a choice between more or less risky courses of action. In organizations, risky decisions can catalyze growth and profitability, but they can also backfire, with potentially devastating consequences for individuals, organizations, and society at large. Examples of risky decisions abound in organizational settings. CEOs of multinationals invest in the acquisition of firms with uncertain prospects. Bankers develop financial products that put the global economy at risk. Companies introduce revolutionary new products before having completed the testing stage. Candidates running for leadership positions announce risky political or organizational reforms. Whereas the (financial) consequences of such risks for organizations and society often become manifest, their social ramifications tend to be less apparent.

Previous research has demonstrated that risk-taking is motivated not only by expected organizational outcomes (e.g., gaining a competitive edge, making profit, establishing growth; Stewart & Roth, 2001), but also by social considerations such as the desire to impress others (Ronay & von Hippel, 2010; Wilson & Daly, 1985). Implicit in such considerations is the anticipation that taking risks may bring about beneficial social consequences by enabling risk-takers to make a certain impression on others. However, the social consequences of risk-taking are surprisingly poorly understood. It remains unclear whether risk-taking engenders favorable or unfavorable responses and what the downstream consequences are for a person's standing in the organization. It is important to enhance understanding of such dynamics, because observers' perceptions of and responses to risk-takers may influence risk-takers' future behavior and thereby shape organizational and societal outcomes. In particular, to the degree that risk-takers are endorsed and afforded influence by others, they will be more likely to engage in future risk-taking (Anderson & Galinsky, 2006).

The purpose of the present research is to illuminate the social consequences of risk-taking by examining whether risk-taking affords hierarchical benefits to risk-takers. Specifically, integrating insights from costly signaling theory and the dominance/prestige framework of social rank, we investigate how risk-taking shapes observers' perceptions of risk-takers' dominance and prestige, and their willingness to endorse risk-takers as leaders. We propose that risk-taking can have positive or negative consequences for

This article was published Online First January 28, 2021.

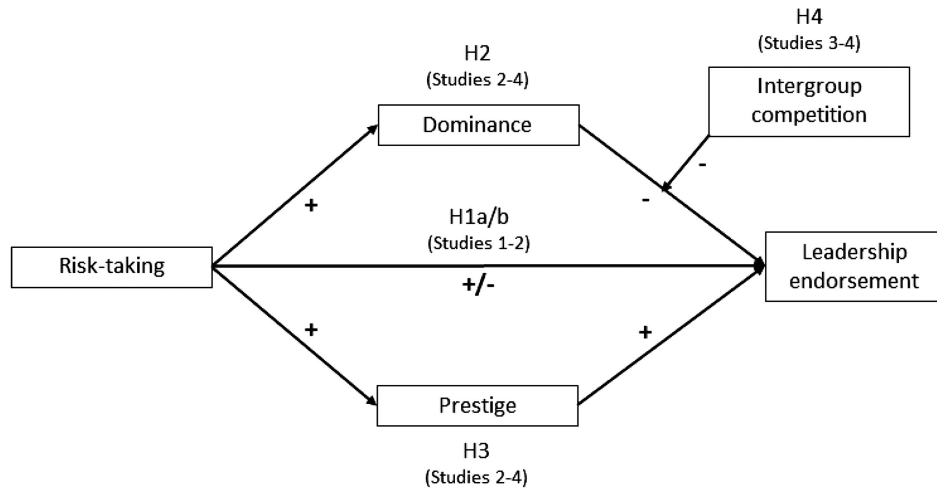
Gerben A. van Kleef  <https://orcid.org/0000-0003-0823-7654>

Arik Cheshin is now at the University of Haifa, Florian Wanders is now at Booking.com, Lukas F. Koning is now at the Dutch Authority for the Financial Markets, Xia Fang is now at York University, and Oriane Georgeac is now at Yale University.

We thank Maartje Min for her assistance in conducting Study 3.

Correspondence concerning this article should be addressed to Gerben A. van Kleef, University of Amsterdam, Department of Social Psychology, PO Box 15900, 1001 NK Amsterdam, The Netherlands. Email: g.a.vankleef@uva.nl

Figure 1
A Schematic Depiction of the Theoretical Model and the Hypotheses Tested in Each Study



leadership endorsement, depending on how risk-takers are perceived by others. We develop the argument that, generally speaking, risk-taking increases leadership endorsement to the degree that it fuels perceptions of prestige, but decreases leadership endorsement to the degree that it fuels perceptions of dominance. However, we further propose that risk-induced perceptions of dominance do translate into leadership endorsement in competitive (rather than cooperative) intergroup settings, because intergroup competition increases preferences for dominant leaders. The theoretical model that guides our research is schematically depicted in Figure 1. Below we first conceptualize risk-taking and leadership endorsement and review suggestive evidence for positive and negative effects of risk-taking on leadership endorsement. Then we turn to developing our model and hypotheses, which we test in four studies.

Risk-Taking and Leadership Endorsement

Risks are typically conceptualized in terms of variation in the distribution of possible outcomes and/or in terms of potential harm (Fox & Tannenbaum, 2011; March & Shapira, 1987; Schonberg et al., 2011). Under the former approach (which is more common in economics), risk-taking is defined as a behavioral preference for greater rewards that are obtained with less certainty, compared to smaller rewards obtained with more certainty (Schonberg et al., 2011). Under the latter approach (which is more common in psychology), risk-taking is defined as a behavioral inclination toward actions that have a high probability of resulting in some form of harm or loss to the self or others (Fox & Tannenbaum, 2011). Common instances of risk-taking in organizational settings fit both conceptualizations in that risky organizational decisions or behaviors are likely to be inspired at least in part by the prospect of greater rewards but also entail the possibility of harm or loss.

There is a rich tradition of research on risk-taking in psychology, sociology, economics, and organizational behavior. However, this literature has been concerned primarily with the *antecedents* of risky behavior rather than with its *consequences*. For instance, research focusing on individual-level antecedents has identified personality

traits (Zuckerman & Kuhlman, 2000), demographic factors (Byrnes et al., 1999; Steinberg, 2008), and neural substrates (Kuhnen & Knutson, 2005; Steinberg, 2008) associated with risky behavior. Research focusing on social antecedents indicates that risk-taking increases when individuals are in the presence of peers rather than alone (Gardner & Steinberg, 2005; Steinberg, 2008; Wilson & Daly, 1985), when they feel socially excluded (Peake et al., 2013), and when mating goals are activated (Ronay & von Hippel, 2010). In keeping with conventional wisdom, these findings suggest that one reason why people engage in risky behavior is to impress others and stand out in social groups (McClelland & Watson, 1973). More specifically, it has been proposed that people take risks to enhance their social rank in the face of competition (Wilson & Daly, 1985). Risk-taking may thus be motivated by a desire to enhance one's social standing, but it is unclear whether and how risk-taking actually contributes to or undermines rank ascension.

Social hierarchies tend not to be stable or fixed; they are subject to change (Anderson & Brion, 2014; Keltner et al., 2008). Individuals ascend in social hierarchies through a reciprocal process of leadership claiming and granting (DeRue & Ashford, 2010). Thus, in democratic systems, whether organizational or political, a person's ability to attain a leadership position hinges on the support of other individuals, that is, the degree to which others endorse the focal person's leadership. Following previous research, we define leadership endorsement as the degree to which (prospective) followers are willing to grant leadership to a current or future leader (Platow & van Knippenberg, 2001; Ullrich et al., 2009). Leadership endorsement can entail active behaviors aimed at supporting a person's claim to a leadership position (e.g., through voting) as well as favorable evaluations of a person's suitability for and/or performance in a leadership position (DeRue & Ashford, 2010; Platow & van Knippenberg, 2001). Questions surrounding leadership endorsement are central to organizational psychology and management (Lord et al., 2017), featuring prominently in research on, among other things, leader emergence, implicit leadership theories, leader member exchange, and the social identity approach to leadership (e.g., Epitropaki & Martin, 2005; Foti & Hauenstein,

2007; Kalish & Luria, 2016; Platow & Van Knippenberg, 2001; Ullrich et al., 2009). Although related, leadership endorsement is distinct from leader emergence, which refers to whether a person actually gravitates to a leadership position. In democratic systems, leadership endorsement is a precursor to, and often a prerequisite of, leader emergence.

A growing body of research indicates that leadership endorsement and the concomitant attainment of authority positions are predicted not only by stable characteristics such as capabilities (Judge et al., 2004), personality traits (Judge et al., 2002; Lord et al., 1986), or demographic characteristics (Berger et al., 1972), but also by fleeting behaviors that influence how actors are *perceived* by others, such as helping and cooperation (Flynn et al., 2006; Hardy & Van Vugt, 2006), prosocial norm violations (Van Kleef et al., 2012), proactivity (Kilduff & Galinsky, 2013; Magee, 2009), third party punishment (Gordon et al., 2014), and artistic deviance (Stamkou et al., 2018). In light of the malleability of hierarchies and the pivotal role of social perceptions in determining people's positions within such hierarchies, it is conceivable that leadership endorsement is shaped by social perceptions engendered by risky behaviors. Given that high-ranking organization members such as leaders can, by definition, exert considerable influence on organizational processes and outcomes, it is important to understand whether and how risk-taking shapes leadership endorsement. However, to the best of our knowledge, no previous studies have examined this question, and suggestive evidence from adjacent domains is inconclusive.

On the one hand, there are reasons to believe that taking risks *increases* leadership endorsement. Cross-cultural research has documented that taking risks for the greater good is seen as a hallmark of effective leadership in Western societies (Chhokar et al., 2007; House et al., 2004, 2013; Stamkou et al., 2019). Along similar lines, Anderson and Galinsky (2006) speculated that taking risks can increase a person's power because of the message it conveys to others, namely that one can afford to take risks by virtue of one's position. Suggestive empirical evidence comes from research on norm violations. Violating norms can be seen as risky in that it may bring about negative repercussions in the form of (social) sanctions, and indeed the propensity to take risks is correlated with the propensity to violate norms (Morrison, 2006). Research has shown that people who violate norms are perceived by others as having power (Van Kleef et al., 2011) and status (Bellezza et al., 2014) and as being potentially suitable for a leadership position (Stamkou et al., 2016; Van Kleef et al., 2012). These considerations suggest that risk-taking can boost leadership endorsement.

On the other hand, there are reasons to believe that taking risks *decreases* leadership endorsement. Even though risks can bring great benefits and may in certain settings be necessary for creativity, innovation, and progress (Dewett, 2004; Latham & Braun, 2009; Stamkou et al., 2018), inherent in risky organizational decisions and behaviors is the possibility that the risk yields a negative outcome for the organization. Indeed, many organizations employ a variety of risk-reduction strategies to discourage risk-taking and/or curtail its possible negative consequences (Pidgeon, 1991; Power, 2004). To the degree that risk-taking is deemed undesirable, organization members with a propensity toward risk-taking may be considered unfit for a leadership role (Overbeck & Park, 2001). These considerations suggest that risk-taking undermines leadership endorsement.

In short, various theoretical arguments and empirical findings suggest that risk-taking may have repercussions for leadership endorsement, but the nature of this relationship is not evident: It is conceivable that risk-taking enhances leadership endorsement, but it is also possible that risk-taking reduces leadership endorsement. At this point the existing literature offers no means of arbitrating between these alternative predictions. Thus, we advance the following competing hypotheses:

Hypothesis 1a: Individuals who are more inclined to take risks are more likely to be endorsed as leaders than individuals who are less inclined to take risks.

Hypothesis 1b: Individuals who are more inclined to take risks are less likely to be endorsed as leaders than individuals who are less inclined to take risks.

These competing predictions present an intriguing puzzle that is as of yet unresolved. We argue that solving this puzzle requires deeper insight into underlying processes and situational contingencies that govern the relationship between risk-taking and leadership endorsement. In what follows, we draw on costly signaling theory and the dominance/prestige framework of social rank to derive predictions about *how* (i.e., via which mechanisms) and *when* (i.e., under which circumstances) risk-taking influences leadership endorsement.

Risk-Taking as a Costly Signal

The first step in our analysis is informed by costly signaling theory (Zahavi, 1995). This theoretical framework, which has dual roots in evolutionary biology and economics, holds that any action that is potentially costly for the actor signals an underlying quality, that is, a characteristic that is relevant to observers but that is difficult or impossible to observe directly (e.g., qualities as a competitor or ally; Bliege Bird et al., 2001). For instance, conspicuous lavish contributions to public goods function as signals of the contributor's dedication to providing the public good (Gintis et al., 2001), and the reputational benefits of such signals may translate into enhanced standing in the group (Van Vugt & Hardy, 2010). As another example, altruistic (and costly) punishment of norm violators may signal the punisher's cooperative allegiance to the group (Nelissen, 2008) and/or serve as an advertisement for the punisher's formidability (Gordon et al., 2014), because only those who can withstand possible backlash are likely to engage in such confrontational behavior (Sell et al., 2009).

Although most research on costly signaling in humans has focused on behaviors that directly benefit other individuals (e.g., altruistic punishment, contributions to a public good), the general notion that costly behaviors signal underlying qualities—and may thereby influence social perceptions—is pertinent to the present research. This is because risk-taking, by definition, is potentially costly. The logical implication is that risky behaviors can act as costly signals of underlying qualities. Connecting this fundamental notion to the current research question, we propose that risk-taking signals underlying qualities that are pertinent to an individual's capacity to ascend to a leadership position.

Two qualities that are particularly relevant to the upward navigation of social hierarchies—to the degree that they are successfully

signaled and perceived—are dominance and prestige (Henrich & Gil-White, 2001). These characteristics exhibit conceptual overlap with the two broad classes of qualities implicated in the aforementioned research on human costly signaling, which revolve around the capacity to withstand backlash on the one hand, and the capacity to provide value to the group on the other hand. We therefore draw on theorizing and research on dominance and prestige to illuminate social perceptions and endorsement of risk-takers as leaders.

The Dominance/Prestige Framework of Social Rank

The dominance/prestige framework of social rank posits that social hierarchies arise from two overarching systems of rank allocation: dominance and prestige (Henrich & Gil-White, 2001). Dominance and prestige can be seen as distinct “strategies” for attaining positions of high rank in groups and organizations (Cheng et al., 2013). A typical dominance strategy involves assertiveness, coercion, intimidation, and the use of punishment and reward to gain rank and influence, whereas a typical prestige strategy involves the display of skills, abilities, and knowledge valued by the group to garner respect and, ultimately, freely conferred rank and influence (Cheng, 2020; Maner & Case, 2016). Empirical studies have demonstrated that dominance and prestige are distinct and viable pathways to attaining influential positions in social hierarchies (Cheng et al., 2013; Kakkar & Sivanathan, 2017), although there has been some debate about the relative prevalence and effectiveness of the two strategies (Anderson & Kilduff, 2009a).

An early meta-analysis identified trait dominance as a predictor of leadership emergence in groups (Lord et al., 1986). More recent studies have further linked dominance with the acquisition of power and leadership in groups and organizations (e.g., Cheng et al., 2013; de Waal-Andrews et al., 2015; Halevy et al., 2012). In a related vein, morphological features indicative of physical dominance and formidability, such as height and strength, have been associated with leadership and influence (Judge & Cable, 2004; Stulp et al., 2013). However, other studies yielded no evidence for the effectiveness of dominance as a strategy for gaining influence (Driskell et al., 1993; Lukaszewski et al., 2016; Ridgeway, 1987), perhaps because people try to avoid autocratic leaders (Van Vugt et al., 2004). Based on such findings, some scholars concluded that dominance is not a feasible rank-attainment strategy among humans (Anderson & Kilduff, 2009a). Currently, the emerging consensus in the literature is that dominant individuals may forcefully *claim* higher rank in organizations, but are rarely voluntarily *supported* as leaders because people have an aversion to dominance (Cheng, 2020). There is evidence, however, that preferences for dominant individuals as leaders can shift as a function of the social-organizational context, with dominant individuals receiving greater endorsement as allies or leaders in the face of intergroup competition rather than cooperation (De Dreu et al., 2012; Spisak, Dekker, et al., 2012).

Other work speaks to the effectiveness of prestige as a strategy for gaining rank and influence. In a range of studies, proximal prestige-related characteristics such as intelligence, competence, and expertise, and more distal yet associated characteristics such as group commitment and prosociality predicted perceptions of rank and leadership as well as actual influence on group decisions (Anderson & Kilduff, 2009b; Bottger, 1984; Driskell et al., 1993; Lord et al., 1986; Ridgeway, 1987; Van Kleef et al., 2012; Willer, 2009). These studies indicate that people can attain higher rank by displaying

competence and expertise (Berger et al., 1972; Cheng et al., 2013; Judge et al., 2004), thus gaining freely conferred influence by amassing prestige (Henrich & Gil-White, 2001). Indeed, a recent review supports the conclusion that prestige is a positive predictor of leadership endorsement (Cheng, 2020).

In sum, there is evidence that dominance and prestige play distinct roles in the navigation of social rank (Cheng et al., 2013; Halevy et al., 2012; Henrich & Gil-White, 2001; Kakkar & Sivanathan, 2017; Maner & Case, 2016), with findings converging to suggest that dominance is generally negatively related to leadership endorsement whereas prestige is generally positively related to leadership endorsement. Importantly, however, the effects of dominance on leadership endorsement depend on the social-organizational context (de Waal-Andrews et al., 2015), such as whether the circumstances call for a cooperative or a competitive approach (De Dreu et al., 2012; Spisak, Dekker, et al., 2012). The next question then is how risk-taking shapes perceptions of dominance and prestige and ensuing leadership endorsement.

How Risk-Taking Shapes Dominance, Prestige, and Leadership Endorsement

Integrating insights from costly signaling theory and the dominance/prestige framework, we propose that the limited understanding of how risk-taking shapes leadership endorsement can be enhanced by investigating how risk-taking influences perceptions of dominance versus prestige, and considering when such perceptions translate into (lack of) support for a person’s leadership. Theoretical arguments and suggestive evidence provide a basis for hypotheses about the effects of risk-taking on both dominance and prestige.

Risk-Taking Signals Dominance

Risky behaviors can entail negative consequences that not all people are equally capable of bearing. Besides the possibility of risks translating in financial loss or organizational unviability (Bromiley, 1991), risk-takers may face pushback from fellow organization members for threatening organizational continuity. People who take risks therefore signal that they are willing and able to withstand such confrontations. Given that the capacity to prevail in confrontations is a characteristic of dominant individuals (Fessler et al., 2014), organization members who take risks may be perceived by others as dominant. Suggestive evidence for this argument comes from research showing that individuals who engage in altruistic punishment are perceived as dominant, because people assume that only dominant individuals can bear the costs of potential backlash (Gordon et al., 2014). Thus, by virtue of the fact that risk-taking entails the possibility of negative repercussions that dominant individuals are more capable of bearing, risk-taking may fuel perceptions of dominance. Thus, we propose:

Hypothesis 2: Individuals who are more inclined to take risks are perceived by others as more dominant than individuals who are less inclined to take risks.

Risk-Taking Signals Prestige

To the degree that (successfully) enacting risky behaviors or decisions hinges on competence and skill, observers may attribute

competence and skill to risk-takers. Such attributions would in turn increase risk-takers' prestige (Cheng et al., 2013; Maner & Case, 2016). According to the dominance/prestige framework, prestige evolved as a mechanism for identifying—and conferring rank and influence to—individuals who make valuable contributions to the group (Henrich & Gil-White, 2001). This implies that in organizational contexts, where risk-taking may be vital for innovation and growth (Latham & Braun, 2009), taking risks may be a means to accrue prestige. Indeed, in some organizations the willingness to accept and take risks is an inherent factor in employees' promotability to higher-level roles (Hayton, 2005). For instance, in organizations with an entrepreneurial orientation, the willingness to take risks is seen as an asset, because innovating and staying ahead of the curve often require a degree of risk-taking (Miller, 1983; Stewart & Roth, 2001). Accordingly, entrepreneurial organizations tend to require comparatively greater risk acceptance from their employees, and risk-taking may also be incentivized via financial compensation or upward mobility (Balkin et al., 2000). Individuals who are prone to take risks may therefore be more likely than their risk-averse counterparts to be perceived as possessing pertinent qualifications, thus allowing them to amass greater prestige. This leads us to propose:

Hypothesis 3: Individuals who are more inclined to take risks are perceived by others as more prestigious than individuals who are less inclined to take risks.

Together, these hypothesized effects of risk-taking on perceived dominance and prestige create tension, because dominance generally decreases leadership endorsement whereas prestige increases it (Cheng, 2020). Thus, risk-taking may simultaneously increase leadership endorsement via perceived prestige and decrease leadership endorsement via perceived dominance (hence our competing *Hypotheses 1a/b*). We propose that this tension can be resolved by considering how the social-organizational context influences the relative adaptiveness of dominance and prestige. Given that prestige is a rather consistent positive predictor of leadership endorsement whereas dominance more often undermines leadership endorsement (Anderson & Kilduff, 2009a; Cheng, 2020), we focus our analysis on a situational factor that can be expected to shape the appeal of dominant leaders: the degree to which the broader organizational context calls for cooperation versus competition.

Evolutionary accounts of leadership and social hierarchy maintain that various forms of leadership and followership have evolved to address problems of coordination, cooperation, and conflict (Keltner et al., 2008; Van Vugt et al., 2008). The biosocial contingency model of leadership, in particular, suggests that cooperative versus competitive intergroup situations prime different leadership prototypes (see Schyns & Meindl, 2005), and that group members who more clearly embody these prototypes are more likely to be endorsed as leaders (Spisak, Homan, et al., 2012). According to this perspective, the type of leadership that is required and preferred varies with the demands of the situation (Van Vugt & Grabo, 2015), with cooperative relationships calling for leadership styles that emphasize "soft" qualities such as empathy, altruism, and concern for others, and competitive relations (particularly with outgroups such as rivaling organizations) calling for leadership styles that emphasize "tough" qualities associated with dominance (De Dreu

et al., 2012; Spisak, Dekker, et al., 2012). This suggests that any effects of risk-taking on perceptions of dominance should translate into leadership endorsement only or especially in the context of intergroup competition (as compared to cooperation). This is because having a dominant leader is particularly adaptive in the face of intergroup competition, where a leader's dominance may increase the likelihood of one's own group or organization prevailing over others. We therefore propose:

Hypothesis 4: Perceptions of dominance engendered by risk-taking elicit more leadership endorsement in the context of intergroup competition rather than cooperation.

Overview of the Present Studies

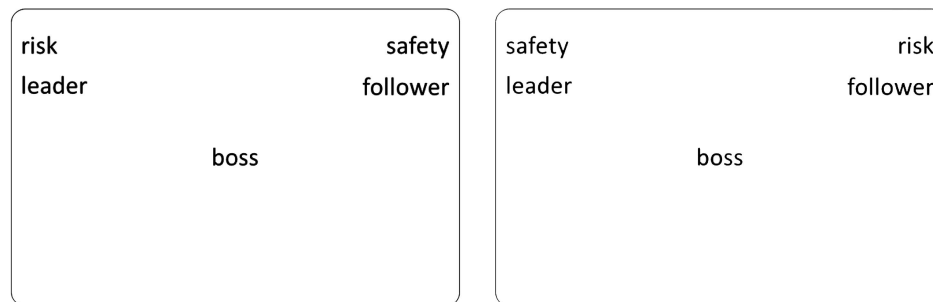
Our theoretical model and hypotheses are graphically depicted in Figure 1. We tested these hypotheses in four studies, which involved different methods and procedures. In Study 1, we used an implicit association test (IAT) to gain initial insight into people's associations between risk-taking and leadership. In Study 2, we conducted a longitudinal field survey to examine how voters' perceptions of political candidates' risk-taking propensities prior to national political elections influence perceptions of candidates' dominance and prestige, voting intentions, and voting behavior during the elections. In Study 3, we used an experimental approach to examine causal effects of risk-taking on dominance, prestige, and leadership endorsement. Moreover, based on the idea that dominance is most adaptive in competitive intergroup settings, we investigated whether the relationship between risk-taking and leadership endorsement is modulated by the cooperative versus competitive nature of the organizational context, and we examined the mediating role of dominance and prestige. Finally, in Study 4 we used the same experimental approach as in Study 3 to examine whether the observed effects generalize from male to female risk-takers. All studies were conducted in accordance with APA regulations, and approved by the IRB of the Department of Psychology of the University of Amsterdam [IRB protocol numbers: 2014-SP-3552 (Study 1), 2019-SP-11152 (Study 2); 2016-SP-7167 (Study 3), and 2019-SP-11172 (Study 4)]. Sample sizes were determined prior to each study, and no statistical analyses were performed until all data were in. In cases where observations were dropped from the sample this is explicitly noted, and alternative analyses including these observations are reported in the [online supplement](#) to this paper.

Study 1

As a preliminary step in our empirical analysis, we examined general associations people hold between risk-taking and leader versus follower roles. An established procedure for uncovering such associations is the implicit association test (IAT), which assesses the strength of associations between different categories (Greenwald et al., 1998). In an IAT, category labels are displayed on either side of the computer screen (see Figure 2). Participants are asked to categorize target words in the middle of the screen as belonging either to the categories on the left side or to the categories on the right side as quickly and accurately as possible. A strong association between two of the categories (e.g., risk and leadership) results in

Figure 2

Example Screens From the Implicit Association Test (IAT) Conducted in Study 1



reduced reaction times and fewer errors when the categories are presented on the same side of the screen (as in the left panel of Figure 2) rather than on different sides (as in the right panel of Figure 2). Although the IAT is best known for its use in research on implicit prejudice and other valenced associations, it can be used to study any type of implicit association, including associations with leadership (Gündemir et al., 2014). Here we used the IAT to examine implicit associations between risk-taking and leadership.

Method

Participants

A total of 140 participants enrolled in the study for course credit or monetary compensation (2.50EUR, approx. 2.75USD). The vast majority of participants ($n = 133$) were undergraduate students from the University of Amsterdam, where the study was conducted. Four participants were excluded from the sample prior to the analyses (three of them were intoxicated and one was not a native speaker of Dutch, which is the language in which the study was administered). The final sample thus consisted of 136 participants (93 women, 43 men, $M_{\text{age}} = 22.46$, range 18–47).

Stimuli

We used five words typically associated with leadership roles (boss, supervisor, executive, authority, and leader) and five words typically associated with follower roles (helper, assistant, subordinate, aid, and follower), which have been successfully used in prior

IAT studies (Gündemir et al., 2014; also see Rudman & Kilianski, 2000).

Because we could not locate any previous IAT studies on risk-taking, we conducted a pilot study to inform our selection of risk-related words. Nineteen undergraduate students indicated the extent to which they felt that each of 16 risk-related words and each of 16 safety-related words retrieved from an online thesaurus is central to risk-taking and safety, respectively (1 = *strongly disagree*, 7 = *strongly agree*). Next, participants were asked to rank-order the five items that they saw as most central to the two categories. Based on participants' average ratings and rankings, we selected five words to represent risk (risky, hazardous, daring, dangerous, and reckless) and five words to represent safety (sure, safe, careful, thoughtful, and cautious).

Procedure

The experiment was administered on computers in the university laboratory, where participants were seated in individual cubicles. The IAT was adapted from Gündemir et al. (2014), using guidelines specified by Greenwald et al. (1998, 2003). The IAT consisted of seven blocks (see Table 1), in each of which participants were asked to categorize stimulus words in the left or right categories (see Figure 2) by pressing the Q or P key on the computer keyboard. In Block 1 (20 practice trials), participants were instructed to categorize risk- and safety-related words. In Block 2 (20 practice trials), participants similarly categorized leader roles and follower roles. In Blocks 3 (20 test trials) and 4 (40 test trials), the risk- and safety-related adjectives and the leader and follower roles were combined.

Table 1

Overview of the Seven Blocks of the Implicit Association Test (IAT) Employed in Study 1

Block	No. of Trials	Function	Discrimination	Items assigned to left key response ("Q")	Items assigned to right key response ("P")
1	20	Practice	Risk versus safety	Risk	Safety
2	20	Practice	Leader versus follower role	Leader role	Follower role
3	20	Test	Combined	Risk + leader role	Safety + follower role
4	40	Test	Combined	Risk + leader role	Safety + follower role
5	40	Practice	Risk versus safety (reversed)	Safety	Risk
6	20	Test	Combined (reversed)	Safety + leader role	Risk + follower role
7	40	Test	Combined (reversed)	Safety + leader role	Risk + follower role

Note. Left (Q) and right (P) key assignment and the order of Blocks 3 and 4 and Blocks 6 and 7 were counterbalanced.

Participants were asked to press Q when a target word belonged to either the category risk or the category leader, and to press P when a stimulus word belonged to either the category safety or the category follower. Key responses in these blocks were combined such that the categories risk and leader shared one key, and the categories safety and follower shared the other key. In Block 5 (20 reversed practice trials), participants again discriminated between risk- and safety-related words, but now the key assignments were reversed (Q for safety and P for risk). In Blocks 6 (20 reversed combined test trials) and 7 (40 reversed combined test trials), all four categories were again combined (cf. Blocks 3 and 4), but now the categories were combined in the opposite way. That is, participants pressed Q to indicate that a stimulus word belonged to either the category safety or the category leader, and they pressed P if it belonged to either the category risk or the category follower. Left (Q) and right (P) key assignment as well as the order of Blocks 3/4 and Blocks 6/7 was counterbalanced.

Results

IAT scores were calculated using the improved D600 scoring algorithm developed by Greenwald et al. (2003). Thus, after treatment of extreme values, the difference of mean response times for leader/risk and follower/safety versus leader/safety and follower/risk trials was computed by subtracting the average response time on Block 3 from the average response time on Block 6, and subtracting the average response time on Block 4 from the average response time on Block 7 (see Table 1). Each difference was divided by its pooled standard deviation as calculated based on the response times after deletion of extreme scores, but before imputation of incorrect trials. The average of these two indices constitutes the individual IAT score, D . Positive values of D indicate stronger associations between leader roles and risk and follower roles and safety relative to leader roles and safety and follower roles and risk, whereas negative values indicate the opposite pattern. We observed a significant positive IAT score, $D = 0.37$, 95% CI [0.27, 0.48], $t(135) = 6.94$, $p < .001$. This shows that participants held stronger implicit associations between risk and leader roles and between safety and follower roles than between risk and follower roles and between safety and leader roles.

Discussion

The data of this first study indicate that individuals harbor implicit associations between risk and leader roles, and between safety and follower roles. The results thus provide initial evidence of a relationship between risk-taking and leadership, lending suggestive support to Hypothesis 1a rather than Hypothesis 1b. However, the implicit associations uncovered here do not allow for conclusions about whether and when individuals may be willing to endorse risk-seeking or risk-avoiding individuals as leaders. If people generally associate risk-taking with leadership, as the data indicate, then it is conceivable that risk-takers are endorsed as leaders in real-life situations, but clearly this assumption begs empirical substantiation. Furthermore, the data of Study 1 do not speak to perceptions of dominance and prestige, which we contend are central to understanding when and why risk-takers are afforded leadership. Finally, these data do not allow for directional conclusions; they merely demonstrate associations between risk-taking and leadership. We addressed these issues in Studies 2 to 4.

Study 2

The primary goal of Study 2 was to examine whether risk-takers are more (Hypothesis 1a) or less (Hypothesis 1b) likely to be endorsed as leaders in real life. A secondary goal of Study 2 was to gain insight into the effects of risk-taking on perceived dominance (Hypothesis 2) and prestige (Hypothesis 3). To accomplish these goals, we conducted a field study in the context of the September 2019 Israeli political elections, in which we measured voters' perceptions of the various candidates' risk-taking propensities, dominance, prestige, and voting behavior.

Method

Participants and Design

A total of 375 adult Israeli citizens who had voted in the previous elections (held in April 2019) were recruited from the Israeli Internet Panel (iPanel), which comprises individuals from across the full spectrum of political orientations. Those who did not pass an attention check (see below) were excluded from the sample prior to the analyses, leaving a sample of 270 respondents (126 women, 144 men, $M_{\text{age}} = 44.56$, range 18–71). We collected data at two time points. At Time 1 (prior to the elections), we measured perceived risk-taking, dominance, prestige, and voting intentions; at Time 2 (after the elections), we assessed whom respondents had voted for, which yielded usable data for 198 (73.3%) of the original 270 participants (three additional participants voted for a candidate we did not collect data for at Time 1).

Materials and Procedure

At T1, 3 weeks before the elections, participants completed an online survey in which they answered questions about each of the nine leaders of the parties that were most likely to pass the percentage threshold and to form the next Israeli Parliament, which were presented in random order. Next, participants provided demographic information and indicated their political orientation. At T2, the day after the elections, we contacted participants again and asked who they had voted for. We sent participants reminders, if needed, before closing the survey 2 weeks after the elections.

T1 Survey

Measuring Risk-Taking

We measured respondents' perceptions of the political candidates' risk-taking propensities using two questions adapted from Meertens and Lion' (2008) risk propensity scale: "To what degree does [name of candidate], the leader of [name of party], tend to take risks/avoid taking risks" (0 = *not at all* to 100 = *very much*). The candidate-level correlation between these two items (the second being reverse-scored) ranged from .11 to .65, with a mean of $r = .43$.

Measuring Perceived Dominance and Prestige

Perceived dominance and prestige were measured using validated scales developed by Cheng and colleagues (2010; peer-report versions). The dominance scale consisted of eight items (e.g., "S/he is willing to use aggressive tactics to get his/her way," "S/he

does not have a forceful or dominant personality [reverse-scored],” “Others know it is better to let him/her have his/her way,” “Some people are afraid of him/her”). Candidate-level alphas ranged from .86 to .91 (mean $\alpha = .89$).

The prestige scale consisted of nine items (e.g., “Members of his/her group respect and admire him/her,” “Members of his/her group do not want to be like him/her” [reverse-scored], “S/he is held in high esteem by members of the group,” “His/her unique talents and abilities are recognized by others”). Participants responded to the items on 7-point scales (1 = *not at all* to 7 = *very much*). Candidate-level alphas ranged from .84 to .90 (mean $\alpha = .86$). For the full scales, see Cheng et al. (2010).

Measuring Intended Leadership Endorsement (Voting Intentions)

We measured the extent to which participants would be willing to vote for the candidate with two questions. “What is the likelihood that you will vote for the party that [candidate name] is leading” and “what is the likelihood that you will vote for [name of party]” (0 = *not at all* to 100 = *very much*). Correlations between the two items ranged from .83 to .91 (mean $r = .89$). We did not aggregate these measures because they were modeled directly using a mixed-effect model (see below).

Control Variables

In addition to gender and age, we collected data on respondents’ education level and social-economic status. We also measured respondents’ perceptions of the candidates’ extraversion (Gosling et al., 2003) to rule out that any effects of risk-taking would be driven by perceived extraversion rather than risk-taking per se. Controlling for these factors in the analyses did not change the results and conclusions (details of analyses with the controls are presented in the [supplementary materials](#)).

Attention Check

Toward the end of the survey, we included an attention check. Respondents read: “Research in psychology and decision making shows that when making decisions and answering questions, people prefer not to pay attention and minimize their effort. Some research

shows that over 50% of people do not read questions carefully. If you are reading this question and have read all the other questions, select the ‘other’ checkbox and type ‘2nd chance election’ in the box below. Thank you for your participation and for taking the time to read the questions carefully!” Participants were then asked what they thought the study was about, and could choose among the following options: (a) leadership and politics, (b) personality and voting patterns, (c) risk-taking and political positions, and (d) other, namely... (where they could write the requested response).

T2 Survey

Measuring Actual Leadership Endorsement (Voting Behavior)

One day after the elections, respondents were asked to indicate which party they voted for, which constituted our measure of actual leadership endorsement for the respective party leaders.

Results

Analytical Approach

Unless stated otherwise, we used (generalized) mixed-effect models to analyze the T1 data to account for the nested structure of the data, using crossed random intercepts for candidates (9 levels) and participants (270 levels), and random per-participant slopes for the explanatory variables. To be able to test the significance of the fixed effects, we calculated p values using Satterthwaite’s df correction, which adjusts the denominator degrees of freedom associated with the fixed effects for the estimation of random effects. This procedure yields close-to-nominal Type 1 error rates, and is the default correction applied by the lmerTest package for R (version 3.1.0; Kuznetsova et al., 2017).

Descriptive Statistics

Means and standard deviations of the study variables per candidate are reported in Table 2. Correlations (ranges and averages across candidates) are shown in Table 3.

Table 2
Means and Standard Deviations of the Main Variables of Study 2 Per Candidate

Candidate	Risk-taking		Dominance		Prestige		Voting intention		Actual voting	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Netanyahu	55.65	29.09	5.64	1.32	5.27	1.06	37.76	36.28	0.20	0.40
Deri	60.50	26.61	5.33	1.32	4.14	1.16	9.13	20.26	0.01	0.12
Gantz	47.29	27.40	3.58	1.32	4.41	1.19	32.49	35.12	0.20	0.40
Horowitz	47.81	20.50	3.53	1.20	3.80	1.03	10.63	19.83	0.03	0.17
Lieberman	69.66	26.78	5.58	1.23	3.84	1.20	15.82	24.44	0.03	0.17
Litzman	49.30	26.05	4.58	1.47	4.14	1.09	11.59	24.61	0.07	0.26
Odeh	51.18	26.01	4.44	1.23	3.37	1.06	1.91	7.24	0.00	0.00
Peretz	52.17	23.13	3.74	1.21	4.07	0.95	16.56	23.92	0.07	0.26
Shaked	67.11	21.24	4.23	1.37	4.97	1.02	29.13	30.83	0.11	0.31

Note. The mean of actual voting is the proportion of participants voting for this candidate. The accompanying *SD* should be ignored as it is meaningless given the binary nature of the variable.

Table 3
Average and Range (Within Brackets) Across Candidates of Correlations Between the Main Variables of Study 2

	1	2	3	4
1. Risk-taking				
2. Dominance	0.17 [-0.08, 0.34]			
3. Prestige	0.18 [-0.00, 0.36]	-0.14 [-0.26, -0.03]		
4. Voting intention	0.12 [-0.04, 0.25]	-0.30 [-0.51, -0.15]	0.36 [0.18, 0.49]	
5. Actual voting	0.05 [-0.11, 0.13]	-0.17 [-0.30, -0.10]	0.18 [0.04, 0.28]	0.53 [0.35, 0.70]

Note. Correlations involving actual voting were calculated for eight candidates, because candidate Odeh was never voted for by our sample, eliminating the variance necessary for calculating correlations.

Intended Leadership Endorsement (Voting Intentions)

Voting intentions followed a non-normal distribution that could not be corrected using a transformation. Specifically, we observed many zeroes, and an almost uniform distribution above zero. We therefore used a mixed-effect logistic model, and modeled the two voting intention items directly as observations nested under participants. In essence, the logistic model estimates probability of “successes”, in this case intending to vote for a candidate. This approach was preferred over alternatives such as dichotomizing voting intentions or creating a four-level ordinal variable, because it retains all the variance in the original data without necessitating any arbitrary cut-offs (analyses using these alternative approaches yielded the same conclusions). The model parameters are reported as odds ratios (*ORs*), indicating the change in likelihood of intending to vote for a candidate depending on 1-unit changes in the (z -transformed) explanatory variables. *ORs* > 1 reflect an increase, and *ORs* between 0 and 1 a decrease in likelihood of voting for a candidate. The logistic mixed-effect model revealed a positive association between perceived risk-taking and voting intentions. A 1 *SD* increase in a candidate’s perceived risk-taking predicted an increased likelihood of intending to vote for that candidate of $OR = 1.80$, Wald’s $z = 5.28$, $p < .001$. This result is consistent with [Hypothesis 1a](#) and inconsistent with [Hypothesis 1b](#).

Actual Leadership Endorsement (Voting Behavior)

We examined whether the candidates’ perceived risk-taking as measured at T1 predicted respondents’ voting behavior at T2. The complete interdependence between the options (i.e., voting for one candidate precludes voting for another) required using a different modeling approach than for the voting intentions. We used the multinomial logit model (as implemented in the *mlogit* package for R, version 1.0-1; [Croissant, 2019](#)), which was developed specifically for such choice tasks. It models individuals’ choices between multiple alternatives (i.e., candidates) as a function of the attributes of those options (i.e., their perceived risk-taking propensities). Importantly, these attributes can vary between individuals, and thus we could use each respondent’s T1 data as the attributes in their unique choice situation. Because one candidate was never voted for by any of our respondents, we excluded the perception data pertaining to this candidate. The *mlogit* model also allows for (correlated) per-participant random slopes, which we included. Compared to a null, intercept-only model, adding perceived risk-taking as a predictor of voting behavior improved model fit ($\Delta AIC = -6.73$). Perceiving a candidate’s risk-taking as 1 *SD* higher increased the likelihood of voting for that candidate by

$OR = 1.34$, Wald’s $z = 2.82$, $p = .005$. Thus, these findings completely mirror the results for voting intentions described above, favoring [Hypothesis 1a](#) over [Hypothesis 1b](#).

Dominance and Prestige

In line with [Hypothesis 2](#), a linear mixed-effect model showed a positive association between candidates’ perceived risk-taking and dominance, $\beta = 0.17$, $t(286.63) = 6.41$, $p < .001$. In line with [Hypothesis 3](#), a separate linear mixed-effect model showed a positive association between candidates’ perceived risk-taking and prestige, $\beta = 0.16$, $t(269.67) = 5.84$, $p < .001$.

Mediation Analysis

The *mlogit* model is not suitable for testing mediation. This means that we could not test mediated effects of risk-taking on leadership endorsement via dominance and prestige using voting behavior. We therefore tested mediation using voting intentions, while acknowledging that the cross-sectional nature of these data precludes conclusions about causality. We obtained confidence intervals for the indirect effects using parametric bootstrapping (25,000 resamples), conditional on the random effects, which is the recommended approach for generalized (in this case: logistic) mixed-effect linear models ([Bates et al., 2014](#)). To avoid convergence issues, we reduced model complexity by not including any random slopes while bootstrapping.¹

The results of this analysis are displayed in [Figure 3](#). We found evidence for indirect paths from risk-taking to voting intentions via both dominance and prestige. Specifically, we found that risk-taking simultaneously *decreased* the likelihood of intending to vote for a candidate by increasing dominance perceptions (indirect $OR = 0.83$, 95% CI 0.80 to 0.87), and *increased* the likelihood of intending to vote for a candidate by increasing prestige perceptions (indirect $OR = 1.27$, 95% CI 1.21 to 1.34).

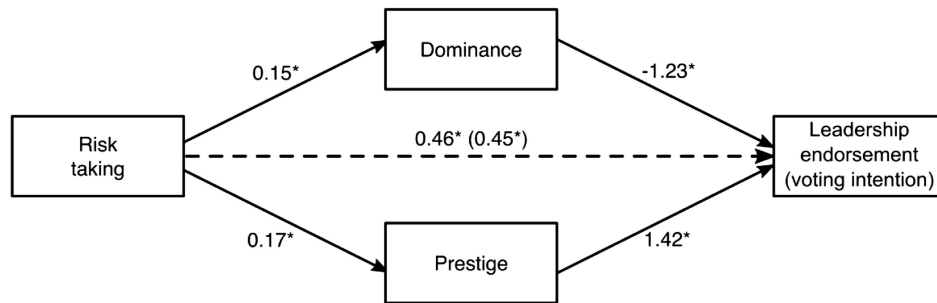
Discussion

Study 2 replicated and extended the findings of Study 1 in several ways. First, we obtained converging evidence for a positive association between risk-taking and leadership in a meaningful real-life

¹ We also modeled voting intentions with fully correlated random per-participant slopes. The coefficient estimates for risk-taking ($OR = 1.64$), dominance ($OR = 0.27$), and prestige ($OR = 6.39$) are identical in direction and similar in magnitude to those obtained from the model without random slopes.

Figure 3

Multi-Level Multiple Mediation Analysis of the Relation Between Political Candidates' Risk-Taking and Voters' Leadership Endorsement (Voting Intentions) in Study 2



Note. Coefficients pertaining to effects of risk-taking on dominance and prestige are betas, other coefficients are log(ORs). The coefficients for the path from risk-taking to leadership endorsement represent the direct effect (c) and the effect when controlling for the mediators (c' , within parentheses). Asterisks indicate that the bootstrapped 95% CI of the associated coefficient does not contain 0 (25,000 resamples). Betas and associated confidence intervals of the indirect effects were -0.19 [$-0.23, -0.14$] ($OR = 0.83$ [$0.80, 0.87$]) for dominance and 0.24 [$0.19, 0.29$] ($OR = 1.27$ [$1.21, 1.34$]) for prestige.

setting—national political elections—providing additional support for **Hypothesis 1a** rather than **Hypothesis 1b**. Importantly, moving beyond the cross-sectional associations observed in Study 1, we demonstrated that political candidates' perceived risk-taking propensities prior to political elections predicted votes for those candidates during the elections, thus providing evidence that risk-taking can promote leadership endorsement. Finally, we obtained initial evidence for the hypothesized roles of dominance and prestige: In line with our predictions, risk-taking was positively associated with perceptions of both dominance (supporting **Hypothesis 2**)—which decreased voting intentions—and prestige (supporting **Hypothesis 3**)—which increased voting intentions. These results illustrate the anticipated tension in the effects of risk-taking on leadership endorsement via dominance versus prestige. Still, this study has its limitations. First, although the longitudinal design allowed us to rule out reverse causality (i.e., leadership endorsement at T2 cannot predict perceived risk-taking at T1), the current data do not allow for firm causal conclusions because the operation of unmeasured third variables cannot be excluded. Second, due to length restrictions we used a rather short (two-item) measure of risk-taking propensity. Third, we did not measure respondents' perceptions of the election context; hence we have no insight in how respondents interpreted the situation in terms of cooperation versus competition. To address these limitations, we adopted an experimental approach in Studies 3 and 4.

Study 3

The results of Study 2 indicate that risk-taking can increase both dominance and prestige. Our theoretical model (Figure 1) holds that prestige generally increases leadership endorsement whereas dominance generally decreases it, because people tend to be reluctant to endorse dominant individuals as leaders (Lukaszewski et al., 2016). This means that the effects of risk-taking on dominance and prestige work against each other in shaping leadership endorsement, as evidenced by the mediation analysis of Study 2. Consequently, the impact of risk-taking on leadership endorsement should depend on the degree to which risk-takers are perceived as dominant and/or

prestigious and on the degree to which dominance and prestige are adaptive in a given social-organizational context. Given that prestige is a fairly consistent positive predictor of leadership endorsement whereas dominance only inspires leadership endorsement under particular circumstances (Cheng, 2020), the endorsement a risk-taker receives should hinge on the degree to which dominant leaders are appreciated in a given situation. In Study 3, we test our prediction that individuals are more likely to endorse risk-takers as leaders in the face of intergroup competition, where a dominant leader may help the group prevail over competing groups (Hypothesis 4).

Method

Participants and Design

We recruited 150 psychology undergraduates from the University of Amsterdam to participate in the study, which was administered online and compensated with course credit. One participant was excluded because of a negative person-total correlation (Huang et al., 2015), which was the only a-priori exclusion criterion. The final sample consisted of 34 men and 115 women ($M_{age} = 20.42$, range 18–28). Participants were randomly assigned to one of two between-subjects conditions (risk: low or high). For the contextualized leadership endorsement measure (see below), the formal design was a 2 (risk: low or high) \times 2 (context: intergroup cooperation or intergroup competition), with context as a within-participants factor.

Materials and Procedure

Participants were asked to form an impression of a target person based on a description that was modeled after LinkedIn profiles. The manipulations of risk and competitiveness of the context were embedded in the descriptions and items, as described below. We used a new leadership endorsement measure to tap context-specific leadership endorsement. This contextualized leadership endorsement measure was presented directly after the manipulations, followed by the measures of dominance and prestige.

Table 4
Items Used to Measure Contextualized Leadership Endorsement in Study 3

Context	Item
<i>To what extent would you endorse this person as front runner of a political party . . .</i>	
Cooperative	. . . when compromises must be found with other parties to form a government?
Competitive	. . . in fierce debates with other parties?
<i>To what extent would you endorse this person as captain of a sports team . . .</i>	
Cooperative	. . . when a collaborative event must be organized together with other teams to collect money for charity?
Competitive	. . . when the team is playing the finals of the national competition?
<i>To what extent would you endorse this person as president of an association of home owners . . .</i>	
Cooperative	. . . when the timing of large maintenance works on the shared roof must be coordinated with the manager of the adjacent restaurant?
Competitive	. . . when a conflict has arisen with local pubs about noise disturbance?
<i>To what extent would you endorse this person as CEO of a large oil company . . .</i>	
Cooperative	. . . when cooperation with governments is required to find alternatives for fossil fuels?
Competitive	. . . when new oil fields have been discovered, and it is important to exploit these before other companies do?
<i>To what extent would you endorse this person as ambassador of an animal welfare organization . . .</i>	
Cooperative	. . . when agreements must be reached with large pig farms about a reduction of factory farming?
Competitive	. . . when a campaign is to be held aimed at banning intensively-farmed broiler chicken from the supermarkets once and for all?

Manipulating Risk-Taking

Participants were presented with a LinkedIn-type profile of a person named Steven. In his profile, Steven provided information about himself that depicted him as either a risk-taker or a risk avoider. In the risk-taker condition, Steven's life motto was "No guts, no glory"; he moved to a different city unprepared; he was self-employed; and he listed downhill mountain biking as his hobby. In the risk-avoider condition, Steven's life motto was "Better safe than sorry"; he had asked friends in his new city to look for homes before moving; he had a secure contract; and he listed spinning as his hobby. Other than these differences, the vignettes were identical in every way (e.g., same city, same job description, same amount of responsibility, same length).

Manipulating Context

Context was manipulated within participants through systematic variations in the framing of the leadership endorsement items. This enabled us to examine responses to risk-takers in cooperative and competitive intergroup contexts (see below).

Measuring Leadership Endorsement

We measured contextualized leadership endorsement by asking participants to indicate their endorsement for the protagonist for five different leadership roles: front-runner of a political party, captain of a sports team, president of an association of homeowners, CEO of a large oil company, and ambassador of an animal welfare organization. For each role, we asked participants to what extent they would endorse the protagonist as a leader in a cooperative intergroup context and in a competitive intergroup context. The stem of the leadership endorsement measure was adapted from the validated leadership endorsement measure developed by Rast et al. (2012, item 2). The scale items themselves were developed based on established definitions of cooperative and competitive intergroup contexts and criteria for capturing characteristics of the respective contexts proposed by Stangor (2016). Thus, items measuring leadership endorsement in cooperative intergroup contexts described situations in which the leader would have to establish cooperative relations with other parties for the distribution of resources (e.g., "To what extent would you

endorse this person as CEO of a large oil company when cooperation with governments is required to find alternatives for fossil fuels?"). Items tapping leadership endorsement in competitive contexts described situations in which the leader would have to represent the group's interests in competition over scarce resources (e.g., "To what extent would you endorse this person as CEO of a large oil company when new oil fields have been discovered, and it is important to exploit these before other companies do?"; 1 = *not at all* to 7 = *very much so*). Table 4 lists the full set of items.²

Measuring Dominance and Prestige

Perceived dominance and prestige were again assessed using the peer-report versions of Cheng et al.'s (2010) dominance ($\alpha = .90$) and prestige ($\alpha = .84$) measures (see Study 2 for details).

Manipulation Checks

We used a four-item scale to check the effectiveness of the risk manipulation ("Steven is a risk-taker," "Steven is someone who always plays it safe" [reverse-scored], "Steven likes to take a gamble", and "Steven tends to choose certainty over uncertainty" [reverse-scored]; 1 = *not at all* to 7 = *very much so*; $\alpha = .96$). We checked the context manipulation by asking to what extent each of the combinations of roles and contexts we used to measure contextualized leadership endorsement was seen as reflecting a cooperative versus competitive situation (1 = *strongly cooperative*, 4 = *equally cooperative and competitive*, 7 = *strongly competitive*).

Results

Descriptive Statistics

Means and standard deviations of the dependent variables per condition are reported in Table 5; grand means, accompanying

² We also included items measuring leadership endorsement in a cooperative intragroup context (e.g., "To what extent would you endorse this person as CEO of a large oil company when the company's strategy for the coming period must be decided on during a meeting with the board of directors?"). Details and analyses pertaining to these items are reported in the online supplement.

Table 5
Means and Standard Deviations by Condition of the Dependent Variables of Study 3

Measure	Low risk		High risk	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Risk MC	2.10	1.13	6.06	0.95
Dominance	3.52	1.05	4.41	1.38
Prestige	4.14	0.82	4.55	0.93
LE in competitive intergroup context	3.08	1.04	4.37	1.15
LE in cooperative intergroup context	3.96	0.83	3.73	0.90

Note. MC = manipulation check, LE = leadership endorsement.

standard deviations, and zero-order correlations are shown in Table 6.

Manipulation Checks

As intended, the candidate was perceived as taking more risks in the high-risk condition than in the low-risk condition (see Table 5 for *M* and *SD*), $t(142.00) = 23.07, p < .001, d = 3.78$. Thus, the risk manipulation was successful.

To check the context manipulation, we analyzed the perceived competitiveness (vs. cooperativeness) of the different situations embedded in the leadership endorsement measure. The linear mixed-effect model included random intercepts for participant and leadership role, per-role random slopes for context, and fixed effects for the risk manipulation, context, and their interaction. Including these random effects allowed us to focus on the effects of interest, while statistically controlling for any noise stemming from the specific items we used (which could either inflate or obscure effects of interest). We report *F* tests (with Type II errors), again using Satterthwaite’s approximation for denominator degrees of freedom for the fixed effects, and beta coefficients and their associated 95% confidence intervals (based on Markov Chain Monte Carlo resampling using the bootMer method, 10,000 simulations) for the contrasts of interest. The analysis revealed a main effect of context, $F(2, 4) = 28.81, p = .004$. As intended, the competitive intergroup situation was perceived as more competitive (marginal *M* = 5.42, *SE* = 0.26) than the cooperative intergroup situation (marginal *M* = 3.14, *SE* = 0.31; $t[4] = 5.31, p = .006$).

Table 6
Overall Means, Standard Deviations, and Correlations of the Dependent Variables of Study 3

	<i>M</i>	(<i>SD</i>)	1	2	3	4
1. Risk MC	4.09	(2.24)				
2. Dominance	3.97	(1.30)	.39*			
3. Prestige	4.35	(0.90)	.30*	.22*		
4. LE in competitive intergroup context	3.73	(1.27)	.57*	.65*	.44*	
5. LE in cooperative intergroup context	3.84	(0.87)	-.15	-.05	.39*	.22*

Note. MC = manipulation check, LE = leadership endorsement.
* denotes $p < .05$.

Dominance and Prestige

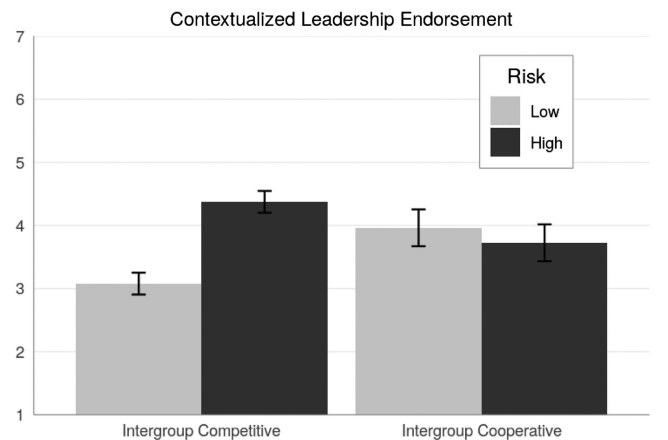
As in Study 2, risk-taking positively predicted both perceived dominance, $t(137.78) = 4.46, p < .001, d = 0.73$ and prestige, $t(145.23) = 2.87, p = .005, d = 0.40$, supporting Hypotheses 2 and 3.

Leadership Endorsement

We predicted in Hypothesis 4 that perceptions of dominance engendered by risk-taking elicit more leadership endorsement in the context of intergroup competition rather than intergroup cooperation. Full support for this hypothesis would require a significant interaction between risk-taking and context, a significant positive simple effect of risk-taking on leadership endorsement within the competitive intergroup context, and a significant positive indirect effect of risk-taking on leadership endorsement via dominance in the competitive intergroup context.

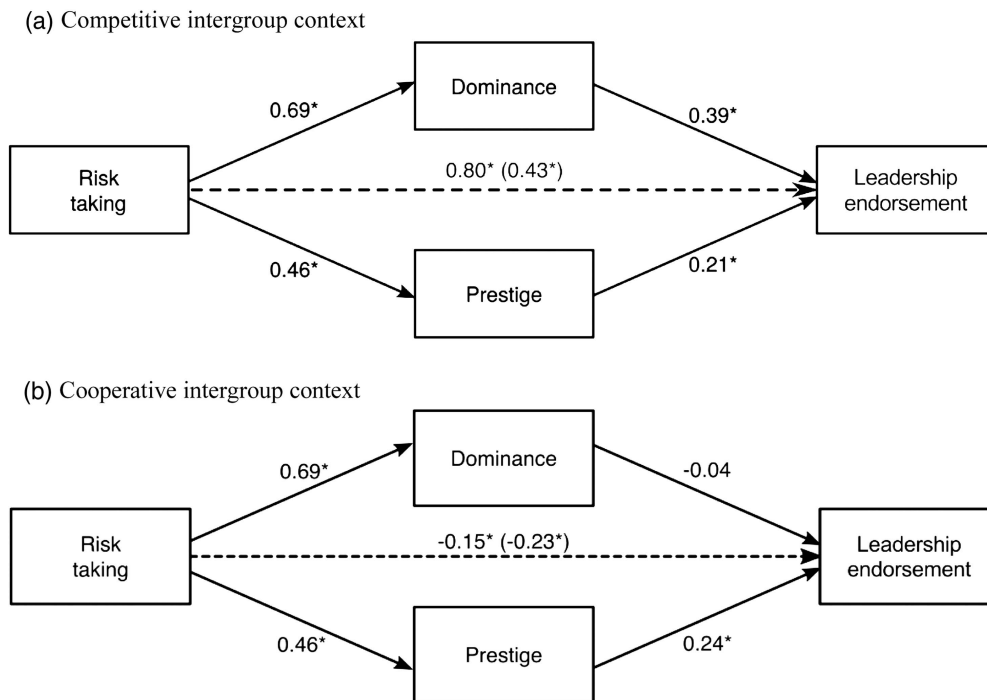
To test this, we first analyzed the context-specific leadership endorsement measures using a linear mixed-effect model that included random intercepts for participant and leadership role, per-role random slopes for context, and fixed effects for the risk manipulation, context, and their interaction. We found a significant main effect of risk ($F[1, 147] = 12.26, p = .001$), no significant effect of context ($F[2, 4.48] = 4.64, p = .081$), and—as predicted—a significant interaction, $F(2, 2074) = 62.78, p < .001$. The interaction pattern, which is depicted in Figure 4, shows that risk-taking differentially impacted leadership endorsement depending on the competitiveness of the context. As hypothesized, in the competitive intergroup context, participants reported greater endorsement for the risk-taker than for the risk avoider, $t(280.61) = 8.55, p < .001$, whereas risk-taking did not significantly influence endorsement in the cooperative intergroup context, $t(280.61) = -1.56, p = .119$.

Figure 4
Leadership Endorsement as a Function of Risk-Taking and Context in Study 3



Note. Error bars indicate standard errors associated with the plotted marginal means.

Figure 5
Multi-Level Multiple Moderated Mediation Analysis of the Effect of Risk-Taking on Leadership Endorsement via Dominance and Prestige in Competitive (Panel A) and Cooperative (Panel B) Intergroup Contexts in Study 3



Note. Coefficients are standardized betas. The coefficients for the path from risk-taking to leadership endorsement represent the direct effect (c) and the effect when controlling for the mediators (c' , within parentheses). Asterisks indicate that the bootstrapped 95% CI of the associated coefficient does not contain 0 (250,000 resamples). Betas and associated confidence intervals of the indirect effects in the competitive context were 0.27 [0.15, 0.40] for dominance and 0.10 [0.03, 0.17] for prestige; in the cooperative context, -0.03 [$-0.08, 0.01$] for dominance and 0.11 [0.04, 0.19] for prestige.

Mediation Analysis

To examine whether dominance and/or prestige mediated the effect of risk-taking on leadership endorsement, we conducted two multiple mediation analyses (one for each context). To account for the nested structure of the dependent variable (five items which were nested under participants), we used a multi-level mediation approach proposed by Krull and MacKinnon (2001; the 2-2-1 model), and we bootstrapped the indirect effect by resampling the residuals (cf. Pituch et al., 2006; 25,000 resamples). Results of the analysis are presented in Figure 5. As can be seen, there were significant indirect effects via prestige in both contexts, with path coefficients of similar magnitude in both conditions.³ Conversely, and in keeping with Hypothesis 4, dominance only mediated the effect of risk-taking on leadership endorsement in the competitive intergroup context, where it was a considerably stronger mediator than prestige.⁴

Discussion

Study 3 replicated and extended the findings of Studies 1 and 2 by providing causal evidence for the hypothesized effects of risk-taking on dominance, prestige, and leadership endorsement. Furthermore, these data illustrate how the tension between prestige signals (which

generally increase leadership endorsement) and dominance signals (which generally decrease leadership endorsement) emitted by risk-taking is resolved in competitive intergroup relations. Whereas prestige was a positive predictor of leadership endorsement in both cooperative and competitive intergroup settings, dominance only positively predicted leadership endorsement in competitive intergroup settings. Accordingly, participants were willing to endorse risk-takers as leaders in the context of intergroup competition (where dominance is an asset), but not in the context of intergroup cooperation (where dominance is a hindrance). These results support our hypothesis derived from the evolutionary

³ We used different statistical procedures for testing the direct effects of risk-taking on leadership endorsement within the cooperative and competitive contexts and the indirect effects of risk-taking on leadership endorsement via dominance and prestige within the cooperative and competitive contexts in our mixed-effects models. This is because Satterthwaite approximations for degrees of freedom provide the best estimation in the former case (Luke, 2017), whereas bootstrapping of residuals provides the best estimation in the latter case (Pituch et al., 2006).

⁴ We conducted additional multiple mediation analyses in which we used the average of the five items measuring leadership endorsement in competitive intergroup contexts and leadership endorsement in cooperative intergroup contexts as the dependent variables. This analysis produced similar results as the multilevel analyses, both in Study 3 and in Study 4. Further details are available upon request.

approach to leadership (Van Vugt et al., 2008) that risk-takers are more likely to be endorsed as leaders in times of intergroup competition, because the dominance that risk-takers radiate is appreciated when one's group must be represented in intergroup conflict.

What remains unclear is whether these effects hold similarly for male and female risk-takers. Evolutionary theorists have argued that risk-taking is an "attribute of the masculine psychology" (Wilson & Daly, 1985, p. 66) that evolved as an adaptation to the competitive demands of primate societies. Indeed, previous research has found that men are more risk-prone than women (Byrnes et al., 1999). Although our theoretical model makes no predictions about gender, these considerations beg the question of whether the results observed thus far pertain to male and female risk-takers alike. This question is particularly pertinent in light of the fact that male and female leadership prototypes are different, with the male leader prototype emphasizing agency and the female prototype emphasizing communion (Scott & Brown, 2006), and men generally being more likely to be endorsed as leaders than women (Eagly et al., 1992). In Study 4, we therefore explored whether the effects of risk-taking on perceived dominance, prestige, and leadership endorsement generalize from male to female risk-takers.⁵

Study 4

The purpose of our final study was threefold. First, we set out to replicate the causal effects of risk-taking on perceived dominance, prestige, and leadership endorsement observed in Study 3 in a general-population sample. Second, we examined whether these effects generalize from male to female risk-takers. Third, to further examine the robustness of the effects, we included measures of established personality traits that have been associated with leader emergence in prior research (e.g., extraversion, conscientiousness, openness to experience; Judge et al., 2002) to test whether the mediating effects of dominance and prestige hold above and beyond perceptions of these traits.⁶

Method

Participants and Design

We recruited respondents via the Prolific Academic platform. Respondents were eligible for participation if they fell in the age range of 21–80 years, had the U.S. nationality, resided in the U.S., and used a desktop, laptop, or tablet rather than a mobile phone for completing the study, because viewing LinkedIn profiles on a mobile phone can be challenging. No other pre-selection criteria were applied. Four hundred and twenty-one U.S. adults completed the survey in exchange for 0.68USD. Ten participants were excluded for failing a priori exclusion criteria; six had a negative person-total correlation (Huang et al., 2015) and four indicated that we should not use their data (Meade & Craig, 2012). The final sample consisted of 218 women, 188 men, and 5 participants who identified differently ($M_{\text{age}} = 35.38$, $SD = 11.29$, range 21–79). Participants were randomly assigned to one of the four between-subjects conditions of a mixed 2 (risk: low or high) \times 2 (protagonist: man or woman) \times 2 (context: intergroup cooperation or intergroup competition) design, with the last factor being manipulated within-subjects.

Materials and Procedure

The materials and procedure were the same as in Study 3, except for minor adaptations that were necessitated by the different sample (e.g., we changed Dutch city names mentioned in the LinkedIn profile to U.S. city names).

Measuring Dominance and Prestige

The reliabilities of the dominance and prestige scales (Cheng et al., 2010) in the current sample were $\alpha = .73$ and $\alpha = .87$, respectively.

Control Variables

We measured respondents' perceptions of the candidates' Big Five personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism/emotional stability) using the brief scales developed by Gosling et al. (2003) to examine whether any effects of risk-taking on perceived dominance, prestige, and leadership endorsement would occur above and beyond personality inferences. Analyses involving these measures did not produce insights pertinent to the present argument, and controlling for these factors in the analyses made no meaningful differences to the effect estimates of interest or to the conclusions. Details concerning these measures and analyses can be found in the [supplementary materials](#).

Results

Descriptive Statistics

Means and standard deviations of the dependent variables per condition are reported in Table 7, and grand means and correlations in Table 8.

Manipulation Checks

To check the context manipulation, we analyzed the perceived competitiveness (vs. cooperativeness) of the different situations we used in the leadership endorsement measure. As in Study 3, the linear mixed-effect model included random intercepts for participant and leadership role, per-role random slopes for context, and fixed effects for the risk and gender manipulations, context, and their interactions. Including these random effects allowed us to focus on the effects of interest, while statistically controlling for any noise stemming from the specific items we used. As before, we report F tests (with Type III errors) based on Satterthwaite's approximation for denominator degrees of freedom.

The analysis revealed the anticipated main effect of context, $F(1, 3691) = 5376.85$, $p < .001$, and an unanticipated marginally significant two-way context \times protagonist gender interaction, $F(1, 3691) = 3.80$, $p = .051$. Follow-up testing revealed that the competitive context was always perceived as more competitive than the cooperative context, but this effect was slightly larger when the protagonist was a man (competitive context: $EMM = 5.86 \pm 0.19$, cooperative context: $EMM = 2.39 \pm 0.19$, simple effect $t[3691] = 53.29$, $p < .001$) rather than a woman (competitive

⁵ We thank an anonymous reviewer for suggesting this.

⁶ We thank an anonymous reviewer for suggesting this.

Table 7
Means and Standard Deviations by Condition of the Dependent Variables of Study 4

Measure	Man				Woman			
	Low risk		High risk		Low risk		High risk	
	SD	M	SD	M	M	SD	M	SD
Dominance	3.31	0.71	4.58	0.75	3.47	0.80	4.47	0.85
Prestige	4.56	0.87	4.59	0.98	4.70	0.90	4.86	0.90
LE in comp. context	3.08	1.24	4.07	1.31	2.96	1.18	4.22	1.40
LE in coop. context	4.18	1.21	3.62	1.23	3.87	1.32	3.70	1.37

Note. LE = leadership endorsement, comp. = competitive, coop. = cooperative.

context: EMM = 5.86 ± 0.19, cooperative context: EMM = 2.57 ± 0.19, simple effect $t[3691] = 50.41, p < .001$). Given the relative magnitude of these effects, we conclude that the context manipulation was successful.

Dominance and Prestige

A two-way ANOVA on dominance revealed a main effect of risk, $F(1, 407) = 219.45, p < .001, \eta^2 = .35$, no main effect of protagonist gender, $F(1, 407) = 0.09, p = .763, \eta^2 = .00$, and no interaction, $F(1, 407) = 3.30, p = .070, \eta^2 = .01$. As in Studies 2 and 3, high-risk protagonists were perceived as more dominant than low-risk protagonists (see Table 7). Repeating the same analysis on prestige revealed a main effect of protagonist gender, $F(1, 407) = 5.21, p = .023, \eta^2 = .01$, no effect of risk, $F(1, 407) = 1.02, p = .314, \eta^2 = .00$, and no interaction, $F(1, 407) = 0.47, p = .493, \eta^2 = .00$. The female protagonist was perceived as somewhat more prestigious than the male protagonist, but the effect size was small. Thus, contrary to Studies 2 and 3, the current study yielded no evidence that risk-taking boosts prestige.

Leadership Endorsement

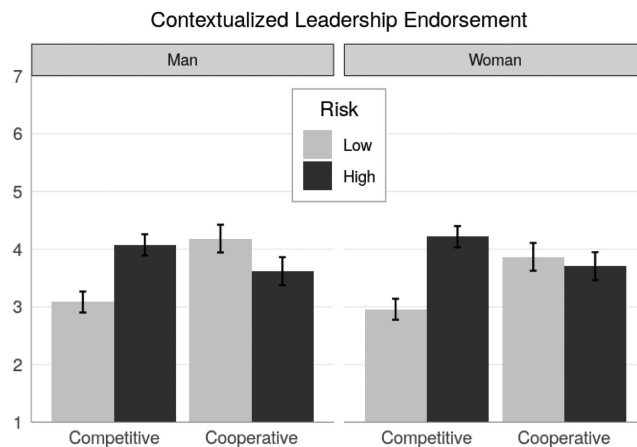
We employed the same analytical strategy as in Study 3 to test Hypothesis 4. We used linear mixed-effect modeling, including fixed effects for risk-taking, gender, context, and their interactions, random intercepts for participant and leadership role, and per-role random slopes for context. The only significant effects were the risk main effect, $F(1, 407) = 11.27, p = .001$, and the expected

Table 8
Overall Means, Standard Deviations, and Correlations of the Dependent Variables of Study 4

	M	(SD)	1	2	3
1. Dominance	3.94	(0.96)			
2. Prestige	4.67	(0.92)	-0.15*		
3. LE in competitive intergroup context	3.57	(1.40)	0.40*	0.42*	
4. LE in cooperative intergroup context	3.85	(1.30)	-0.13*	0.44*	0.49*

Note. MC = manipulation check, LE = leadership endorsement. * denotes $p < .05$.

Figure 6
Leadership Endorsement as a Function of Risk-Taking, Context, and Risk-Taker's Gender in Study 4



Note. Error bars indicate standard errors associated with the plotted marginal means.

two-way risk × context interaction, $F(1, 3687) = 345.68, p < .001$. As shown in Figure 6, the high-risk protagonist was endorsed more than the low-risk protagonist in the competitive context, $t(514) = 9.36, p < .001$, whereas the reverse was true in the cooperative context, $t(514) = -3.03, p = .005$.

Mediation Analysis

As in Study 3, we conducted a multiple moderated mediation analysis, with dominance and prestige as potential mediators of the effect of risk-taking on leadership endorsement, and gender as a simple covariate (because it had no significant moderating effect in any of the preceding analyses). We again used the multi-level mediation approach proposed by Krull and MacKinnon (2001; the 2–2–1 model) to account for the nested structure of the dependent variable, and bootstrapped the indirect effect by resampling the residuals (cf. Pituch et al., 2006; 25,000 resamples). As can be seen in Figure 7, the only indirect effect with a confidence interval excluding zero was the path through dominance in the competitive intergroup contexts: Risk-taking increased perceived dominance, which in turn increased leadership endorsement in competitive contexts, $ab = 0.40 [0.265, 0.462]$. Prestige was not a significant mediator in competitive contexts ($ab = 0.02 [-0.035, 0.111]$). Neither dominance ($ab = 0.07 [-0.027, 0.147]$) nor prestige ($ab = 0.02 [-0.032, 0.102]$) mediated the effects of risk-taking in cooperative contexts.

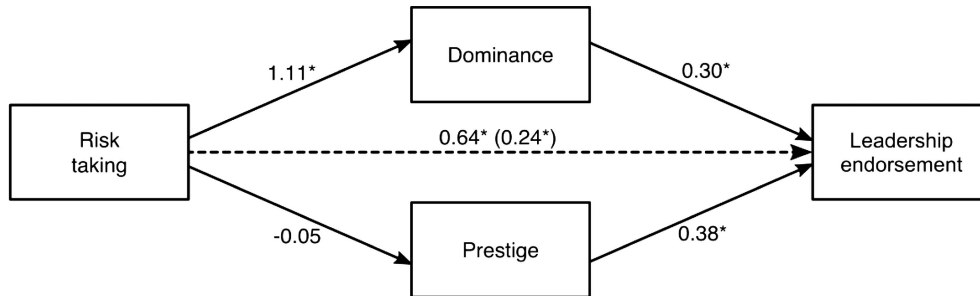
Discussion

The results of Study 4 bolster confidence in the generalizability of our conclusions by replicating our key findings in a general population sample and demonstrating that the effects of risk-taking on leadership endorsement apply similarly to male and female risk-takers. Moreover, Study 4 provides additional evidence that the effects of risk-taking on leadership endorsement depend on the nature of the context. We again found that risk-takers were more

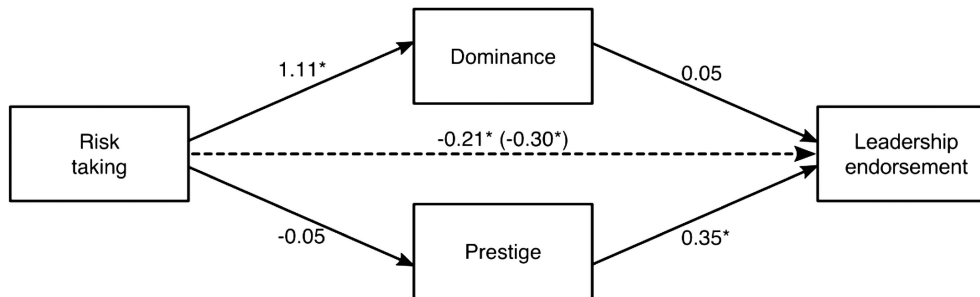
Figure 7

Multi-Level Multiple Moderated Mediation Analysis of the Effect of Risk-Taking on Leadership Endorsement via Dominance and Prestige in Competitive (Panel A) and Cooperative (Panel B) Intergroup Contexts in Study 4

(a) Competitive intergroup context



(b) Cooperative intergroup context



Note. Coefficients are standardized betas. The coefficients for the path from risk-taking to leadership endorsement represent the direct effect (c) and the effect when controlling for the mediators (c' , within parentheses). Asterisks indicate that the bootstrapped 95% CI of the associated coefficient does not contain 0 (250,000 resamples). Betas and associated confidence intervals of the indirect effects in the competitive context were 0.34 [0.27, 0.47] for dominance and -0.02 [-0.03 , 0.12] for prestige; in the cooperative context, dominance 0.06 [-0.02 , 0.16] and prestige -0.02 [-0.03 , 0.10].

strongly endorsed as leaders than risk-avoiders in competitive intergroup settings, but not in cooperative intergroup settings. This effect was not moderated by the risk-taker's gender. Furthermore, as in Study 3, the positive effect of risk-taking on leadership endorsement in competitive intergroup settings was mediated by dominance. The only inconsistency between the findings of Study 4 and the previous studies concerns the role of prestige: In Studies 2 and 3 we observed a positive effect of risk-taking on prestige, but this effect was not observed in Study 4. We address this issue in the General Discussion. Finally, exploratory analyses (see [supplementary materials](#)) revealed that risk-taking increased perceptions of extraversion and openness to experience, while decreasing perceptions of conscientiousness and agreeableness. Controlling for these effects did not change the pattern of results reported above.

General Discussion

Risk-taking is endemic to organizational life, but its social consequences are poorly understood. Drawing on costly-signaling

theory and the dominance/prestige framework of social rank, we developed a theoretical model predicting that risk-taking increases leadership endorsement to the degree that it fuels perceptions of prestige, but decreases leadership endorsement to the degree that it fuels perceptions of dominance. Our model further predicts that risk-induced perceptions of dominance do translate into leadership endorsement in competitive (rather than cooperative) intergroup settings, because intergroup competition increases the appeal of dominant leaders. We obtained convergent evidence for this model from four studies using different samples, settings, and operationalizations of risk-taking and leadership endorsement.

In Study 1, we used an implicit association test (IAT) to examine implicit associations between risk-taking and leadership. This study yielded correlational evidence that people harbor implicit associations between risk and leader roles, and between safety and follower roles (consistent with [Hypothesis 1a](#) and inconsistent with [Hypothesis 1b](#)). In Study 2, a longitudinal field survey set in the context of the September 2019 Israeli elections, we found that voters' perceptions of political candidates' risk-taking propensities prior to the

elections positively predicted perceived dominance (supporting [Hypothesis 2](#)) and prestige (supporting [Hypothesis 3](#)) of the candidates as well as votes for the candidates during the elections (supporting [Hypothesis 1a](#)). In Study 3 we experimentally manipulated risk-taking by means of modified LinkedIn profiles, systematically varying a protagonist's general proclivity toward more or less risky behavior. We obtained causal evidence that the risk-taking protagonist was perceived as more dominant and more prestigious than the risk-avoiding protagonist (again supporting [Hypotheses 2](#) and [3](#)). Moreover, we found that participants were willing to endorse the risk-taker as a leader in competitive intergroup contexts, but not in cooperative intergroup contexts (supporting [Hypothesis 4](#)). Finally, Study 4 replicated and extended Study 3 using the same experimental procedure with a different sample, showing again that risk-taking fuels leadership endorsement in competitive (but not cooperative) intergroup contexts (providing additional support for [Hypothesis 4](#)), and demonstrating furthermore that the effects hold for both male and female risk-takers, and above and beyond perceptions of extraversion, openness to experience, agreeableness, conscientiousness, and neuroticism/emotional stability.

Contributions and Theoretical Implications

The current study contributes to scholarly understanding of the social dynamics of risk-taking, costly signaling in organizations, the role of dominance and prestige in leadership endorsement and rank ascension, and leadership more broadly. First of all, our findings draw attention to the social consequences of risk-taking. Previous research has mostly considered the social *antecedents* of risky behavior, such as social exclusion (Peake et al., 2013), peer pressure (Gardner & Steinberg, 2005; Wilson & Daly, 1985), or competitive mating goals (Hill & Durante, 2011; Ronay & von Hippel, 2010). The social *consequences* of risk-taking have received comparatively little scholarly attention. By investigating implications of risk-taking for dominance, prestige, and leadership endorsement, the current studies shed light on an important social consequence of risky behavior while also hinting at social motives that may drive such behavior. Our finding that risk-taking can fuel perceptions of dominance and prestige, and under particular circumstances leadership endorsement, adds to a more complete understanding of why people engage in risky behavior in the first place. If people associate risk-taking with leadership positions, as our IAT data suggest, they may be tempted to take greater risks so as to project dominance and prestige and gain standing.

Second, the present findings resonate with theorizing on costly signaling (Bliege Bird et al., 2001; Zahavi, 1995). Consistent with that perspective, our data indicate that risk-taking—which is potentially costly by definition—signals underlying qualities that are pertinent to social rank. Furthermore, we extend the costly-signaling approach by linking it to the dominance/prestige framework of social rank (Henrich & Gil-White, 2001), and demonstrating that the downstream consequences of the impressions engendered by costly signaling depend on the social-organizational context. Our finding that people are more inclined to endorse risk-prone candidates for leadership positions in the face of intergroup competition in turn fits with evolutionary accounts of leadership suggesting that people endorse dominant group members as leaders in the context of intergroup conflict (De Dreu et al., 2012; Halevy et al., 2012; Spisak, Dekker, et al., 2012; Van Vugt et al., 2008). As such,

our study forges integration of separate theoretical perspectives and highlights their organizational relevance by demonstrating implications for leadership.

Third, our findings contribute to a more complete understanding of the antecedents of power, rank, and leadership, an issue that has puzzled social scientists for decades (French & Raven, 1959; Van Kleef & Cheng, 2020). Classic research has approached this question by focusing on static features of the individual, such as physical appearance, gender, ethnicity, and personality (Berger et al., 1972), working from the assumption that individuals with certain characteristics (e.g., physical height, a dominant or extraverted personality) are more likely to be perceived as fit for leadership positions (Anderson et al., 2001; Judge & Cable, 2004; Lord et al., 1986). Later work has begun to highlight more dynamic processes, showing that perceptions of power and status conferral are also informed by an actor's fleeting behaviors (Hall et al., 2005; Keltner et al., 2008), such as expressions of anger (Tiedens, 2001), use of abstract language (Palmeira, 2015), action orientation (Kilduff & Galinsky, 2013; Magee, 2009), and norm violations (Stamkou et al., 2020). Connecting with both approaches, the current investigation illuminates how people may attract leadership endorsement by engaging in risky behaviors and/or by portraying themselves as risk-prone.

Fourth, this work adds to a fast-growing body of research indicating that individuals may ascend social hierarchies by displaying dominance and/or prestige (Cheng et al., 2010, 2013; Halevy et al., 2012; Maner & Case, 2016). There is a debate in the literature about the relative viability of these two paths to influence (Anderson & Kilduff, 2009a; Cheng et al., 2013). The current research contributes to this debate by providing evidence that both dominance and prestige can explain the appeal of risk-takers as leaders, albeit under different circumstances. Study 2 demonstrated that risk-taking can simultaneously signal dominance (which typically decreases leadership endorsement) and prestige (which typically increases leadership endorsement). Furthermore, Studies 3 and 4 showed that prestige is a consistent positive predictor of leadership endorsement across contexts, whereas dominance positively predicts leadership endorsement in competitive intergroup contexts but not in cooperative intergroup contexts. These findings underline the importance of the social context for understanding the emergence and implications of dominance-based versus prestige-based leadership. Specifically, they illustrate how the inherent tension between dominance and prestige is relieved in competitive intergroup contexts, where signals of dominance and prestige align to jointly enhance leadership endorsement.

Fifth, our finding that risk-takers were perceived as prestigious (except in Study 4, see below) sheds new light on the antecedents of prestige. To date, most research within the dominance/prestige framework has been concerned with proximal predictors of prestige such as direct evidence of competence and skill (Cheng et al., 2013; Maner & Case, 2016), the argument being that competent and skillful individuals earn respect and admiration because they can make positive contributions to groups and organizations (Henrich & Gil-White, 2001). The data of Studies 2 and 3 indicate that risk-taking—behavior that is often seen as undesirable and potentially harmful for organizations (Pidgeon, 1991)—can also enhance prestige. We interpret this finding as suggesting that people who take risks signal competence and skill (Hayton, 2005; Miller, 1983). This finding has implications for studies that rely on the dominance/prestige framework of social rank, which typically conceptualize the

antecedents of prestige as uniformly positive. The current findings suggest that behaviors that are not unequivocally beneficial to groups and organizations can also contribute to prestige.

Sixth, the current research informs the broader literature on organizational leadership (see Lord et al., 2017, for a review). For instance, our findings extend the literature on leadership emergence (e.g., Foti & Hauenstein, 2007; Kalish & Luria, 2016) by identifying when and how risk-taking may increase organization members' chances of attracting support and emerging as leaders. Furthermore, the results of Study 1, in particular, resonate with work on implicit leadership theory (e.g., Epitropaki & Martin, 2005) in that they demonstrate implicit associations between risk-taking and leadership, suggesting that risk-taking is part of the leadership prototype. Finally, our findings speak to contingency theories of leadership (e.g., Vecchio, 1987) by revealing that individuals who are perceived as dominant are endorsed as leaders only in competitive intergroup settings, because in such settings dominant leaders may increase the likelihood of one's own group or organization prevailing over others.

Practical Implications

The current research has practical implications for understanding and managing risk-taking in organizations. One such implication follows from the moderating impact of the cooperative versus competitive context observed in Studies 3 and 4. In more competitive intergroup settings, the signals of dominance and prestige conveyed by risk-taking work in tandem to enhance endorsement for risk-takers as leaders. In more cooperative intergroup settings, dominance and prestige have opposite consequences for leadership endorsement, with dominance decreasing endorsement and prestige increasing it. All else being equal, risk-takers should therefore be more likely to gain standing in organizations that face fierce competition, whether between departments within the organization, or with other organizations. This would imply that organization members' responses to risk-takers can be managed by emphasizing or de-emphasizing the importance and desirability of inter-departmental and/or inter-organizational cooperation versus competition.

Although our data suggest that competitive situations afford greater opportunities for risk-takers to attain formal leadership positions, risk-takers can still obtain informal power in cooperative situations via a combination of prestige and passive deference. Even though fellow organization members may be reluctant to actively support risk-takers in cooperative settings because they do not appreciate the dominance they radiate (Cheng, 2020), they may respond to risk-takers' perceived dominance with complementary submissive behaviors (Maner & Case, 2016; Tiedens & Fragale, 2003). For instance, organization members who witness colleagues' risky behaviors may feel uncomfortable speaking up and confronting the colleagues because they appear dominant and threatening, thereby allowing them influence on organizational processes. These deferential responses may be further enhanced by perceptions of prestige engendered by risk-taking.

Responses to risk-taking are likely to depend also on the organization's incentive structure. Risk-taking can be a catalyst for progress and innovation (Dewett, 2004; Latham & Braun, 2009), and accordingly organizations may explicitly incentivize risk-taking, for instance via financial benefits or promotion opportunities

(Balkin et al., 2000; Hayton, 2005). To the degree that such incentives are in place, an organizational culture may develop in which risk-taking is valued and encouraged. In such organizations, risk-takers may more readily amass prestige than in organizations that put no premium on risk-taking, which would increase support for risk-prone leaders.

In conjunction with previous research on the antecedents of risk-taking, our data point to a possible vicious cycle of risk-taking and upward mobility in hierarchies. Anderson and Galinsky (2006) found that people's risk perceptions become more optimistic as they acquire power, resulting in a greater likelihood of risky behavior. Our data show that such risks can further increase a person's power by enhancing endorsement of their leadership. These processes may conspire to encourage risk-taking, especially when combined with organizational incentives for risky behavior. Together, these processes may help explain how a culture of irresponsible risk-taking could evolve and be sustained in the (exceedingly competitive) banking world until the bankruptcy of several large financial institutions started a global economic crisis in 2008.

Finally, the current findings shed new light on the social dynamics of real-life elections. In times of uncertainty and threat, "nasty" (Rast, 2015) or "primal" (McAdams, 2017) leaders are sometimes preferred to leaders who display a more prototypical leadership style. Competition with a rivaling outgroup may create such uncertainty and threat in the eyes of voters, potentially leading them to endorse political candidates who appear dominant, for instance because they do not shy away from taking risks. Political elections over the course of history attest to the fact that making intergroup conflict and competition salient can help create a political context in which dominant and potentially aggressive leaders seem more appealing. Our data suggest that taking risks is one way to gain leadership endorsement in such situations. Thus, dominant (and risky) actions such as invading a sovereign state or alluding to the possibility of a nuclear war may help to garner electoral support against the background of an (apparent) outgroup threat. Similarly, risk-takers may have a better chance of rising to power during economic recessions, given that voters are more inclined to endorse dominant leaders in times of economic uncertainty (Kakkar & Sivanathan, 2017). This suggests that, in the face of intergroup conflict or other threats, displaying a propensity to take risks can be an effective strategy to garner leadership endorsement.

Strengths, Limitations, and Future Directions

A strength of the current research is that we employed different samples, methodological approaches, and operationalizations of risk-taking and leadership endorsement to test our model. Study 1 revealed that people harbor general implicit associations between risk-taking and leadership positions, suggesting that any effects of risk-taking on leadership endorsement may generalize across different settings. Indeed, our subsequent studies demonstrated that effects of risk-taking on dominance, prestige, and leadership endorsement can occur in political (Study 2) and organizational (Studies 3 and 4) contexts, and that they apply similarly to men and women (Study 4). The fact that we obtained comparable results across different settings, samples, and methodologies increases confidence in the robustness and generalizability of the effects.

A limitation of the present studies is that there was no direct interaction or personal acquaintanceship between risk-takers and observers. This implies that our conclusions may be limited to situations in which observers perceive, develop impressions of, and respond to unacquainted risk-takers. In many organizational settings, episodes of risk-taking are likely to be interpreted against the backdrop of already formed impressions and relationships. Such acquaintanceship could influence the observed effects in different ways. One possibility is that the effects on dominance and prestige are reduced, because people have already formed impressions of each other's dominance and prestige based on previous interactions. However, the political election results of Study 2 indicate that risk-taking can still influence leadership endorsement of known politicians via both dominance and prestige, suggesting that observers do take familiar people's risk-taking into account when forming impressions about them and deciding whether or not to vote for them. Another possibility is that the effects of risk-taking on leadership endorsement depend on whether an observer is personally affected by the risk. Although one could argue that this situation was captured to some extent by the political election context of Study 2, more immediate and salient personal outcomes may be at stake in situations where risk-taker and observer work in close proximity within the same organization, and endorsing the risk-taker as a leader implies that she or he gets more control over the observer's outcomes. Future research is needed to examine whether and how proximity and acquaintanceship influence responses to risk-takers.

Although our results are mostly consistent across studies, one inconsistency is worth noting. In Studies 2 and 3, we found that risk-taking inspired perceptions of prestige, but no such evidence was observed in Study 4. It is conceivable that this discrepancy is due to differences in cultural context (Study 2 involved an Israeli sample, Study 3 involved a Dutch sample, and Study 4 involved a U.S. sample) or gender (Study 2 involved one female and eight male leadership candidates, Study 3 only involved a male candidate, and Study 4 involved one male and one female candidate). Future research could examine whether and how the effects of risk-taking on leadership endorsement are shaped by gender and culture.

In regard to gender, evolutionary theorists have argued that risk-taking is an "attribute of the masculine psychology" (Wilson & Daly, 1985, p. 66) that evolved as an adaptation to the competitive demands of primate societies. Wilson and Daly further suggested that competition forces dominant men, in particular, to engage in risk-taking to obtain and consolidate positions of power. Although our Study 4 data suggest that the effects of risk-taking on leadership endorsement are similar for male and female candidates, female candidates were perceived as more prestigious than male candidates. These findings are intriguing in light of the persistent underrepresentation of women in leadership roles and the emphasis of the female and male leadership prototypes on communion and agency, respectively (Scott & Brown, 2006). It has been well documented that female leaders face conflicting demands for communion (which fits the female gender role) and agency (which fits the leader role), which may explain why men are generally more likely to be endorsed as leaders (Eagly et al., 1992). Research also indicates, however, that top women leaders who are perceived as agentic are evaluated positively (Rosette & Tost, 2010). Our data suggest that women who portray agency through risk-proneness can indeed reap benefits in terms of prestige and leadership endorsement. Clearly, however, more research is needed to unravel how gender stereotypes

factor into responses to male versus female risk-takers, and how such responses are shaped by perceptions of agency and communion.

With regard to culture, it could be very illuminating to investigate how the effects we observed are shaped by organizational culture. For instance, risk-taking may be particularly likely to cue prestige in more entrepreneurial organizations where risk-taking is valued more (cf. Balkin et al., 2000; Miller, 1983). If true, the observed effects of risk-taking on prestige may be amplified in entrepreneurial organizational cultures, and dampened in organizational cultures that put less of a premium on risk-taking. As a consequence, risk-takers may be endorsed as leaders in entrepreneurial organizations even in the absence of salient intergroup competition, as the reluctance to endorse dominant individuals as leaders may be outweighed by the endorsement garnered via the prestige pathway.

Finally, it would be insightful to investigate the effects of different combinations of forms and consequences of risk-taking on leadership endorsement. In particular, risks may involve costs versus benefits for the risk-taker and/or for other individuals. Future studies could systematically compare responses to risk-takers as a function of whether they are risking their own or others' outcomes and whether any beneficial outcomes of the risk would accrue to the self or to others. It seems plausible that more self-sacrificial forms of risk-taking, wherein the costs are borne by the protagonist and the benefits are reaped by others, generate stronger perceptions of prestige, thereby contributing to greater leadership endorsement.

Conclusion

Across four studies involving different procedures and operationalizations of key variables, we examined how risk-taking shapes dominance, prestige, and leadership endorsement. We demonstrated that people associate risk-taking more with leader roles than with follower roles, that they perceive risk-takers as more dominant (in three out of three tests) and more prestigious (in two out of three tests) than risk avoiders, and that perceptions of dominance and prestige jointly shape leadership endorsement. Perceptions of prestige were consistently associated with increased leadership endorsement, whereas perceptions of dominance had no or negative associations with leadership endorsement except in competitive intergroup settings, where dominance was a significant positive predictor of endorsement. These findings illuminate when and how risk-takers attract leadership endorsement, contributing to a better understanding of the social dynamics of dominance, prestige, and leadership, the development of social hierarchies, and the perpetuation of risky behavior in organizations, politics, and society at large.

References

- Anderson, C., & Brion, S. (2014). Perspectives on power in organizations. *Annual Review of Organizational Psychology and Organizational Behavior, 1*, 67–97. <https://doi.org/10.1146/annurev-orgpsych-031413-091259>
- Anderson, C., & Galinsky, A. D. (2006). Power, optimism, and risk-taking. *European Journal of Social Psychology, 36*, 511–536. <https://doi.org/10.1002/ejsp.324>
- Anderson, C., John, O. P., Keltner, D., & Kring, A. M. (2001). Who attains social status? Effects of personality and physical attractiveness in social groups. *Journal of Personality and Social Psychology, 81*, 116–132. <https://doi.org/10.1037/0022-3514.81.1.116>

- Anderson, C., & Kilduff, G. J. (2009a). The pursuit of status in social groups. *Current Directions in Psychological Science*, 18, 295–298. <https://doi.org/10.1111/j.1467-8721.2009.01655.x>
- Anderson, C., & Kilduff, G. J. (2009b). Why do dominant personalities attain influence in face-to-face groups? The competence-signaling effects of trait dominance. *Journal of Personality and Social Psychology*, 96, 491–503. <https://doi.org/10.1037/a0014201>
- Balkin, D. B., Markman, G. D., & Gomez-Mejia, L. R. (2000). Is CEO pay in high technology firms related to innovation? *Academy of Management Journal*, 43, 1118–1129. <https://doi.org/10.5465/1556340>
- Bates, D., Maechler, M., Bolker, B., & Walker, S. (2014). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, 67, 1–48.
- Bellezza, S., Gino, F., & Keinan, A. (2014). The red sneakers effect: Inferring status and competence from signals of nonconformity. *Journal of Consumer Research*, 41, 35–54. <https://doi.org/10.1086/674870>
- Berger, J., Cohen, B. P., & Zelditch, M., Jr. (1972). Status characteristics and social interaction. *American Sociological Review*, 37, 241–255. <https://doi.org/10.2307/2093465>
- Blige Bird, R., Smith, E., & Bird, D. W. (2001). The hunting handicap: Costly signaling in human foraging strategies. *Behavioral Ecology and Sociobiology*, 50, 9–19. <https://doi.org/10.1007/s002650100338>
- Botzger, P. C. (1984). Expertise and air time as basis of actual and perceived influence in problem solving groups. *Journal of Applied Psychology*, 69, 214–221. <https://doi.org/10.1037/0021-9010.69.2.214>
- Bromiley, P. (1991). Testing a causal model of corporate risk taking and performance. *Academy of Management Journal*, 34, 37–59.
- Byrnes, J., Miller, D., & Schafer, W. (1999). Gender differences in risk-taking: A meta-analysis. *Psychological Bulletin*, 125, 367–383. <https://doi.org/10.1037/0033-2909.125.3.367>
- Cheng, J. T. (2020). Dominance, prestige, and the role of leveling in human social hierarchy and equality. *Current Opinion in Psychology*, 33, 238–244. <https://doi.org/10.1016/j.copsyc.2019.10.004>
- Cheng, J. T., Tracy, J. L., Foulsham, T., Kingstone, A., & Henrich, J. (2013). Two ways to the top: Evidence that dominance and prestige are distinct yet viable avenues to social rank and influence. *Journal of Personality and Social Psychology*, 104, 103–125. <https://doi.org/10.1037/a0030398>
- Cheng, J. T., Tracy, J. L., & Henrich, J. (2010). Pride, personality, and the evolutionary foundations of human social status. *Evolution and Human Behavior*, 31, 334–347. <https://doi.org/10.1016/j.evolhumbehav.2010.02.004>
- Chhokar, J. S., Brodbeck, F. C., & House, R. J. (Eds.). (2007). *Culture and leadership across the world: The GLOBE book of in-depth studies of 25 societies*. Erlbaum. <https://doi.org/10.4324/9780203936665>
- Croissant, Y. (2019). *mlogit: Multinomial logit models*. R package version 1.0-1. <https://CRAN.R-project.org/package=mlogit>
- De Dreu, C. K. W., Greer, L. L., Handgraaf, M. J., Shalvi, S., & Van Kleef, G. A. (2012). Oxytocin modulates selection of allies in intergroup conflict. *Proceedings. Biological Sciences*, 279, 1150–1154. <https://doi.org/10.1098/rspb.2011.1444>
- DeRue, D. S., & Ashford, S. J. (2010). Who will lead and who will follow? A social process of leadership identity construction in organizations. *The Academy of Management Review*, 35, 627–647.
- de Waal-Andrews, W., Gregg, A. P., & Lammers, J. (2015). When status is grabbed and when status is granted: Getting ahead in dominance and prestige hierarchies. *British Journal of Social Psychology*, 54, 445–464. <https://doi.org/10.1111/bjso.12093>
- Dewett, T. (2004). Employee creativity and the role of risk. *European Journal of Innovation Management*, 7, 257–266. <https://doi.org/10.1108/14601060410565010>
- Driskell, J. E., Olmstead, B., & Salas, E. (1993). Task cues, dominance cues, and influence in task groups. *Journal of Applied Psychology*, 78, 51–60. <https://doi.org/10.1037/0021-9010.78.1.51>
- Eagly, A. H., Makhijani, M. G., & Klonsky, B. G. (1992). Gender and the evaluation of leaders: A meta-analysis. *Psychological Bulletin*, 111, 3–22. <https://doi.org/10.1037/0033-2909.111.1.3>
- Epitropaki, O., & Martin, R. (2005). From ideal to real: A longitudinal study of the role of implicit leadership theories on leader-member exchanges and employee outcomes. *Journal of Applied Psychology*, 90, 659–676. <https://doi.org/10.1037/0021-9010.90.4.659>
- Fessler, D. M., Tiokhin, L. B., Holbrook, C., Gervais, M. M., & Snyder, J. K. (2014). Foundations of the Crazy Bastard Hypothesis: Nonviolent physical risk-taking enhances conceptualized formidability. *Evolution and Human Behavior*, 35, 26–33. <https://doi.org/10.1016/j.evolhumbehav.2013.09.003>
- Flynn, F. J., Reagans, R. E., Amanatullah, E. T., & Ames, D. R. (2006). Helping one's way to the top: Self-monitors achieve status by helping others and knowing who helps whom. *Journal of Personality and Social Psychology*, 91, 1123–1137. <https://doi.org/10.1037/0022-3514.91.6.1123>
- Foti, R. J., & Hauenstein, N. M. A. (2007). Pattern and variable approaches in leadership emergence and effectiveness. *Journal of Applied Psychology*, 92, 347–355. <https://doi.org/10.1037/0021-9010.92.2.347>
- Fox, C. R., & Tannenbaum, D. (2011). The elusive search for stable risk preferences. *Frontiers in Psychology*, 2, Article 298. <https://doi.org/10.3389/fpsyg.2011.00298>
- French, J. R. P., & Raven, B. (1959). The bases of social power. In D. Cartwright & A. Zander (Eds.), *Group dynamics* (pp. 150–167). Harper & Row.
- Gardner, M., & Steinberg, L. (2005). Peer influence on risk taking, risk preference, and risky decision making in adolescence and adulthood: An experimental study. *Developmental Psychology*, 41, 625–635. <https://doi.org/10.1037/0012-1649.41.4.625>
- Gintis, H., Smith, E. A., & Bowles, S. (2001). Costly signaling and cooperation. *Journal of Theoretical Biology*, 213, 103–119. <https://doi.org/10.1006/jtbi.2001.2406>
- Gordon, D. S., Madden, J. R., & Lea, S. E. (2014). Both loved and feared: Third party punishers are viewed as formidable and likeable, but these reputational benefits may only be open to dominant individuals. *PLOS ONE*, 9, Article e110045. <https://doi.org/10.1371/journal.pone.0110045>
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality*, 37, 504–528. [https://doi.org/10.1016/S0092-6566\(03\)00046-1](https://doi.org/10.1016/S0092-6566(03)00046-1)
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology*, 74, 1464–1480. <https://doi.org/10.1037/0022-3514.74.6.1464>
- Greenwald, A. G., Nosek, B. A., & Banaji, M. R. (2003). Understanding and using the implicit association test: I. An improved scoring algorithm. *Journal of Personality and Social Psychology*, 85, 197–216. <https://doi.org/10.1037/0022-3514.85.2.197>
- Gündemir, S., Homan, A. C., De Dreu, C. K. W., & Van Vugt, M. (2014). Think leader, think white? Capturing and weakening an implicit pro-white leadership bias. *PLOS ONE*, 9, Article e83915. <https://doi.org/10.1371/journal.pone.0083915>
- Halevy, N., Chou, E. Y., Cohen, T. R., & Livingston, R. W. (2012). Status conferral in intergroup social dilemmas: Behavioral antecedents and consequences of prestige and dominance. *Journal of Personality and Social Psychology*, 102, 351–366. <https://doi.org/10.1037/a0025515>
- Hall, J. A., Coats, E. J., & LeBeau, L. S. (2005). Nonverbal behavior and the vertical dimension of social relations: A meta-analysis. *Psychological Bulletin*, 131, 898–924. <https://doi.org/10.1037/0033-2909.131.6.898>
- Hardy, C. L., & Van Vugt, M. (2006). Nice guys finish first: The competitive altruism hypothesis. *Personality and Social Psychology Bulletin*, 32, 1402–1413. <https://doi.org/10.1177/0146167206291006>

- Hayton, J. C. (2005). Promoting corporate entrepreneurship through human resource management practices: A review of empirical research. *Human Resource Management Review, 15*, 21–41. <https://doi.org/10.1016/j.hrmr.2005.01.003>
- Henrich, J., & Gil-White, F. J. (2001). The evolution of prestige: Freely conferred deference as a mechanism for enhancing the benefits of cultural transmission. *Evolution and Human Behavior, 22*, 165–196. [https://doi.org/10.1016/S1090-5138\(00\)00071-4](https://doi.org/10.1016/S1090-5138(00)00071-4)
- Hill, S. E., & Durante, K. M. (2011). Courtship, competition, and the pursuit of attractiveness: Mating goals facilitate health-related risk taking and strategic risk suppression in women. *Personality and Social Psychology Bulletin, 37*, 383–394.
- House, R. J., Dorfman, P. W., Javidan, M., Hanges, P. J., & de Luque, M. F. S. (2013). *Strategic leadership across cultures: GLOBE study of CEO leadership behavior and effectiveness in 24 countries*. Sage Publications.
- House, R. J., Hanges, P. J., Javidan, M., Dorfman, P. W., & Gupta, V. (2004). *Culture, leadership, and organizations: The GLOBE Study of 62 Cultures*. Sage Publications.
- Huang, J. L., Liu, M., & Bowling, N. A. (2015). Insufficient effort responding: Examining an insidious confound in survey data. *Journal of Applied Psychology, 100*, 828–845. <https://doi.org/10.1037/a0038510>
- Judge, T. A., Bono, J. E., Ilies, R., & Gerhardt, M. W. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology, 87*, 765–780. <https://doi.org/10.1037/0021-9010.87.4.765>
- Judge, T. A., & Cable, D. M. (2004). The effect of physical height on workplace success and income: Preliminary test of a theoretical model. *Journal of Applied Psychology, 89*, 428–441. <https://doi.org/10.1037/0021-9010.89.3.428>
- Judge, T. A., Colbert, A. E., & Ilies, R. (2004). Intelligence and leadership: A quantitative review and test of theoretical propositions. *Journal of Applied Psychology, 89*, 542–552. <https://doi.org/10.1037/0021-9010.89.3.542>
- Kakkar, H., & Sivanathan, N. (2017). When the appeal of a dominant leader is greater than a prestige leader. *PNAS Proceedings of the National Academy of Sciences of the United States of America, 114*, 6734–6739. <https://doi.org/10.1073/pnas.1617711114>
- Kalish, Y., & Luria, G. (2016). Leadership emergence over time in short-lived groups: Integrating expectations states theory with temporal person-perception and self-serving bias. *Journal of Applied Psychology, 101*, 1474–1486. <https://doi.org/10.1037/apl0000126>
- Keltner, D., Van Kleef, G. A., Chen, S., & Kraus, M. W. (2008). A reciprocal influence model of social power: Emerging principles and lines of inquiry. *Advances in Experimental Social Psychology, 40*, 151–192. [https://doi.org/10.1016/S0065-2601\(07\)00003-2](https://doi.org/10.1016/S0065-2601(07)00003-2)
- Kilduff, G. J., & Galinsky, A. D. (2013). From the ephemeral to the enduring: How approach-oriented mindsets lead to greater status. *Journal of Personality and Social Psychology, 105*, 816–831. <https://doi.org/10.1037/a0033667>
- Krull, J. L., & MacKinnon, D. P. (2001). Multilevel modeling of individual and group level mediated effects. *Multivariate Behavioral Research, 36*, 249–277. https://doi.org/10.1207/S15327906MBR3602_06
- Kuhnen, C. M., & Knutson, B. (2005). The neural basis of financial risk taking. *Neuron, 47*, 763–770. <https://doi.org/10.1016/j.neuron.2005.08.008>
- Kuznetsova, A., Brockhoff, P. B., & Christensen, R. H. B. (2017). ImerTest package: Tests in linear mixed effects models. *Journal of Statistical Software, 82*, 1–26. <https://doi.org/10.18637/jss.v082.i13>
- Latham, S. F., & Braun, M. (2009). Managerial risk, innovation, and organizational decline. *Journal of Management, 35*, 258–281. <https://doi.org/10.1177/0149206308321549>
- Lord, R. G., Day, D. V., Zaccaro, S. J., Avolio, B. J., & Eagly, A. H. (2017). Leadership in applied psychology: Three waves of theory and research. *Journal of Applied Psychology, 102*, 434–451. <https://doi.org/10.1037/apl0000089>
- Lord, R. G., De Vader, C. L., & Alliger, G. M. (1986). A meta-analysis of the relation between personality traits and leadership perceptions: An application of validity generalization procedures. *Journal of Applied Psychology, 71*, 402–410. <https://doi.org/10.1037/0021-9010.71.3.402>
- Lukaszewski, A. W., Simmons, Z. L., Anderson, C., & Roney, J. R. (2016). The role of physical formidability in human social status allocation. *Journal of Personality and Social Psychology, 110*, 385–406. <https://doi.org/10.1037/pspi0000042>
- Luke, S. G. (2017). Evaluating significance in linear mixed-effects models in R. *Behavior Research Methods, 49*, 1494–1502. <https://doi.org/10.3758/s13428-016-0809-y>
- Magee, J. C. (2009). Seeing power in action: The roles of deliberation, implementation, and action in inferences of power. *Journal of Experimental Social Psychology, 45*, 1–14. <https://doi.org/10.1016/j.jesp.2008.06.010>
- Maner, J. K., & Case, C. R. (2016). Dominance and prestige: Dual strategies for navigating social hierarchies. *Advances in Experimental Social Psychology, 54*, 129–180. <https://doi.org/10.1016/bs.aesp.2016.02.001>
- March, J. G., & Shapira, Z. (1987). Managerial perspectives on risk and risk taking. *Management Science, 33*, 1404–1418. <https://doi.org/10.1287/mnsc.33.11.1404>
- McAdams, D. P. (2017). The appeal of the primal leader: Human evolution and Donald J. Trump. *Evolutionary Studies in Imaginative Culture, 1*, 1–13. <https://doi.org/10.26613/esic/1.2.45>
- McClelland, D. C., & Watson, R. I., Jr. (1973). Power motivation and risk-taking behavior. *Journal of Personality, 41*, 121–139. <https://doi.org/10.1111/j.1467-6494.1973.tb00664.x>
- Meade, A. W., & Craig, S. B. (2012). Identifying careless responses in survey data. *Psychological Methods, 17*, 437–455. <https://doi.org/10.1037/a0028085>
- Meertens, R. M., & Lion, R. (2008). Measuring an individual's tendency to take risks: The risk propensity scale. *Journal of Applied Social Psychology, 38*, 1506–1520. <https://doi.org/10.1111/j.1559-1816.2008.00357.x>
- Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management Science, 29*, 770–791. <https://doi.org/10.1287/mnsc.29.7.770>
- Morrison, E. W. (2006). Doing the job well: An investigation of pro-social rule breaking. *Journal of Management, 32*, 5–28. <https://doi.org/10.1177/0149206305277790>
- Nelissen, R. M. A. (2008). The price you pay: Cost-dependent reputation effects of altruistic punishment. *Evolution and Human Behavior, 29*, 242–248. <https://doi.org/10.1016/j.evolhumbehav.2008.01.001>
- Overbeck, J. R., & Park, B. (2001). When power does not corrupt: Superior individuation processes among powerful perceivers. *Journal of Personality and Social Psychology, 81*, 549–565. <https://doi.org/10.1037/0022-3514.81.4.549>
- Palmeira, M. (2015). Abstract language signals power, but also lack of action orientation. *Journal of Experimental Social Psychology, 61*, 59–63. <https://doi.org/10.1016/j.jesp.2015.07.003>
- Peake, S. J., Dishion, T. J., Stormshak, E. A., Moore, W. E., & Pfeifer, J. H. (2013). Risk-taking and social exclusion in adolescence: Neural mechanisms underlying peer influences on decision-making. *NeuroImage, 82*, 23–34. <https://doi.org/10.1016/j.neuroimage.2013.05.061>
- Pidgeon, N. F. (1991). Safety culture and risk management in organizations. *Journal of Cross-Cultural Psychology, 22*, 129–140. <https://doi.org/10.1177/0022022191221009>
- Pituch, K. A., Stapleton, L. M., & Kang, J. Y. (2006). A comparison of single sample and bootstrap methods to assess mediation in cluster randomized trials. *Multivariate Behavioral Research, 41*, 367–400. https://doi.org/10.1207/s15327906mbr4103_5
- Platow, M. J., & van Knippenberg, D. (2001). A social identity analysis of leadership endorsement: The effects of leader ingroup prototypicality and distributive intergroup fairness. *Personality and Social Psychology Bulletin, 27*, 1508–1519. <https://doi.org/10.1177/01461672012711011>
- Power, M. (2004). *The risk management of everything: Rethinking the politics of uncertainty*. Demos. <https://doi.org/10.1108/eb023001>

- Rast, D. E., III. (2015). Leadership in times of uncertainty: Recent findings, debates, and potential future research directions. *Social and Personality Psychology Compass*, 9, 133–145. <https://doi.org/10.1111/spc3.12163>
- Rast, D. E., III, Gaffney, A. M., Hogg, M. A., & Crisp, R. J. (2012). Leadership under uncertainty: When leaders who are non-prototypical group members can gain support. *Journal of Experimental Social Psychology*, 48, 646–653. <https://doi.org/10.1016/j.jesp.2011.12.013>
- Ridgeway, C. L. (1987). Non-verbal behavior, dominance, and the basis of status in task groups. *American Sociological Review*, 52, 683–694. <https://doi.org/10.2307/2095603>
- Ronay, R., & von Hippel, W. (2010). The presence of an attractive woman elevates testosterone and physical risk taking in young men. *Social Psychological and Personality Science*, 1, 57–64. <https://doi.org/10.1177/1948550609352807>
- Rosette, A. S., & Tost, L. P. (2010). Agentic women and communal leadership: How role prescriptions confer advantage to top women leaders. *Journal of Applied Psychology*, 95, 221–235. <https://doi.org/10.1037/a0018204>
- Rudman, L. A., & Kilianski, S. E. (2000). Implicit and explicit attitudes toward female authority. *Personality and Social Psychology Bulletin*, 26, 1315–1328. <https://doi.org/10.1177/0146167200263001>
- Schonberg, T., Fox, C. R., & Poldrack, R. A. (2011). Mind the gap: Bridging economic and naturalistic risk-taking with cognitive neuroscience. *Trends in Cognitive Sciences*, 15, 11–19. <https://doi.org/10.1016/j.tics.2010.10.002>
- Schyns, B., & Meindl, J. R. (Eds.). (2005). *Implicit leadership theories: Essays and explorations*. Information Age.
- Scott, K. A., & Brown, D. J. (2006). Female first, leader second? Gender bias in the encoding of leadership behavior. *Organizational Behavior and Human Decision Processes*, 101, 230–242. <https://doi.org/10.1016/j.obhdp.2006.06.002>
- Sell, A., Tooby, J., & Cosmides, L. (2009). Formidability and the logic of human anger. *PNAS Proceedings of the National Academy of Sciences of the United States of America*, 106, 15073–15078. <https://doi.org/10.1073/pnas.0904312106>
- Spisak, B. R., Dekker, P. H., Krüger, M., & Van Vugt, M. (2012). Warriors and peacekeepers: Testing a biosocial implicit leadership hypothesis of intergroup relations using masculine and feminine faces. *PLOS ONE*, 7, Article e30399. <https://doi.org/10.1371/journal.pone.0030399>
- Spisak, B. R., Homan, A. C., Grabo, A., & Van Vugt, M. (2012). Facing the situation: Testing a biosocial contingency model of leadership in intergroup relations using masculine and feminine faces. *The Leadership Quarterly*, 23, 273–280. <https://doi.org/10.1016/j.leaqua.2011.08.006>
- Stamkou, E., Homan, A. C., & Van Kleef, G. A. (2020). Climbing the ladder or falling from grace? A threat-opportunity framework of the effects of norm violations on social rank. *Current Opinion in Psychology*, 33, 74–79. <https://doi.org/10.1016/j.copsyc.2019.07.012>
- Stamkou, E., Van Kleef, G. A., & Homan, A. C. (2018). The art of influence: When and why deviant artists gain impact. *Journal of Personality and Social Psychology*, 115, 276–303. <https://doi.org/10.1037/pspi0000131>
- Stamkou, E., Van Kleef, G. A., Homan, A. C., & Galinsky, A. D. (2016). How norm violations shape social hierarchies: Those who stand on top block norm violators from rising up. *Group Processes & Intergroup Relations*, 19, 608–629. <https://doi.org/10.1177/1368430216641305>
- Stamkou, E., Van Kleef, G. A., Homan, A. C., Gelfand, M. J., Van de Vijver, F. J., Van Egmond, M. C., Boer, D., Phiri, N., Ayub, N., Kinias, Z., Cantarero, K., Efrat Treister, D., Figueiredo, A., Hashimoto, H., Hofmann, E. B., Lima, R. P., & Lee, I.-C. (2019). Cultural collectivism and tightness moderate responses to norm violators: Effects on power perception, moral emotions, and leader support. *Personality and Social Psychology Bulletin*, 45, 947–964. <https://doi.org/10.1177/0146167218802832>
- Stangor, C. (2016). *Social groups in action and interaction* (2nd ed.). Psychology Press.
- Steinberg, L. (2008). A social neuroscience perspective on adolescent risk-taking. *Developmental Review*, 28, 78–106. <https://doi.org/10.1016/j.dr.2007.08.002>
- Stewart, W. H., Jr., & Roth, P. L. (2001). Risk propensity differences between entrepreneurs and managers: A meta-analytic review. *Journal of Applied Psychology*, 86, 145–153. <https://doi.org/10.1037/0021-9010.86.1.145>
- Stulp, G., Buunk, A. P., Verhulst, S., & Pollet, T. V. (2013). Tall claims? Sense and nonsense about the importance of height of US presidents. *The Leadership Quarterly*, 24, 159–171. <https://doi.org/10.1016/j.leaqua.2012.09.002>
- Tiedens, L. Z. (2001). Anger and advancement versus sadness and subjugation: The effect of negative emotion expressions on social status conferral. *Journal of Personality and Social Psychology*, 80, 86–94. <https://doi.org/10.1037/0022-3514.80.1.86>
- Tiedens, L. Z., & Fragale, A. R. (2003). Power moves: Complementarity in dominant and submissive nonverbal behavior. *Journal of Personality and Social Psychology*, 84, 558–568. <https://doi.org/10.1037/0022-3514.84.3.558>
- Ullrich, J., Christ, O., & van Dick, R. (2009). Substitutes for procedural fairness: Prototypical leaders are endorsed whether they are fair or not. *Journal of Applied Psychology*, 94, 235–244. <https://doi.org/10.1037/a0012936>
- Van Kleef, G. A., & Cheng, J. T. (2020). Power, status, and hierarchy: Current trends and future challenges. *Current Opinion in Psychology*, 33, v–xiv. <https://doi.org/10.1016/j.copsyc.2020.03.011>
- Van Kleef, G. A., Homan, A. C., Finkenauer, C., Blaker, N. M., & Heerdink, M. W. (2012). Prosocial norm violations fuel power affordance. *Journal of Experimental Social Psychology*, 48, 937–942. <https://doi.org/10.1016/j.jesp.2012.02.022>
- Van Kleef, G. A., Homan, A. C., Finkenauer, C., Gündemir, S., & Stamkou, E. (2011). Breaking the rules to rise to power: How norm violators gain power in the eyes of others. *Social Psychological and Personality Science*, 2, 500–507. <https://doi.org/10.1177/1948550611398416>
- Van Vugt, M., & Grabo, A. E. (2015). The many faces of leadership: An evolutionary-psychology approach. *Current Directions in Psychological Science*, 24, 484–489. <https://doi.org/10.1177/0963721415601971>
- Van Vugt, M., & Hardy, C. L. (2010). Cooperation for reputation: Wasteful contributions as costly signals in public goods. *Group Processes & Intergroup Relations*, 13, 101–111. <https://doi.org/10.1177/1368430209342258>
- Van Vugt, M., Hogan, R., & Kaiser, R. B. (2008). Leadership, followership, and evolution: Some lessons from the past. *American Psychologist*, 63, 182–196. <https://doi.org/10.1037/0003-066X.63.3.182>
- Van Vugt, M., Jepson, S. F., Hart, C. M., & De Cremer, D. (2004). Autocratic leadership in social dilemmas: A threat to group stability. *Journal of Experimental Social Psychology*, 40, 1–13. [https://doi.org/10.1016/S0022-1031\(03\)00061-1](https://doi.org/10.1016/S0022-1031(03)00061-1)
- Vecchio, R. P. (1987). Situational Leadership Theory: An examination of a prescriptive theory. *Journal of Applied Psychology*, 72, 444–451. <https://doi.org/10.1037/0021-9010.72.3.444>
- Willer, R. (2009). Groups reward individual sacrifice: The status solution to the collective action problem. *American Sociological Review*, 74, 23–43. <https://doi.org/10.1177/000312240907400102>
- Wilson, M., & Daly, M. (1985). Competitiveness, risk taking, and violence: The young male syndrome. *Ethology & Sociobiology*, 6, 59–73. [https://doi.org/10.1016/0162-3095\(85\)90041-X](https://doi.org/10.1016/0162-3095(85)90041-X)
- Zahavi, A. (1995). Altruism as a handicap—The limitations of kin selection and reciprocity. *Journal of Avian Biology*, 26, 1–3. <https://doi.org/10.2307/3677205>
- Zuckerman, M., & Kuhlman, D. M. (2000). Personality and risk-taking: Common bisocial factors. *Journal of Personality*, 68, 999–1029. <https://doi.org/10.1111/1467-6494.00124>

Received February 13, 2019

Revision received November 4, 2020

Accepted November 9, 2020 ■