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Reckless Gambles and Responsible Ventures: Racialized Prototypes of Risk-taking

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Abstract

Risk-taking is sometimes admired and sometimes disparaged. In this research, we examined previously unexplored questions concerning how membership in social groups is related to expectations and perceptions of risk-taking. We propose that prototypes of risk-takers incorporate racial associations. We conducted five studies ($N_{\text{Total}} = 1,603$, predominantly White residents of the U.S.) examining whether prototypes of risk-takers—primarily reckless and responsible ones—activate racial stereotypes and discrimination. We first focused on whether participants perceive Black (vs. White) men as more likely to engage in risk-taking, broadly construed (Study 1). Next, we tested whether the trait attributions (Studies 2-3) and mental images constructed with the reverse correlation task (Study 3) of reckless risk-takers are more stereotypically Black (and less White) than responsible risk-takers. In Study 4, we employed an investment game to investigate participants' willingness to trust targets we depicted using the racialized mental images of reckless and responsible risk-takers derived from Study 3. A final study examined whether thinking about reckless risk-takers evokes Black stereotypes broadly, including even positive stereotype content. Findings confirmed that reckless risk-takers were imagined as more phenotypically Black and as having more stereotypically Black traits (both positive and negative), compared to responsible risk-takers. Theoretical and practical implications for this novel stereotype content in the domain of risk are discussed.

Keywords: stereotype, race, risk-taking, reckless, responsible

Reckless Gambles and Responsible Ventures: Racialized Prototypes of Risk-taking

From heroes, adventurers, and investors to villains, daredevils, and gamblers, there are many prototypical examples of people willing to go out on a limb to acquire that all too elusive fruit. Consider which social groups come to mind when asked who takes reasonable and responsible risks versus reckless and impulsive risks. Do these groups differ by race¹? Though much is known about how people engage with risk, an empirical understanding of how people mentally represent and associate risk-taking with social groups is largely absent. With the current work, we focus on understanding the mental representations of two prototypes of risk-takers—reckless and responsible—and whether such prototypes evoke racial connotations. We propose that these disparate approaches to risk-taking are infused with racialized content. We posit that reckless risk-takers are envisioned (primarily by White residents of the U.S.) as more stereotypically Black (and less White) than responsible risk-takers.

Conceptual prototypes—or central features of a concept—are useful and important to consider here, because prototypes help organize social perception (Cantor & Mischel, 1979; Fiske, 2018a; Rosch, 1999). Risk-taking is a broad concept that encompasses a wide range of behaviors (Blais & Weber, 2006), wherein various prototypes of risk-takers are possible. For instance, consider someone who takes risks without properly considering the negative consequences involved (e.g., an overly optimistic gambler). Now, consider someone who thinks carefully about the downsides involved before making a risk decision (e.g., a well-informed investor). Both are examples of risk-taking; however, the underlying approach and evaluative connotation of these risks vary. Despite this intuitive distinction, little research has focused on

¹ We use the term “race” to specifically refer to the socially constructed understanding of groups based on perceived physical traits and assumed ancestry (Yee et al., 1993; Zuckerman, 1990). By using the term, we do not assume or imply the existence of race as a meaningful biological concept.

how people come to understand others who take risks. Because risk-taking is a common and consequential experience in everyday life (Mishra, 2014), it is important and interesting to understand how people mentally represent prototypes of risk-takers. Indeed, William James (1895) once asserted, “It is only by risking our persons from one hour to another that we live at all” (p. 21), underscoring the relevance of the shared human pursuit of risk.

We focus on the potential racial connotations of risk-taking given the impactful nature of racial groupings in how humans perceive and evaluate each other (Fiske, 2018a; Dovidio & Jones, 2018) and the ambiguity of risk behaviors (Mishra, 2014). Because ambiguity can facilitate racial biases (Dovidio & Jones, 2018), stereotyping might be leveraged in the interpretation of risk-takers. If associations between race and risk exist, then when the meaning of risk-taking is ambiguous, perceivers may use the race of a risk-taker to disambiguate the risk, and perceivers may make inferences about the race of a risk-taker when such information is not explicitly specified.

Such a pattern between race and risk associations would be evidence of bidirectional stereotyping, consistent with the connectionist model of stereotyping (e.g., Cox & Devine, 2015; Eberhardt et al., 2004). This model posits that stereotypes can be activated in two basic directions: (1) social group categories can activate attributes (e.g., when prompted with the group “men”, the attribute “assertive” may be activated); (2) attributes can activate social group associations (e.g., when prompted with the attribute “assertive”, the group “men” may be activated). Strong connections between groups and attributes are considered bidirectional. For instance, Cox and Devine (2015) found that in a predominantly White U.S. sample, the stereotypical attribute of “threatening” is bidirectional with the social group of “Black men.” This means that when participants listed stereotypical attributes of “Black men,” the attribute

“threatening” was one of the most common attributes reported. The same goes for the reversal: “Black men” was one of the most common social groups reported when participants generated social groups who exhibit the attribute “threatening.” However, stereotypes can also be unidirectional, either primarily from a group-to-attribute direction or from an attribute-to-group direction. For instance, Cox and Devine (2015) also found that the stereotype attribute of “works for equal rights” strongly evokes spontaneous connections to Black men; however, that attribute is never activated when listing stereotypes of Black men, representing a unidirectional attribute-to-group association.

Though stereotyping research² has traditionally focused more on the group-to-attribute route, attribute-to-group stereotyping is theoretically a rich direction to investigate stereotypic associations (Cox & Devine, 2015). Prior research in this direction has demonstrated the fruitfulness of measuring social group associations from prototypical attributes. When social group membership is not visible, perceivers rely on visible stereotypical attributes to make inferences of social group membership. For example, in the U.S., people with gender-atypical body motions, body shapes, facial features, and fashion preferences are readily inferred to be gay or lesbian (Cox & Devine, 2014; Cox et al., 2016; Dotsch et al., 2011; Johnson et al., 2007). In addition to sexual orientation, particular concepts readily activate racial associations. People make stereotypical trait inferences of targets with Afrocentric facial features (i.e., shapes and hues), even if the target is categorically White (Blair et al., 2002). Racially ambiguous faces displaying angry expressions tend to be categorized as Black Americans, particularly among racially prejudiced perceivers (Hugenberg & Bodenhausen, 2004). Further, priming crime-related concepts (e.g., guns) strongly prompts visual attention to Black faces and

²It is important to note that the stereotyping literature reviewed uses samples primarily of White residents in the U.S., and thus the claims reviewed do not necessarily generalize to populations beyond these samples.

misremembering Black faces as more stereotypically Black than they actually are (Eberhardt et al., 2004). When categorizing faces that appear “criminal,” police officers are more likely to select Black (over White) faces (Eberhardt et al., 2004). Socioeconomic status prototypes can also evoke racial connotations. Representations of “welfare recipients” and the “poor” summon mental images resembling Black faces (Brown-Iannuzzi et al., 2017; Lei & Bodenhausen, 2017).

Prototypes of Risk-Takers

Researchers across the behavioral sciences have largely agreed that risk is most broadly conceptualized as outcome variance (e.g., Mishra, 2014; Mishra et al., 2017). Risk-taking refers to selecting (or taking) options with relatively more outcome variance than options associated with less variance (Byrnes et al., 1999), for which there is the possibility of positive and negative consequences. Absent from this definition is any explicit stipulation of the valence of the behavior, although evaluative connotations can be implied.

Given this broad definition, taking risks can encompass a wide range of behaviors. From risking one’s physical health to financial wellbeing to social reputation and belonging, risk-taking emerges across many domains of life (Blais & Weber, 2006; Levenson, 1990). Some approaches to risk-taking could be viewed with a sense of recklessness, such as when people decide to speed, have unprotected sex, use drugs, gamble, or commit crimes (Barclay et al., 2018; Blais & Weber, 2006; Byrnes et al., 1999; Duell et al., 2018; Figner & Weber, 2011). Other approaches to risk-taking, however, might seem more responsible, such as when people decide to donate a kidney, stand up for what they believe is right, initiate a friendship, move across the country away from their family to pursue their career, or invest in the stock market (Becker & Eagly, 2004; Blais & Weber, 2006; Duell & Steinberg, 2019; Patterson et al., 2019).

The range of risks is not just limited to the domain in which the risks are taken, but the risk can vary in how they are engaged or approached. Risks can be taken rashly, without much thought or regard for the potential danger or consequences for oneself or others (Arnett, 1995; Donohew et al., 2000; Duangpatra et al., 2009). For example, poor self-regulatory competence has been linked to participation in risky behaviors (Magar et al., 2008; Steinberg, 2010). This approach would suggest that risks could be taken even when the potential costs are excessive. Alternatively, risks can be taken prudently and calculatedly, with careful thought and consideration of the future consequences of an action (Berman & West, 1998; Mishra et al., 2017). For example, courageous action involves the pursuit of risks that are appropriate and measured as opposed to reckless (Gal & Rucker, 2020). This approach suggests that risks could be pursued in a way that mitigates the unnecessarily high potential for loss.

Considering this literature, we identify and focus on dual prototypes of risk-taking. The first involves taking risks in thoughtless and ill-considered ways, even though the risk of negative consequences could be quite high. We term this prototype of risk-taking as *reckless risk-taking*. The second involves risks taken in thoughtful and considered ways, wherein the risks involved would appear reasonable and appropriate. We term this prototype of risk-taking as *responsible risk-taking*. Although reckless and responsible risk-taking can both involve substantial uncertainty regarding the outcome, it is likely that the greater degree of thoughtfulness integral to responsible risk-taking will generally be associated with lower perceptions of risk involved in the decision. That is, we think that people may intuitively conceptualize risk-taking by naturally tending to conflate deliberation and costs of risks. Further, because people rarely have insight into the thought-processes of others (Waytz et al., 2010), they may merely draw inferences about deliberation based on the apparent appropriateness of the

risks taken. Though we center on these prototypes, there are certainly other combinations and dimensions of risk-taking that could be relevant for lay theories of risk-takers; however, we focus our inquiry on prototypes we predict contain racialized stereotype content.

Racial Stereotypes

Because we are interested in whether different social groups come to mind when considering various prototypes of risk-takers, we must consider potential evidence of risk-taking content in documented stereotypes. As described below, White Americans' stereotypes of Black Americans have been characterized as being relatively negative, masculine, and impulsive, and these qualities may overlap with beliefs about risk-taking, particularly in its more reckless forms.

As a means to promote, maintain, and justify inequality, Black Americans have been historically stereotyped in a negative light by White Americans (Kendi, 2017). Such negative stereotypes that are potentially related to risk-taking include the sexually promiscuous "Jezebel" for Black women, the uninhibited and animalistic "Mandingo" for Black men, and the media-driven portrayals of Black people as the "dangerous criminal" (Eberhardt et al., 2004; Goff et al., 2008a; Johnson et al., 2008). Further, Black men have been stereotyped as aggressive, angry, oversexed, threatening, and formidable (e.g., Calabrese et al., 2018; Duncan, 1976; Goff et al., 2008a, Hugenberg & Bodenhausen, 2003, 2004; Wilson et al., 2017). Conversely, White people (particularly White men) have been stereotyped in some relatively less negative ways potentially related to risk-taking: ambitious, intelligent, and materialistic (Conley et al., 2010; Petsko & Bodenhausen, 2019; Skinner et al., 2020; Zou & Cheryan, 2017).

Racial stereotypes are also gendered (e.g., Eagly & Kite, 1987). For instance, White Americans tend to conflate "Blackness" with "maleness" (Goff et al., 2008b). Black facial cues tend to be phenotypically associated with masculinity, such that Black (but not White)

ambiguously gendered faces are over-categorized as male (Johnson et al., 2012). Black Americans (relative to White Americans) also tend to be stereotyped as relatively dominant and athletic, consistent with masculine stereotypes (Galinsky et al., 2013). Gender stereotypes have been found to encompass beliefs about risk-taking: Taking risks is often implied as a stereotype of the male gender role of agency and assertiveness (Sczesny et al., 2018; Wood & Eagly, 2012). Men in the U.S. have also been consistently stereotyped as more reckless than women over the past fifty years (Nesbitt & Penn, 2000). Indeed, men tend to take more risks than women in a variety of potentially dangerous contexts (Blais & Weber, 2006; Byrnes et al., 1999). However, women tend to be more likely than men to take risks in ways that could be viewed as responsible. For example, women are more likely than men to indicate that they would donate a kidney, request flexible working arrangements, confront a friend or colleague about offensive remarks, and advocate for social justice (Becker & Eagly, 2004; Morgenroth et al., 2018).

Black people also face stereotypes of impulsivity (Duncan, 1976; Williams et al., 2016; Wittenbrink et al., 1997). Stereotypes of impulsivity—the tendency to act on a whim for short-term gains, neglecting long-term consequences—may be applied to Black Americans as a function of believing they tend to occupy harsh and unpredictable ecologies (Williams et al., 2016). Taken together, such negative, masculine, and impulsive stereotypes that surround Black people might lead people to stereotype Black people as relatively reckless risk-takers. Though this literature is suggestive of possible associations of reckless risk-taking with Blackness, such associations have not been directly tested.

Current Research

We sought to understand whether people view risk-takers in racialized ways. No known research has empirically investigated how people perceive risk-takers or whether these

perceptions are associated with racial groups. First, we tested whether people will perceive Black men as more willing to take risks than White men (Study 1). Next, we sought to scrutinize whether specific prototypes of risk-takers are racialized. We tested whether people (race unspecified) described as taking reckless risks are attributed traits consistent with Black stereotypes (Study 2). Conversely, we tested whether people seen as taking risks responsibly are attributed traits consistent with White stereotypes. In Study 3, we examined whether participants also spontaneously envisioned reckless and responsible risk-takers in phenotypically racialized ways. We tested whether the visual representations of reckless (vs. responsible) risk-takers are perceived as phenotypically more Black (and less White) and attributed more stereotypically Black (and less White) traits.

In Study 4, we examined the potential consequences of racialized risk-taker associations. In a financial investment scenario (with real money at stake for decision-makers), we tested whether visual representations of reckless risk-takers (derived from social perceivers' mental images of this category) are discriminated against in favor of visual representations of responsible risk-takers—resulting in lower pay for individuals whose facial appearance happens to look like a reckless risk-taker (Study 4).

To confirm that the risk-taking prototypes spontaneously activate racial associations broadly, we examined whether these associations would hold for positive racial stereotypes that are directly unrelated to risk-taking (Study 5). In other words, we were interested in whether people would guess that a reckless (vs. responsible) risk-taker has more Black stereotypic behaviors traits (and fewer White stereotypic behaviors and traits), even when those characteristics are positive (or at least neutral) in valence and unrelated to risk-taking.

Study materials and data for all five studies reported are available on the Open Science Framework (OSF): https://osf.io/vt2wk/?view_only=4aa85e8975af404a818d69ef32ad02a7. The Institutional Review Board approved of the studies reported in this paper.

Study 1

We tested whether the race of stimulus persons was associated with perceptions of risk-taking, broadly construed, and with perceptions of masculinity. Several facial images of Black and White men were rated on perceived masculinity and again on perceived risk-taking. We also tested whether the relation between stimulus race and risk-taking perceptions was mediated by masculinity perceptions. Because it was not the main focus of this paper, the mediation results were reported in the supplement.

Method

Participants and Design

A sample of 147 MTurk workers participated in an online study in exchange for \$0.50. We used the Qualtrics survey platform to conduct our study and sampled the MTurk population. The sample (71 women, 75 men, and 1 non-binary individual) consisted of mostly White people (105 White, 4 Black, 19 Latino, 16 Asian, and 8 multiracial) and their ages ranged from 18 to 71 years ($M = 35.88$, $SD = 11.89$). The sample was generally politically moderate ($M = 3.72$, $SD = 1.78$, on a 7-point scale from 1 = *very liberal* to 7 = *very conservative*).

This study was a within-subjects design in which all participants rated the perceived masculinity and perceived risk-taking of each of the 60 men (30 Black, 30 White) based on their headshots. According to Judd et al. (2012), in a design where participants are crossed with condition and stimuli (and are nested within its two levels), a sample size of 30 participants would be sufficient to detect a medium effect at 80% statistical power using 70 stimuli in a two-

condition study (35 stimuli per condition). We opted to recruit a substantially larger sample size of approximately 150, in order to have the statistical power to detect small effects with greater precision and to have a wider range of respondent diversity than would be captured with only 30 participants.

Procedure and Materials

Participants were asked to make two different sets of judgments about facial images: (1) perceptions of masculinity and (2) perceptions of risk-taking. Perceived masculinity was measured by rating the target image from 0-*not at all* to 100-*extremely* (sliding scale). Perceived risk-taking was measured with a rating from 0-*not at all* to 100-*extremely*. To give participants the same point of reference, “masculine” and “risk-taking” were broadly defined before making respective ratings. Masculinity was defined as having qualities or appearance traditionally associated with men, especially strength and aggressiveness. Risk-taking was defined as the willingness to take risky action in the hope of a desired result. Both definitions were taken from their dictionary meanings to most closely capture how laypeople come to understand these terms. Participants rated all faces (randomly presented) on perceived masculinity and then again on perceived risk-taking. To manipulate race, facial images were borrowed with permission from the *Chicago Face Database* (CFD; Ma et al., 2015). The highest-rated racially prototypical facial images of Black men (30 images) and White men (30 images) with affectively neutral expressions were selected. The images were also matched between race conditions on the perception of attractiveness, threat, and age (i.e., the mean ratings of these images did not differ as a function of race).

Results

We examined whether Black faces would be rated as more masculine and more risk-taking than White faces. To test our hypothesis, we relied on multilevel models that allowed us to account for the race manipulation to be nested within each participant and stimuli as crossed random factors. As recommended by Judd et al. (2012), we included a random intercept for stimuli and allowed target race to vary randomly across participants (i.e., $\text{response} = \text{target race} + (1 | \text{stimuli}) + (\text{target race} | \text{participants})$). The first multilevel model analysis yielded a fixed effect of stimulus race on perceptions of risk-taking in the predicted direction, $M_{diff} = 4.52$, ($SE = 1.45$), $CI_{95} [1.57, 7.46]$, $F(1, 145) = 9.18$, $p = .003$, $d = 0.20$. Black men were rated as significantly more likely to take risks ($M = 59.49$, $SD = 21.79$) than White men ($M = 54.98$, $SD = 23.37$). The second multilevel model analysis yielded a moderately large fixed effect of stimulus race on perceptions of masculinity in the predicted direction, $M_{diff} = 8.47$ ($SE = 1.58$), $CI_{95} [5.48, 11.45]$, $F(1, 86.7) = 31.69$, $p < .001$, $d = 0.42$. That is, Black men were rated as significantly more masculine ($M = 71.67$, $SD = 19.79$) than White men ($M = 63.20$, $SD = 21.50$). Lastly, we found a positive correlation between participants' perceptions of masculinity and risk-taking of the facial images presented, $r(8819) = .27$, $p < .001$.

Discussion

These results supported our hypothesis that Black men are judged as more likely to take risks than White men. We examined whether a race-risk association can be directly detected accounting for the idiosyncratic features of stimuli. Using multilevel modeling and treating sample stimuli as a random factor, we observed relatively little variance between stimuli within racial categories (random effects variance due to stimuli = 16.26), suggesting that the observed effects were most likely due to the stereotypical activation of the racial categories (random effects variance due to racial category = 149.04). By taking these steps, we were better situated

to conclude that the observed effects are driven by the concept of race and not by any particular stimuli. Because we measured perceived masculinity before perceived risk-taking, it is worth noting that participants may have been primed to associate risk-taking with race. This finding supported the predicted racial association with taking risks, and the subsequent studies illuminate a more nuanced understanding of the race-risk connection.

Study 2

The first study provided evidence of a Black male association with generalized risk-taking. We next examined whether more specific forms of risk could provide a more nuanced and precise understanding of the racialized nature of risk-taking representations. We investigated two distinct prototypes of risk-taking: reckless and responsible. Because Black stereotype content can be relatively negative, masculine, and impulsive, we expected that the race associations of risk may manifest as an association between Blackness with reckless risk-taking as well as between Whiteness and responsible risk-taking.

We first examined whether racial associations are evident in people's trait representations of these prototypes of risk-takers. Specifically, participants were randomly assigned to nominate traits of one of the risk-taker prototypes, and then we tested whether the traits nominated differ in how stereotypically Black and White they are perceived to be. We predicted that the traits nominated for reckless risk-takers to be rated as more stereotypically Black (and less stereotypically White) than the traits nominated for responsible risk-takers. We preregistered our hypotheses on OSF: https://osf.io/6yhwd/?view_only=d2a4ace14c634c268110f520576e9418.

We explored whether masculinity and femininity of traits differed between risk-taker prototypes. We also tested whether the predicted racialization of each risk-taker category could be explained by other features associated with the traits selected. Considering that reckless and

responsible risk-taking likely connote differences in valence, we tested whether positivity alone accounted for any racialization differences between the risk-taker prototypes beyond other possible qualities, such as class, age, and gender associations.

Method

Design and Participants

This experiment has a single, between-subjects factor: target risk-taker (reckless, responsible). A total sample of 304 MTurk workers participated in an online study in exchange for \$0.60. We used Qualtrics to conduct our study and sampled the MTurk population using TurkPrime sampling services. Given that we did not have an effect size with which to calculate an a priori power analysis, we planned to target a relatively large sample of 150 participants per condition. We thus planned to recruit approximately 300 participants to have enough statistical power to detect medium-sized effects (e.g., Ledgerwood, 2018). The sample (180 women, 121 men, 2 transgender individuals, and 1 non-binary individual [options were not mutually exclusive, in that all options that apply could be selected]) consisted mostly of White people (203 White, 37 Black, 33 Latino, 26 Asian, 7 Middle Eastern, and 11 multiracial) and their ages ranged from 18 to 70 ($M = 31.85$, $SD = 9.77$). The sample was generally well-educated (44.4% indicated having a bachelor's degree or higher) and politically moderate ($M = 3.72$, $SD = 1.47$, with the 7-point scale from Study 1). In this study (and the subsequent studies), we used a quality control feature to prevent access to those who do not pass basic English comprehension checks.

Procedure and Materials

Participants were told that the researchers were interested in which personality traits people associate with various social roles. Participants were then told that they would see a

checklist of personality traits and were requested to look them over and select all traits that represent the category randomly assigned: either responsible risk-takers or reckless risk-takers.

Participants were then provided with a brief definition of whichever risk-taker prototype they were assigned. Responsible risk-takers were described as “people who take chances to achieve things they desire, but they carefully consider the potential downside that may be involved; they are willing to take risks only when the potential costs are reasonable.” Reckless risk-takers were described as “people who take chances to achieve things they desire, without really considering the potential downside that may be involved; they are willing to take risks even when the potential costs could be quite high.”

Participants were next requested to take a moment to consider what personality traits are associated with the risk-taker prototype and then were directed to select all traits that represent the risk-taker prototype from 99 traits presented in a randomized order. The personality traits presented were taken from a stereotype checklist commonly used in stereotyping research (Galinsky et al., 2013; Katz & Braly, 1933; Petsko & Bodenhausen, 2019). Consistent with the approach by Petsko and Bodenhausen (2019), after making their initial nominations, participants were subsequently presented with their nominations and were then asked to select the top ten traits that are the best representative of the risk-taker category. Upon completion of their final trait nominations, participants responded to demographics questions and then were debriefed.

To determine the extent to which the top traits nominated for each risk-taker prototype were stereotypically racialized, we calculated Blackness and Whiteness scores for each of the traits using racial stereotypicality ratings provided by independent samples reported in prior research (Petsko & Bodenhausen, 2019). Petsko and Bodenhausen recruited 320 MTurk workers (208 men, 119 women; $M_{age} = 33.85$, $SD_{age} = 10.60$; 244 White, 26 Asian, 23 Black, 16 Latinx, 3

multiracial, 3 other) to rate how stereotypically Black or White the average American would consider each of the 99 personal traits (from the stereotype checklist), from 1 = *Not at all* [Black, White] to 7 = *Very* [Black, White]. Using these Blackness and Whiteness scores for each trait, we computed how stereotypically Black and how stereotypically White each participant's top ten traits were, on average. We used the same procedure to calculate how masculine, feminine, positive, old, and high status were the traits selected for each of the risk-taker prototypes.

Using the trait ratings of these dimensions, we conducted exploratory mediation analyses using Hayes (2017) PROCESS examining the effect of the risk-taker category on the stereotypical Blackness outcome with positivity, socioeconomic status, oldness, masculinity, and femininity as simultaneous mediators (with 5000 bootstrap samples). We then repeated this analysis with stereotypical Whiteness as the outcome.

Results

Primary Racial Stereotypicality Analyses

Using independent samples *t*-tests, we tested whether the racial stereotypicality scores computed for the traits nominated for each risk-taker prototype significantly differed on average (see Table 1). As predicted, participants nominated stereotypically Blacker traits for the reckless risk-taker than for the responsible risk-taker, $M_{diff} = 1.35$ ($SE = 0.04$), $CI_{95} [1.26, 1.44]$, $t(302) = 30.53$, $p < .001$, $d = 3.50$ (see Table 2). As expected, participants nominated stereotypically Whiter traits for the responsible risk-taker than for the reckless risk-taker, $M_{diff} = 0.47$ ($SE = 0.03$), $CI_{95} [0.41, 0.53]$, $t(302) = 15.68$, $p < .001$, $d = 1.80$ (see Figure 1). We also tested whether the stereotypical Blackness (vs. Whiteness) scores were higher for the reckless risk-taker traits but lower for the responsible risk-taker traits. As predicted for the traits nominated for reckless risk-taker, we found that the stereotypical Blackness of the traits was higher ($M = 4.67$, $SD =$

0.28) than the stereotypical Whiteness ($M = 4.18$, $SD = 0.32$), $M_{diff} = 0.49$ ($SE = 0.03$), CI_{95} [0.43, 0.56], $t(302) = 14.30$, $p < .001$, $d = 1.64$. As expected for the traits nominated for the responsible risk-taker, the stereotypical Blackness of the traits was lower ($M = 3.32$, $SD = 0.47$) than the stereotypical Whiteness ($M = 4.65$, $SD = 0.19$), $M_{diff} = 1.33$ ($SE = 0.04$), CI_{95} [1.25, 1.41], $t(302) = 32.51$, $p < .001$, $d = 3.73$. Our preregistered hypotheses were robustly supported.

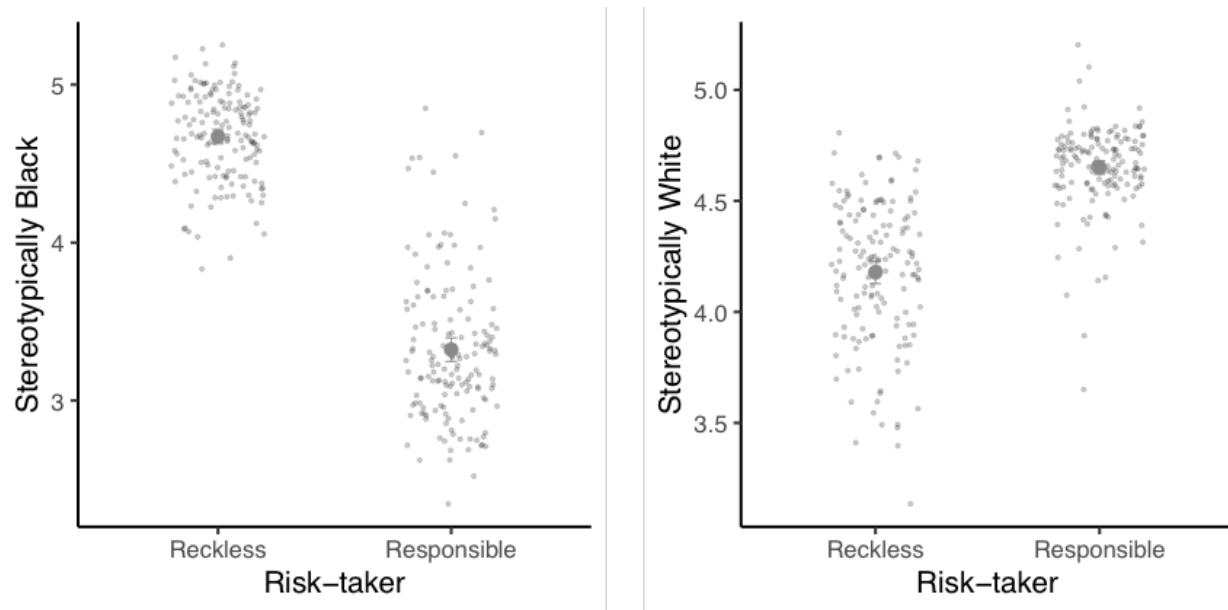
Table 1*Most Nominated Traits for Risk-takers*

Reckless Risk-taker					Responsible Risk-taker				
	Trait	%	M_{Black}	M_{White}		Trait	%	M_{Black}	M_{White}
1	impulsive	78	5.05	4.40	1	intelligent	61	2.76	5.08
2	arrogant	48	5.04	4.84	2	ambitious	57	2.91	5.19
3	aggressive	47	5.44	3.51	3	persistent	49	3.81	4.91
4	quick-tempered	38	5.38	3.77	4	efficient	46	2.72	4.78
5	stubborn	35	4.69	4.69	5	practical	45	2.83	4.40
6	radical	33	4.37	3.30	6	passionate	39	4.29	4.59
7	ambitious	32	2.91	5.19	7	methodical	38	2.76	4.54
8	persistent	30	3.81	4.91	8	straightforward	38	4.13	4.69
9	unreliable	30	4.99	2.95	9	patient	37	2.30	4.26
10	boastful	28	5.14	4.77	10	alert	32	3.68	4.56

Note. % indicates the percentage of participants within the risk-taker condition that nominated the corresponding trait as most representative. M indicates the stereotypic Blackness and Whiteness mean scores of the listed trait.

Table 2*Means and Standard Deviations of Nominations of Risk-takers*

Trait Nominations	Reckless Risk-taker		Responsible Risk-taker	
	M	(SD)	M	(SD)
Trait Blackness	4.67	(0.28)	3.32	(0.47)
Trait Whiteness	4.18	(0.32)	4.65	(0.19)
Trait Masculinity	4.47	(0.29)	4.41	(0.28)
Trait Femininity	3.71	(0.37)	4.05	(0.25)

Figure 1*Trait Attributions of Racial Stereotypicality*

Note. Individual responses, means, and 95% CIs (error bars) of the trait attributions.

Exploratory Gender Stereotypicality Analyses

We tested whether the traits nominated for each risk-taker category are differentiated on gender stereotypicality. Although descriptively, participants nominated more masculine traits for the reckless risk-taker than for the responsible risk-taker, $M_{diff} = 0.06$ ($SE = 0.03$), $CI_{95} [-0.01, 0.12]$, $t(302) = 1.73$, $p = .086$, $d = 0.20$, though this difference was not statistically significant. Participants nominated more feminine traits for the responsible risk-taker than for the reckless risk-taker, $M_{diff} = 0.33$ ($SE = 0.04$), $CI_{95} [0.26, 0.40]$, $t(302) = 9.29$, $p < .001$, $d = 1.06$.

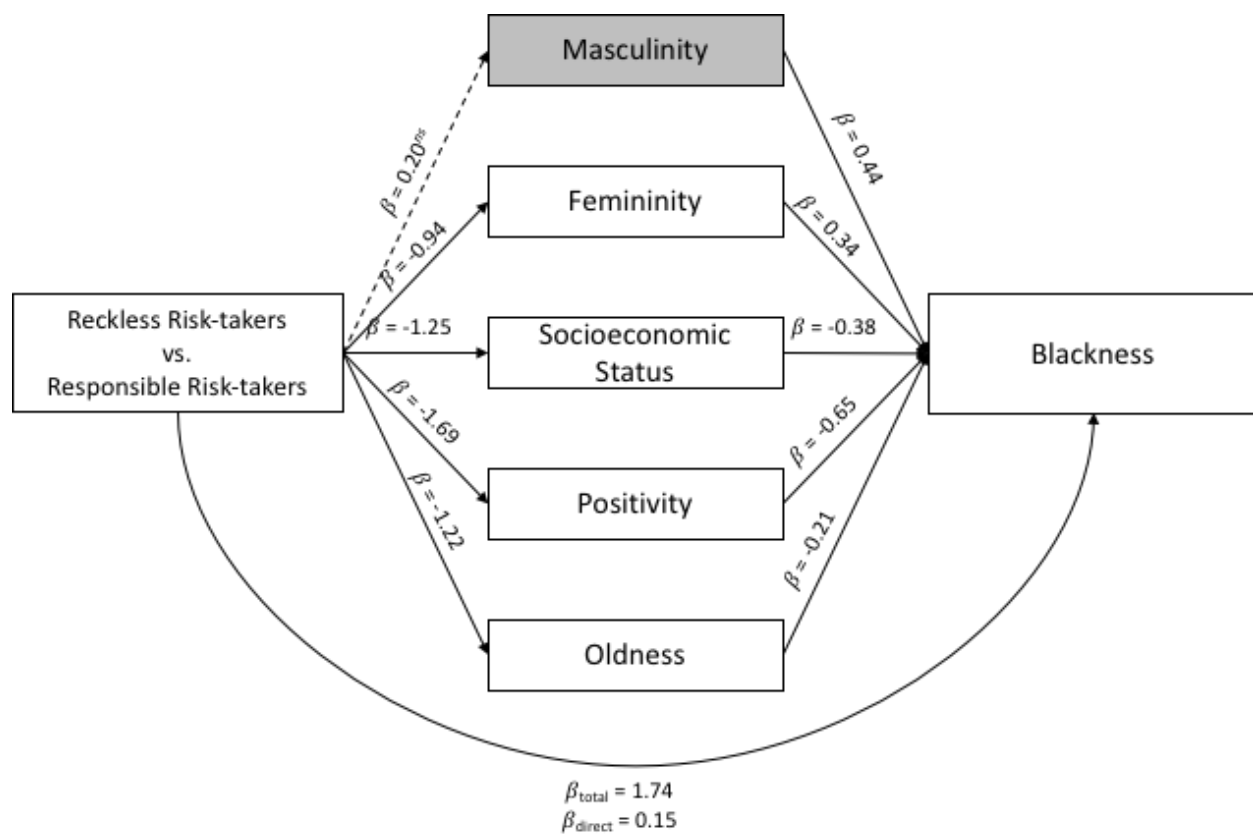
Exploratory Mediation Analyses

We explored whether positivity alone accounted for the racialization differences between each risk-taker category beyond other possible associations. The mediational results indicate that the perceived association of positivity, socioeconomic status, oldness, and femininity with the traits selected for reckless (vs. responsible) risk-takers uniquely and significantly explained

variance in the stereotypical Blackness of these risk-takers (see Figure 2).³ The results for the stereotypical Whiteness outcome were nearly the same, except that positivity was not a significant mediator (see Figure 3). See the supplemental materials for the full reporting of mediation results. These findings suggested that the difference in the racialization of reckless and responsible risk-takers is not simply due to valence ostensibly associated with these categories.

Figure 2

Statistical Mediation Model Explaining Blackness

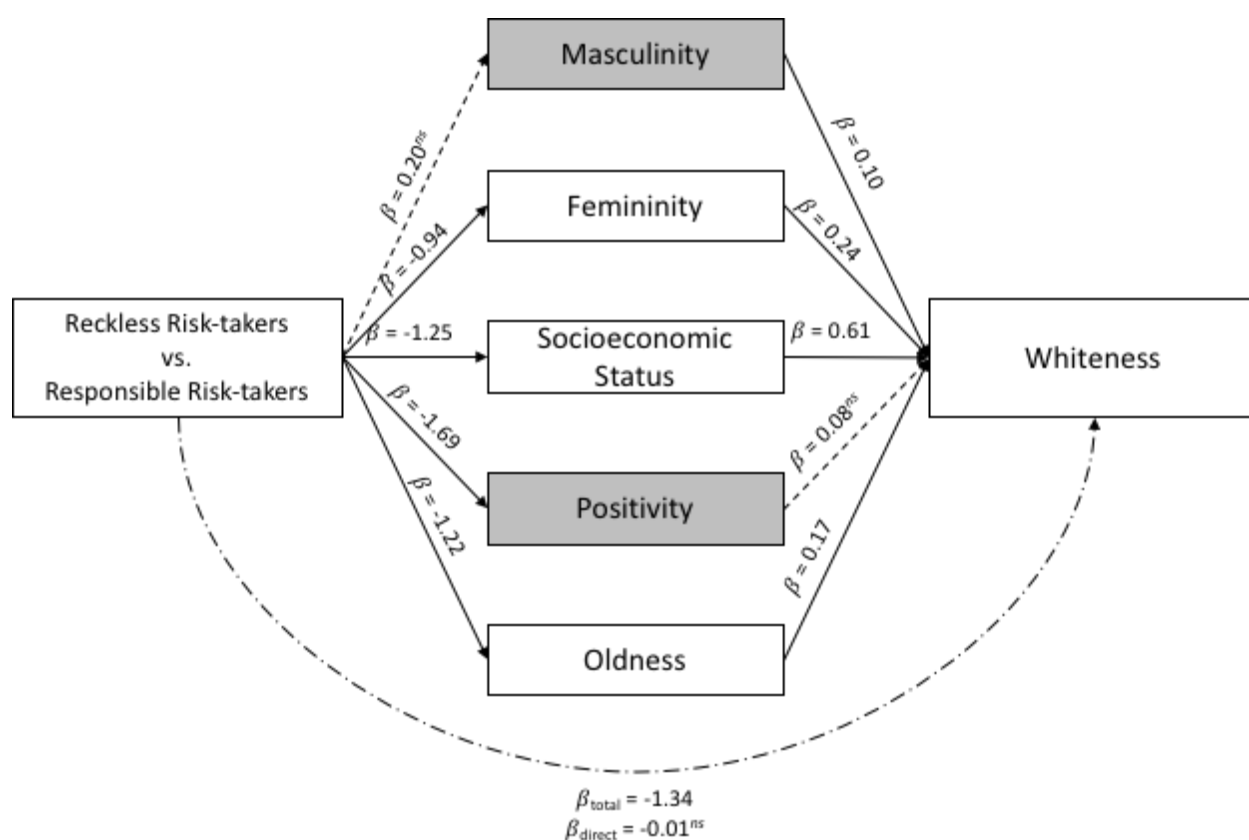


³ The positive relationship between femininity and blackness results when statistically accounting for the other mediators simultaneously; however, this relationship is negative when examining femininity and blackness independent from the other mediators, $r(304) = -.49, p < .001$, linear regression: $\beta = -0.49, t(302) = -9.79, p < .001$. This reversal in association between femininity and blackness is consistent with the statistical phenomena of suppression effects (e.g., Tu, Gunnell, & Gilthorpe, 2008). A potential explanation of the reversal is that femininity and blackness stereotypes may share a common perception of low status/inferiority when accounting for the other mediators in the model.

Note. Standardized regression coefficients for the relationship between the risk-taking category and stereotypical Blackness of traits nominated as simultaneously mediated by various dimensions. Greyed mediators indicate non-significant indirect effects for that pathway. The direct effect remains significant with the inclusion of the mediators. Dotted lines indicate non-significant pathways.

Figure 3

Statistical Mediation Model Explaining Whiteness



Note. Standardized regression coefficients for the relationship between the risk-taking category and stereotypical Whiteness of traits nominated as simultaneously mediated by various dimensions. Greyed mediators indicate non-significant indirect effects for that pathway. The direct effect becomes non-significant with the inclusion of the mediators. Dotted lines indicate non-significant pathways (e.g., the direct effect after the inclusion of the mediators).

Discussion

Our preregistered hypotheses were confirmed, such that the trait representations of reckless (vs. responsible) risk-takers were more stereotypically Black and less stereotypically White. These findings emerge even though the race of the risk-takers was never indicated or implied, suggesting that the racialization of risk-takers occurred spontaneously. This study builds on our initial evidence of a generalized Black-risk association by providing a more nuanced picture concerning the ways risk-takers are racialized, such that Black stereotypes appear to be specifically associated with reckless risk-taking more strongly than risk-taking broadly.

We found that the racialization of risk-takers was not simply reducible to the generally negative and positive valences potentially associated with these risk-taker prototypes. In fact, the perceived Whiteness of these risk-taker prototypes was *not* mediated by valence. Perceived Blackness was mediated by multiple other factors beyond positivity. The racial distinction between risk-taker prototypes was not simply a function of how negative or positive it is perceived to be. Moreover, there are multiple factors seemingly contributing to this pattern, and the effects cannot be reduced to any single factor tested as none of them were full mediators.

Study 3

We have provided evidence of a generalized Black-risk association when evaluating the perceived risk-taking propensity of Black and White men (Study 1). We also found that racial stereotypes overlap with two prototypes of risk-taking (Study 2). Given that trait representations of risk-takers evoke social content, we wanted to test for convergent evidence by examining whether the visual images people picture of risk-takers are also racialized.

We asked whether people envision reckless and responsible risk-takers in racially differentiated ways and whether this visualization corresponds with how stereotypes of risk-

takers are racialized. We investigated the imagined facial phenotypes of responsible and reckless risk-takers using the reverse correlation task. The reverse correlation task is a method that aggregates perceivers' selections of randomly varying visual stimuli to produce a two-dimensional spatial representation of the targeted mental representation (Brinkman et al., 2017; Dotsch & Todorov, 2012). The visual stimuli are created by overlaying many random noise patterns over the same base image. Participants classify these created stimuli on some construct (such as a social group category, emotion, or trait), and then their classifications are aggregated to produce a composite (or classification image or CI) of the target construct. We can also construct composite images based on the faces that were *not* chosen in the dichotomous choice trials (or the anti-classification image or anti-CI), which by definition are deemed less representative of the target construct than the chosen images. The anti-classification images may conceptually resemble the opposing ends of the target dimensions (Dotsch & Todorov, 2012), because we define reckless and responsible risk-taking as opposing constructs. To examine perceptions of classification images, a different set of participants rate the CI on a dimension of interest and then compare these ratings to that of a CI produced with a different construct of interest and/or to the anti-CI.

We examined whether the trait representations attributed to the visual constructions of the risk-taker prototypes are racialized (and gendered). We predicted that the traits attributed to the reckless risk-taker image would be stereotypically more Black (and masculine) as well as stereotypically less White (and feminine) than the traits attributed to the responsible risk-taker image. Because anti-CIs represent the conceptual opposite of what participants imagined the target construct to look like, we expected the opposite pattern of results for the anti-reckless and anti-responsible images, providing convergent evidence of racialization. We anticipate this

pattern because reckless and responsible risk-taking are theoretically opposing constructs, given the definitions provided to participants.

We also tested whether the racial and gender phenotypicality of reckless risk-takers and responsible risk-takers would significantly differ. We expected ratings of phenotypic Blackness-to-Whiteness and masculinity-to-femininity (both on a single continuum) to be higher for reckless than responsible risk-takers. We expected the opposite pattern for the anti-reckless and anti-responsible images. To be transparent, we collected additional classification judgments regarding the concept of a “reluctant risk-taker” for exploratory purposes, but these data were outside the primary focus of this paper, so the data are available on OSF.

Method

This study employed a two-phase method. In Phase 1, we used the reverse correlation task to construct the risk-taker prototype images. In Phase 2, we used a separate sample to measure the race and gender perception content of the risk-taker prototype images constructed from Phase 1.

Phase 1

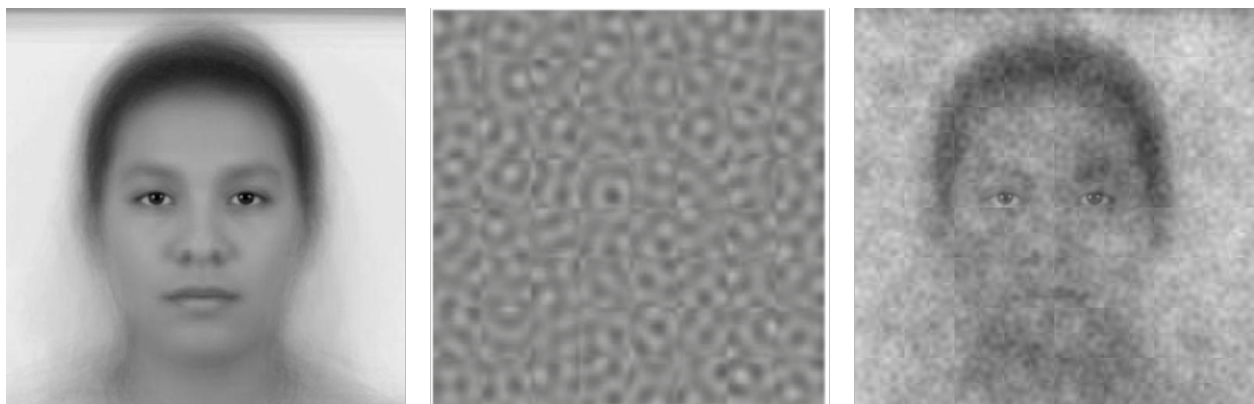
Participants. For the reverse correlation task, a total sample of 301 MTurk workers participated in an online study in exchange for \$1.50. We aimed for a large sample to increase the precision of constructed images. We used Qualtrics to conduct our study and sampled the MTurk population using TurkPrime. The sample (174 women, 126 men, 2 transgender individuals, and 3 non-binary individuals [gender categories were not mutually exclusive; e.g., participants could select both “woman” and “transgender”]) consisted of mostly White people (190 White, 47 Black, 36 Latino, 22 Asian, 1 Middle Eastern, and 14 multiracial) and their ages ranged from 18 to 65 ($M = 32.34$, $SD = 9.52$). The sample was generally well-educated (50.8%

indicated having a bachelor's degree or higher) and politically slightly liberal ($M = 3.56$, $SD = 1.57$, on the same scale previously reported).

Materials. We created a series of facial stimuli for participants in Phase 1 to complete the reverse correlation task. Following the recommended procedure and specifications (Brinkman et al., 2017; Dotsch & Todorov, 2012), the original stimuli was specified to consist of 300 randomized sine-wave black-white noise patterns superimposed over a base facial image (all stimuli were selected for use; see Figure 4). Images were generated using the *rcicer* package in R (Brinkman et al., 2017). The base image was created by averaging a range of database faces based on race (Black, White, Asian, Latino) and gender (female, male).⁴ In addition to the original images, we created 300 images that were the mathematical inverse (visually) of the original images (for a total of 300 original images and 300 inverse images). After participants made their selections, we created aggregated images (using R) of what participants envision reckless and responsible risk-takers (and anti-CIs) look like (see Figure 5).

Figure 4

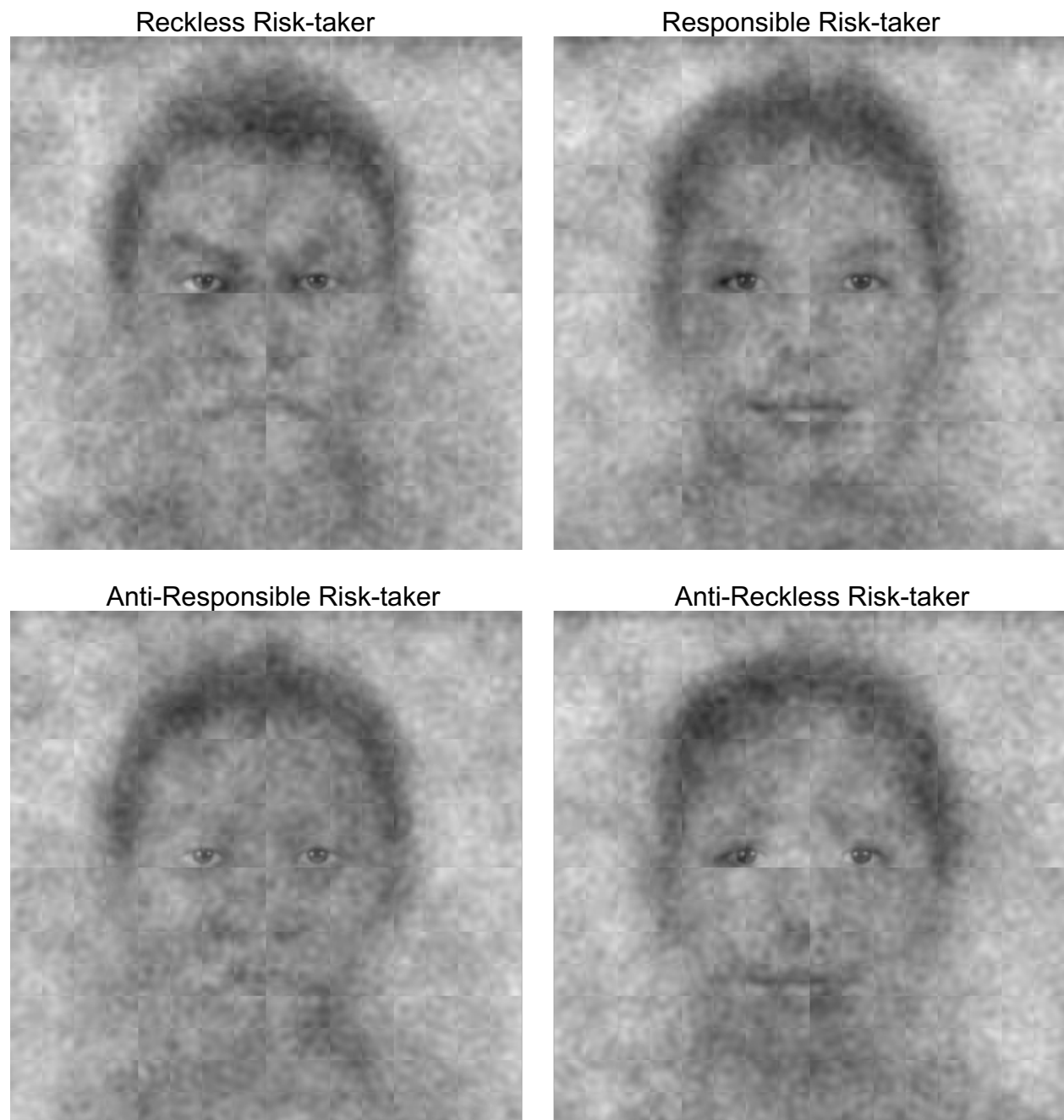
Sample Reverse Correlation Stimulus Materials



⁴ We thank colleague Natalie Gallagher for creating and sharing the base face image.

Note. The base face (left), an example of a random sine-wave noise pattern (center), and an example of the noise pattern superimposed over the base face (right).

Procedure. Participants were told that the researchers were interested in learning about how people envision what others look like. Participants were then told that they would get to respond to a series of faces, whereby two faces will be presented side-by-side for each trial. Participants were instructed to select the face in each pair that most resembles the risk-taker category to which they were randomly assigned: either responsible risk-takers or reckless risk-takers. Using the same descriptions provided in the previous study, the risk-taker category assigned was described to participants and then we directed them to take a moment to consider what people in the risk-taker category look like. After reviewing the provided definition of the risk-taker prototype and contemplating what a risk-taker might look like, participants were presented with 300 trials (appearing in a random sequence only once) wherein they had to decide which risk-taker image looked most reckless or most responsible. For each trial, participants were presented with two images side-by-side: an original image and its corresponding inverse image (with the presentation order left-to-right randomized). Participants were prompted to select from these two images of the target that looks most reckless or most responsible depending upon which condition they were randomly assigned. Upon completion of their selections across 300 trials, participants answered a few demographics questions and then were debriefed.

Figure 5*Classification Images*

Note. The (anti-)classification images produced for each risk-taker category: reckless (top left), responsible (top right), anti-responsible (bottom left), and anti-reckless (bottom right).

Phase 2

Participants. For the ratings of the (anti-)classification images, a sample of 402 MTurk workers participated in an online study in exchange for \$0.90. We aimed to recruit at least 100 participants to rate each image. We used Qualtrics to conduct our study and sampled the MTurk population using TurkPrime. The sample (204 women, 194 men, 2 transgender individuals, and 2 non-binary individuals [gender categories were not mutually exclusive]) consisted of mostly White people (256 White, 51 Black, 40 Latino, 39 Asian, 3 Middle Eastern, and 30 multiracial) and their ages ranged from 18 to 77 ($M = 31.82$, $SD = 10.47$). The sample was generally well-educated (45.2% indicated having a bachelor's degree or higher) and politically slightly liberal ($M = 3.67$, $SD = 1.52$, on the same scale previously reported).

Materials. Participants nominated traits that they would attribute to the face in the (anti-)classification image. We measured this the same way as in the previous study, wherein participants were presented with 99 traits that were previously rated on their stereotypical Blackness, Whiteness, masculinity, and femininity (Petsko & Bodenhausen, 2019).

Participants also rated the (anti-)classification images produced in the reverse correlation task on the phenotypic race and gender prototypicality. Race perception was measured on a single continuum, using a 9-point bipolar scale from 1 = *Eurocentric* to 9 = *Afrocentric*. Eurocentric was defined as “having European or White physical features;” Afrocentric was defined as “having African or Black physical features.” Gender perception was measured on a single dimension, using a 9-point bipolar scale from 1 = *masculine* to 9 = *feminine*. Masculine was defined as “having qualities or appearance traditionally associated with men;” feminine was defined as “having qualities or appearance traditionally associated with women.”

For exploratory purposes, we measured target perceptions of communion (warmth, morality) and agency (competence, assertiveness). We also examined the ratings of socioeconomic status, positive valence, and age associated with the traits selected for the images. The method and results of these ratings were reported in the supplemental materials.

Procedure. Participants were told that the researchers were interested in learning about how people form impressions of others and were instructed to make a series of judgments of the randomly assigned (anti-)classification image. Out of the 99 presented traits, participants first nominated all the traits that they would attribute to the face pictured in the (anti-)classification image and then they narrowed down their selections to the ten most representative traits. Participants then provided the ratings on racial and gender phenotypicality perceptions. Lastly, participants answered demographic questions and then were debriefed and compensated.

Results

Trait Attributions

Race Stereotypicality. As predicted, participants nominated stereotypically Blacker traits for the reckless risk-taker image than for the responsible risk-taker image, $M_{diff} = 0.92$ ($SE = 0.11$), $CI_{95} [0.71, 1.14]$, $t(197) = 8.44$, $p < .001$, $d = 1.20$ (see Tables 3-4). Conversely, participants also nominated stereotypically Whiter traits for the responsible risk-taker image than for the reckless risk-taker image, $M_{diff} = 0.35$ ($SE = 0.05$), $CI_{95} [0.25, 0.45]$, $t(197) = 6.69$, $p < .001$, $d = 0.95$ (see Figure 6).

We expected the opposite pattern to emerge for anti-CIs. As anticipated, participants nominated stereotypically Blacker traits for the anti-responsible risk-taker image ($M = 3.39$, $SD = 0.85$) than for the anti-reckless risk-taker image ($M = 3.14$, $SD = 0.76$), $M_{diff} = 0.25$ ($SE = 0.11$), $CI_{95} [0.03, 0.47]$, $t(201) = 2.21$, $p = .028$, $d = 0.31$. Conversely, participants also

nominated stereotypically Whiter traits for the anti-reckless risk-taker image ($M = 4.09$, $SD = 0.35$) than for the anti-responsible risk-taker image ($M = 3.90$, $SD = 0.45$), $M_{diff} = 0.19$ ($SE = 0.06$), $CI_{95} [0.08, 0.30]$, $t(201) = 3.33$, $p = .001$, $d = 0.47$. The results for the anti-classification images mirrored that of the classification images.

Table 3

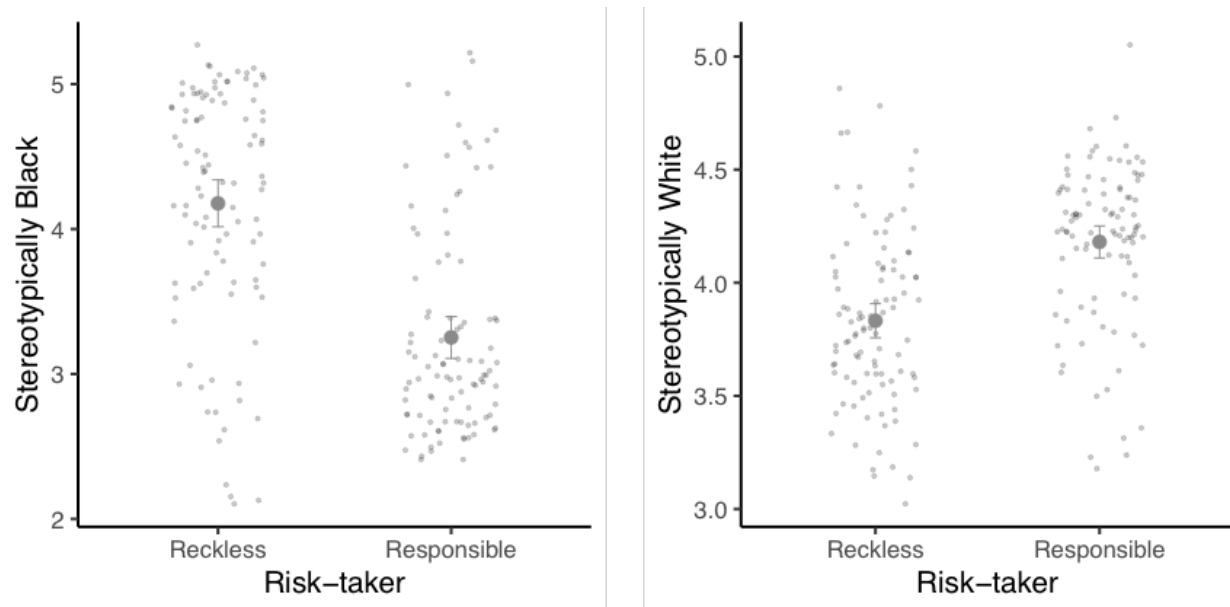
Most Nominated Traits for the Risk-taker Images

Reckless Risk-taker					Responsible Risk-taker				
	Trait	%	M_{Black}	M_{White}		Trait	%	M_{Black}	M_{White}
1	hostile	44	5.28	3.34	1	quiet	53	2.01	3.73
2	aggressive	36	5.44	3.51	2	gentle	45	2.41	4.23
3	suspicious	31	4.95	3.92	3	kind	45	3.23	4.56
4	quiet	27	2.01	3.73	4	polite	35	2.63	4.91
5	humorless	26	2.62	3.51	5	reserved	30	2.10	3.88
6	criminal	25	5.40	2.87	6	shy	27	2.01	3.35
7	quick-tempered	22	5.38	3.77	7	honest	24	3.12	4.51
8	reserved	22	2.10	3.88	8	patient	22	2.30	4.26
9	violent	21	5.26	3.18	9	sensitive	22	2.99	4.51
10	argumentative	19	5.30	4.24	10	courteous	17	2.58	4.68

Note. % indicates the percentage of participants within the risk-taker condition that nominated the corresponding trait as most representative. M indicates the stereotypic Blackness and Whiteness mean scores of the listed trait.

Table 4*Means and Standard Deviations of Ratings of Risk-taker Images*

Participant Responses	Reckless Risk-taker		Responsible Risk-taker	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
Phenotypic Blackness (relative to Whiteness)	6.22	(2.21)	4.81	(1.62)
Phenotypic Masculinity (relative to Femininity)	7.48	(1.89)	3.69	(2.27)
Trait Blackness	4.18	(0.82)	3.25	(0.72)
Trait Whiteness	3.83	(0.38)	4.18	(0.35)
Trait Masculinity	4.07	(0.36)	3.45	(0.46)
Trait Femininity	3.43	(0.54)	4.54	(0.71)

Figure 6*Trait Attributions of Racial Stereotypicality*

Note. Individual responses, means, and 95% CIs (error bars) of the trait attributions.

Gender Stereotypicality. As anticipated, participants nominated traits that were stereotypically more masculine for the reckless risk-taker image than for the responsible risk-taker image, $M_{diff} = 0.62$ ($SE = 0.07$), $CI_{95} [0.49, 0.75]$, $t(197) = 9.47$, $p < .001$, $d = 1.34$ (see Table 4). As expected, participants nominated traits that were stereotypically more feminine for the responsible risk-taker image than for the reckless risk-taker image, $M_{diff} = 1.11$ ($SE = 0.09$), $CI_{95} [0.93, 1.28]$, $t(197) = 12.49$, $p < .001$, $d = 1.77$.

As anticipated, participants nominated traits that were stereotypically more masculine for the anti-responsible risk-taker image ($M = 3.49$, $SD = 0.52$) than for the anti-reckless risk-taker image ($M = 3.26$, $SD = 0.57$), $M_{diff} = 0.23$ ($SE = 0.08$), $CI_{95} [0.08, 0.38]$, $t(201) = 3.04$, $p = .003$, $d = 0.43$. As anticipated, participants also nominated traits that were stereotypically more feminine for the anti-reckless risk-taker image ($M = 4.60$, $SD = 0.64$) than for the anti-responsible risk-taker image ($M = 4.05$, $SD = 0.71$), $M_{diff} = 0.55$ ($SE = 0.10$), $CI_{95} [0.37, 0.74]$, $t(201) = 5.82$, $p < .001$, $d = 0.82$.

Phenotypicality Perceptions

Race Phenotypicality. As predicted, we found that the reckless risk-taker image was rated as significantly more Afrocentric (relative to Eurocentric) than the responsible risk-taker image, $M_{diff} = 1.41$ ($SE = 0.28$), $CI_{95} [0.87, 1.95]$, $t(197) = 5.13$, $p < .001$, $d = 0.73$ (see Table 4). As predicted, we found that the anti-responsible risk-taker image was rated as significantly more Afrocentric ($M = 7.05$, $SD = 1.87$) than the anti-reckless risk-taker image ($M = 5.74$, $SD = 1.88$), $M_{diff} = 1.31$ ($SE = 0.26$), $CI_{95} [0.79, 1.83]$, $t(201) = 4.95$, $p < .001$, $d = 0.70$.

Gender Phenotypicality. As predicted, we found that the reckless risk-taker image was rated as significantly more masculine (relative to feminine) than the responsible risk-taker image, $M_{diff} = 3.78$ ($SE = 0.30$), $CI_{95} [3.20, 4.36]$, $t(197) = 12.79$, $p < .001$, $d = 1.81$ (see Table 4). As

predicted, we found that the anti-responsible risk-taker image was rated as significantly more masculine (relative to feminine; $M = 5.93$, $SD = 2.34$) than the anti-reckless risk-taker image ($M = 3.64$, $SD = 2.32$), $M_{diff} = 2.29$ ($SE = 0.33$), $CI_{95} [1.64, 2.93]$, $t(201) = 6.99$, $p < .001$, $d = 0.98$.

Discussion

These results suggested that people tend to envision reckless risk-takers as more stereotypically Black (and masculine) and less White (and feminine) than responsible risk-takers. This was evidenced in participants' trait attributions as well as phenotypic perceptions. Consistent with the findings in the previous study, we found strong evidence that risk-taker prototypes are racialized in the traits imagined for each role (Study 2) as well as the traits attributed to and the phenotype perceptions of the images produced for each risk-taker type (Study 3). Both trait and visual representations of risk-takers differed in their racial and gender associations, suggesting race and gender to be relevant in representations of risk-takers.

Study 4

We have found that people attribute traits (Studies 2-3) and envision facial features (Study 3) of the reckless risk-taker prototype as Blacker than the responsible risk-taker prototype. Given that these risk-taker prototypes differ in racial stereotype content, they may be related to consequential kinds of social disparities and racial discrimination. For example, financial disparities in the U.S. exist based on race, such that Black Americans own less wealth and financial market share than White Americans (e.g., Pfeffer et al., 2013). To better understand the psychological processes that may contribute to such disparities, we examined whether racialized risk-taker prototypes facilitate financial discrimination.

In the context of making investment decisions, we examined whether people would financially discriminate against an individual who resembles the visual prototype of a reckless

risk-taker in favor of someone who resembles a responsible risk-taker, in a context where people are financially motivated to maximize benefit and minimize loss. We tested whether people would differentially entrust their money to ostensible investors. The presented visualizations of the investors were the collective mental images of reckless risk-takers and responsible risk-takers constructed in Study 3 (from the reverse correlation task). Recall that these images were rated as having markedly racialized phenotypes. After making initial reckless-responsible ratings of the investors, we endowed participants with 25¢ to allocate between two investors that could result in a payout ranging from tripling their investment to complete loss. This payout ostensibly depended upon how well participants allocated their investments to previously successful investors, providing only investors' visualized facial images to make their decision (the reckless and responsible risk-taker labels were concealed; participants only had the images to base their decision). Participants were also told that the more they allocate money to an investor, the more bonus pay the investor will receive. Given that we did not provide any relevant information on how well the visualized investors performed, the rational decision would be to allocate the investment evenly between investors to maximize the return. Moreover, to fulfill goals to be or appear egalitarian, participants should have been motivated to allocate evenly so each investor is paid equally. However, if participants believed they could make more money by investing in one investor more than the other, participants' self-interest would have been in opposition to motivations of diversifying financial risk or social egalitarianism.

We had three preregistered hypotheses. We predicted the reckless (vs. responsible) risk-taker image would be allocated less money to be invested (H1). As a manipulation check, we predicted the reckless (vs. responsible) risk-taker would be rated as more reckless/less responsible (H2). Further, we predicted the effect of risk-taker image on investment allocations

would be mediated by reckless-responsible perceptions (upon the advice of reviewers, this is reported in the supplement because it was a peripheral hypothesis; H3). See the OSF link for our preregistered study: https://osf.io/jyhw9/?view_only=5c47b1f7f483493cbfffd89dc1d8bb84.

Method

Design and Participants

In a within-subjects design, participants reported their ratings and investment allocations to both the responsible and the reckless risk-taker facial images (presented in a randomized order). A total sample of 250 MTurk workers participated in an online study in exchange for \$0.50. Given this within-subjects design (two-tailed; $\alpha = .05$), we needed approximately 199 participants to have adequate power (.80) to detect a small effect ($d = .20$; G*Power software; Faul et al., 2009). We used Qualtrics to conduct our study and sampled the MTurk population using TurkPrime sampling services. The sample (121 women, 129 men, 2 transgender individuals, and 2 non-binary individuals [gender categories were not mutually exclusive]) consisted of mostly White people (211 White, 15 Black, 10 Latino, 21 Asian, 2 Middle Eastern, and 4 multiracial) and their ages ranged from 21 to 78 ($M = 41.62$, $SD = 13.05$). The sample was well-educated (64% indicated having a bachelor's degree or higher) and politically moderate ($M = 3.67$, $SD = 1.74$; the same 7-point scale used previously).

Procedure and Materials

Participants were told that they would review two people who ostensibly participated in a past study. They were told that these previous participants were asked to examine an array of financial stock that varied in potential benefit and risk and then select and financially invest in the stock they thought was most likely to return the greatest profits. Consistent with previous cover story approaches to evaluating classification images (e.g., Brown-Iannuzzi et al., 2017),

participants were told that some of these “investors” were more and some less successful in their selections. Participants were next shown two (supposedly) randomly selected investors to rate to what extent these investors appear reckless to responsible. These two images were actually the mental images constructed of reckless and responsible risk-takers in Study 3. To explain why the investor images looked “fuzzy,” we provided a cover story that the researchers obscured the images of the investors’ privacy. We then provided participants with an opportunity to earn bonus pay. We allotted participants with a 25¢ endowment that they could invest, with potential outcomes ranging from tripling their endowment to losing it all. Participants were tasked to make their investment by allocating their 25¢ endowment between the presented investors. Participants were informed that the payout of their investment depended on how well they allocated the money between the investors who were successful in their selections. We also told them that more money allocated to each investor will result in more bonus pay for them. This means the decision participants made involved a stake for themselves as well as for the target they were making a decision about. Upon completion of their ratings, allocation, and finally some exploratory measures, participants answered a few demographics items and then were debriefed.

We measured investment allocations by instructing participants to enter the number of cents from their endowment (0¢ to 25¢) in the textboxes adjacent to the pictured investors (presentation order randomized). Allocations were required to total 25¢. We measured the extent to which the two pictured investors were perceived as reckless/reckless with the following items using 9-point semantic differential scales: (1) reckless-cautious, (2) irresponsible-responsible, (3) careless-careful, (4) thoughtless-thoughtful, (5) inconsiderate-considerate, and (6) imprudent-prudent. The presentation order of the traits was randomized. Reckless-responsible perceptions were scored by averaging the items together (McDonald’s $\omega = .97$), such that higher scores

reflect greater perceived responsibility (and lower recklessness). For exploratory purposes, we measured participants' levels of financial investment propensity, confidence, and knowledge. We reported the details and results of the exploratory measures in the supplement.

Results

Confirming the effectiveness of the manipulation, the mental visualization of the responsible risk-taker was perceived as more responsible/less reckless ($M = 6.19$, $SD = 1.61$) than the visualization of the reckless risk-taker ($M = 4.04$, $SD = 1.67$), $M_{diff} = 2.15$ ($SE = 0.14$), $CI_{95} [1.88, 2.43]$, $t(248) = 15.34$, $p < .001$, $d = 1.31$. As predicted, we found that participants allocated significantly more money (cents) to the mental visualization of the responsible risk-taker ($M = 15.71$, $SD = 6.23$) than the visualization to the reckless risk-taker ($M = 9.29$, $SD = 6.23$), $M_{diff} = 6.42$ ($SE = 0.79$), $CI_{95} [4.86, 7.97]$, $t(249) = 8.15$, $p < .001$, $d = 1.03$. Put differently, participants allocated 69% more money to the mental visualization of the responsible (vs. reckless) risk-taker, which was racialized as relatively White- (vs. Black-) looking in the previous study.

Discussion

When the monetary interests of the participant and the target were at stake, we found clear evidence that participants were more willing to invest their money with someone who looked like a more phenotypically White, responsible risk-taker than with someone who looked like a more phenotypically Black, reckless risk-taker. Because we did not provide any relevant information to make investment decisions (participants were only provided the grainy reverse correlation images from Study 3 to make their decision), the rational response would have been to allocate their money evenly across investors to increase the chances of getting more money and decrease potential loss. However, given that discrimination was observed, the racially-

suffused appearance of the targets was potentially considered useful information in making allocation decisions. Given that the sample was composed primarily of White people, our findings are consistent with the tendency people have to be more willing to take risks with ingroup (vs. outgroup) members as a function of trust (Cruwys et al., 2021). These findings indicate that people are willing to discriminate against others who visually fit racially stereotypic notions of recklessness (in favor of those who fit stereotypic notions of responsibility) when their money is at stake, even though this decision would ostensibly disadvantage the bonus pay of the participant. If reckless (vs. responsible) risk-takers are more likely to be associated with Blackness (as we found in Studies 2-3), the findings of this study raise the possibility that reckless risk-taker stereotype content may contribute to psychological processes that facilitate discrimination against Black people in investment situations.

Study 5

Our findings thus far have established an association between the concept of reckless risk-taking and Black stereotype content, as well as responsible risk-taking and White stereotype content. However, given the methodological approaches taken, there are some possible explanations for these associations that it would be helpful to rule out. The first possibility is that the stereotypes attributed to the reckless versus responsible risk-takers are based simply on valence (i.e., halo or horned effects). Although the Study 2 mediation analyses suggest that trait valence is only part of the story, more evidence on this issue would be valuable. The second possibility is that there may simply be semantic overlap in the stereotypes of Black Americans and reckless risk-takers, such that reckless risk-taking may not have been causally activating cognitive associations with Blackness, but merely occupying similar semantic space with Black stereotypes.

To address these concerns, we examined extrapolative stereotyping (i.e., using racial stereotypes to make guesses about others' unknown characteristics; Bruner, 1957; Craig & Bodenhausen, 2018). By demonstrating that participants would engage in extrapolative racial stereotyping of reckless risk-takers in positive and neutral ways (e.g., viewing the target as likely to be a good dancer or post social media content about basketball), we strengthened the evidence that our results involve the application of Black stereotypes broadly, rather than mere reliance on negative valence when making inferences about reckless risk-takers. In this study, participants reviewed target information indicative of someone who either takes risks recklessly or responsibly (via their ostensible Twitter profile), without any specification of race. Participants then indicated how likely the target would be to post tweets that convey stereotypically positive Black or White content suggestive of user race, and rated the target in terms of positive and neutral racially stereotypical traits that are not directly related to risk-taking.⁵

We had four primary hypotheses. We predicted that participants would indicate that the Twitter user with the reckless (vs. responsible) risk-taker profile would be more likely to post stereotypically Black tweets (H1) and be less likely to post stereotypically White tweets (H2). Third, we predicted that participants would apply the positive/neutral Black stereotypic traits more to the reckless (vs. responsible) risk-taker target (H3). Lastly, we expected that participants would apply the positive/neutral White stereotype traits more to the responsible (vs. reckless) risk-taker target (H4).

Method

Design and Participants

⁵ For brevity, we report findings of an additional study that tested extrapolative racial stereotyping from risk-taker profiles (further supporting our hypotheses) in the supplement.

This experiment involved a single-factor (Twitter profile: reckless versus responsible), between-subjects design. A total sample of 199 MTurk workers participated in an online study in exchange for \$0.75. Given the between-subjects design (two-tailed; $\alpha = .05$), we needed approximately 200 participants to have adequate power (.80) to detect a medium effect ($d = 0.40$; G*Power software; Faul et al., 2009). We used Qualtrics to conduct our study and sampled the MTurk population using TurkPrime sampling services. The sample (102 women, 98 men, 1 transgender individual [gender categories were not mutually exclusive]) consisted of mostly White people (160 White, 15 Black, 10 Latino, 15 Asian, and 2 multiracial) and their ages ranged from 19 to 77 ($M = 41.48$, $SD = 13.17$). The sample was well-educated (62% indicated having a bachelor's degree or higher) and politically moderate ($M = 3.69$, $SD = 1.81$; 7-point scale used previously).

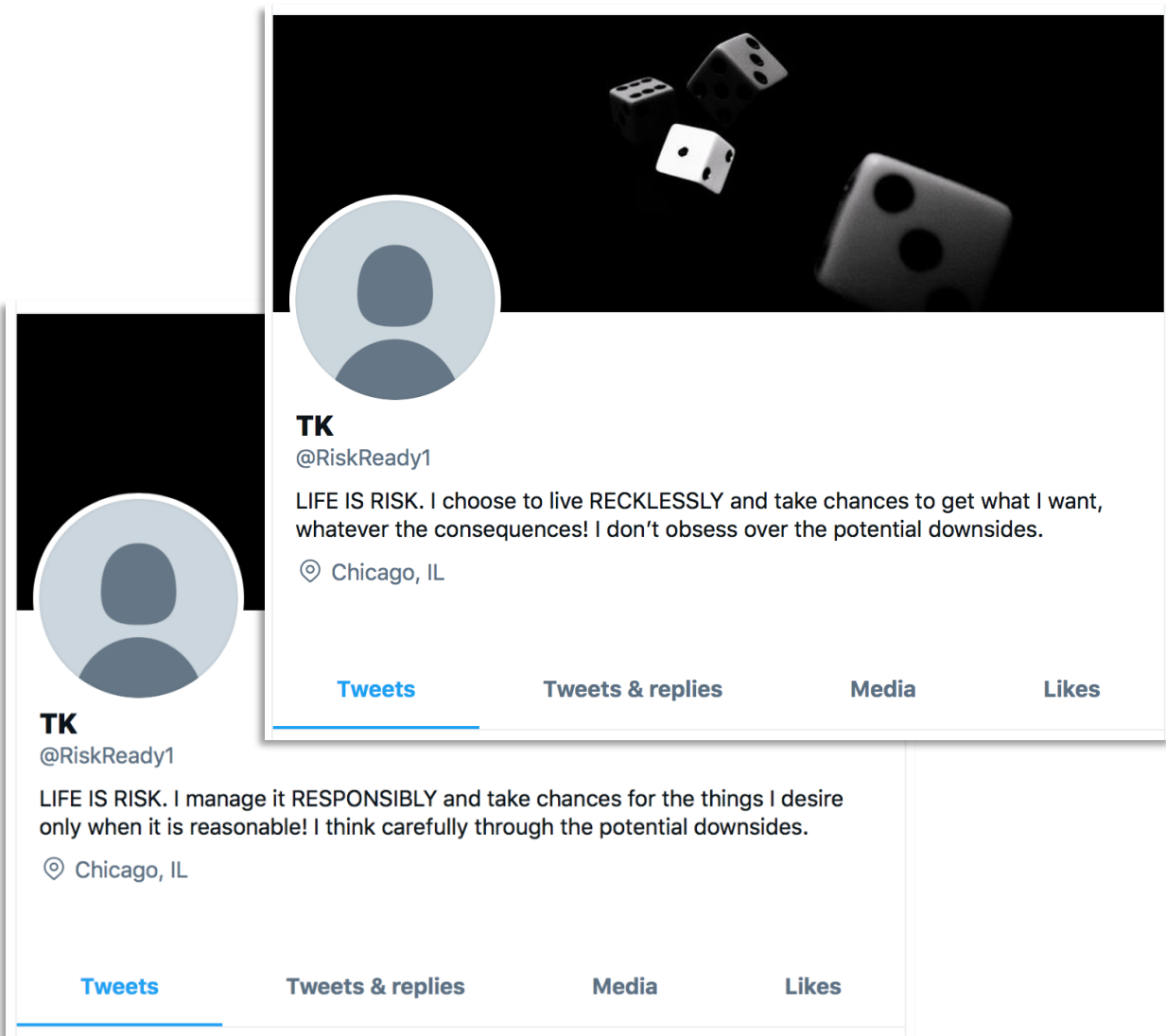
Procedure and Materials

Participants were told that this was a study about how people perceive social media content. Participants were then told they would be shown a Twitter profile ostensibly from a real person. Participants were randomly assigned to review one of two Twitter profiles (see Figure 7): the content of these profiles indicated that the target user was either a person who takes risks recklessly or responsibly. The message content embedded in the reckless risk-taker profile said, "LIFE IS RISK. I choose to live RECKLESSLY and take chances to get what I want, whatever the consequences! I don't obsess over the potential downsides." The responsible risk-taker profile said, "LIFE IS RISK. I manage it RESPONSIBLY and take chances for the things I desire only when it is reasonable! I think carefully through the potential downsides." To obscure the race and gender of the Twitter user, we used initials for the user's name and Twitter's default image (an anonymous grey avatar) for the user's profile image. We also included a background

image of four white dice appearing to roll against a black backdrop (constant across conditions); we pretested this image, and it was rated as race and valence neutral (reported in the Pretest of Materials section of the supplement). Aside from conveying the profile location (Chicago, IL, for both conditions), no other profile information was presented. Unlike some of the prior studies, there were no facial stimuli involved in this study, and participants were not asked to racially categorize any of the stimuli provided.

Figure 7

Twitter Profiles of Risk-taker Prototypes



Note. The Twitter profiles used to manipulate the reckless risk-taker prototype (front) and the responsible risk-taker prototype (back).

After reviewing the profile, participants were asked to describe their initial impressions of the Twitter user in a few sentences to engage with the presented information more deeply. As a check of the manipulation, participants were then asked to rate how *reckless/cautious*, *irresponsible/responsible*, *careless/careful*, and *thoughtless/thoughtful* the target appeared using a 9-point semantic differential scale. Reckless/responsible perceptions were scored by averaging the items (McDonald's $\omega = .98$), with greater scores indicating more responsible (and less reckless) perceptions.

Participants were then asked to indicate how likely it was that the target would post each of a set of presented tweets, using an 11-point scale from *not at all likely* (1) to *very likely* (11). Participants were presented with 10 different tweets (with user information redacted) one at a time to rate; half of the tweets involved stereotypically Black content and the other half involved stereotypically White content. Racial implications of the tweets were established via pretesting; the stereotypically Black set of tweets differed strongly from the stereotypically White set of tweets in terms of racial connotations ($d = 3.09, p < .001, N = 99$) but did not differ in perceived valence ($d = 0.08, p = .390, N = 100$); further, both valence means were well above the midpoint (5) of scale (means ranging 7.63 to 7.75), indicating that the tweets across conditions were perceived rather positively, on average (see the supplement). Sample tweets that were stereotypically Black included, "I was shooting hoops all weekend with my boys," "Respect for the true pioneers of hip hop," and "My momma's mac and cheese is top tier, no cap." Stereotypically White Tweets included, "What a sweet day for golfing on the greens," "Let's get ready to rock and roll," and "Have you guys ever had kombucha? It's so life changing." The

presentation order of the stereotypically Black and White tweets was randomized, with the individual tweets within each racial categorical randomized. Responses to the stereotypically Black (McDonald's $\omega = .84$) and White (McDonald's $\omega = .68$) Tweets were averaged, with higher scores indicating a greater perceived likelihood that the target would post the tweet.

Participants were then asked to indicate the degree to which the presented racially stereotypical attributes likely applied to the target, from 0 = *Not at all* to 100 = *Extremely*. Black stereotypic traits included the following (averaged): *streetwise, acts cool, can dance, and likes hip hop* (McDonald's $\omega = .84$). White stereotypic traits included the following (averaged): *wealthy, intelligent, educated, and successful* (McDonald's $\omega = .93$). Higher scores indicated greater racial stereotype application of attributes. Stereotypic traits were taken from research on racial stereotype content (Cox & Devine, 2015; Wittenbrink et al., 1997; Zou & Cheryan, 2017). Participants lastly answered demographics items and were debriefed.

Results

Confirming the effectiveness of the manipulation, we found that participants in the responsible risk-taker condition rated the target as substantially more responsible ($M = 7.05$, $SD = 1.97$) than did participants in the reckless risk-taker condition ($M = 1.74$, $SD = 0.88$), $M_{diff} = 5.31$ ($SE = 0.21$), $CI_{95} [4.89, 5.73]$, $t(197) = 24.80$, $p < .001$, $d = 3.52$. Next, we examined our primary hypotheses. As anticipated, we found that participants who viewed the reckless risk-taker Twitter profile rated the target as significantly more likely to post stereotypically Black tweets ($M = 6.52$, $SD = 2.25$) than did those who reviewed the responsible risk-taker profile ($M = 4.90$, $SD = 2.47$), $M_{diff} = 1.62$ ($SE = 0.33$), $CI_{95} [0.96, 2.27]$, $t(197) = 4.83$, $p < .001$, $d = 0.69$. As expected, we found that participants who reviewed the responsible risk-taker Twitter profile rated the target as significantly more likely to post stereotypically White tweets ($M = 6.40$, $SD =$

1.93) than did those who reviewed the reckless risk-taker profile ($M = 5.38$, $SD = 2.07$), $M_{diff} = 1.02$ ($SE = 0.28$), $CI_{95} [0.46, 1.58]$, $t(197) = 3.58$, $p < .001$, $d = 0.51$.

We next examined the application of stereotypical attributes. As predicted, we found that participants in the reckless risk-taker condition rated the target as likely having significantly more Black stereotypic traits ($M = 63.58$, $SD = 17.11$) than did those in the responsible condition ($M = 48.35$, $SD = 21.71$), $M_{diff} = 15.23$ ($SE = 2.76$), $CI_{95} [9.78, 20.67]$, $t(197) = 5.51$, $p < .001$, $d = 0.78$. Also as predicted, we found that participants in the responsible risk-taker condition rated the target as likely having significantly more White stereotypic traits ($M = 65.47$, $SD = 20.54$) than did those in the reckless condition ($M = 41.67$, $SD = 18.19$), $M_{diff} = 23.80$ ($SE = 2.75$), $CI_{95} [18.39, 29.22]$, $t(197) = 8.67$, $p < .001$, $d = 1.23$.

Discussion

When guessing about an individual's unknown characteristics, we found compelling evidence that viewing the reckless (vs. responsible) risk-taking prototype spontaneously activated Black (vs. White) stereotype content broadly, across the valence spectrum. After reviewing Twitter profiles indicative of a user that is a reckless (vs. responsible) risk-taker, participants predicted that the target would be more likely to post stereotypically Black tweets that are positive in valence and have more stereotypic Black qualities that are positive or neutral. These results provided evidence that a profile of a reckless (vs. responsible) risk-taker solicits the application of broad Black stereotype content spontaneously, in the absence of any explicit information about the target's race.

General Discussion

Whether deciding to stand up to a bully, request a promotion, invest in a speculative stock, gamble on horse races, light a cigarette, or donate a kidney, the option to take risks is one

people face in making everyday decisions. Though much is known about how people come to make risky decisions, we know very little about how people make sense of the risk-takers themselves. Understanding which groups in society are viewed as the risk-takers is an important psychological question for person perception, stereotyping and prejudice, and decision-making research. The current research was the first known attempt to specifically examine perceptions and prototypes of risk-takers and whether these prototypes evoke racial connotations.

We posited that perceptions and mental representations of risk-takers would evoke racial connotations. Given the negative, masculine, and impulsive stereotypes of Black Americans (Eberhardt et al., 2004; Galinsky et al., 2013; Goff et al., 2008a; Goff et al., 2008b; Johnson et al., 2008; Johnson et al., 2012; Williams et al., 2015), we predicted that perceptions and attributes of risk-takers—particularly reckless ones—would be skewed toward stereotypical representations of Black people over that of White people. Results of Study 1 confirmed this hypothesis at the broadest level of risk, such participants tended to rate Black men as being more risk-taking and more masculine than White men. In Study 2, we found robust evidence of racialization of the trait representations of more specific prototypes of risk-taking, such that participants nominated stereotypically Black traits for reckless risk-takers and stereotypically White traits for responsible risk-takers. In Study 3, we found convergent evidence that people racialized visual representations of risk-takers, such that participants constructed facial images of reckless risk-takers that were attributed traits and perceived as more stereotypically Black (and masculine) and less stereotypically White (and feminine) than the facial images constructed of responsible risk-takers. In Study 4, we found people are willing to financially discriminate based on a target's visual appearance matching racialized prototypes of reckless versus responsible

risk-takers. In Study 5, we provided more direct evidence that the reckless (vs. responsible) risk-taker prototype elicits application of Black stereotypes broadly, beyond negative valence per se.

We acknowledge that valence is a relevant factor in distinguishing risk-taking prototypes and racial stereotypes. Even though valence is an important and interesting factor to consider when studying how people think about risk-taking, the observed differences in meaning attributed to risk-taker prototypes does not appear to be only explained by valence. This is indicated by the initial evidence presented with mediational modeling in Study 2 and the effects observed with positive but stereotypical tweets in Study 5. Although racial stereotypes are generally confounded with valence, such that dominant groups are generally viewed more favorably than subordinated groups, there are clear and specific themes described within these broad evaluative tendencies. The present findings indicate that risk-taking propensities constitute one such descriptive theme.

Consistent with the argument made by Cox and Devine (2015), our findings—that prototypes of risk-taking can activate racial stereotypes—provided a compelling case to further consider the study of attributes that activate social group associations. Our findings suggest that understanding the effects of risk-taking prototypes on assumptions about perceived race can be revealing and meaningful in situations when risk-taking is presented absent of clear indications of race (e.g., when attempting to identify suspects of crimes involving risky behavior, such as distribution of illicit substances, reckless driving, or embezzlement).

It is worth noting that even though we are only examining the content of stereotypic associations (and not the origin or accuracy of such associations), there is evidence to suggest that Black people may be less likely than White men to engage with dangerous forms of risk

(e.g., Finucane et al., 2000). This would make such Black-recklessness associations potentially contradictory with who is actually more willing to take reckless risks.

Our research was the first to consider risk-taking as an object of racialized perception and a component of stereotype content. Our findings offer a new way to think about how people understand, feel, and react toward others. Consideration of risk opens possibilities to integrate risk and risk-taking into existing social perception and stereotyping frameworks. For example, the “big two” dimensions of social perception and stereotype content research are agency and communion (Abele et al., 2016; Fiske, 2018b). The agency dimension—which comprises the ability (competence) and motivation (assertiveness) to pursue goals—directly relates to the concept of risk-taking. The distinction between reckless and responsible risk-taking could potentially reflect assertive risk behavior at low (reckless) and high (responsible) levels of competence. Future research should consider how perceptions of risk-taking and risk-aversion operate with other social perception dimensions (e.g., communion) as well as whether risk-taking content is contained in stereotypes of other social groups (e.g., based on age, class, occupation).

Taken together, our findings suggest that perceptions and mental representations of risk-takers connote racial associations, such that observers tend to (a) perceive Black people as more willing to take risks than White people, (b) associate reckless risk-takers with stereotypically Black traits, including phenotypic Black appearance, and also extending to positive as well as negative stereotypes (relative to responsible risk-takers), and lastly (c) such associations can have costly consequences.

Limitations and Future Directions

It is also worth considering the limitations of the current research as well as future directions. In Study 1, we defined masculinity in terms of strength and aggression. Given the negative connotations of aggression, future work will be helpful for ascertaining whether stereotypical associations between Blackness and masculinity (Johnson et al., 2012) also emerge if masculinity is described in strictly positive terms. Agentic perceptions of masculinity—assertiveness, strength, and aggression—have long characterized masculinity in the U.S. (Eagly et al., 2020), which is why we focused on these aspects of masculinity. However, given that the attribute “aggressive” was well-represented in the reckless risk-taking traits selected from Studies 2-3, the definition of masculinity we provided in Study 1 may have contributed to a relationship between masculinity and (reckless) risk-taking. We addressed this concern by, in the subsequent studies, focusing our examination on two specific prototypes of risk-taking (i.e., reckless and responsible) rather than risk-taking broadly construed.

Considering construct validity, it is plausible that participants construed responsible risk-taking as being less risky than reckless risk-taking. Indeed, we theorized that the levels of risk-related deliberation and risk intensity are intuitively related. Although we find evidence of these dual prototypes of risk-takers to be meaningful in evoking racial associations, it is certainly likely that there are other relevant prototype configurations and dimensions to consider for racial and other social associations in the risk domain. Such alternatives involve deliberately taking extremely high risks (such as willingness to sacrifice one’s safety or resources for another person or cause) or thoughtless low-risk behavior (such as doing relatively mundane tasks). Other dimensions potentially relevant in the social perception of risk-takers could involve the altruistic

or selfish aims of the actor, the involvement of short- vs. long-term self-regulation, the outcome resulting from the risk taken, or individual characteristics of the perceiver.

The context in which the risks are taken could also be relevant. The proposed risk-taking prototypes may partially reflect different stereotypically racialized risk-taking domains. For example, participants may see White people as more likely to take risks in stereotypically White domains (e.g., investing, poker, or extreme sports), while seeing Black people as more likely to take risks in stereotypically Black domains (e.g., slot machines, lottery, or substance misuse). This area is ripe for more nuance and exhaustive classification of risk-taker perceptions and their relations with various social groups. The exploration of the social perceptions of risk-taking as a multidimensional construct is worthy of future inquiry.

On a more specific note, new research that appeared after Study 3 was conducted has raised concerns regarding an increased Type I error rate from the reverse correlation method using group classification images in a two-phase rating process (see Cone et al., 2020). However, there are several factors that help alleviate these concerns in the current studies. The first is that we observed a very large effect of the composite images on perceived risk-taking ($d = 1.31$) in a very well-powered design (99% power to detect a $d \geq .27$) for the additional sample (Study 4), which suggests that even if we adopted a much more conservative alpha level (e.g., alpha = .0005) to address the inflated Type I error rate, differences would still be statistically significant (exact $p = 8.76 \times 10^{-38}$). Secondly, these recklessness ratings serve as evidence that the images we used were capturing facial cues associated with perceived risk-taking, as intended. The key differences in racial perceptions (Study 3) and reckless/responsible perceptions (Study 4) that we observed were large ($ds > .70$), highly statistically significant ($ps < .001$), and statistically well-

powered, but as with all findings, replication is necessary. In this case, future studies relying on individual-level classification images will be particularly useful.

Although we found evidence that people were willing to differentially entrust their investment with targets depicted using the racialized images, this is not direct evidence of racial discrimination. It is possible that other differences between the images were responsible for participants' disparate treatment. One way to approach this concern would be to experimentally manipulate target race and test whether people invest less in the Black target relative to the White target, and whether this hesitancy is mediated by perceptions of reckless riskiness. However, such a test would be likely complicated by social desirability concerns (e.g., Janus, 2010), especially in this time of increased attention to issues of racial injustice. A successful design would need to get around this issue.

Our sample consisted of a majority of White MTurk workers residing in the U.S. It is unclear whether we should expect such processes to extend to other racial groups or to people outside of the U.S. It may be the case that race-risk associations are culture-specific and are held and used by White Americans as a way to rationalize or justify specific patterns of racial inequality in the U.S. context. But it is also possible these associations are recognized by other groups, potentially including Black Americans, since stereotype content can be acquired implicitly, and we did not exclude people of color from analyses. Future research should determine whether our findings generalize to other populations and cultures.

Practical Implications

The reported research not only has theoretical significance for person perception, stereotyping, and decision-making but also highlights a potential psychological phenomenon that

could negatively impact people's expectations for, interactions with, and treatment of Black people. Given the ubiquitous nature of risk perception processes in everyday life, our findings may illuminate a process that potentially contributes to and exacerbates disparate racial discrimination and inequality. Specifically, risk assessment of social groups is potentially impactful in healthcare, lending, and policing. For instance, physicians have tended to characterize Black (vs. White) patients as less likely to adhere to provider recommendations and more likely to abuse drugs, both behaviors that carry health risks (van Ryn & Burke, 2000). Such risk perceptions could facilitate poorer quality of care. Due to perceptions of non-adherence, medical providers have been found less likely to recommend bypass surgery for Black patients than for White patients (van Ryn et al., 2006). These are just a few examples in which racially-based biases in risk assessments could have life or death consequences in healthcare.

Stereotypes about risk-taking might also contribute to systemic inequalities in a variety of financial domains. U.S. mortgage lenders have been found to charge borrowers in predominantly Black neighborhoods contract rates substantially above competitive market rates even though the default rates did not differ by borrower race or ethnicity (Kau et al., 2012). Further, Black borrowers were especially targeted during the 2008 subprime mortgage crisis and received lending rates far above the market for White borrowers (Bocian et al., 2008; Faber, 2013; Mayer & Pence, 2008). Students graduating from Historical Black Colleges and Universities were found to be charged substantially higher interest rates on borrowing student loans than students from predominantly White institutions (Student Borrower Protection Center, 2020).

Consideration of how Black people can be stereotyped as reckless risk-takers may also shed more light on the pernicious processes that promote racial bias in policing. An outcry for

racial justice was triggered in response to the brutal murders of unarmed Black Americans—George Floyd and Breonna Taylor—at the hands of police officers. According to researchers, Black men face approximately a 1 in 1,000 chance of being killed by the police in the United States, a rate twice that of their White male counterparts, with Black women also disproportionately at risk (Edward et al., 2019). Black men were, by far, found to be the highest risk group for police-cause fatality, such that police violence is among the leading causes of death for young Black men in the U.S. (Edward et al., 2019). Such disparities were theorized to manifest from an array of possible psychological biases among systemic influences (e.g., Kahn & Martin, 2020; Swencionis & Goff, 2017). To answer the pleas to focus on and eliminate police violence perpetrated against communities of color, more research is needed on the psychology of racial bias in policing to better understand and effectively address this pressing and urgent issue (Goff & Kahn, 2012; Knox & Mummolo, 2020). Given that use of force involves making decisions under risk, Black stereotype content that contains reckless riskiness may distort officer perceptions and facilitate discrimination.

Considering our results, we suggest that it is possible that medical providers, financial lenders, and police officers might use race as a proxy for estimating risk, presumably as a way to rationalize or justify discrimination. Even the phrase “at-risk”, commonly employed to describe Black Americans across various domains and statistical disparities, might signal stigmatizing associations between Blackness and riskiness. Future research should look at whether professionals in these industries exhibit race-risk biases.

Conclusion

Though much is known about how people come to understand and engage in risky decisions, the current research is the first known attempt to investigate how people make social sense of the risk-takers themselves, particularly concerning race. We asked who in society is viewed as the risk-takers. We shed light on a novel racial bias in the social perception and stereotyping of risk-takers. Our findings suggested that mental representations of risk-takers evoke racial connotations, such that stereotypes about and perceptions of Black people are associated with notions of riskiness and recklessness. We further found that the use of these mental representations of risk-takers in financial decisions can have costly consequences. Results provided a foundation for informing theory and synthesizing research on person perception, stereotyping and prejudice, and decision-making. Implications of the current findings are potentially relevant to research and real-world situations in which risk assessments of people are common and consequential.

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Supplemental Materials

Study 1 Supplemental Analyses

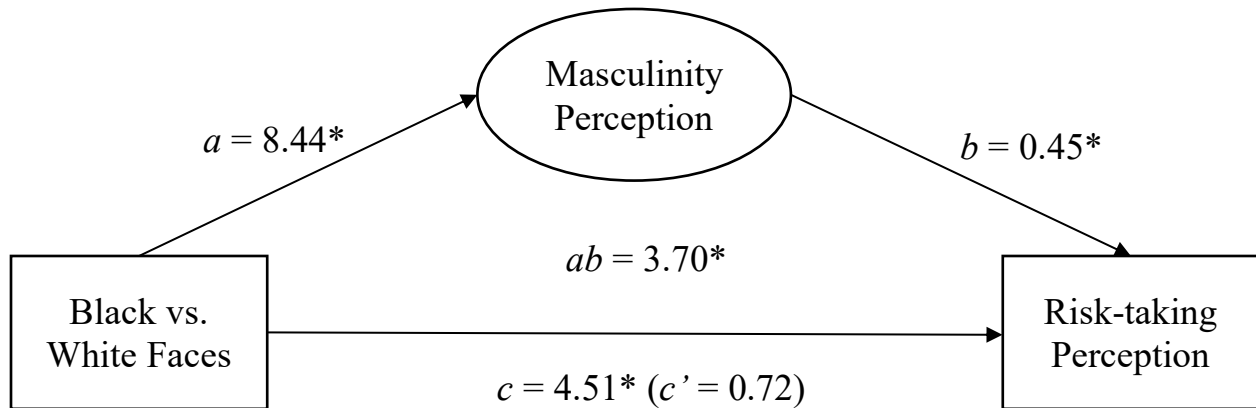
We tested whether the variance in risk-taking perceptions by stimulus race was explainable by differences in masculinity perceptions using statistical mediation. We hypothesized that masculinity perceptions would mediate the relationship between stimulus race and risk-taking perceptions. We evaluated our hypothesis with a cross-classified multilevel latent mediation model using Bayes estimation and Mplus software (Luo, 2017). We found that Black (vs. White) men were perceived as significantly more masculine, $B = 8.44$ (Posterior $SD = 1.34$), $CI_{95} [5.66, 10.99]$, $p < .001$, and masculinity perception was significantly associated with increased perceptions of risk-taking propensity, $B = 0.45$ (Posterior $SD = 0.10$), $CI_{95} [0.26, 0.66]$, $p < .001$. As predicted, the indirect effect of masculinity perception between stimulus race on risk-taking perceptions was significant, $B = 3.70$ (Posterior $SD = 1.00$), $CI_{95} [1.96, 5.60]$, $p < .001$, as the confidence interval did not contain zero. When masculinity perception is included in the multilevel model as a latent variable, the direct effect of race on risk perceptions is no longer significant, $B = 0.72$ (Posterior $SD = 1.39$), $CI_{95} [-2.07, 3.53]$, $p = .285$. This suggests that masculinity perception statistically accounted for stimulus race differences in risk-taking perceptions.

We also found that this generalized race-risk association can be accounted for by gendered race associations, such that Black targets were perceived as more risk-taking because they were perceived as more masculine than White targets. This finding is consistent with the literature that suggests Blackness tends to be associated with maleness in the U.S. (Goff et al., 2008b; Johnson et al., 2012). We also provided novel evidence that targets perceived as more masculine are also perceived to be more likely to take risks, directly connecting perceived

masculinity and perceived risk-taking in the social perception literature. This is consistent with the gender stereotypes of men being more willing than women to take risks (Nesbitt & Penn, 2000; Wood & Eagly, 2012).

Figure S1

Statistical Mediation Model



Note. Unstandardized regression coefficients for the relationship between race and risk-taking perceptions as indirectly mediated by masculinity perceptions.

Study 2 Supplemental Analyses

We first examined the effect of the risk-taker category on the stereotypical Blackness outcome with masculinity, femininity, socioeconomic status, positivity, and oldness as simultaneous mediators (with 5000 bootstrap samples). As anticipated, the total effect was statistically significant, $R^2 = .76$, $\beta = 1.74$, $B = 1.35$ ($SE = 0.04$), $CI_{95} [1.26, 1.44]$, $F(1, 302) = 932.39$, $p < .001$. The total indirect effect was significant as the confidence interval did not cross zero, $\beta = 1.58$ (Bootstrap $SE = 0.06$), Bootstrap $CI_{95} [1.46, 1.71]$. The direct effect remained significant with the inclusion of the mediators, $\beta = 0.15$, $B = 0.12$ ($SE = 0.05$), $CI_{95} [0.02, 0.22]$, $F(1, 302) = 5.79$, $p = .017$. Each of the mediators simultaneously explained unique variance in stereotypical Blackness except for masculinity. Specifically, the indirect effect of masculinity

was non-significant as the confidence interval contained zero, $\beta = 0.09$ (Bootstrap $SE = 0.05$), Bootstrap $CI_{95} [-0.01, 0.19]$. The indirect effects of femininity ($\beta = -0.32$ [Bootstrap $SE = 0.04$], Bootstrap $CI_{95} [-0.40, -0.25]$), socioeconomic status ($\beta = 0.47$ [Bootstrap $SE = 0.06$], Bootstrap $CI_{95} [0.35, 0.60]$), positivity ($\beta = 1.09$ [Bootstrap $SE = 0.09$], Bootstrap $CI_{95} [0.93, 1.27]$), and oldness ($\beta = 0.26$ [Bootstrap $SE = 0.04$], Bootstrap $CI_{95} [0.18, 0.33]$) were all significant as the confidence intervals did not contain zero.

We also examined the effect of the risk-taker category on the stereotypical Whiteness outcome with masculinity, femininity, socioeconomic status, positivity, and oldness as simultaneous mediators (with 5000 bootstrap samples). As anticipated, the total effect was statistically significant, $R^2 = .45$, $\beta = -1.34$, $B = -0.47$ ($SE = 0.03$), $CI_{95} [-0.53, -0.41]$, $F(1, 302) = 245.92$, $p < .001$. The total indirect effect was significant as the confidence interval did not cross zero, $\beta = -1.32$ (Bootstrap $SE = 0.08$), Bootstrap $CI_{95} [-1.47, -1.17]$. The direct effect became non-significant with the inclusion of the mediators, $\beta = -0.02$, $B = -0.01$ ($SE = 0.02$), $CI_{95} [-0.05, 0.04]$, $F(1, 302) = 0.13$, $p = .723$, suggesting that mediators simultaneously account for the differences in Whiteness. As represented in Figure 5, each of the mediators simultaneously explained unique variance in stereotypical Whiteness except for masculinity and positivity. Specifically, the indirect effects of masculinity ($\beta = 0.02$ [Bootstrap $SE = 0.01$], Bootstrap $CI_{95} [-0.01, 0.05]$) and positivity ($\beta = -0.14$ [Bootstrap $SE = 0.09$], Bootstrap $CI_{95} [-0.31, 0.03]$) were both non-significant as the confidence intervals contained zero. The connection between Whiteness and responsible risk-taking is not explainable by masculinity or positivity. The indirect effects of femininity ($\beta = -0.23$ [Bootstrap $SE = 0.03$], Bootstrap $CI_{95} [-0.30, -0.17]$), socioeconomic status ($\beta = -0.76$ [Bootstrap $SE = 0.06$], Bootstrap $CI_{95} [-0.88, -0.64]$), and oldness ($\beta = -0.21$ [Bootstrap $SE = 0.06$], Bootstrap $CI_{95} [-0.33, -0.11]$) were all significant

as the confidence intervals did not contain zero. These results suggest that reckless (vs. responsible) risk-takers were perceived as less stereotypically White through associations of reckless risk-takers as less feminine, poorer, and younger than responsible risk-takers.

Study 3 Supplemental Analyses

We wanted to explore whether the classification images differed on core dimensions of social perception. We anticipated that the visual representation of reckless risk-takers would be rated as less warm, less morally good, and less competent than the visual representation of responsible risk-takers. We did not, however, predict that judgments of assertiveness to differ by risk-taker representations considering assertive qualities can be applied to both forms of risk-taking. Assertiveness is reflective of the motivation to pursue goals to get ahead, which requires taking risks to achieve goals regardless of whether such behaviors are thoughtful or foolish (Abele et al., 2016). We also explored whether such visualizations of risk-takers differ in terms of gender, socioeconomic status, age, and valence connotations.

Trait perception was measured by adapting a scale measuring subfacets of communion (warmth, morality) and agency (competence, assertiveness; Abele et al., 2016). Each of the items was measured using 9-point bipolar scales with a trait descriptor anchored at each end of the scale. Responses were coded such that higher ratings indicated more agreement that the target appears as the trait concept being measured, from the left-anchor descriptor = 1 to the right-anchor descriptor = 9. Warmth was measured with five items (Cronbach's $\alpha = .96$) using the following scale anchors: (w1) uncaring/caring, (w2) cold with others/warm with others, (w3) not empathetic/empathetic, (w4) unaffectionate/affectionate, and (w5) unfriendly/friendly. Morality (m) was measured with five items ($\alpha = .95$): (m1) unjust/just, (m2) unfair/fair, (m3) inconsiderate/considerate, (m4) untrustworthy/trustworthy, and (m5) unreliable/reliable.

Competence (c) was measured with five items ($\alpha = .93$): (c1) inefficient/efficient, (c2) incapable/capable, (c3) incompetent/competent, (c4) unintelligent/intelligent, and (c5) not clever/clever. Assertiveness (a) was measured with five items ($\alpha = .86$): (a1) not self-confident/self-confident, (a2) go to pieces under pressure/stand up well under pressure, (a3) give up very easily/never give up easily, (a4) lack leadership qualities/have leadership qualities, and (a5) feel inferior/feel superior. Composite scores for each trait subfacet were computed by averaging the five items within each subfacet.

Our second set of analyses tested whether the classification images differed on the perceived personality dimensions measured: communion (warmth, morality) and agency (competence, assertiveness). We hypothesized that the image produced for the responsible risk-takers would be perceived as more warm, morally good, and competent than the image produced for the reckless risk-takers; however, we did not anticipate the images to differ on perceived assertiveness. In the predicted direction, the responsible risk-taker image was rated as significantly more warm ($M = 6.26, SD = 2.17$), on average, than the reckless risk-taker image ($M = 2.76, SD = 1.79$), $M_{diff} = 1.41$ ($SE = 0.28$), $CI_{95} [2.94, 4.05]$, $t(197) = 12.40$, $p < .001$, $d = 1.76$. As predicted, we found that the responsible risk-taker image was rated as significantly more morally good ($M = 6.14, SD = 2.00$), on average, than the reckless risk-taker image ($M = 3.72, SD = 1.83$), $M_{diff} = 2.42$ ($SE = 0.27$), $CI_{95} [1.88, 2.95]$, $t(197) = 8.91$, $p < .001$, $d = 1.26$. As predicted, we found that the responsible risk-taker image was rated as significantly more competent ($M = 6.14, SD = 1.73$), on average, than the reckless risk-taker image ($M = 5.07, SD = 1.87$), $M_{diff} = 1.07$ ($SE = 0.26$), $CI_{95} [0.57, 1.58]$, $t(197) = 4.21$, $p < .001$, $d = 0.60$. Lastly, we found that the assertiveness ratings of the responsible risk-taker image ($M = 5.44, SD = 1.55$) and

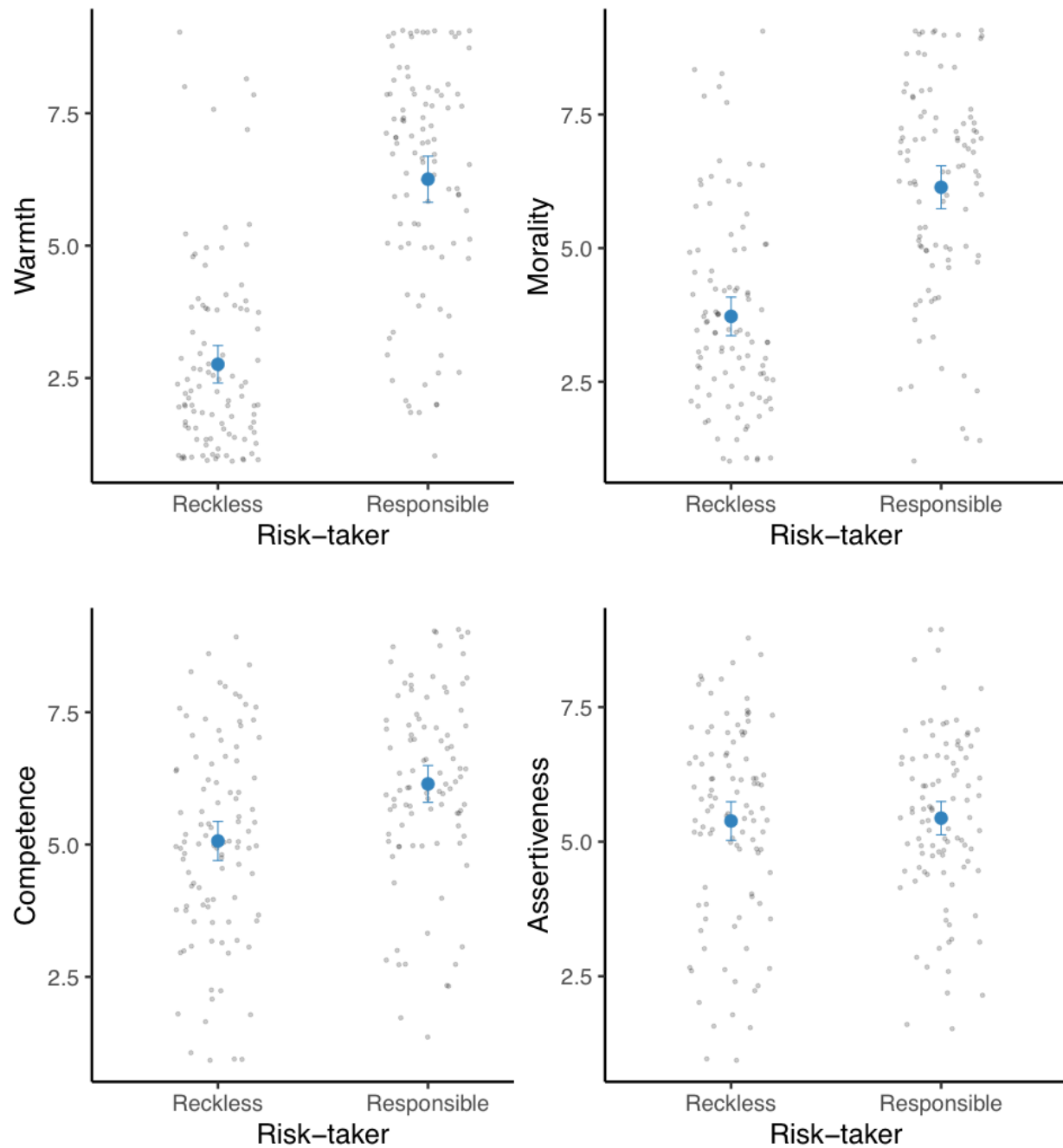
the reckless risk-taker image ($M = 5.38$, $SD = 1.82$) did not significantly differ as anticipated, $M_{diff} = 0.05$ ($SE = 0.24$), $CI_{95} [-0.52, 0.42]$, $t(197) = 0.22$, $p = .826$, $d = 0.03$.

Table S1

Comparisons of Mean Ratings of Risk-taker Images

Phenotypicality Ratings	Reckless Risk-taker		Responsible Risk-taker		<i>p</i>
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	
Afrocentric (versus Eurocentric)	6.22	(2.21)	4.81	(1.62)	< .001
Masculine (versus Feminine)	6.48	(1.89)	2.69	(2.27)	< .001
Warm	2.76	(1.79)	6.26	(2.17)	< .001
Moral	3.72	(1.83)	6.14	(2.00)	< .001
Competent	5.07	(1.87)	6.14	(1.73)	< .001
Assertive	5.38	(1.82)	5.44	(1.55)	.826
Trait Nomination Ratings	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	<i>p</i>
Blackness	4.18	(0.82)	3.25	(0.72)	< .001
Whiteness	3.83	(0.38)	4.18	(0.35)	< .001
Masculinity	4.07	(0.36)	3.45	(0.46)	< .001
Femininity	3.43	(0.54)	4.54	(0.71)	< .001
Positivity	3.03	(0.83)	4.36	(0.98)	< .001
Age	3.46	(0.44)	3.89	(0.50)	< .001
Socioeconomic Status	3.56	(0.46)	3.53	(0.44)	.713

Note. Standard deviations are in parentheses. Exact *p* values are for the reported *t*-test between the mean ratings for each variable.

Figure S2*Social Perception Ratings*

Note. Individual responses, means, and the 95% confidence intervals (error bars) for warmth (upper left), morality (upper right), competence (lower left), and assertiveness (lower right) of the classification images produced by risk-taker prototype.

We also examined whether the traits nominated for each risk-taker image differed on the stereotypicality of socioeconomic status, valence, and age. The stereotypical socioeconomic status of the traits nominated for the reckless ($M = 3.56$, $SD = 0.46$) and responsible ($M = 3.53$, $SD = 0.44$) risk-taker images did not significantly differ, $M_{diff} = 0.02$ ($SE = 0.06$), $CI_{95} [-0.10, 0.15]$, $t(197) = 0.37$, $p = .713$, $d = 0.05$. Participants also nominated more positive traits, on average, for the responsible risk-taker image ($M = 4.36$, $SD = 0.98$) than for the reckless risk-taker image ($M = 3.03$, $SD = 0.83$), $M_{diff} = 1.33$ ($SE = 0.13$), $CI_{95} [1.07, 1.58]$, $t(197) = 10.35$, $p < .001$, $d = 1.46$. Lastly, participants nominated traits that were more associated with older age for the responsible risk-taker image ($M = 3.89$, $SD = 0.50$) than for the reckless risk-taker image ($M = 3.46$, $SD = 0.44$), $M_{diff} = 0.42$ ($SE = 0.07$), $CI_{95} [0.29, 0.55]$, $t(197) = 6.30$, $p < .001$, $d = 0.89$. These findings suggest that the trait representations formed for the image of reckless risk-takers is more masculine, less feminine, more negative, and younger in age than the image of responsible risk-takers. Risk-taker images did not differ on their apparent socioeconomic standing.

We found visual representations of risk-takers to differ on core dimensions of social perception. These findings suggest that perceivers envision responsible risk-takers to be more warm and friendly than reckless risk-takers. As with the warmth findings, responsible risk-takers are pictured as having a stronger moral character than reckless risk-takers. The communal findings were expected as taking responsible and thoughtful risks poses less harm to others than taking reckless and potentially dangerous risks. Responsible risk-takers were envisioned as more competent than reckless risk-takers. This finding was anticipated as one of the primary differences in which responsible and reckless risk-takers were described was by the

thoughtfulness of the risk-takers' approach. Risk-takers did not differ on how assertive they were pictured. This was anticipated as assertiveness is considered an attribute of risk-takers, generally.

Study 4 Supplemental Analyses

Mediation Manipulation Check

To further confirm the manipulation check—such that perceptions of responsibility-recklessness explained investment allocations—we turned to mediation modeling. Specifically, we used a two-condition within-participants statistical mediation analysis with 20,000 bootstraps (MEMORE macro; Montoya & Hayes, 2017) to test whether the effect of risk-taker image (X) on investment allocations (Y) is mediated by responsible-reckless perceptions (M). As anticipated, we found that the responsible (vs. reckless) risk-taker image was rated as more responsible/less reckless ($b = 2.15$ ($SE = 0.14$), $CI_{95} [1.88, 2.43]$, $t(248) = 15.34$, $p < .001$) and that higher perceptions of responsibility (lower recklessness) predicted greater money allocated to the responsible risk-taker over the reckless risk-taker ($b = 1.42$ ($SE = 0.35$), $CI_{95} [0.74, 2.10]$, $t(247) = 4.10$, $p < .001$). As the confidence interval does not cross zero, the indirect effect of responsible-reckless perceptions between risk-taker images and investment allocations was significant, $b = 3.05$ (Bootstrap $SE = 0.83$), Bootstrap $CI_{95} [1.42, 4.68]$. With the inclusion of the mediator, the direct effect remains significant, $b = 3.29$ ($SE = 1.07$), $CI_{95} [1.19, 5.39]$, $t(247) = 3.09$, $p = .002$.

Exploratory Analyses

For exploratory purposes, we lastly measured participants' individual levels of financial investment propensity, confidence, and knowledge. The first measure examined participants' likelihood/willingness to invest in financial assets if in such a situation with three items, averaged ($\alpha = .69$; Blais & Weber, 2006). An example item of investing likelihood included,

“Investing 5% of your annual income in a very speculative stock” (1 = *extremely unlikely*, 7 = *extremely likely*). The second variable measured participants’ efficacy with making personal investment decisions with three items, averaged ($\alpha = .93$; adapted from Montford & Goldsmith, 2016). An example item of investing efficacy included, “I am confident in my ability to make personal investment decisions” (1 = *strongly disagree*, 7 = *strongly agree*). The final variable tested participants’ basic knowledge and literacy of financial investing with four items (adapted from Lusardi & Mitchell, 2011). An example item of investing literacy included, “Which asset usually provides a safer return?” with the following answer choices: *A stock mutual fund* (correct); *Stock in a single company*; *Do not know*; *Prefer not to answer*. To score literacy, the number of correct answers for each participant was summed (0 = zero correct answers, 4 = maximum correct answers).

We tested whether any of the exploratory variables examining individual differences in investment likelihood, efficacy, and literacy significantly moderated investment allocations. Using a two-condition within-participants statistical moderation analysis (MEMORE macro), we found that investment likelihood (but not investment literacy or efficacy) significantly moderated investment allocations, $b = -1.49$ ($SE = 0.57$), $CI_{95} [-2.61, -0.38]$, $t(248) = -2.64$, $p = .009$. This finding suggests that the more participants were likely to personally invest in financially risky endeavors (e.g., speculative stock; new business venture), the less money participants allocated to the responsible risk-taker over the reckless risk-taker. As such, participants low in investment likelihood ($-1\ SD$: $b = 8.47$ ($SE = 1.10$), $CI_{95} [6.30, 10.64]$, $t(248) = 7.69$, $p < .001$) allocated 94% more money, on average, to the responsible risk-taker over the reckless risk-taker than participants high in investment likelihood ($+1\ SD$: $b = 4.36$ ($SE = 1.10$), $CI_{95} [2.19, 6.53]$, $t(248) = 3.96$, $p < .001$).

Study 5 Pretest of Materials

This study details the pretesting of the materials used for Study 5. We generated tweet stimuli and then tested either perceived racial stereotypicality and valence for the most racially differentiated tweets that were also the most positively valenced. We also generated and tested general risk-related images that could serve as a Twitter profile background image and selected the most racial and valence neutral image (to be a constant between conditions). We have presented the findings for the top tweets and image selected to be used in Study 5.

Method

Participants and Design

A total sample of 200 MTurk workers participated in an online study in exchange for \$.75. We used Qualtrics to conduct our study and sampled the MTurk population using TurkPrime sampling services. The sample (109 women, 90 men, 1 transgender individual [gender categories were not mutually exclusive]) consisted of mostly White people (156 White, 19 Black, 10 Latino, 15 Asian, 2 Native American, and 3 multiracial) and their ages ranged from 19 to 67 ($M = 39.41$, $SD = 11.76$). The sample was well-educated (54% indicated having a bachelor's degree or higher) and politically moderate ($M = 3.29$, $SD = 1.67$; 7-point scale used previously). Participants were randomly assigned to either rate the racial stereotypicality or the valence (positivity/negativity) of the content presented.

Procedure and Materials

The goal was to generate tweets that clearly conveyed racially stereotyped content but was also relatively positive in valence. Selected tweets served as items, measuring participants' perceived likelihood the target would post the tweets. With the assistance of research assistants, approximately 50 racially stereotype tweets total were generated to be considered. The 20 most

suitable tweets for each racial category were selected to be tested on perceived racial stereotypicality and perceived valence. The same process was used to generate and select the 10 most suitable risk-related images that could serve as a background image of the Twitter profiles used in Study 5. Participants were randomly assigned to rate all 40 tweets (presentation order randomized) either on the perceived racial stereotypicality (1 = *Stereotypically Black*, 9 = *Stereotypically White*) or perceived valence (1 = *negative*, 9 = *positive*). Participants also rated the 10 possible background images on the same dimensions. We selected five Black tweets and five White tweets that were most differentiated in perceived racial stereotypicality but were also rated as most positive.

Results

Twitter Tweets

Multilevel models were used to analyze differences in racial stereotypicality and valence between the five selected tweets for each racial tweet type. Using the Satterthwaite test model terms, racial tweet type (Black vs. White) was treated as a fixed effect variable; individual participants and the tweet stimuli were treated as random variables.

Racial Stereotypicality. This multilevel model yielded a large fixed effect of racial tweet type on perceptions of racial stereotypicality as predicted, such that the White tweets were rated as significantly more stereotypically White [and less Black] ($M = 7.75$, $SD = 1.53$) than the Black tweets ($M = 2.76$, $SD = 1.70$), $M_{diff} = 2.50$ ($SE = 0.13$), $t(17.66) = 19.73$, $p < .001$, $d = 3.09$.

Valence. This multilevel model did not yield a significant effect of racial tweet type on valence perceptions as predicted, such that the White tweets ($M = 7.75$, $SD = 1.38$) and Black tweets ($M = 7.63$, $SD = 1.48$) did not differ in perceived valence, $M_{diff} = 0.06$ ($SE = 0.06$), $t(4.00)$

$= 0.96, p = .390, d = 0.08$. Both tweets were rated as above the midpoint of the valence scale, suggesting both racial tweet sets were perceived as highly but equally positive.

Background Image

The rolling dice background image was selected as it was rated as the most race neutral ($M = 4.99, SD = 1.69$) and most valence neutral ($M = 5.20, SD = 1.55$) on nine-point scales.

Discussion

Results of the pretesting of materials suggests that the Black tweets were strongly perceived as stereotypically more Black than the White tweets; however, these tweets did not differ on perceived valence. In fact, the tweets were rated well above the midpoint of the scale, suggesting the tweets from both racial sets were perceived highly positively despite differing in racial content. Use of these tweets in Study 5 well positions the claim that any differences in likelihood perceptions of posting tweets by risk-taker profile condition are based on stereotypical racial content of the tweets and not the valence of the tweets.

Supplemental Study 1

Participants reviewed target information indicative of someone who either shows a pattern of taking reckless risks or responsible risks (via their ostensible “tweets” on Twitter). Participants were then able to apply positive Black and White stereotypic traits that are unrelated to risk-taking content, directly. We had three preregistered hypotheses. We predicted that participants would apply the positive Black stereotypic traits more to the reckless (vs. responsible) risk-taker target (H1). We expected that participants would apply the positive White stereotype traits more to the responsible (vs. reckless) risk-taker target (H2). As a check of the manipulation, we also predicted the reckless (vs. responsible) risk-taker will be rated as more of

a reckless risk-taker/less of a responsible risk-taker (H3). See the OSF link for our preregistered hypotheses: https://osf.io/4bp7m/?view_only=261112cd894b4e20b842db910b8706ea

Method

Design and Participants

This is a between-subjects, single-factor experiment. Given this between-subjects design (two-tailed; $\alpha = .05$), we needed at least 260 participants to have adequate power (.80) to detect a small-to-medium effect ($d = .35$; G*Power software; Faul et al., 2009). A total sample of 262 MTurk workers participated in an online study in exchange for \$0.75. We used Qualtrics to conduct our study and sampled the MTurk population using TurkPrime sampling services. The sample (124 women, 137 men, 1 transgender, and 1 non-binary [gender categories were not mutually exclusive]) consisted of mostly White people (200 White, 15 Black, 18 Latino, 31 Asian, 1 Middle Eastern, 2 Native American, and 8 multiracial) and their ages ranged from 20 to 73 ($M = 38.67$, $SD = 11.80$). The sample was well-educated (61% indicated having a bachelor's degree or higher) and politically moderate ($M = 3.25$, $SD = 1.79$; 7-point scale used previously).

Procedure and Measures

Participants were told that this was a study about how people perceive risk-takers and that there are two distinct forms of risk-takers. Participants were then provided with the reckless and responsible risk-taker definitions provided in Studies 2-3 (order of presenting the definitions was randomized). Participants were then told they would be shown a series of tweets ostensibly from a real person and that their identity has been masked to protect their privacy. Participants were provided with four experimental tweets ostensibly written by a Twitter user. The content of these tweets indicated the target user was either a person who takes reckless risks or responsible risks. The message content embedded in the reckless risk-taker tweets included, (1) “*You miss 100*

percent of the shots you don't take. Take risks, RECKLESSLY! That's how I live my life", (2) *"Nothing like betting on your first horse race!"*, and (3) *"Gamble in a high-stakes poker game? Deal me in."* Corresponding responsible risk-taker tweets content included, (1) *"You miss 100 percent of the shots you don't take. Take risks, RESPONSIBLY! That's how I live my life"*, (2) *"Nothing like investing in your first home!"*, and (3) *"Invest in a moderate growth diversified fund? Deal me in."* Two filler, mundane tweets were included and were constant across conditions. Tweets were presented in a randomized order after the initial abstract risk-taker tweet (i.e., *"...Take risks, RECKLESSLY/RESPONSIBLY..."*) to provide a frame of reference to interpret the subsequent more specific risk-taker tweets. To neutralize the race and gender of the Twitter user, we used initials for the user's name and Twitter's default image (an anonymous grey avatar) for the user's profile image. See OSF for the stimulus materials.

After reviewing the tweets, participants were asked to indicate the degree to which the presented attributes likely apply to the target. This was a measure of racial stereotype application. Finally, participants answered a few demographics items and then were debriefed.

We tested stereotype application by directing participants to indicate the degree to which each of the stereotypic traits likely applies to the target, from 0 = *Not at all* to 100 = *Extremely*. Black stereotypic traits included the following (averaged): *streetwise*, *acts cool*, *can dance*, *likes hip hop*, and *athletic* (McDonald's $\omega = .81$). White stereotypic traits included the following (averaged): *wealthy*, *intelligent*, *educated*, *successful*, and *ethical* (McDonald's $\omega = .92$). Stereotypic traits were taken from research on racial stereotype content (Cox & Devine, 2015; Wittenbrink et al., 1997; Zou & Zheryan, 2017).

As a manipulation check, we measured the extent to which each tweet was perceived as coming from reckless/responsible risk-taker with the following bipolar pair using 9-point scales:

Responsible Risk-taker (1) to *Reckless Risk-taker* (9). Perceptions were scored by averaging the items together (McDonald's $\omega = .86$), with greater scores indicating greater reckless (vs. responsible) risk-taker perceptions.

Results

As a manipulation check, we found that participants in the reckless risk-taker condition rated the target as significantly more of a reckless risk-taker ($M = 6.88$; $SD = 1.09$), on average, than did participants in the responsible risk-taker condition ($M = 3.14$; $SD = 1.02$), $M_{diff} = 3.74$ ($SE = 0.13$), $CI_{95} [3.48, 3.99]$, $t(260) = 28.76$, $p < .001$, $d = 3.55$. Next, we examined our primary hypotheses. As predicted, we found that participants in the reckless risk-taker condition rated the target as likely having significantly greater positive Black stereotypic traits ($M = 51.33$; $SD = 17.09$), on average, than did those in the responsible condition ($M = 43.56$; $SD = 17.47$), $M_{diff} = 7.78$ ($SE = 2.14$), $CI_{95} [3.57, 11.98]$, $t(260) = 3.64$, $p < .001$, $d = 0.45$. As predicted, we found that participants in the responsible risk-taker condition rated the target as likely having significantly greater positive White stereotypic traits ($M = 58.99$; $SD = 18.98$), on average, than did those in the reckless condition ($M = 42.85$; $SD = 18.25$), $M_{diff} = 16.13$ ($SE = 2.30$), $CI_{95} [11.60, 20.66]$, $t(260) = 7.01$, $p < .001$, $d = 0.87$.

Discussion

When guessing about an individual's unknown characteristics, we found evidence that the reckless risk-taking prototype activates the application of Black stereotype content. Conversely, the responsible risk-taker prototype evoked the application of White stereotype content. Further, after reviewing tweets indicative of a user that is a reckless (vs. responsible) risk-taker, participants predicted that the target would have more stereotypic Black qualities.