How decision-makers' sense and state of power induce propensity to take financial risks

Katarzyna Sekścińska*[a], Joanna Rudzinska-Wojciechowska[b], Petko Kusev[c]

[a] Faculty of Psychology, University of Warsaw,
Stawki 5/7, 00-183, Warsaw, Poland, e-mail: ks@psych.uw.edu.pl
[b] Centre for Economic Psychology and Decision Sciences, Kozminski University,
Jagiellońska 57, 03-301, Warsaw, Poland, e-mail: jrudzinska@kozminski.edu.pl
[c] Behavioural Research Centre, The University of Huddersfield, Huddersfield HD1 3DH,
United Kingdom, p.kusev@hud.ac.uk
* Corresponding author

Acknowledgments:

Declaration of interests: The authors declare that they have no conflicts of interest.

Funding Source Declaration: This work was supported by the National Science Centre, Poland, grant number: UMO-2020/37/B/HS4/02173

Compliance with Ethical Standards:

Ethical approval: All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The Ethics Board of the Faculty of Psychology University of Warsaw approved the studies.

Informed consent: Informed consent was obtained from all individual participants included in the studies.

Data and Original Materials Availability Statement: The complete datasets can be found at the Open Science Framework (OSF):

The original materials for both studies can be found in Supplementary Materials.

ABSTRACT

We present two studies (N_1 = 104, and N_2 = 359) investigating how sense of power (trait) and state of power affect participants' risky financial decisions in the domains of investment and gambling. Moreover, we explored whether a situationally induced state of power moderates the relationship between sense of power (trait) and propensity to take financial risks. The studies demonstrated that the level of sense of power was positively associated with the riskiness of investment portfolios and gambling choices. A similar pattern was observed when a state of power/powerlessness was situationally induced: participants in high-power conditions took greater investment and gambling risks than did those in low-power conditions. Importantly, we found an interaction between trait and state power. For participants in the high-power condition, there was a positive relationship between sense of power and propensity to take financial risks. In contrast, there was no such relationship for those in the low-power condition.

Keywords:
power, financial risk, investment, gambling

Classification Codes: PsycINFO Classification codes: 3000, 3900, 3920;

JEL Classification codes: D1, D19, D14, G4, G40

Introduction

Power is often defined as asymmetric control over valued resources in social relations (Magee & Galinsky, 2008). A number of studies indicate that greater power fosters risk-taking behaviors in various situations, such as negotiations (Anderson & Galinsky, 2006; Magee et al., 2007), taking a card in a game of blackjack (Galinsky et al., 2003) engaging in unprotected sex (Anderson & Galinsky, 2006), marital infidelity (Lammers et al., 2011), and food consumption (Kim et al., 2018). However, little is known about the way differences in power influence risky personal financial choices, and it is not clear whether people in positions of power and people lacking power differ in terms of their preferred financial risk-levels or whether they invest their money in different ways (e.g., by choosing financial instruments with different levels of risk). The greater propensity of powerful people to take risks has been demonstrated only on the corporate level. Specifically, studies have demonstrated that power held by CEOs is positively related to excessive and unmanaged risk-taking in a firm; for example, misconduct of banks

(Altunbaş et al., 2018), the decision to pursue a strategy of specializing in subprime lending, which poses a high risk of default (Lewellyn & Muller-Kahle, 2012), or risk taken by banks (Altunbaş et al., 2020). However, there is a great difference between the way business and personal finances are managed. Thus, results about power wielded by CEOs cannot simply be assumed to be true for investment choices on an individual level. Moreover, the results obtained in other risk-taking domains do not necessarily translate to the financial domain because people's propensity to take risks is not consistent across all decision domains (Hanoch, Johnson, & Wilke, 2006; Weber, Blais, & Betz, 2002) and might differ even across different financial domains (Vlaev, Kusev, Stewart, Aldrovandi, & Chater, 2010).

Individual variation in one's perceived ability to influence other people is considered an individual difference (trait) variable (Anderson, John, & Keltner, 2012). At the same time, a plethora of research has demonstrated that power is also a psychological state, and that feelings of power or powerlessness can be activated by a number of factors (see Rucker, Galinsky, & Dubois, 2012 for a review). Situational cues to the possession of power create a sense of power, which in turn produces a range of cognitive, behavioral, and physiological consequences (see Galinsky, Rucker, & Magee, 2015 for a further review of the psychology and consequences of power).

It is important to note that people can find themselves under the joint influence of both state and trait power. However, such situations are seldom considered in research. Few existing studies have demonstrated that the pattern of interactions between sense of power and power manifested as a state is not straightforward (Chen, Langner, & Mendoza-Denton, 2009; Strelan, Weick, & Vasiljevic, 2014). Thus, little is known about the way such an interaction might influence the making of risky financial decisions. Nevertheless, some assumptions can be made based on research that focuses on the interaction between situationally induced power and other traits. This research indicates that individuals exhibiting power act more in line with their dispositional tendencies than do individuals lacking power (Bargh & Raymond, 1995; Chen et al., 2001; Côté et al., 2011). If this pattern of results were also to occur for situational power and power understood as a trait, people with an experimentally heightened state of power would act in line with their levels of power as a trait, whereas an experimentally induced lack of power would lead a person to make decisions similar to those made by people characterized by lower power (as a trait).

The current article focuses on how people's levels of power influence their risky financial decisions in two domains: investment decisions and gambling. We treat power as an individual difference (trait) characteristic and also experimentally induce power as a state. Moreover, we explore the interaction effect between these two variables on participants' propensity to take financial risks. The results of our two studies demonstrate that power is a significant predictor of risky financial decisions. One's level of sense of power (trait) is positively related to risk choices in both investment and gambling tasks. A similar pattern was observed when states of power/powerlessness were situationally induced: participants in highpower conditions took greater investment and gambling risks than did those in low-power conditions. Importantly, interactions between trait and state power were observed. For people in the high-power condition, there was a positive relationship between sense of power and propensity to take financial risks. In contrast, there was no such relationship for people in the low-power condition. This suggests that when people find themselves in a position of having little power, their sense of power does not influence their subsequent decisions in the manner that has been demonstrated in previous studies.

1.1 Hypotheses and the current studies

Drawing on previous research, we expect individuals exhibiting power to behave in a riskier manner in financial contexts than those with less power, and that this will be the case for both trait and state power. Accordingly, there is evidence that powerful and powerless people differ in their propensity to make risky financial choices, especially considering their differences with respect to rewards and punishments (Anderson & Berdahl, 2002). Moreover, studies indicate that power generally increases the tendency for people to make risky decisions in various life domains (Anderson & Galinsky, 2006) and powerful people tend to be optimistic in their risk assessments (Anderson & Galinsky, 2006), overconfident (Fast et al., 2012), and have the illusion of control over outcomes (Fast, Gruenfeld, Sivanathan, & Galinsky, 2009).

Finally, based on research demonstrating that powerful individuals act more in line with their dispositional tendencies than individuals who lack power (Bargh & Raymond, 1995; Chen et al., 2001; Côté et al., 2011), we predict that people in a state of power will act in line with their trait power. In this group, we expect that increasing levels of trait power will be related to a greater propensity to take financial risks. Conversely, for the group of participants with an experimentally induced lack of power, we expect that there will not be such a relationship.

Specifically, we anticipate that the financial risk preferences of participants in this group will be similar to those of people with lower levels of trait power.

The studies were conducted using the online Polish ARIADNA participant panel, which has over 110,000 active adult panel members. E-mail invitations were sent to potential participants, diverse in terms of their age, gender, and level of education. Each email contained a unique link to the study that worked only once and only for the particular panel member. When the participant clicked on the link, they were transferred to ARIADNA's research platform and, after reading the information about the study and giving informed consent, the participant started the study. Participants who took part in the first study were not invited to the second study and were therefore unable to take part in it.

Respondents were awarded points for participating that they could later exchange for rewards from a pool of several hundred products offered by the platform running the panel. Additionally, extra points were awarded to participants depending on their choices during gambling tasks. Informed consent was obtained from all participants. The Ethics Board of the University of Warsaw's Faculty of Psychology approved both studies. In both studies, collection of data was not continued after data analysis commenced. We declare that we have reported all implemented experimental conditions and disclosed all measured variables. We have also reported all the studies we have performed on the research question of this paper.

2 Study 1. Sense of power and propensity to take financial risks

2.1 Study aim

Study 1 aimed to examine whether sense of power is positively related to people's propensity to take two types of financial risk: investment and gambling risks.

2.2 Method

2.2.1 Participants

A total of 104 Polish working adults (53 female and 51 male; aged 19–64 years, M = 37.18 years, SD = 9.49) took part in the study.[1]

2.2.2 Materials and procedure

Sense of power. Participants' sense of power was measured using the Generalized Sense of Power Scale (Anderson, John, & Keltner, 2012), on which participants were asked to report their generalized beliefs about the power they have in their relationships with others. The Scale was translated into Polish using the translation/back-translation procedure in accordance with

WHO guidelines (Whodas 2.0 Translation Package, n.d). We decided to use 5-point scales because the panelists who took part in the study were used to online studies with 5-point scales, Krosnick and Presser (2010) found very similar effects for 5-point and 7-point scales, and the Generalized Sense of Power Scale has been previously successfully implemented with 5-point scales (also by one of the authors of the scale: van Kleef, Oveis, Homan, van der Löwe, & Keltner, 2015). Participants were asked to rate their agreement with eight statements such as "In my relationships with others I can get others to do what I want" on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Four items were reverse coded and responses were averaged to create an indicator of each participant's sense of power (M = 3.30, SD = 0.52, Cronbach's alpha = .767).

Propensity to take financial risks

Propensity to take gambling risks (the lottery task). The lottery choice task proposed by Holt and Laury (2002) was used as a measure of participants' propensity to take gambling risks. Participants were asked to make ten choices between paired lotteries (Lottery A and Lottery B). In each pair, the potential payoffs for Lottery A (PLN 10 = USD 2.5 or PLN 8 = USD 2) were less variable than those for Lottery B (PLN 19.25 = USD 4.8 or PLN 0.5 = USD 0.13). Thus, Lottery B was the risky option. The probability of the high-payoff outcome increased in both lotteries, starting with p = 0.1 and ending with p = 1. The index of risky gambling choices was defined as the sum of Lottery B options (M = 4.45, SD = 3.03). This task was incentivized: participants were informed that a computer would draw one of the 10 chosen lotteries (for each participant individually) at the end of the study, and then throw a virtual 10-sided dice to determine the lottery result. Participants' incentives were paid according to this outcome as an additional reward for participation (this procedure has previously been successfully used by Sekścińska, Rudzinska-Wojciechowska, & Jaworska, 2021)

In this task, rational participants should either have no switching point or only one switching point in their choices between Lotteries A and B. Moreover, in the last choice, the

[1] To establish appropriate sample sizes, a priori power analysis was conducted using G*Power (Faul et al., 2007). This showed that, given α = .05 and 0.80 power, a sample size of 77 participants would be sufficient to detect medium effects (f^2 = 0.15) in a regression model with 3 predictor variables. We aimed to exceed this number by at least 30% based on the results of our previous studies (Sekścińska, RudzińskaWojciechowska, & Jaworska, 2021) in which, on average, 33.5% of participants were excluded from analysis because of multiple switching points and and/or choosing dominated options in the lottery task (2002).

higher outcome of each gamble is drawn with certainty; thus, Lottery A is a dominated option and should not be chosen by a rational decision maker. Participants with multiple switching points and participants choosing dominated options were excluded from the analyses (see Charness, Gneezy, & Imas, 2013). However, we also analyzed the whole dataset (the description of analyses and related statistics are presented in Supplementary Materials part 1). Including participants with multiple switching points and who chose the dominated option did not make a difference to the results.

Propensity to take investment risks (the investment portfolio task; Sekścińska, Jaworska, & Rudzinska-Wojciechowska, 2021; Sekścińska, Maison, & Trzcińska, 2016). Propensity to take investment risks was measured by the percentage of stocks included by participants in a hypothetical investment portfolio. First, participants read information about the levels of riskiness and potential profitability of bonds, balanced mutual funds, and stocks. Subsequently, they were asked to create an investment portfolio by dividing a total of PLN 10,000 ($2500) between these three types of investment (balanced mutual funds involved investing 50% in stocks and 50% in bonds). The following formula, reflecting the percentage of stocks in each portfolio, was used: 0 × percentage allocated to bonds + 0.5 × percentage allocated to mutual funds + 1 × percentage allocated to stocks. This resulted in scores ranging from 0 to 100 (M = 26.37, SD = 4.17).

Procedure. In order to control for any undesired order effects, the Generalized Sense of Power Scale, the investment portfolio task, and the lottery task were presented to the participants in random order.[1] At the end of the study, all participants were informed about the results of the lottery.

2.3 Results and discussion

Descriptive statistics (means and standard deviations) and zero-order correlations for the analyzed variables are presented in Table 1.

Table 1.

Descriptive statistics and Pearson's *r* correlations (Study 1)

	M	*SD*	Zero-order correlations

[1] One-way ANOVA showed no differences in terms of general sense of power (F[5,98] = 0.121, p = .99), propensity to take investment risks (F[5,98] = 0.942, p = .46), or propensity to take gambling risks (F[5,98] =

			2	3	4	5
1. Propensity to take gambling risks	4.36	2.65	.178	.258*	-.025	.016
2. Propensity to take investment risks	49.43 %	24.93 %		.197*	.022	-.059
3. Sense of power	3.30	0.52			-.008	.123
4. Age	37.18	9.49				-.142
5. Sex	M: 51 (49%) F: 53 (51%)					

Note: Sex was coded as 1 for female and 0 for male; *$p < .05$, **$p < .01$, ***$p < .^{2}01$

2.3.1 Sense of power and propensity to take gambling risks

Five participants were excluded from the analyses presented below due to multiple switching points and/or making dominated choices in the lottery task.

Analysis of the frequency distribution of propensity to take gambling risks showed the existence of censoring in the data (see Figure 1) and a positively skewed distribution, with 23 participants obtaining the minimum (one B choice) score. Accordingly, we employed a leftcensored regression model in which participants' propensity to take gambling risks was regressed on sense of power (with a score of 1 as the lower limit). The tested model exhibited a significantly better fit than a model containing no predictor variables, with sense of power being a significant positive predictor of propensity to take financial risks (Table 2). For each unit increase in sense of power there was a 1.43 (β) point increase in predicted values of propensity to take gambling risks. After introducing demographic variables (age and sex), the model was not significantly better than the one containing no predictor variables, with neither age nor sex being significantly predictive and sense of power remaining as a significant positive predictor (β = 1.45; Table 2). Similar results were obtained for the whole sample for which data were collected (N = 104). Specifically, the model with sense of power as the only predictor was significant, with sense of power being a positive predictor of propensity to take financial risks. Moreover, the model with demographic variables being controlled was not significantly more

[2] .729, p = .60) between participants who completed the research tools in each of the possible orders.

predictive than the initial one and showed sense of power as the only and positive significant predictor. See part 1 of the Supplementary Materials for related statistics.

Figure 1. Propensity to take financial risks in the lottery task – frequencies (Study 1)

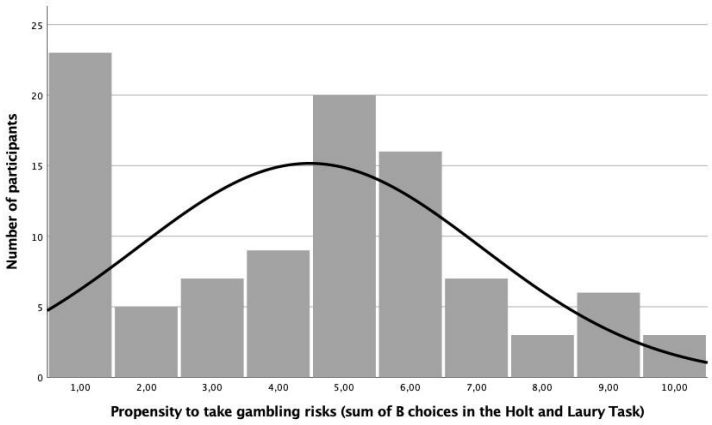

Table 2.

Predictors of propensity to take gambling risks (Study 1)

	Step 1	Step 2
Sense of power	1.43	1.45
	(0.62)*	(0.62)*
Sex		-0.16
		(0.67)
Age		-0.03
		(0.04)
Intercept	-0.66	0.40
	(2.07)	(2.46)
Observations	99	99
Pseudo R^2	.01	.01
$LR \chi^2$	5.28*	5.93

Note: The table presents the β values with standard errors in parentheses. Sex was coded as 1 for female and 0 for male. *p <.05; **p <.01; ***p <.001

2.3.2 Sense of power and propensity to take investment risks

The extent to which sense of power can be used to predict propensity to take investment risks was examined with a hierarchical multiple regression analysis (see Table 2) in which the riskiness of the created portfolios was the dependent variable. Sense of power was entered as a

predictor in the first step, and then the roles of demographic variables (age and sex) were controlled by entering these variables into the model in the second step of the analysis.

The results of the first step showed a significant role of sense of power: more powerful people were more prone to build riskier investment portfolios. Although significant, the model for the first step only explained 4% of the variance in portfolio riskiness, F (1,102) = 4.12; p = .045. After entering sex and age in the second step of the analysis, sense of power was still a significant predictor (p = .038), but neither of the two demographic variables was significantly predictive and the overall model was not significantly predictive after the second step, F (3,100) = 1.61; p = .192.

Table 3.

Predictors of propensity to take investment risks (Study 1)

	Step 1	Step 2
Sense of power	9.42* (4.64)	9.91* (4.70)
Sex		-4.13 (4.94)
Age		0.03 (0.26)
Intercept	18.39 (15.48)	72.90 (515.18)
Observations	104	104
R^2	.04	.05

Note: The table presents the B values with standard errors in parentheses. Sex was coded as 1 for female and 0 for male. *p <.05; **p <.01; ***p <.001

2.4 Summary of the results

Study 1 demonstrated that sense of power was positively related to financial risk-taking propensity in both the investment and gambling domains. However, the demographic variables were not predictive of outcomes in either domain when sense of power was controlled.

3 Study 2. The moderating role of power as a state in the relationship between sense of power and risky financial decisions.

3.1 Study aim

Study 2 aimed to explore whether the relationship between participants' sense of power and their propensity to take financial risks is moderated by situationally induced states of power/lack of power.

3.2 Method

3.2.1 Participants

A total of 359 Polish working adults (200 female and 159 male; aged 20–65 years, M = 38.95 years, SD = 11.03) took part in the study. A sensitivity analysis using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007) indicated that, given $\alpha = 0.05$ and an assumed power of 0.80, a sample size of 359 participants would be sufficient to detect a small effect ($f^2 = 0.028$) in a regression model with 3 predictor variables.[3][4]

3.2.2 Materials and procedure

Sense of power was measured as in Study 1 (M = 3.29, SD = 0.62; Cronbach's alpha = .845).

Propensity to take financial risks

Propensity to take gambling risks (the lottery task) was measured as in Study 1 (M = 5.40, SD = 2.70); the procedure that determined participants' incentives was also identical. Mirroring Study 1, participants with multiple switching points and who chose dominated options were excluded from the analyses, but the whole dataset was also analyzed (see Supplementary Materials part 2 for description of the analyses and related statistics). The results showed that

[3] To establish appropriate sample sizes, a priori power analysis was conducted using G*Power (Faul et al.,

[4]). This showed that, given $\alpha = .05$ and 0.80 power, a sample size of 318 participants for the study would be sufficient to detect small to medium effects (f = 0.175) in ANOVA. According to Cohen's (1988) guidelines, $f \geq$

the inclusion of the participants with multiple switching points and who chose the dominated option did not make a difference to the results.

Propensity to take investment risks (the investment portfolio task) was measured analogously to Study 1 (M = 39.36, SD = 24.[5]8).

Power as a state: experimental manipulation. States of having power or lacking power were induced using scenarios prepared specifically for the study. States of having power were induced by putting participants in a position that allowed them to evaluate and reward other people's work. States of lacking power were induced by putting participants in the position of being the subject of such an evaluation. The effectiveness of the experimental procedure was pretested in a separate pilot study – see Supplementary Materials part 3 for the procedure and results of this study.

State of having power. At the beginning of the procedure, participants in the powerful state group were informed that panelists belonging to the same research panel had been given a creative task the previous week. The creative task involved participants writing three valid sentences in which they had to use three provided words in such a way that it was difficult to guess which word had been provided. Then, they were asked to evaluate the performance on this task of another panelist (three sentences with three hidden words) and to decide whether to award this panelist with extra points.

State of lacking power. Simultaneously, participants in the lack of power group were informed that they would be asked to perform a creative task at the end of the study and that another panelist would be asked to evaluate their performance and decide whether to reward them. Participants were informed that the sentences would be used in future studies and that their level of performance on the task would be rewarded with extra points exchangeable for rewards from the pool of several hundred products offered by the platform running the panel. Then the participants were presented with the same three sentences that participants from the powerful group evaluated (ostensibly so that they could understand the task better). At the end of the procedure, these participants were asked to write their own three sentences. The exact

[5] .1 and $f \geq 0.25$ represent small and medium effect sizes respectively. We assumed a value of $f = 0.175$ as this is the mid-point of the small to medium effect size range. As in Study 1, we took into account possible exclusions based on performance on the lottery task (Holt & Laury, 2002), but based on the results of Study 1, we increased the sample size by 10%. Finally, the required sample was 349. However, ultimately, we conducted regression analysis on the data from Study 2 because ANOVA requires a continuous independent variable to be divided into categories, resulting in a loss of resolution in data.

wording of the experimental manipulation can be found in part 4 of the Supplementary Materials.

Procedure. The study was conducted in two waves. In the first wave, participants completed the Sense of Power Scale. The second wave occurred a few days later. Here, participants were randomly assigned to one of the experimental conditions (either a state of power or lack of power) and subsequently subjected to the experimental manipulation. Participants then completed the investment portfolio and lottery tasks in a rotated order. After this, participants in the lack of power group were asked to perform the creative task. At the end of the data collection phase of the study, all participants were informed about the outcome of the incentivized lottery task and paid according to their performance.

3.3 Results and discussion

The research questions were tested using multiple regression analyses. The sense of power and age variables were mean-centered, and the state of power and sex variables were dummy coded (state of power: 1 – power condition, 0 – lack of power condition; sex: 1 – female, 0 – male).

332 Descriptive statistics for each variable and zero-order correlations between variables are 333 presented in Table 4 and Table 5.

334

335 Table 4.

336 Descriptive statistics and Pearson's *r* correlations in total sample (Study 2)

	M	*SD*	Zero-order correlations			
			2	3	4	5
1. Sense of power	3.28	0.62	.168**	.227**	.031	<.001
2. Propensity to take gambling risks	5.40	2.70		-.029	-.103	.024
3. Propensity to take investment risks	39.36%	24.08%			-.060	.062
4. Age	38.95	11.03				-.195**
5. Sex	M: 159 (44.3%) F: 200 (55.7%)					

337 *p<.05, **p < .01, ***p<.001 338 Table 5.

339 Descriptive statistics and Pearson's *r* correlations in experimental groups (Study 2)

	State of power group						State of lacking power group					
	M	SD	Zero-order correlations				M	SD	Zero-order correlations			
			2	3	4	5			2	3	4	5
1. Sense of power	3.27	0.67	.292**	.344**	-.056	.011	3.29	0.57	-.002	.077	.144	-.014
2. Propensity to take gambling risks	5.78	2.87		-.098	-.196**	.070	5.00	2.46		.007	-.024	-.024
3. Propensity to take investment risks	43.22%	25.13%			-.082	.041	35.26%	22.26%			-.073	.098
4. Age	39.99	11.00				-.129	37.85	10.98				-.263**

5. Sex	M: 84 (45.4%) F: 101 (54.6%)	M: 75 (43.1%) F: 99 (56.9%)

340 *p<.05, **p < .01, ***p<.001

3.3.1 The moderating role of power as a state in the relationship between sense of power and propensity to take gambling risks

A total of 29 participants were excluded from the analyses due to multiple switching points and having made dominated choices in the lottery task.

To analyze the moderating role of power as a state on the relationship between sense of power and propensity to take gambling risks, hierarchical multiple regression analysis was conducted, with sex and age controlled (see Table 6). In the first model, sense of power and state of power variables were introduced as predictors. The obtained model was significant, explained 6% of variance of propensity to take gambling risk, $F(2,327) = 11.052$, $p < .001$, and showed positive significant roles of both sense of power and state of power. People with a greater sense of power chose more risky options than those with less sense of power. Moreover, people who experienced a state of power also chose more risky options than those who experienced a lack of power. In the second model, all predictor variables, apart from a state of power x sense of power interaction term, were introduced. In this model, positive roles of sense of power and state of power remained significant, but the roles of the two demographic variables were nonsignificant. Overall, the model with sense of power, state of power, sex, and age as predictor variables was significant and explained 7% of variance of propensity to take gambling risks, $F(4,325) = 5.813$, $p < .001$. In the third model, the sense of power x state of power interaction term was introduced, $F(5,324) = 6.465$, $p < .001$, $F_{change}(1,324) = 8.532$, $p = .004$. In this model, state of power remained significantly predictive, while a significant effect of sense of power was not observed. Additionally, the interaction effect was significant: people with a greater sense of power made more risky choices if they experienced a state of having power, $\beta = 1.22$, $p < .001$, while there was no difference in the number of risky choices made between people differing in their levels of sense of power when they experienced a lack of power, $\beta = -0.01$, $p = .967$. Furthermore, the results revealed that participants' risk behavior was significantly different between experimental groups for people with high, $t(354) = 4.00$, $p < .001$, and medium, $t(354) = 2.87$, $p < .01$, levels of sense of power. However, the difference between experimental groups among people with low levels of sense of power was statistically nonsignificant, $t(354) = 0.02$, $p = .99$[6].

[6] The level of sense of power was recoded into three groups based on the distribution of results. The division was made as follows: low level – people in the range below –1SD; medium level – people in the range between –1SD and +1SD; high level – people in the range above +1SD.

Similar results related to the role of sense of power and state of power were obtained for the whole sample for which data were collected (N = 359). Three analogous models to those conducted for the reduced sample were built. All the models were significant. In the first model, sense of power and state of power had positive roles. In the second model, the significant positive predictive roles of both power-related variables remained significant, age had a positive role, and no significant role of sex was observed. Furthermore, in the third model, where the sense of power by state of power interaction term was introduced, state of power and age remained significantly predictive, and the interaction effect was also significant – see the part 2 of the Supplementary Materials for related statistics.

Table 6.

Predictors of propensity to take gambling risks (Study 2)

	Step 1	Step 2	Step 3
Sense of power	0.74***	0.74***	0.01
	(0.20)	(0.20)	(0.32)
State of power	0.78** (0.26)	0.81**	0.80**
		(0.26)	(0.26)
Sex		0.12	0.12
		(0.26)	(0.26)
Age		0.01	0.01
		(0.01)	(0.01)
Sense of power x State of			1.21**
power	2.96		(0.41)
Intercept	(0.70)	-18.62	-8.58
		(23.77)	(23.77)
Observations	330 .06	330 .07	330 .09
R^2			

Note: The table presents the *B* values with standard errors in parentheses. Sex was coded as 1 for female and 0 for male. *p <.05; **p <.01; ***p <.001

3.3.2 The moderating role of power as a state in the relationship between sense of power and propensity to take investment risks

In a further hierarchical regression analysis, propensity to take investment risks was regressed on sense of power, state of power, age, sex, and a sense of power x state of power interaction term (see Table 6). In Model 1, only sense of power and state of power were introduced as predictors. The model was significant, $F(2,356) = 15.52$, p <.001, and the roles of both predictors were significant. Participants who experienced a state of having power tended to build more risky investment portfolios than those who experienced a state of lacking power. Moreover, sense of power correlated positively with risky investment portfolio choices. Model 2, which included sense of power, state of power, sex and age as predictors, was similar to Model 1: significant positive main effects of sense of power and state of power were observed. There were no significant main effects for any of the demographic variables. This model explained 9% of the variance in portfolio riskiness, $F(4,354) = 8.74$, p <.001. After introducing

the interaction term in Model 3, sense of power remained significantly predictive, and, while none of the single predictor variables were significantly predictive, the hypothesized interaction between sense of power and state of power was observed. This regression model was significant and explained 10% of the variance in portfolio riskiness, $F(5,353) = 8.17$, $p < .001$. Among participants who experienced a state of power, sense of power was positively associated with the creation of more risky portfolios, $\beta = 1273.31$, $p < .001$. In contrast, for participants experiencing a lack of power, there was no relationship between sense of power and riskiness of portfolios, $\beta = 341.38$, $p = .267$.

Moreover, the results revealed that participants' portfolio riskiness was significantly different between state of power conditions for people with high – $M_{state\ of\ power} = 49.07$, $SD_{state\ of\ power} = 27.97$, $M_{state\ of\ lacking\ power} = 35.05$, $SD_{state\ of\ lacking\ power} = 18.25$, $t(354) = 4.00$, $p < .001$ – and medium – $M_{state\ of\ power} = 41.73$, $SD_{state\ of\ power} = 20.20$, $M_{state\ of\ lacking\ power} = 37.30$, $SD_{state\ of\ lacking\ power} = 23.88$, $t(354) = 2.87$, $p < .01$ – levels of sense of power. Among those participants, individuals in a state of power made more risky decisions than those in a state of lack of power. Furthermore, the difference between experimental groups among people with low levels of sense of power was statistically nonsignificant, $M_{state\ of\ power} = 33.03$, $SD_{state\ of\ power} = 22.19$, $M_{state\ of\ lacking\ power} = 30.60$, $SD_{state\ of\ lacking\ power} = 18.25$, $t(354) = 0.02$, $p = .99$.[7]

Table 7.

Predictors of propensity to take investment risks (Study 2)

	Step 1	Step 2	Step 3

[7] The level of sense of power was recoded into three groups based on the distribution of results. The division was made as follows: low level – people in the range below –1SD; medium level – people in the range between –1SD and +1SD; high level – people in the range above +1SD.

Sense of power	8.88***	8.97***	3.41
	(1.96)	(1.96)	(3.07)
State of power	8.15*** (2.25)	8.56***	8.48***
		(2.45)	(2.44)
Sex		2.45	2.52
		(2.50)	(2.49)
Age		-0.16	-0.14
		(0.11)	(0.11)
Sense of power x State			9.32*
of power	6.04		(3.98)
	(6.70)	4.14	-247.83
Intercept		(6.82)	(225.56)
Observations	359 .08	359 .09	359 .10
R^2			

Note: The table presents the *B* values with standard errors in parentheses. Sex was coded 1 for female and 0 for male. *p <.05; **p <.01; ***p <.001

3.4 Summary of the results

The results of Study 2 showed that a situationally induced state of power led to participants' having a greater propensity to take investment and gambling risks. Moreover, the results revealed that the role of sense of power depends on the state of power in both financial risktaking domains. Among people in a situation of power, there was a positive relationship between sense of power and propensity to take investment and gambling risks. In contrast, for people in situation in which someone else had power over them, there was no relationship between sense of power and the propensity to take financial risks. Demographic variables were not related to outcomes for either type of financial choice.

4 General discussion

These studies demonstrated that both sense of power and state of power/powerlessness are significant predictors of risky financial decisions. When a state of power/powerlessness was situationally induced, participants in high-power conditions took greater investment and gambling risks than did those in low-power conditions. Moreover, the role of sense of power in

explaining risky financial decisions was significant and positive, apart from in conditions of lack of power. The results of Study 1 demonstrated that sense of power is positively related to personal risky financial choices in both investment and gambling tasks. These results make a further contribution to existing theoretical and empirical research by showing that an elevated sense of power affects personal risky choices in financial domains and offers a conceptual replication of previous findings, showing that individuals with higher levels of power tend to be riskier in their decisions than people with a lower sense of power.

The second study examined whether the link between sense of power and propensity to take financial risks could be modified by situationally induced states of high power/powerlessness. For people in the high-power condition, there was a positive relationship between sense of power and propensity to take financial risks. In contrast, there was no such relationship for people in the low-power condition. This suggests that when people find themselves in a position of having little power, their sense of power does not influence their decisions in the manner that has been demonstrated in previous studies. Such results correspond well with the small but growing body of research indicating that a person's chronic traits can interact with situationally activated corresponding states (Haws, Bearden, & Dholakia, 2012; Jain, Desai, & Mao, 2007).

The results also indicated that participants with low levels of sense of power (trait) did not differ in their willingness to take risks, regardless of the power condition. Accordingly, having (or lacking) power did not impact participants' risk choices. Moreover, the results revealed that people with medium and high levels of sense of power tended to make more risky financial choices when they were in position of power compared to when they lacked power. This result might be explained by the Active Self (Wheeler et al., 2007). This framework distinguishes chronic self-concept, which refers to those characteristics of the self that reside in one's long-term memory, from active self-concept, which concerns the self-concept information that is currently accessible and used to guide behavior. The latter can shift in response to external inputs, such as priming or decision context (Smeesters, Wheeler, & Kay, 2010). According to the Active Self of Wheeler et al., assimilative behavioral change is increased by individual features enhancing assimilative change in the active self-concept, and is decreased by features that decrease assimilative change in the active self-concept. Moreover, these prime-to-behavior effects are moderated by features that affect usage of the (changed) self-concept in guiding behavior (Wheeler et al., 2007). Accordingly, it is plausible that the observed effect of power manipulation on participants with medium and high levels of sense of power resulted

from the presence of trait power in their self-concept. Moreover, it is also plausible that the lack of effect of the power manipulation on participants with low sense of power resulted from the non-presence of trait power in their self-concept. Future research could explore these possibilities.

4.1 Limitations and strengths

Despite our studies' interesting findings, there are some limitations. For example, investment choices (unlike gambling choices) were based on participants' declarations of their intentions, rather than observations of real-life behaviors. However, hypothetical scenarios are widely used in research on the propensity to take risks (e.g., Tversky & Kahneman, 1981) and there is an abundance of evidence that people's responses to hypothetical scenarios predict actual behavior (Johnson & Bickel, 2002; Kühberger, Schulte-Mecklenbeck, & Perner, 1999). That said, it is worth emphasizing that the second dependent variable – choices in a lottery – was measured using a non-deceptive, incentivized risk-taking task. The results for the two measures were analogous, even though the correlation between them was low (r = .178, see Table 1). This shows that similar effects might be demonstrated using hypothetical or self-reported measures and behavioral ones (see also: Locey, Jones, & Rachlin, 2011). Secondly, it provides further indication that risk appetite in the financial domain is, indeed, domain dependent and confirms the need to use fine-grained measures to understand the complexities of financial choices.

The present studies have several theoretical implications. For example, the results contribute to our understanding of risky financial decision making by identifying individual differences that can induce participants' propensity to take financial risks. To the best of our knowledge, the role of power (both chronic and situational) in the making of gambling and personal investment choices has not been investigated previously. Notably, the present work is also one of only a few attempts to explore the joint influence of sense of power and situationally induced state of power, and our findings extend the vast literature on power by demonstrating the interplay between these two conceptions of power. **References**

Altunbaş, Y., Thornton, J., & Uymaz, Y. (2018). CEO tenure and corporate misconduct: Evidence from US banks. *Finance Research Letters*, 26, 1-8.

Altunbaş, Y., Thornton, J., & Uymaz, Y. (2020). The effect of CEO power on bank risk: Do boards and institutional investors matter?. *Finance Research Letters*, 33, 101202.

Anderson, C., & Berdahl, J. L. (2002). The experience of power: Examining the effects of power on approach and inhibition tendencies. *Journal of Personality and Social Psychology*, *83*(6), 1362–1377. https://doi.org/10.1037/0022-3514.83.6.1362

Anderson, C., & Galinsky, A. D. (2006). Power, optimism, and risk-taking. *European Journal of Social Psychology*, 36, 511–536). https://doi.org/10.1002/ejsp.324

Anderson, C., John, O. P., & Keltner, D. (2012). The Personal Sense of Power. *Journal of Personality*, *80*(2), 313–344. https://doi.org/10.1111/j.1467-6494.2011.00734.x

Bargh, J. A., & Raymond, P. (1995). The Naive Misuse of Power: Nonconscious Sources of Sexual Harassment. *Journal of Social Issues*, *51*(1). https://doi.org/10.1111/j.15404560.1995.tb01310.x

Charness, G., Gneezy, U., & Imas, A. (2013). Experimental methods: Eliciting risk preferences. *Journal of Economic Behavior and Organization*, *87*, 43–51. https://doi.org/10.1016/j.jebo.2012.12.023

Chen, S., Langner, C. A., & Mendoza-Denton, R. (2009). When Dispositional and Role Power Fit: Implications for Self-Expression and Self-Other Congruence. *Journal of Personality and Social Psychology*, *96*(3). https://doi.org/10.1037/a0014526

Chen, S., Lee-Chai, A. Y., & Bargh, J. A. (2001). Relationship orientation as a moderator of the effects of social power. *Journal of Personality and Social Psychology*, *80*(2), 173–187. https://doi.org/10.1037/0022-3514.80.2.173

Côté, S., Kraus, M. W., Cheng, B. H., Oveis, C., van der Löwe, I., Lian, H., & Keltner, D. (2011). Social Power Facilitates the Effect of Prosocial Orientation on Empathic Accuracy. *Journal of Personality and Social Psychology*, *101*(2). https://doi.org/10.1037/a0023171

Fast, N. J., Gruenfeld, D. H., Sivanathan, N., & Galinsky, A. D. (2009). Illusory control: A generative force behind power's far-reaching effects: Research Article. *Psychological Science*, *20*(4), 502–508. https://doi.org/10.1111/j.1467-9280.2009.02311.x

Fast, N. J., Sivanathan, N., Mayer, N. D., & Galinsky, A. D. (2012). Power and overconfident decision-making. *Organizational Behavior and Human Decision Processes*, *117*(2), 249–260. https://doi.org/10.1016/j.obhdp.2011.11.009

Faul, Franz, Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*. 39(2), 175-191. https://doi.org/10.3758/BF03193146

Galinsky, A. D., Gruenfeld, D. H., & Magee, J. C. (2003). From Power to Action. *Journal of*

Personality and Social Psychology, *85*(3), 453–466. https://doi.org/10.1037/00223514.85.3.453

Galinsky, A. D., Rucker, D. D., & Magee, J. C. (2015). *Power: Past findings, present considerations, and future directions.* In M. Mikulincer, P. R. Shaver, J. A. Simpson, & J. F. Dovidio (Eds.), *APA handbooks in psychology®. APA handbook of personality and social psychology, Vol. 3. Interpersonal relations* (p. 421–460). American Psychological Association

Hanoch, Y., Johnson, J. G., & Wilke, A. (2006). Domain specificity in experimental measures and participant recruitment: An application to risk-taking behavior. *Psychological Science*, 17(4), 300-304.

Haws, K. L., Bearden, W. O., & Dholakia, U. M. (2012). Situational and trait interactions among goal orientations. *Marketing Letters*, *23*(1), 47–60. https://doi.org/10.1007/s11002-011-9134-5

Holt, C. A., & Laury, S. K. (2002). Risk aversion and incentive effects. *American Economic Review*. https://doi.org/10.1257/000282802762024700

Jain, S. P., Desai, K. K., & Mao, H. (2007). The Influence of Chronic and Situational SelfConstrual on Categorization. *Journal of Consumer Research*, *34*(1), 66–76. https://doi.org/10.1086/513047

Johnson, M. W., & Bickel, W. K. (2002). Within-subject comparison of real and hypothetical money rewards in delay discounting. *Journal of the Experimental Analysis of Behavior*, *77*(2), 129–146.

Kim, J., Almanza, B., Ghiselli, R., Neal, J., & Sydnor, S. (2018). What Role Does Sense of Power Play in Consumers' Decision Making of Risky Food Consumption While Dining Out? *Journal of Foodservice Business Research*, *21*(1), 106–119. https://doi.org/10.1080/15378020.2017.1320931

Kühberger, A., Schulte-Mecklenbeck, M., & Perner, J. (1999). The Effects of Framing, Reflection, Probability, and Payoff on Risk Preference in Choice Tasks. *Organizational Behavior and Human Decision Processes*, *78*(3), 204–231. https://doi.org/10.1006/obhd.1999.2830

Lammers, J., Stoker, J. I., Jordan, J., Pollmann, M., & Stapel, D. A. (2011). Power increases infidelity among men and women.*Psychological science*,22(9), 1191-1197.

Lewellyn, K. B., & Muller‐Kahle, M. I. (2012). CEO power and risk taking: Evidence from the subprime lending industry. *Corporate Governance: An International Review*, 20(3), 289-307.

Locey, M. L., Jones, B. A., & Rachlin, H. (2011). Real and hypothetical rewards. *Judgment and Decision Making*, *6*(6), 552–564

Magee, J. C., & Galinsky, A. D. (2008). Social hierarchy: The self‐reinforcing nature of power and status. *The Academy of Management Annals*, 2 (1), 351–398.

Magee, J. C., Galinsky, A. D., Gruenfeld, D. H., & Wagner, R. F. (2007). Power, propensity to negotiate, and moving first in competitive interactions. *Personality and Social Psychology Bulletin*, *33*(2). https://doi.org/10.1177/0146167206294413

Rucker, D. D., Galinsky, A. D., & Dubois, D. (2012). Power and consumer behavior: How power shapes who and what consumers value. *Journal of Consumer Psychology*. https://doi.org/10.1016/j.jcps.2011.06.001

Sekścińska, K., Maison, D. A., & Trzcińska, A. (2016). How people's motivational system and situational motivation influence their risky financial choices. *Frontiers in psychology*, 7, 1360.

Sekścińska, K., Jaworska, D., & Rudzinska-Wojciechowska, J. (2021). Self-esteem and financial risk-taking. *Personality and Individual Differences*, 172, 110576.

Sekścińska, K., Rudzinska-Wojciechowska, J., & Jaworska, D. (2021). Self-control and financial risk taking. *Journal of Economic Psychology*, 85, 102386.

Smeesters, D., Wheeler, S. C., & Kay, A. C. (2010). Indirect prime-to-behavior effects: The role of perceptions of the self, others, and situations in connecting primed constructs to social behavior. In *Advances in experimental social psychology* (Vol. 42, pp. 259-317). Academic Press.

Strelan, P., Weick, M., & Vasiljevic, M. (2014). Power and revenge. *British Journal of Social Psychology*, *53*(3). https://doi.org/10.1111/bjso.12044

The World Bank. (2019). Age dependency ratio, old (% of working-age population). https://data.worldbank.org/indicator/SP.POP.DPND.OL

Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science*, *211*(4481), 453–458. https://doi.org/10.1126/science.7455683

Van Kleef, G. A., Oveis, C., Van Der Lö, I., Luokogan, A., Goetz, J., & Keltner, D. (2008). Power, Distress, and Compassion Turning a Blind Eye to the Suffering of Others. *Psychological science*, 19(12), 1315-1322

Wheeler, S. C., DeMarree, K. G., & Petty, R. E. (2007). Understanding the role of the self in prime-to-behavior effects: The active-self account. *Personality and Social Psychology Review*, 11(3), 234-261. doi:10.1177/1088868307302223

Vlaev, I., Kusev, P., Stewart, N., Aldrovandi, S., & Chater, N. (2010). Domain effects and financial risk attitudes. *Risk Analysis: An International Journal*, 30(9), 1374-1386.

Weber, E. U., Blais, A. R., & Betz, N. E. (2002). A Domain-specific Risk-attitude Scale: Measuring Risk Perceptions and Risk Behaviors. *Journal of Behavioral Decision Making*, *15*(4), 263–290. https://doi.org/10.1002/bdm.414 Whodas

2.0 Translation Package. (n.d.), Retrieved from: https://terrance.who.int/mediacentre/data/WHODAS/Guidelines/WHODAS%202.0%20Translation%20guidelines.pdf

Supporting File