

Short Research Article

The effects of activating gender-related social roles on financial risk-taking.

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Abstract:

Previous studies observed differences between men and women in terms of their financial risk-taking. However, these differences may stem not only from the gender of the decision-maker but also from other factors, such as stereotypical gender social roles. Media content exposes both men and women to stereotypical portrayals of their gender and this might temporarily activate thoughts related to their social roles. A question arises whether such activation might impact the way people make risky financial decisions. The present experimental study investigated whether temporarily activated gender-related social roles influence the risk-taking propensities of men and women ($N = 319$) in the context of gambling and investment choices.

The results show that activating a stereotypically male social role (professional employee) made both men and women more prone to take financial risks relative to a control condition. Furthermore, activating a stereotypically female social role (homemaker) lowered the propensity to take financial risks in both genders for the investment domain and in women only for the gambling domain. This study contributes to the literature on gender differences in economic behavior by showing that researchers should not overlook socio-cultural factors.

Keywords: gender-related social roles, gambling, investing, risk-taking

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Conflict of Interest

The authors declare that there are no relevant financial or non-financial competing interests to report.

Publication Ethics

All procedures were conducted in accordance with the ethical standards of the institutional and/or Polish national research committees, 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.

Open Data

Complete data for all studies and the original materials used in this research can be found on the Open Science Framework (OSF) website:

https://osf.io/xe6p4/?view_only=fdf627e0f7c14aeb8c641f2bdc203ad3

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1. Introduction

Gender differences in financial behavior are particularly prominent in domains involving risk-taking: investing and gambling (e.g., Carneiro et al., 2020; Pandey, 2013). With respect

to investing, women are more conservative in their behaviors and tend to hold fewer risky assets than men (Jianakoplos & Bernasek, 1998; Pandey, 2013). In terms of gambling, previous studies observed that men are more likely to gamble and to have a gambling problem (Carneiro et al., 2020). Males and females differ also in their preferred gambling activities (McCormack et al., 2014). However, observed gender discrepancies might stem not only from innate differences but also from other factors, such as socially determined gender roles (Nelson, 2014). Studies show that encountering stereotypical messages of gender-related social roles may alter self-concepts of both genders, which in turn can affect one's aspirations and attitudes (Rudman, Phelan, 2010) and, consequently, behaviors and decisions in many areas of life (e.g., Drapeau et al., 2009). The situational activation of gender social roles is often neglected in experiments examining gender differences in financial behavior (Sent, van Staveren, 2019). Hence, the current research investigates how activating gender-related social roles influence men's and women's propensities to take financial risk in the domains of gambling and investing.

While gender social roles have undergone substantial changes in recent years, stereotypes regarding these roles are still present in culture. This is particularly evident in all forms of advertisements, which tend to depict men and women in a stereotypical way (Eisend, 2010; Furnham, Lay, 2019). According to social role theory, social stereotypes are responsible for the existence of gender differences (Eagly, 1987). Based on such stereotypes, people form gender role beliefs representing common perceptions of the social roles appropriate for each gender (Eagly, 1987). Consequently, men and women tend to choose different professions and occupy different societal positions because they conform to social expectations related to the social roles associated with their gender (Eagly, Wood, 2012).

The influence of gender stereotypes on financial decision-making was investigated in the framework of stereotype threat (e.g. Tinghög et al., 2021). Studies have shown that gender

stereotype concerns can increase women's risk-aversion and loss-aversion (Carr, Steele, 2010). So far, research has shown that thinking about one's social role (family vs. on-the-job) can influence risk-aversion – men and women demonstrate greater risk aversion when thinking about their family role than when thinking about their occupational role, but only under certain circumstances where choice options were probability-dependent (Karginova-Gubinova, 2018). A further experimental study, taking different social roles into account (leader vs. follower) has shown role priming to affect women's loss-aversion but not men's risk attitudes (Nichols, Cook, 2019). Women primed with the follower role (which can be perceived as stereotypically female) were more loss-averse than both those in a control group and those primed with the leader role (which can be perceived as stereotypically male). The resulting conclusion that priming women to adopt a stereotypically male social role can make them engage in greater financial risk-taking, is consistent with the study by Sekścińska et al. (2016) showing that activation of a stereotypically female social role (homemaker) reduces women's propensity to invest and increases their propensity to save, while activation of a stereotypically male social role (professional employee) has the opposite effect. However, the studies on stereotype threat and risk usually include general measures of risk-taking or risk-aversion and do not account for the domain-specificity of risk. According to some researchers, risk-taking tendency is domain specific, and people might be risk-seeking in one domain and risk-averse in another (e.g., Weber et al., 2002). For this reason, it is crucial to consider different domains of risk in the research. At the same time, the influence of gender social role priming on different domains of financial risk-taking is understudied.

2. The current study

Although many studies have investigated gender differences in financial risk-taking, little is known about the potential role played by gender-related social roles. Media content, especially advertisements, exposes both men and women to stereotypical portrayals of their

gender. This might temporarily activate thoughts related to their social roles. A question arises about whether such activation might impact the way people make risky financial decisions in the gambling and investing domain. To date, there has been an absence of studies investigating the influence of stereotypically female (homemaker) vs. stereotypically male (professional employee) social roles on men and women's propensity to take financial risks in general, and the propensity to make risky gambling and investment choices in particular. Our research aimed to fill these knowledge gaps.

Studies show that women are more risk-averse than men (Khor et al., 2020) and that the stereotypically female social role of a follower is associated with greater risk-aversion (Nichols, Cook, 2019). Moreover, the stereotypically female social role of homemaker is associated with looking after the home and family and securing these against possible loss and harm (Eagly et al., 2000): functions that should not be conducive to risk-taking. Based on these findings, we expected that, for both men and women, activating a traditionally female social role (a homemaker) should lower people's propensity to take gambling (H1) and investment (H2) risks in general, and make risky financial gambling (H3) and investment choices (H4) in particular. On the other hand, men are usually more risk-seeking than women, and their stereotypical social role is associated with professional work and providing financial resources for the family (Eagly et al., 2000): functions that may favor risk-taking. Therefore, we expected that activating a stereotypically male social role (a professional employee) should increase both men's and women's propensity to take gambling (H5) and investing (H6) financial risks and to make risky financial choices in gambling (H7) and investing domain (H8).

2.1. Aim

The study aimed to investigate whether temporarily activating gender-related social roles influence risky financial choices in men and women.

2.2. Method

2.2.1. Participants

A priori power analysis using G*Power (Faul et al., 2007) indicated that given $\alpha = .05$ and assumed power of 0.80, a sample size of 159 women and 159 men would be required to detect medium effects ($f = 0.25$) using ANOVA.

Participants were 319 Polish working adults with at least one child and in a stable romantic relationship (160 women and 159 men; age 18-81 years, $M = 46.11$, $SD = 15.21$).

2.2.2. Materials and procedure

All the original materials used in this research can be found on the Open Science Framework (OSF) website: https://osf.io/xe6p4/?view_only=fd627e0f7c14aeb8c641f2bdc203ad3

Temporarily activating gender-related social roles (experimental manipulation).

Social roles were activated using photographs of a person standing next to a table holding a cup of tea (Fig. 1). Participants were shown pictures of a person of their gender. For each gender, there were three versions of a picture, differing in how the person was dressed: one showed a person in everyday clothes and a kitchen apron (the stereotypically female “homemaker” condition), one showed a person in the role of a professional worker, wearing formal clothes (the stereotypically male “professional employee” condition), and one showed a person wearing clothes not associated with any social role (the neutral/control condition).

All the participants, irrespective of conditions, were asked: (3) *Do you think that the person in the picture is: (a) mainly a professional employee, (b) mainly a homemaker, or (c) a professional employee and a homemaker equally?* This allowed for manipulation check.

The effectiveness of the experimental procedure was verified in a pilot study (see Appendix).



Fig. 1 Priming stimuli for women and men in a professional employee condition.

General propensity to make risky gambling choices and general propensity to make risky investment choices (the dependent variables) were measured using two subscales of the DOSPERT Scale (Blais, Weber, 2006). The DOSPERT Scale consists of 30 statements relating to five different risk domains: ethical; financial/gambling; financial/investing; health/safety; social. The present study only used the financial/gambling and financial/investing subscales. Each subscale is comprised of three items (e.g., *Betting a day's income at the horse races* (financial/gambling subscale), *Investing 10% of your annual income in a moderate growth diversified fund* (financial/investing subscale)). Respondents are asked to indicate the likelihood that they would engage in the described activity or behavior on a scale from 1 (very unlikely) to 7 (very likely). Participants' scores were computed separately for each subscale by summing scores on each of the three items to indicate general propensity to make risky investment choices and general propensity to make risky gambling choices, and scores for all six items were summated to obtain an indicator of general propensity to make risky financial choices. Thus, scores for the two financial subdomains ranged from 3 to 21, and scores for the general financial domain ranged from 6 to 42.

Propensity to make risky gambling choices in the specific task: lottery choices

(dependent variable). Participating in the national lottery is the most popular legal form of gambling in Poland (CBOS, 2017), and this is true for many other countries (Kearney, 2005). Therefore, as a proxy for gambling choices, Holt and Laury's (2002) lottery task was used. In this task, participants make ten choices between two lotteries (A and B). In both lotteries, the probability of a high-payoff outcome increases with each subsequent decision. The procedure starts with $p = 0.1$ for the first decision and finishes with $p = 1$ for the tenth (last) decision. The potential payoffs for Lottery A (PLN 10 \approx USD 2.5 or PLN 8 \approx USD 2) are always less variable than those for Lottery B (PLN 19.25 \approx USD 4.8 or PLN 0.5 \approx USD 0.13). Thus, the latter represents the "risky option". An index of risky gambling choices is calculated as the sum of Lottery B options chosen by a participant.

At the beginning of the lottery task, participants were informed that they would be paid according to their performance and that the amount of their payoff would be determined by a computer that would initially draw one of the 10 chosen lotteries (for each participant individually) and then throw a virtual 10-sided die to determine the lottery result. They also learned that the result would be exchanged for points redeemable for various rewards offered by the platform running the panel, according to the following rule: PLN 10 = 1 point (the result was rounded to whole points according to the rules of mathematics). Hence, a participant was able to gain from 0 to 2 extra points, independently from 10 points awarded for participation.

In this task, a rational decision-maker should either consistently choose option B or choose option A at the beginning and then switch to option B at some point (the switching moment depends on individual risk preferences). Therefore, a rational decision-maker should neither have multiple switching points (changing the choice between options A and B a few times) nor choose option A in the last choice (in this choice Lottery A pays a sure PLN 10 and Lottery B

pays a sure PLN 19.25, therefore a choice of option A in the last choice is irrational and indicates that the participant either did not understand the task or did not pay attention while providing answers). Hence, participants, who either had multiple switching points, chose option A in the last choice, or both, were excluded from the analyses (see Charness et al., 2013).

Propensity to make risky investment choices in the specific task: the investment portfolio task (dependent variable).

In this task, participants read information about the levels of riskiness and potential profitability of bonds, balanced mutual funds, and stocks. Subsequently, they created 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). This task measured participants' propensities to take investment risks, which was reflected by the percentage of stocks included in their hypothetical investment portfolios.

2.3. Procedure

The study was conducted using the online participant panel, which has over 110,000 active adult panel members. Email invitations were sent to potential participants, diverse in terms of age, gender, and level of education. Informed consent was obtained from all participants. As compensation for their participation, participants were awarded 10 points that were redeemable for various rewards offered by the platform running the panel. Moreover, participants were awarded extra points depending on the answers to the incentivized Holt and Laury's lottery task (see details in the description of the task).

At the beginning of the study, the participants were randomly assigned to one of the experimental conditions (stereotypically female role, $n_{female} = 56$, $n_{male} = 54$; stereotypically male role, $n_{female} = 49$, $n_{male} = 56$; control, $n_{female} = 55$, $n_{male} = 49$). Firstly, they were asked the

sociodemographic questions (first gender, then age). After that, they took part in the experimental manipulation task. Then, each participant completed the three financial risk-taking instruments in a rotated order (the number of participants completing the tools in each of the six configurations was balanced). At the end of the procedure, participants were informed about their lottery results and fully debriefed.

3. Results

Descriptive statistics (means and standard deviations) and zero-order correlations for the analyzed DVs are presented in Table 1. Propensity to make risky investment choices in an investment portfolio task correlated positively and moderately with general propensity to make risky gambling and investment choices and positively albeit weakly with propensity to make risky gambling choices in the lottery task. Moreover, a positive, moderate correlation was observed between general propensity to make risky gambling choices and propensity to make risky investment choices in the investment portfolio task.

Table 1.

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

	<i>M</i>	<i>SD</i>	Zero-order correlations		
			2	3	4
1. General propensity to make risky gambling choices	7.98	4.35	.681**	.082	.308**
2. General propensity to make risky investment choices	9.59	4.18		.027	.369**

3. Propensity to make risky gambling choices in a lottery task	4.17	2.49	.163**
4. Propensity to make risky investment choices in an investment portfolio task	37.00%	31.16%	

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

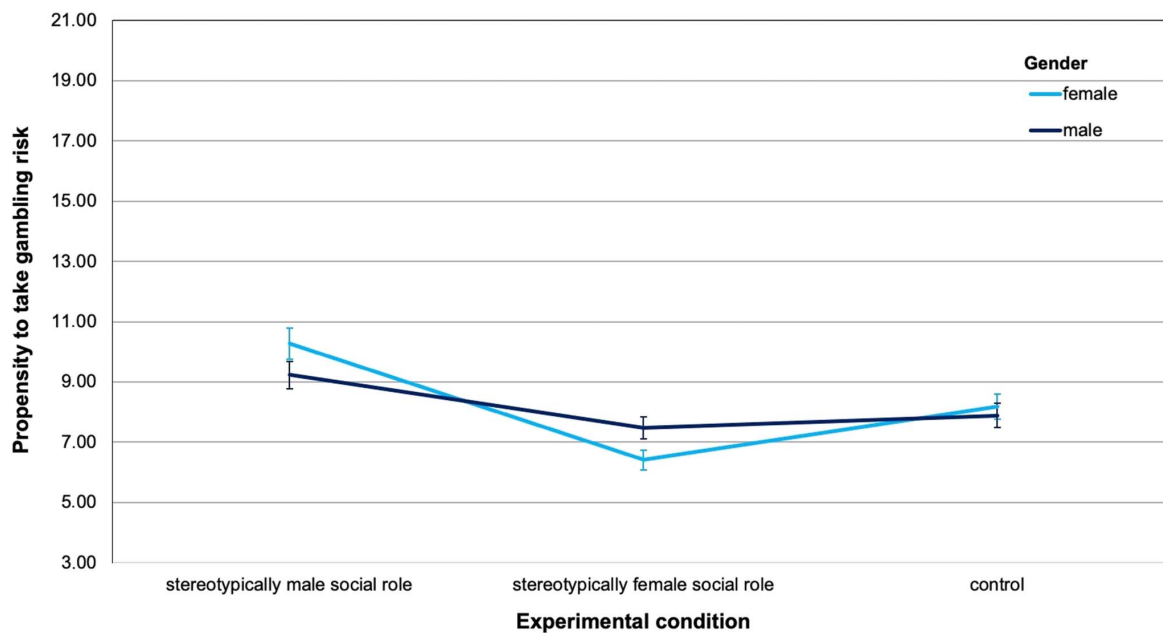
3.1. Gambling

General propensity to make risky gambling choices.

A two-way 3 (experimental group: (stereotypically female “homemaker” social role condition vs stereotypically male “professional employee” social role condition vs control condition) by 2 (gender: female vs male) ANOVA tested the experimental manipulation’s effect on people’s propensity to make risky gambling choices (measured using the relevant DOSPERT subscale) depending on gender of the decision maker (testing H1 and H5). The results revealed a significant main effect of experimental condition ($F[2,313] = 13.70, p < .001, \eta^2 = 0.08$).

Further planned comparisons t-tests showed that those in the stereotypically male role group were more prone to take risky gambling choices ($M = 9.64, SD = 4.43$) than those in both the stereotypically female role group ($M = 6.88, SD = 4.01, contrast = 2.79, p < .001, d = 0.65$) and the control group ($M = 7.39, SD = 4.12; contrast = 2.33, p < .001, d = 0.53$). However, people in the stereotypically female role group did not significantly differ in propensity to take gambling risks from those in the control group ($contrast = 0.46, p = .42, d = 0.13$). The

obtained main effect of gender was not significant ($F[1,313] = 1.82, p = .18, \eta^2 = 0.006$), however the interaction effect between gender and experimental condition was observed ($F[2,313] = 3.05, p = .049, \eta^2 = 0.02$, Fig. 1). The differences in the propensity to take risky gambling choices between the experimental groups were significant both when computed for women ($F[2, 157] = 12.42, p < .001, \eta^2 = .07$) and men ($F[2, 156] = 4.84, p = .01, \eta^2 = .06$). Females in the stereotypically female role group were less prone to take gambling risks ($M = 6.41, SD = 3.54$) than those in both the stereotypically male role group ($M = 10.27, SD = 4.15$; $contrast = -3.86, p < .001, d = 0.89$) and the control group ($M = 8.18, SD = 4.18$; $contrast = -1.771, p = .02, d = 0.46$), and females in the stereotypically male role group were more prone to take risky gambling choices than those in the control group ($contrast = 2.08, p = .01, d = 0.50$). Among males, significant differences were observed between the stereotypically male role group ($M = 9.09, SD = 4.63$) and both stereotypically female role group ($M = 7.37, SD = 4.43$; $contrast = 1.72, p = .04, d = 0.39$) and control group ($M = 6.51, SD = 3.91$; $contrast = 2.58, p = .003, d = 0.60$), however, no significant differences were observed between stereotypically female role group and control group ($contrast = 0.86, p = .32, d = 0.21$). Thus, both men and women, when presented with material that activates male social roles, are more prone to take general gambling risk compared to control groups. However, only women, but not men, declare decreased propensity to take gambling risk after activation of female social role, compared to the control group.



*Error bars represent the significance of the differences ($p < .05$).

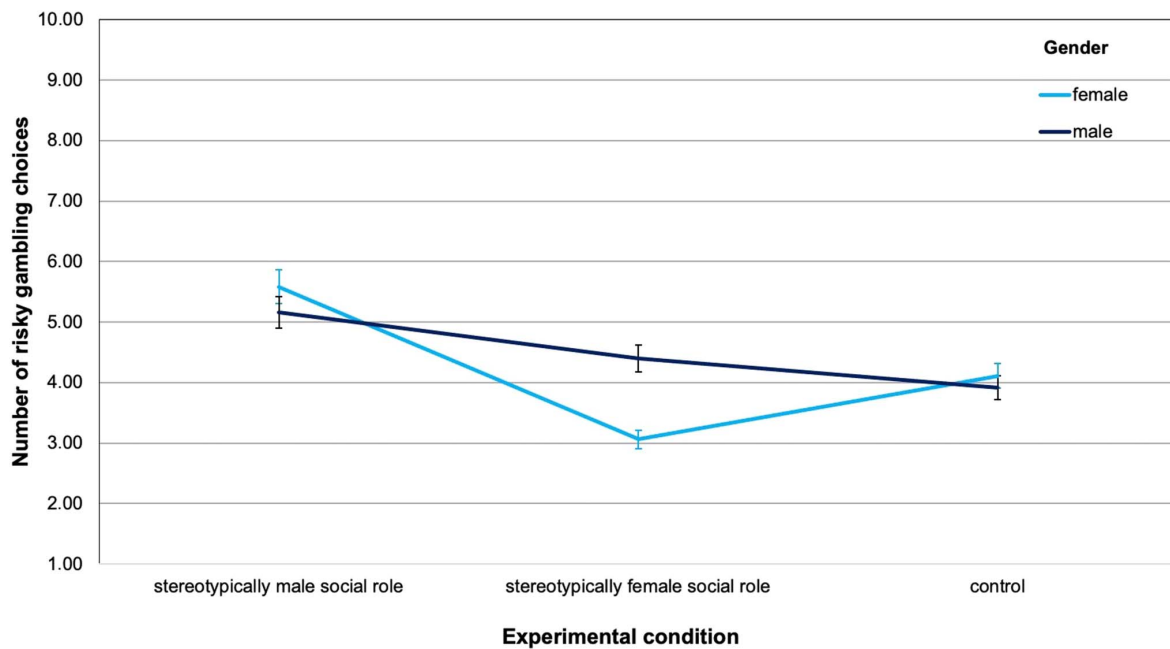
Fig. 2 Differences in the propensity to take gambling risks between the experimental groups among female and male participants with 95% CI

Propensity to make risky gambling choices in a lottery task.

Fourteen participants were excluded from the analyses presented below due to multiple switching points and/or dominated choices made in Holt and Laury’s lottery task (as recommended by Charness et al., 2013). To analyze the relationship between social role activation, gender, and risky gambling choices, a two-way ANOVA was conducted analogously to the one used in the section on propensity to make risky gambling choices, with the number of risky choices made by participants in the Holt and Laury’s lottery task as the DV (testing H3 and H7). The main effect of experimental condition was observed ($F[2,293] = 15.42, p < .001, \eta^2 = .10$). People in stereotypically male “professional employee” social role condition choose more risky options ($M = 5.34, SD = 2.20$) than people in stereotypically female social role condition ($M = 3.73, SD = 2.12$; contrast: 1.63, $p < .001$; $d = 0.75$) or

people in the control group ($M = 4.02$, $SD = 2.44$; *contrast*: 1.41, $p < .001$; $d = 0.59$). No significant difference was observed between stereotypically female social role condition and control group (*contrast*: -0.22, $p = .49$; $d = 0.10$).

The main effect of the decision-maker gender was not significant ($F[1,293] = 0.72$, $p = .40$, $\eta^2 = .002$), although the interaction effect between experimental condition and the decision-maker gender was significant ($F[2, 293] = 15.42$, $p < .001$, $\eta^2 = .10$, Fig. 2). To perform the follow-up tests, the data set was split according to the participants' gender. The differences in the number of risky gambling choices between the experimental groups made by females were significant ($F[2, 146] = 17.71$, $p < .001$, $\eta^2 = .20$) as well as those made by males ($F[2, 150] = 3.81$, $p = .02$, $\eta^2 = .05$). Females in stereotypically male “professional employee” social role condition choose more risky options ($M = 5.58$, $SD = 1.88$) than those in stereotypically female social role condition ($M = 3.06$, $SD = 1.82$; *contrast* = 2.28, $p < .001$; $d = 1.36$) or females in control group ($M = 4.07$, $SD = 2.40$; *contrast* = 1.50, $p < .001$; $d = 0.70$). Moreover, female participants in stereotypically female social role condition made less risky choices than the control group (*contrast* = 1.01, $p = .01$; $d = 0.47$). Males in stereotypically male “professional employee” social role condition choose more risky options ($M = 5.15$, $SD = 2.44$) than males in the control group ($M = 3.82$, $SD = 2.56$; *contrast* = 1.32, $p = .007$; $d = 0.50$). Choices of males in stereotypically female social role condition ($M = 4.40$, $SD = 2.20$) did not differ significantly from the choices of males in male social role condition (*contrast* = 0.75, $p = .12$; $d = 0.32$) or control group (*contrast* = 0.57, $p = .24$; $d = 0.53$). Thus, both men and women, when presented with material that activates male social roles, are more prone to make risky gambling choices. However, only women, but not men, make less risky choices after activation of female social role, compared to the control group.



*Error bars represent the significance of the differences ($p < .05$).

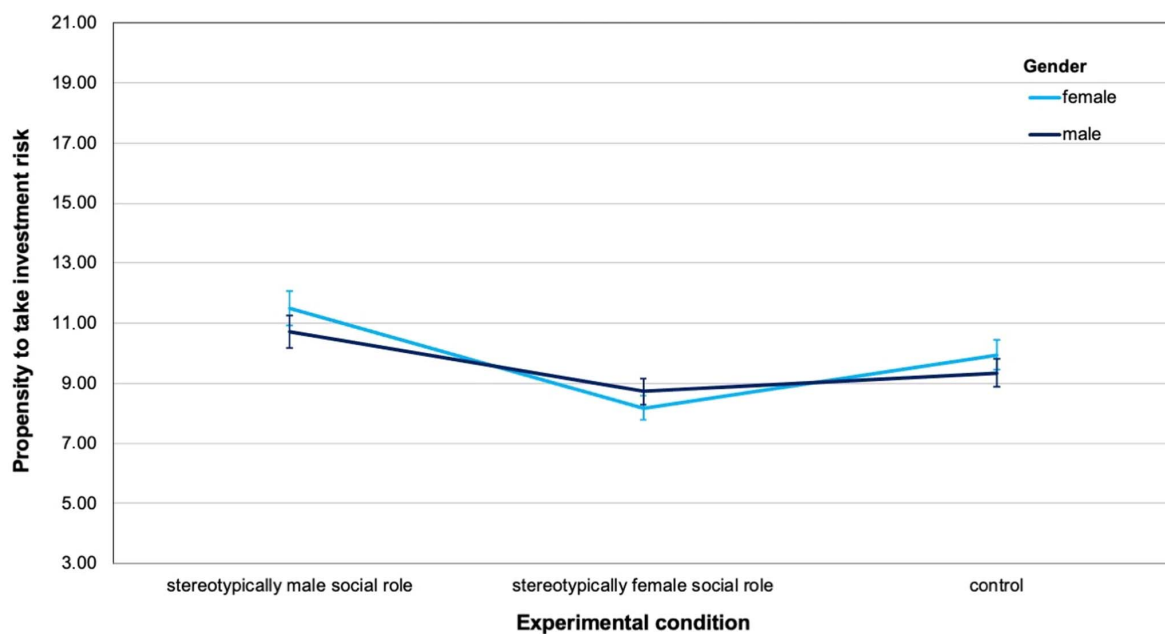
Fig. 3 Differences in the number of risky gambling choices between the experimental groups among female and male participants with 95% CI

3.2. Investing

General propensity to make risky investment choices.

A two-way ANOVA was conducted analogously to the one used in the section on propensity to make risky gambling choices, with the propensity to make risky investment choices (measured using the relevant DOSPERT subscale) as the DV (testing H2 and H6). A significant main effect of experimental condition ($F[2,313] = 12.52, p < .001, \eta^2 = 0.07$; Fig. 3) has been revealed. Planned comparisons showed that those in the stereotypically male role group were more prone to take risky investment choices ($M = 11.10, SD = 4.04$) than those in both the stereotypically female role group ($M = 8.44, SD = 4.09, contrast = 2.69, p < .001, d = 0.66$) and the control group ($M = 9.59, SD = 4.18, contrast = 1.90, p < .001, d = 0.46$). However, people in the stereotypically female role group did not significantly differ in propensity to take investment risks from those in the control group ($contrast = -0.80, p = .15$,

$d = -0.21$). The obtained main effect of gender was not significant ($F[1,313] = 1.62, p = .20, \eta^2 = 0.005$), and the interaction effect between gender and experimental condition was not observed ($F[2,313] = 1.64, p = .20, \eta^2 = 0.01$). Thus, there were no differences between genders when it comes to general propensity to take investment risk. Both men and women declared a higher level of general propensity to take investment risk when presented with material that activates male social roles compared to the control groups and neither women nor men were affected by activation of female social role in terms of general propensity to take investment risk.



*Error bars represent the significance of the differences ($p < .05$).

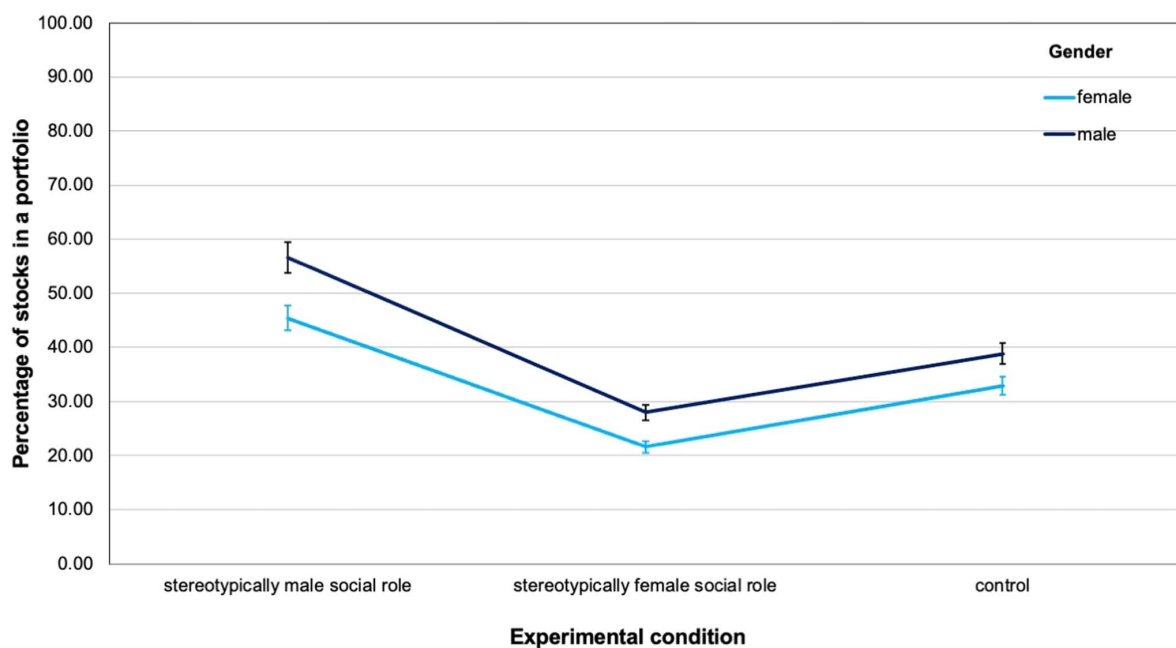
Fig. 4 Differences in the propensity to take investing risks between the experimental groups among female and male participants with 95% CI

Propensity to make risky investment choices in an investment portfolio task.

A two-way ANOVA was conducted analogously to the one used in the section on propensity to make risky gambling choices, with the amount of money assigned to stocks as the DV (testing H4 and H8). The main effect of experimental condition was observed ($F[2,313] =$

22.23, $p < .001$, $\eta^2 = .14$; Fig. 4). People in the stereotypically male “professional employee” social role condition assigned more money to stocks ($M = 51.35$, $SD = 31.95$) than people in stereotypically female social role condition ($M = 24.50$, $SD = 20.42$; $contrast = 26.43$, $p < .001$; $d = 0.94$) or people in the control group ($M = 35.75$, $SD = 30.94$; $contrast = 15.06$, $p < .001$; $d = 0.50$). Moreover, a significant difference was observed between stereotypically female social role condition and the control group ($contrast = -11.37$, $p = .005$; $d = -0.41$).

The main effect of the decision-maker’s gender was significant ($F[1,299] = 5.44$, $p = .02$, $\eta^2 = .02$), men assigned more money to stocks ($M = 41.21$, $SD = 32.77$) than women ($M = 32.82$, $SD = 28.04$; $contrast = 7.61$, $p = .016$; $d = 0.27$). However, the interaction effect between the experimental condition and the decision-maker gender was not significant ($F[2, 313] = 0.30$, $p < .74$, $\eta^2 = .002$). Thus, in the case of risky investment decisions, there were no differences between men and women - both groups were affected by the activation of social roles so that compared to the control groups, when presented with the male social role they assigned more money to stock, whereas when presented with female social role, they assigned less money to this type of asset.



*Error bars represent the significance of the differences ($p < .05$).

Fig. 5 Differences in the percentage of the money amount assigned to stocks between the experimental groups among female and male participants with 95% CI

3. Discussion

The study investigated the impact of stereotypical depiction of male and female social roles on subsequent risky choices in a gambling and investment domain. In line with our expectations, both men and women after activating a male social role showed an increased propensity to take financial risks (in investing and gambling subdomain). Moreover, both genders, when presented with material depicting female social role, had lower risk-taking propensities in investing subdomain. However, differences between genders were observed after the activation of female social roles in the gambling subdomain. Women, who saw material activating this social role were less prone to take gambling risk than the control group, while men were not less prone to take gambling risk than the control group

The fact, that inconsistent results were obtained for men and women in a gambling domain after the female social role had been activated, can be explained by different associations evoked by investing and gambling. Investing personal money evokes associations with managing one's household budget and securing its financial future, whereas gambling does not. On the contrary, it is linked to thrill, emotions, instant gains, and losses. Possibly, the activation of the female social role, related to taking care of the house and keeping it safe evokes associations that are consistent with those evoked by investing but not by gambling. Nevertheless, this result was not expected and the above reasoning was formulated after it was obtained. Hence, it requires verification and the whole study should be replicated to ensure that the obtained results are robust across different samples.

Our study builds upon prior research on stereotype threat, which has demonstrated that thinking about gender stereotypes can affect financial decision-making (e.g. Carr, Steele, 2010). However, stereotype threat research has been recently criticized due to significant replicability concerns (e.g. Flore, Wicherts, 2015). In contrast to prior research, our study has few advantages: it was conducted on the general Polish population (not on the students), it has a relatively large sample (with *a priori* and *a posteriori* power analyses), it includes two depended risk-taking variables, so we can be sure the observed effect is not specific to one measure only, and it does not concern performance in a specific domain (e.g. math or job performance) but a broader context of the gender social role stereotypes.

Although the results are promising, our study has limitations. First, it focused exclusively on risky financial choices, and future research might analyze the effects of social role priming in such situations as going into and paying-off debt and buying insurance. Second, we used self-report measures of general financial risk-taking propensity. Although this might be considered a limitation, there is much evidence that people's responses to hypothetical scenarios predict their actual behaviors (Johnson, Bickel, 2002; Locey et al., 2011), and the approach is commonly used in studies of risk-taking propensity (e.g., Tversky, Kahneman, 1981).

Importantly, it has to be noted that the study was conducted in a specific context. In the Polish society, gender stereotypes regarding social roles or professions are still prevalent (e.g. more than 60% of the people think that an engineer or a programmer are male professions; DELab UW, 2017). Moreover, in contrast to the worldwide trends of improving gender equality, Poland's position in the Gender Equality Index has decreased in the last five years (EIGE, 2021). Therefore, it is plausible that in countries with more gender equality and less stereotyping in that domain, the depiction of men and women in traditional gender roles might have a smaller effect or no effect at all on subsequent risky decision-making. Although

stereotypes on gender are usually considered relatively stable, they can depend on cultural context and change if gender roles in a certain country go through transformation (Eagly, 1987). A study on gender stereotypes in 25 countries showed that differences in the perception of males and females were larger between the cultures than between the genders (Williams & Best, 1990). A more recent study comparing gender stereotypes across Germany and Nigeria found significant differences in the perception of both genders - women were perceived as more communal by Nigerians than by Germans (Obioma et al., 2021). Moreover, research has shown that the content of gender stereotypes can be moderated by cultural values. In individualistic countries, men are perceived as more individualistic than women, whereas in collectivistic countries, men are perceived as more collectivistic than women (Cuddy et al., 2015). This means that male stereotypes more closely align with the cultural ideal. Consequently, our findings might have been different depending on the investigated culture. Specifically, portrayals of a traditional female social role might be related to less risk-taking in individualistic countries, but it might have the opposite effect on risky choices in collectivistic countries. Poland is a culture with intermediate levels of collectivism and individualism (Forbes et al., 2009), however, it would be interesting to investigate how stereotypical depiction of gender social roles affect financial risk-taking in collectivistic vs. individualistic countries. To conclude, research concerning such a culturally determined issue as gender stereotypes might lead to disparate findings across countries and for this reason, the role of gender social roles of financial risk-taking should be investigated among other populations as well.

The study is of great practical importance as various everyday situations can activate certain social roles. One such situation is exposure to adverts, which often depict men and women in gender-stereotypical roles (for a review, see Eisend, 2010). By extension, our work contributes to a better understanding of the short-term consequences of exposure to

stereotypical advertising messages by showing their influence on risky financial decisions of both men and women. However, future studies should explore this issue in a more applicable setting by investigating the influence of direct real-life exposure to advertising on financial decision-making. Our work also advances the literature on both the effects of gender-related social roles and financial risk-taking. The study contributes to work on risky decision-making by identifying a situational factor – social role activation, that might influence these types of decisions. To the best of our knowledge, the influence of gender-related social stereotyping has not been extensively investigated in the context of both gambling and investment choices as well as financial risk-taking propensity. Accordingly, our study contributes to the literature on gender differences in economic behavior by showing that researchers should not overlook socio-cultural factors.

Finally, the findings presented in this manuscript might be easily translated into real-world situations. They suggest that institutions selling financial instruments might shape consumers' decisions regarding the level of financial risk they are ready to accept by presenting the offer next to family-related or job-related pictures. Thus, the findings might be of interest to organizations seeking to educate people in the management of their money. Importantly, however, our study demonstrated that the material that activates certain social roles might be unrelated to the subsequent financial decisions, therefore various everyday circumstances might have the abovementioned effect, for example, exposition to advertisements, social media feeds, or interactions with other people. The awareness that such factors might shape people's financial choices is of great practical value and might help make better informed financial decisions.

Conclusion

Situational factors which temporarily activate gender-related social roles are likely to impact financial choices of both males and females by changing the amount of financial risk they are

ready to accept. The activation of the male social role might make people more risk-seeking, while the activation of the female social role might result in making low-risk financial decisions. Importantly, the stimuli that activate gender roles might be unrelated to subsequent financial decisions.

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APPENDIX

Pilot study for the experimental procedure

180 people (90 women) aged 18-37 years-old ($M = 23.00$, $SD = 3.69$) participated in an online study. Participants were randomly assigned to two experimental conditions and one control condition in which pictures of men and women in stereotypically female (“homemaker” condition), stereotypically male (“professional employee” condition) and neutral roles were presented. After presentation of each picture, participants answered two questions: (1) *What does this person do?* (2) *What is his/her social role* (taking care of the household/professional work /the person performs both roles equally).

Chi-square analyses confirmed that in the “homemaker” condition both the men and women pictured were assigned to a housekeeping role significantly more often than would have been predicted from expected values, and in the “professional employee” condition both the men and women pictured were assigned to a professional worker role significantly more often than would have been expected (for female participants, $X^2[4] = 14.75$, $p = .005$, $N = 90$; for male participants, $X^2 [4] = 9.62$, $p = .047$, $N = 90$). These results confirmed the experimental manipulation’s suitability for use in the main study.