10.2478/fprj-2026-0001

Financial Planning Research Journal

AN ANALYSIS OF GENDER, MARITAL STATUS, AND FINANCIAL CONFIDENCE IN SHAPING FINANCIAL RISK TOLERANCE: INSIGHTS FROM THE 2022 SURVEY OF CONSUMER FINANCES

Ashlyn Rollins-Koons*[1], Congrong Ouyang[2], Megan McCoy[1], Joanne Wu[1]
[1]Kansas State University
[2]Texas A&M University

*Corresponding author:
Ashlyn Rollins-Koons
Email: ashlynr12@ksu.edu

Key words:

Gender, financial risk tolerance, marital status, social role theory, Survey of Consumer Finances

ABSTRACT

This study investigates how gender, marital status, and financial confidence relate to financial risk tolerance. The analysis revealed single men exhibited greater financial risk tolerance than married men, while both single and married women were less risk-tolerant than married men. Financial confidence was positively associated with financial risk tolerance; however, overconfident married women and single women with appropriately high financial confidence had lower risk tolerances than married men. These findings explain how gender and marital status work in conjunction with psychological factors like financial confidence when evaluating clients' risk preferences. Implications for financial practitioners include adopting gender-informed frameworks to better tailor risk assessment and communication.

The Influence of Gender, Marital Status, and Overconfidence on Financial Risk Tolerance

A substantial body of research has examined gender differences in financial risk tolerance, often framing women's investing behaviour through a deficit-based lens (Bannier & Neubert 2016; Fisher & Yao 2017; Mandal & Brady 2019). This literature frequently attributes women's relatively lower risk tolerance as a contributing factor to the gender wealth gap and has emphasised strategies aimed at encouraging women to adopt more risk-tolerant behaviours (Fisher & Yao 2017). The assumption that women are less willing to engage in financial risk-taking is commonly cited as a central reason for their lower wealth accumulation over time (Yao et al. 2011). Higher-risk investments typically yield greater long-term returns, which can significantly impact wealth building and retirement preparedness. In contrast, individuals with lower risk tolerance may shy away from such opportunities, requiring additional incentives to manage uncertainty, ultimately limiting their financial growth (Fisher & Yao 2017). As Bannier and Neubert emphasise, this gender disparity in risk-taking has profound economic implications: "If women are less willing to invest in risky financial assets, they are expected to accumulate lower wealth over time. Combined with lower labour income and a longer lifespan, this renders women more vulnerable to poverty in old age" (2016, p. 130).

As research on financial risk tolerance has progressed, scholars have increasingly examined factors beyond gender that may help explain observed differences between men and women (Fisher & Yao 2017). A growing body of literature has focused on the intersection of gender and marital status in shaping risk preferences (Heo et al. 2016; Mandal & Brady 2019; Yao & Hanna 2005). For example, Mandal and Brady (2019) found that gender differences in risk tolerance persisted until middle age, suggesting that these patterns may shift over the life course. However, their findings suggested that gender difference disappears around retirement age. Instead, they found a significant difference in marital status in the older sector, with married individuals less likely to hold stocks (e.g., more risk averse) than divorced and widowed individuals. Husbands' and wives' asset allocations in their IRAs were strongly correlated, showing a powerful moderating impact by marital status.

While these studies have provided more clarity as to why men and women demonstrate different risk tolerances, more research is needed to examine whether financial confidence moderates the relationship between gender/marital status and risk tolerance. Women may have less financial knowledge than men overall (Kim et al. 2022), but men tend to demonstrate more overconfidence in their financial knowledge (Willows & West 2015). This overconfidence may add additional context to the findings surrounding gender, marital status, and risk tolerance. To provide a more contemporary study of how gender and marital status impact financial risk tolerance and expand on the findings from Yao and Hanna (2005), the current article examines the interaction effect of financial confidence, gender, and marital status on risk tolerance. Yao and Hanna (2005) found that the order from highest to lowest risk tolerance was single males, married males, unmarried females, and then married females. This study goes a step further to examine indirect relationships, demonstrating that overconfident married women and single women with appropriately high levels of financial confidence are significantly less risk-tolerant compared to their male counterparts. In alignment with social role theory (Eagly 1987), this paper seeks to answer the research question: Do gender roles influence

how financial confidence manifests in risk tolerance among married and single individuals differently, particularly for women?

Theoretical Framework

Gender differences in risk tolerance are examined through the lens of social role theory (Eagly & Wood 2011). Social role theory posits that the effect of gender roles on behaviour is mediated by both social mechanisms and psychological mechanisms (Eagly 1987). Eagly and Wood (2011) explain that the differences and similarities between men and women are due to a series of interconnected causes that may start with differences in biological processes or mechanisms but are enacted and cemented through the gender role expectations or gender stereotypes people are confronted with throughout their lives. Individuals learn to conform to gender norms because they receive positive feedback from others when they conform, and later, people judge themselves in comparison to the gender norms that they have internalised as standards of behaviour for their gender. Communal and agentic attributes commonly develop through gender feedback patterns (Eagly 1987). Communal attributes, typically associated with females, emphasise care, support, and empathy, while agentic attributes, more prevalent in males, focus on ambition, competence, and self-confidence (Williams & Best 1990).

This paper focuses on how social role theory provides an important backdrop in the development of the agentic attribute of confidence in investing (Eagly 1987). Gender norms are prevalent in risk tolerance and financial confidence when examining investment behaviour. For example, numerous studies suggest men exhibit higher confidence levels compared to women (Agha & Pramathevan 2023; Bannier et al. 2018; Herbst 2020; Kim et al. 2022; McCoy et al. 2019; Sarsons & Xu 2015). Men tend to feel more confident in their investment abilities and financial knowledge (Chen & Garand 2018; Cueva et al. 2019). This confidence in finance and math-related topics may stem from many social norms, such as films portraying mathematicians as male/masculine (Caviness 2024). Social media trends like #girlmath depict somewhat satirical representations of how women rationalise spending or saving (e.g., a refund = free money), which may perpetuate a narrative that women are "bad at math" (Caviness 2024). Overconfidence can also influence risk tolerance, as studies have pointed toward a connection between overconfidence and a greater willingness to take risks (Chung & Park 2019; Noman et al. 2023; Pikulina et al. 2017; Soraya et al. 2023).

Social roles are also important when examining marital status. A married household is often subject to different gender norms than a single person. For example, Alsemgeest and Grobbelaar (2015) found that wives perceived that their husbands exhibited better financial management behaviours and demonstrated less confidence, whereas husbands tended to think less of their wives' financial behaviours than their own and demonstrated more confidence. Traditional social roles dictated that men were breadwinners, whereas women historically were discouraged from working outside the home (Medved 2016). While attitudes have shifted, these longstanding social roles for married couples may contribute to their risk tolerance and confidence, with married women relying on their husbands' confidence and risk-taking behaviours (Eagly & Wood 2011).

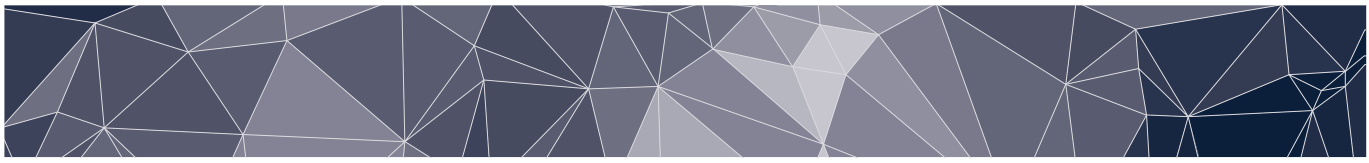
Literature Review

Financial risk tolerance, especially within an investment context, is defined as the degree of variability in investment returns that an individual is willing to endure (Griesdorn et al. 2014). This tolerance is crucial in financial planning and investment advising, serving as a foundational component in aligning investment strategies with client expectations (Heo et al. 2021). Moreover, there is a fiduciary obligation to assess clients' risk tolerances and make suitable recommendations (FINRA n.d.). However, measuring financial risk tolerance remains a complex and nuanced process, as personal biases, cognitive factors, financial knowledge, past stock market experience and life circumstances all influence individual tolerance levels (Khan 2017; Malmendier & Nagel, 2011; Singh et al. 2022; van Rooij et al. 2011). Despite efforts to create reliable assessments, individuals are often found to be overly risk-averse in practice, which may hinder optimal investment performance (Williams & Davari 2018).

Research has established that while financial risk tolerance tends to remain relatively stable over the lifespan (Van de Venter et al. 2012), various factors may significantly impact risk tolerance levels, such as age, financial literacy, gender, race/ethnicity, marital status, and net worth (Finke & Guillemette 2016; Grable 2016). Grable (2016) identified several core predictors of financial risk tolerance, including gender, marital/gender interactions, financial assets, and financial knowledge. Barber and Odean (2001) examined overconfidence by gender and found that overconfident men trade more frequently and may have lower investment returns than women. Accurately capturing an individual's risk tolerance requires careful consideration of these multiple dimensions, underscoring the measurement complexities (Lurtz et al. 2020).

Women generally display lower levels of financial risk tolerance than men (Croson & Gneezy 2009; Fisher & Yao 2017). Bannier and Neubert (2016) reported that 40% of men exhibited above-average risk tolerance compared to only 29% of women, reinforcing the notion that gender significantly influences risk preferences. Anvari-Clark and Rose (2023) further affirmed that gender is a recognised determinant in shaping investment risk willingness and, subsequently, risk tolerance. The reasons behind this gender gap have been widely explored. Bannier and Neubert (2016) proposed that an interaction between subjective and objective financial knowledge contributes to these differences. For men, financial risk tolerance is closely linked to both subjective perceptions and actual knowledge levels; whereas for women, financial behaviour tends to be more strongly tied to objective financial knowledge alone. This distinction implies that while men may feel more confident in their investment decisions due to perceived financial acumen, women may rely more on concrete knowledge, which could partially explain their relatively lower risk tolerance.

Marital status also plays a significant role in shaping financial risk tolerance as it influences not only risk attitudes but also investment behaviours that can lead to greater wealth accumulation (Hanewald & Kluge 2014). Married individuals often experience a shared approach to financial decision-making, which can mitigate individual risk due to the combined income and support structure provided by two partners (Broihanne 2021). This partnership structure may enhance the comfort with risk-taking, particularly in dual-income households where financial obligations are spread across two individuals rather than shouldered alone. On the other hand, married individuals may be more risk-averse as they may prioritise financial security over higher returns due to increased family obligations (Nosita et al. 2020). Moreover, married individuals may have longer time horizons (Hong & Hanna 2014), possibly because married/partner households are



more willing to plan for their futures due to their long-term commitment (Fulda & Lersch 2018). Such factors may reduce overall risk tolerance, as family responsibilities often require a more cautious approach to financial planning.

The interplay between gender and marital status further impacts financial risk tolerance. Married individuals may display higher risk tolerance than their single counterparts, in general, due to a perception of shared financial security, while unmarried women may exhibit comparatively lower tolerance than unmarried men (Chang et al. 2005). Studies have also found that married men tend to have higher risk tolerances than unmarried men, while single women have higher risk tolerances than married women (Aren & Zengin 2016; Dickason & Ferreira 2019). Women's comparatively lower risk tolerances may result in their financial decisions aligning more closely with family stability. Thus, understanding financial risk tolerance requires a holistic view of how gender and marital status interact to shape individual risk profiles within diverse financial planning contexts.

Gender differences in overconfidence have also been identified as a factor influencing financial risk tolerance, particularly among investors. Investment overconfidence, where individuals overestimate their knowledge, is commonly assessed by comparing subjective self-assessments with actual scores on financial literacy quizzes (Robb et al. 2015; Sommer et al. 2022; Zahirovic-Herbert et al. 2016). Research has suggested that men tend to exhibit more investment overconfidence than women, leading to more frequent trading, a behaviour detrimental to long-term returns due to friction and timing issues (Willows & West 2015). Overconfidence has also been associated with shorter investment horizons (Ferreira-Schenk et al. 2021; Wilaiporn et al. 2021). Barber and Odean's (2002) study found that men traded more than women, with trading costs reducing men's returns to a greater extent than women's returns. Similarly, Sommer et al. (2022) found that men were more likely to display financial overconfidence, which led to moving from stocks and bonds to cash during the 2022 market correction.

Hypotheses

Based on the theoretical framework and the prior literature, this study hypothesises the following:

H1: There will be a difference in risk tolerance between married men and married women (assuming complete joint optimisation for the household).

H2: Married and single women will be less risk-tolerant than unmarried male respondents.

H3: Single men will be more risk-tolerant than married men.

H4-6. Those who have appropriately low levels of financial confidence will have lower risk tolerances than those who are underconfident, overconfident, and have appropriately high levels of financial confidence.

H7: Overconfidence will moderate the relationship between gender, marital status, and risk tolerance.

Method

Data and Sample

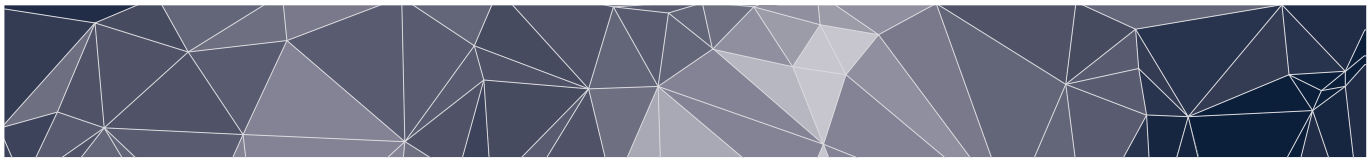
The dataset used in this study is the 2022 Survey of Consumer Finances. The SCF is a triennial survey nationally representative of American households to provide detailed information on household finances, but it is generally skewed towards wealthier households. In the SCF, there is a difference between the respondent and the reference person. The reference person is the male respondent for mixed-sex couples, and for a same-sex couple, the reference person is whoever is older. Some questions were only asked of the respondents. For clarity, we used the term household in this study; however, the respondents' characteristics are used throughout. The 2022 SCF had 4,595 households and uses multiple imputation to address missing data and protect respondents' privacy (Hanna et al. 2018). This results in each respondent having five sets of data. Due to the creation of the confidence level variable, there were some households that did not appear in the sample in all five implicates. If this was the case, the household was excluded from the analytic sample. This resulted in a sample size of 4,199.

Variable Measurement

Risk tolerance. In this study, the dependent outcome variable was risk tolerance. The perceived financial risk tolerance question in the SCF is (x7557). This question (x7557) asks: "Some people are fully prepared to take financial risks when they save investments, while others try to avoid taking financial risks. On a scale from zero to ten, where zero is not at all willing to take and ten is very willing to take risks, what number would you (and husband/wife/partner) be on the scale?"

Predictors. The independent variables of interest for this study were gender, marital status, and overconfidence. The categories for gender and marital status were as follows: married/partner males, married/partner females, single females, and single males (Yao & Hanna 2005). Following Kim et al. (2019), Robb et al. (2015), and Xia et al. (2014), financial confidence was defined by comparing subjective financial knowledge and objective financial knowledge. High objective and subjective financial literacy based on whether the respondent had a value higher than the sample median for each variable, which was 8 and 3, respectively. We then created four groups in the same manner as Kim et al. (2019). These groups included (1) those who had low confidence, but were accurate in their assessment (also referred to as those with appropriately low confidence); (2) those who were underconfident, meaning they scored high on the objective quiz but rated their confidence below the median, (3) those who were overconfident, meaning they scored below the median on the quiz but rated their subjective knowledge highly, and (4) those who had an appropriately high confidence, meaning they both rated their knowledge highly and scored higher than the median on the quiz.

Controls. The control variables for this study were age, education, race, whether the household has children under 18, the value of non-financial assets, income, employment status, homeownership status, inheritance expectation, and health status. Age was a continuous variable. Education was a categorical variable with the following groupings: high school education or less, high school graduate, some college/associate's degree,



bachelor's degree, and graduate degree. Race included was collapsed into four groups to indicate whether the respondent identified as White, Black, Hispanic, or Asian/other. Non-financial assets and income were grouped according to the categories presented in Table 1. Employment status included the following categories: salaried employees, self-employed employees, retired respondents, and those who do not work (e.g., students, unemployed).

Homeownership status was a binary variable for whether a respondent owned a home. Inheritance expectations were similarly a binary variable as to whether the respondent expects to receive a substantial inheritance or transfer of assets in the future. Health status was self-reported, where respondents indicated whether they had poor, fair, good, or excellent health.

Data Analysis

This study used a multivariate ordinary least squares (OLS) regression to analyse the relationship between risk tolerance, marital status, gender, and the moderating effect of overconfidence on this relationship. While there is disagreement within the literature as to the best measure of risk tolerance and the analytical method, we employed the following robustness checks. First, we tested the parallel odds assumption using the *oparallel* command. The test could not be estimated due to perfect prediction. This may arise when one or more predictors perfectly predict certain response categories, which may happen when extreme response categories contain very few observations (e.g., "9" or "10", which only had 2.6% and 5.8% of respondents). Next, we estimated generalised ordered logit models using the user-created command gologit2. This allowed us to relax the proportional odds assumption while maintaining the ordered nature of the variable. This produced substantively consistent results. Finally, we recoded risk tolerance to a binary variable where 0 = not willing to take any risks and 1 = all other responses to account for heteroskedasticity. Overall, most of the independent variables had the same direction, magnitude, and significance as the OLS models. While there were some differences, these are not surprising given the nonlinear nature of the fractional response model and the bounded outcome (0/1) rather than an 11-point scale. After completing these tests, for interpretability and comparability with prior studies, we report OLS in the main text.

Three models were used with risk tolerance as the outcome variable. Model 1 analysed the direct effects of the independent variables on risk tolerance. Model 2 included the moderator (overconfidence) as an independent variable, and Model 3 included the interaction term. Per guidance from Lindamood et al. (2007), Hanna et al. (2018), and Shin and Hannah (2017), all five implicates were used in this study and repeated-imputation inference was employed. Unweighted results were reported for the OLS regression to provide more conservative estimates (Shin & Hanna 2017). Weighted analyses in the SCF have been shown to have the potential to inflate the standard errors and coefficients (Lindamood et al. 2007; Hanna et al. 2018; Shin and Hanna 2017). These authors also recommend testing both weighted and unweighted analyses to ensure consistent results. Therefore, this study has also analysed the weighted results. The interpretation of these findings are consistent with the unweighted analyses. Therefore, unweighted results are reported below.

Results

Descriptive statistics

Table 1 presents the descriptive results for the variables used in this study. The mean value of household risk tolerance, as measured on a scale from 0 to 10, was 4.22, with a median of 5. Forty-one per cent of respondents demonstrated an appropriately low level of financial confidence, whereas 29% were underconfident. About 15% of the sample was considered overconfident and 14% demonstrated an appropriately high level of financial confidence. In terms of marital status, 33% of respondents were married men, 23% were married women, 27% were single women, and 17% were single men.

Regarding demographic variables, the average age of respondents was about 53 years old. Educational attainment varied widely: 9% had less than a high school education, 21% completed high school, 28% had some college education, 24 % held a bachelor's degree, and 18% had a graduate degree.

Racially, the sample was predominantly White (67%), followed by Black (11%), Hispanic (10%), and Asian/Other (12%). Additionally, 93% of respondents did not have children under 18. The distribution of non-financial assets showed that about 43% had non-financial assets of less than $150,000.

Sixty-two per cent of respondents had a household income greater than $50,000. Employment status was categorised into salaried employees (55%), self-employed (11 %), retired (29%), and those not working (4%). Homeownership was prominent among respondents, with 63% owning a home. Lastly, 14% expected an inheritance, while 85.65% did not, and about 72% had good or excellent health.

Table 1. Sample Descriptives

Variables	%	M(SD)
Risk tolerance		4.22(2.74)
Overconfidence		
Appropriate low level of confidence (subfin<=8 & finknow <3)	41.45	
Underconfident (subfin <= 8 & finknow == 3)	29.4	
Overconfident (subfin>8 & finknow<3)	15.48	
Appropriate high level of confidence (subfin>8 & finknow == 3)	13.67	
Married Male	32.8	
Married Female	23.24	
Single Female	27.11	
Single Male	16.84	
Age		52.78(17.87)
Education		
Less than high school	8.84	
High school	21.48	
Some college	27.78	
Bachelor's degree	23.84	
Graduate degree	18.06	

(*Continued*)

Table 1. Continued

Variables	%	M(SD)
Race		
White	66.53	
Black	11.41	
Hispanic	9.59	
Asian/Other	12.47	
Have Children Under 18		
No	93.38	
Yes	6.62	
Non-Financial Assets		
0	0.23	
Less than $50,000	34.2	
$50,000 – $149,999	8.82	
$150,000 - $499,999	31.97	
$500,000 - $999,999	13.2	
$1M or more	11.59	
Income		
Less than $10,000	2.65	
$10,000 - $24,999	13.21	
$25,000 - $49,999	22.23	
$50,000 - $99,999	27.29	
$100,000 or more	34.62	
Job Status		
Salary	55.29	
Self Employed	11.39	
Retired	29.34	
No Work	3.98	
Home Ownership		
No	37.03	
Yes	62.97	
Inheritance Expectation		
No	85.93	
Yes	14.07	
Subjective Respondent Health		
Poor	5.59	
Fair	22.92	
Good	49.74	
Excellent	21.76	

Note. Weighted analyses of 2022 SCF.

Multivariate Results

The unweighted ordinary least squares regression analysis, summarised in Table 2, examined the relationship between subjective respondent risk tolerance against the respondent's overconfidence and marital status while controlling for demographics. It also included the interaction terms (Model 3). The R^2 of 0.2435 for Model 3 indicated that the model's predictions account for 24.35% of the variability in the data. The results show an F-value of (41,4099.30) = 33.30, $p < 0.001$.

The results of Model 1 indicated that marital status was significantly related to risk tolerance. Married and unmarried females had significantly lower risk tolerances than married males, whereas single males had higher risk tolerances. When looking at confidence levels in Model 2, those who had appropriately low levels of financial confidence, and those who had appropriately high levels of confidence, had higher risk tolerances. Similarly, those who were underconfident and overconfident had higher risk tolerances than those with appropriately low levels of financial confidence. In Model 2, females (whether married or single) had lower risk tolerances than married males, while single males had higher risk tolerances than married males.

Table 2. Ordinary least squares regression on risk tolerance among married vs unmarried, men vs women, with moderation analysis.

Independent Variables	Coeff.	SE	Coeff.	SE	Coeff.	SE
Confidence Level* Marital Status						
Appropriate low confidence*Male Married [a]						
Underconfident × Married female					-0.23	0.264
Underconfident × Single female					0.34	0.261
Underconfident × Single male					0.19	0.287
Overconfident × Married female					-0.92**	0.335
Overconfident × Single female					-0.50	0.305
Overconfident × Single male					-0.64	0.388
Appropriate high confidence × Married female					-0.68*	0.311
Appropriate high confidence × Single female					-0.60	0.338
Appropriate high confidence × Single male					0.10	0.352
Confidence Level						
Appropriate low level of confidence (subfin<=8 & finknow <3)[a]						
Underconfident (subfin <= 8 & finknow == 3)			0.26*	0.103	0.24	0.164
Overconfident (subfin>8 & finknow<3)			0.31*	0.123	0.79**	0.225
Appropriate high level of confidence (subfin>8 & finknow == 3)			0.74***	0.124	0.95***	0.175
Marital Status						
Married Male [a]						

(*Continued*)

Table 2. Continued

Independent Variables	Coeff.	SE	Coeff.	SE	Coeff.	SE
Married Female	-0.73***	0.110	-0.68***	0.110	-0.38*	0.182
Single Female	-0.57***	0.120	-0.53***	0.121	-0.46**	0.178
Single Male	0.35**	0.129	0.38**	0.129	0.40*	0.204
Age	-0.02***	0.003	-0.24***	0.003	-0.02***	0.003
Education						
Less than high school [a]						
High school	0.34*	0.166	-0.30	0.166	0.32	0.166
Some college	0.39*	0.166	0.35*	0.165	0.37*	0.165
Bachelor's degree	0.66***	0.175	.58**	0.175	0.58**	0.175
Graduate degree	0.63**	0.182	.53**	0.183	0.54**	0.183
Race						
White [a]						
Black	0.45***	0.127	0.47***	0.127	0.48***	0.127
Hispanic	0.03	0.139	0.07	0.139	0.08	0.139
Asian/Other	-0.01	0.115	0.03	0.114	0.05	0.115
Have Children Under 18						
No [a]						
Yes	0.26	0.155	0.242	0.155	0.24	0.155
Non-Financial Assets						
0	-0.85	1.049	-0.91	1.050	-0.91	1.042
Less than $50,000	-0.54**	0.200	-0.51**	0.199	-0.51**	0.200
$50,000 – $149,999	-0.29	0.188	-0.27	0.187	-0.28	0.187
$150,000 - $499,999 a						
$500,000 - $999,999	0.34*	0.147	0.33*	0.146	0.34*	0.146
$1M or more	1.18***	0.142	1.09***	0.142	1.07***	0.142
Income						
Less than $10,000	0.58*	0.256	0.54*	0.255	0.56*	0.255
$10,000 - $24,999	-0.14	0.159	-0.15	0.158	-0.14	0.157
$25,000 - $49,999 [a]						
$50,000 - $99,999	0.39**	0.132	0.35**	0.131	0.34**	0.131
$100,000 or more	1.01***	0.148	0.93***	0.148	0.93***	0.147
Job Status						
Salary [a]						
Self Employed	0.62***	0.117	0.61**	0.116	0.59***	0.116
Retired	-0.03	0.124	-0.04	0.124	-0.03	0.124
No Work	0.30	0.204	0.29	0.203	0.28	0.203
Home Ownership						
No [a]						

(*Continued*)

Table 2. Continued

Independent Variables	Coeff.	SE	Coeff.	SE	Coeff.	SE
Yes	-0.23	0.172	-0.23	0.171	-0.21	0.172
Inheritance Expectation						
No [a]						
Yes	0.28	0.115	.28*	0.114	0.28*	0.114
Subjective Respondent Health						
Poor	-0.44*	0.195	-0.41*	0.194	-0.41*	0.194
Fair	-0.28**	0.104	-0.26*	0.104	-0.25*	0.104
Good [a]						
Excellent	0.36***	0.096	0.32**	0.096	0.31**	0.096
Cons	4.78***	0.323	4.73***	0.342	4.62***	0.334

Note. Source: 2022 Survey of Consumer Finances, unweighted analysis using all five implicates and RII technique n=4,199. The population is integer weighted (iweighted). a Denotes reference group. Model 1 R-squared = 0.2356 Model 2 R-squared = 0.2416. Model 3 R-squared = .2435 *** p<0.001, ** p<0.001, * p<0.05.

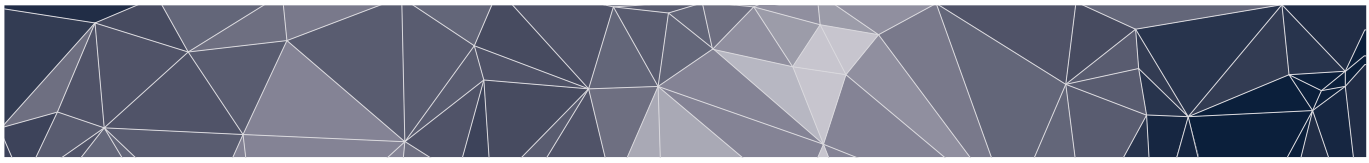
As stated previously, Table 2 presents the unweighted ordinary least squares regression on risk tolerance among married versus unmarried men versus women, with moderation analysis focusing on the effects of overconfidence and marital status. The nuanced interactions between marital status, overconfidence, and risk tolerance underscore the complex role these factors play in shaping financial risk behaviour. The interaction analysis highlighted distinct patterns in risk tolerance between men and women when overconfidence is introduced as a moderator.

Specifically, overconfident married women were significantly less risk-tolerant compared to their male counterparts. This finding suggested that overconfidence, while often associated with increased risk-taking, does not influence married women's risk tolerance in the same way. In contrast, single women with appropriate levels of financial confidence also exhibited a lower risk tolerance. Interestingly, overconfident single men did not have significantly different risk tolerances than married men, implying that single men's risk tolerance remains relatively unaffected by marital status when overconfidence is present.

When examining covariates, the direction, magnitude, and significance stayed the same across all three models. Age was negatively related to risk tolerance, with older individuals being more risk-averse. Respondents with a bachelor's or graduate degree were expected to have higher risk tolerances. Respondents who are Black were significantly more likely than whites to have higher risk tolerances.

Respondents with less than $50,000 of non-financial assets were significantly less likely than respondents with $150,000 - $499,999 of non-financial assets to have a higher risk tolerance. Respondents with more than $500,000 of non-financial assets were significantly more likely than respondents with $150,000 - $499,9999 of non-financial assets to have higher risk tolerances. In general, higher income was positively related to risk tolerance.

Self-employed respondents were predicted to have higher risk tolerance scores than salaried employees. Respondents who self-reported that they have fair or poor health were predicted



to have lower risk tolerance scores than respondents who reported they have good health. Respondents who indicated they have excellent health had higher risk tolerances than those who subjectively believe they have good health.

Discussion

It has been twenty years since Yao and Hanna (2005) first examined the influence of gender and marital status on risk tolerance. One of our primary objectives was to determine whether their findings persist decades later. Our results suggest that much remains unchanged regarding the gender effect on risk tolerance. Specifically, we confirmed H1 by identifying a significant difference between married men and married women, with married men demonstrating higher risk tolerance—a result that aligns with Fisher and Yao (2017). H2 was also supported, showing that women (both married and single) exhibit lower risk tolerances than married men. The relatively greater risk aversion among married women may reflect gendered expectations within households, where men are traditionally viewed as the primary financial decision-makers. This is consistent with social role theory, which may suggest that women historically have not felt confident enough to engage in additional financial risk. Bannier and Neubert (2016) similarly observed that women's lower risk tolerance and preference for less risky assets contribute to the gender wealth gap.

H3 was similarly supported by our findings, suggesting that unmarried men exhibit a higher risk tolerance than married men. This hierarchy, as found in H2 and H3, reflects not only gender differences but also the impact of marital status on financial risk-taking. These findings also align with social role theory (Eagly & Wood 2011). This theory would suggest that men are socialised to develop agentic traits such as assertiveness and confidence, which are linked to risk-taking behaviours. Conversely, women are often socialised toward communal traits like empathy and caution, possibly contributing to their lower risk tolerance (Williams & Best 1990).

When looking at the role of confidence, compared to those with low levels of financial confidence, those who were underconfident, overconfident, and had appropriately low levels of confidence had higher risk tolerances. These findings support H4 through 6. Although individuals with high-risk tolerance may engage more readily in risky investments, overconfidence may prompt frequent trading — often associated with high-risk tolerance — diminishing long-term returns due to timing errors and transaction costs (Willows & West 2015). Lastly, H6 was partially supported. Overconfidence did moderate the relationship between gender and marital status, and risk tolerance, but only for overconfident married women and single women with appropriately high levels of financial confidence. This aligns with research showing that men generally exhibit higher levels of investment overconfidence, which can lead to greater risk-taking (Barber & Odean 2002). This may be a result of women's investment decisions being more influenced by concrete knowledge than by subjective confidence (Bannier & Neubert 2016). Social role theory provides further insight, as it posits that men receive reinforcement for risk-taking, while women might face social sanctions for similar behaviours. In summary, the hypotheses were all supported, except H6, which was partially supported. Table 3 summarises each hypothesis.

Table 3. Summary of hypotheses and results.

Hypothesis	Description	Result
H1	There will be a difference in risk tolerance between married men and married women (assuming complete joint optimisation for the household).	Supported
H2	Married and single women will be less risk-tolerant than married men.	Supported
H3	Single men will be more risk-tolerant than married men.	Supported
H4-6	Those who have appropriately low levels of financial confidence will have lower risk tolerances than those who are underconfident, overconfident, and have appropriately high levels of financial confidence.	Supported
H7	Overconfidence will moderate the relationship between gender and marital status and risk tolerance.	Partially supported.

Implications

The persistent gender gap in financial risk tolerance, as supported by our findings and the broader literature (Fisher & Yao 2017; Yao et al. 2011), has significant implications for addressing the gender wealth gap. While many have observed that women and men display different risk tolerances, this study provides more evidence that other factors help explain this relationship (Fisher & Yao 2017). The association between risk tolerance and marital status and financial confidence, as well as the interaction term, provides a nuanced insight into how women take risks.

Since risk tolerance does not necessarily lead to better investment outcomes (Willows & West 2015), encouraging women to adopt investment strategies aligned with their values may provide a pathway to wealth building without the pressure to adopt riskier behaviours that may not align with their comfort levels. This is further supported by our findings on overconfidence, which reveal that gender-sensitive approaches may be beneficial in financial advising. Men's higher levels of investment overconfidence, linked to increased risk-taking (Barber & Odean 2002), contrast with women's preference for decisions based on concrete knowledge rather than subjective confidence (Bannier & Neubert 2016). Social role theory suggests that people may be socialised into certain attributes or roles that are not conducive to financial risk-taking. Changing the internalised messaging people have received or even helping people to recognise it is a slow process. While a worthwhile goal, advisors have an opportunity to help clients in the meantime by not putting too much focus on increasing women's, or anyone's, risk tolerance. Clients may be better served by efforts to understand their reasons for being more risk-averse and identify better-suited strategies to increase wealth. These strategies should be personalised for the individual. For example, advisors should use a risk assessment for each client. It would be beneficial to examine both partners' risk in a married household, as well as their individual risk. Advisors should also be aware of any potential bias and avoid quick judgments about risk based on a client's gender or marital status.

The observed differences in risk tolerance between married and unmarried individuals highlight the role of marital and familial contexts in financial decision-making. Married individuals, especially those with dependents, often prioritise financial stability, which can contribute to lower risk tolerance (Mandal & Brady 2019). On the other hand, married women may be relying on their husbands to take on the necessary financial risk to achieve their goals and needs, even if they are overconfident in their financial abilities. These women

may experience a greater detriment to their wealth if they become widowed or divorced and their household risk tolerance dramatically decreases (Christiansen et al. 2011). Portfolio and other financial decisions should be evaluated on a household level (Guiso et al. 2005). While encouraging joint participation in the financial planning process and meetings may be important to address these concerns, married clients may also benefit from ensuring that they are satisfied with their level of participation and helping couples to increase their level of trust in one another (Archuleta & Grable 2012). Financial professionals should consider these family-related influences, tailoring investment approaches to clients' unique familial responsibilities and long-term security goals.

Another implication is the need for behavioural calibration programs that help individuals align their subjective confidence with their actual financial knowledge. For instance, workshops or financial planning sessions could address instances of overconfidence by providing more accurate feedback on financial decision-making. By comparing perceived and tested literacy, advisors could quickly identify whether clients overestimate their abilities and adjust their risk recommendations accordingly (Sommer et al. 2022). Another implication concerns targeted education for couples, particularly around collaborative decision-making and mutual understanding of risk tolerances. Specialised tools, such as joint risk quizzes and guided discussions, can help partners recognise each other's viewpoints, thereby reducing conflict or undue reliance on one partner's confidence. Coupled with this approach, retirement and life-stage-specific guidance is crucial. As individuals transition through marriage, divorce, widowhood, or major life changes, risk preferences may shift drastically (Hemrajani et al. 2023). Introducing tailored re-evaluation of risk tolerance at these key junctures can prevent abrupt financial setbacks or missed opportunities.

Limitations

This study presents several significant findings, but it is important to acknowledge a few limitations. The analysis relied on household-level data from the 2022 SCF. Future research could benefit from individual-level data to delve deeper into how gender, marital status, and individual risk tolerances influence investment decisions. Dyadic data, in particular, could provide insights into how couples balance their risk preferences and how marital factors might impact these decisions. Other studies may also wish to focus on relatively understudied contributors to risk tolerance, including race, for which there have been mixed findings (Yao et al. 2005). Next, the measurement of overconfidence, based on the comparison of subjective and objective financial knowledge, may not fully capture the complexity of this concept. Future research could employ more nuanced measures of overconfidence to address this limitation, such as analysing the nuances of overestimation, over-placement, and over-precision when it comes to measuring overconfidence. Finally, the study's reliance on a single year of panel data may not fully capture the effects of unique economic conditions, such as post-pandemic financial attitudes or inflationary pressures, on risk tolerance. Longitudinal data could provide a more dynamic perspective on financial decision-making across various economic contexts.

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