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GENDER DIFFERENCE IN RISK AND CONFIDENCE PERCEPTION: IMPLEMENTATION WITH LOGIT MODEL

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ABSTRACT

Purpose - This study aims to understand individuals' behaviors and perceptions regarding investment preferences. Specifically, it examines the differences in investors' perceptions of "concerns about losing money due to investment decisions" and "confidence in their knowledge of portfolio creation and management" based on the gender variable.

Methodology - The study utilizes survey data from 69 participants (29 female and 40 male). It employs logit models to analyze two dependent variables: (1) the stress level due to concerns about investment decisions and (2) confidence in portfolio management and financial knowledge. Gender is the key independent variable, with marginal effects calculated for unambiguous interpretation.

Findings - The results indicate that gender has a statistically significant impact on both stress and confidence levels. Women are 21.2% more likely than males to experience stress due to concerns about investment decisions. Conversely, females are 18.5% less likely to feel confident about their financial knowledge and portfolio management abilities than males. These findings reflect the gender-based differences in risk perception and confidence.

Conclusion -The study highlights the critical role of gender in shaping investment behaviors. Women tend to exhibit higher risk aversion and lower financial confidence than men. To address this disparity, targeted financial education programs and awareness initiatives are recommended to enhance women's financial literacy and confidence. Bridging this gap can contribute to improved financial participation and decision-making among women.

Keywords: logit model, investment behavior, risk perception, gender, confidence.
JEL Codes: C35; G11; G41

1. INTRODUCTION

Investment behavior is a complex process influenced by socio-demographic variables, including gender. Previous studies in behavioral finance suggest that female exhibit higher risk perception and lower confidence compared to male in financial decision-making. This study aims to analyze the gender-based differences in risk and confidence perceptions in investment preferences using survey data and logit models.

This study aims to understand individuals' behaviors and perceptions regarding investment preferences in Turkey. Specifically, it examines the differences in investors' perceptions of "concerns about losing money due to investment decisions" and "confidence in their knowledge of portfolio creation and management" based on the gender variable.

2. AID AND TAX REVENUE: LITERATURE REVIEW

The literature extensively explores the impact of gender on investment behavior. Hira and Loibl (2008) highlighted that females generally make more cautious investment decisions and exhibit lower risk tolerance compared to males. Similarly, Bayyurt, Karışık, and Coşkun (2013) found that male investors in Turkey prefer riskier investments such as stocks and real estate, while female investors tend to choose safer options like funds, term deposits, and gold.

Grable and Lytton (1999) examined financial risk tolerance and developed an assessment instrument to measure it, finding that females consistently display lower risk tolerance across various economic conditions. Barber and Odean (2001) showed that males engage in more frequent trading due to overconfidence, which often negatively affects their net returns. Croson and Gneezy (2009), in a meta-analysis, emphasized that females tend to be more risk-averse, especially in financial contexts.

Bacher (2024) provided recent insights into life-cycle investment behaviors in the United States, revealing that single females invest less in risky assets compared to their male counterparts, although this gender gap narrows over time.

Lastly, Demir, Cihangir, and Şak (2016) used a multinomial logit model to examine the influence of demographic factors on financial literacy in Turkey, identifying gender as a critical determinant. These studies collectively underscore the importance of understanding gender-based differences in investment behavior and financial decision-making.

3. THE DATA AND METHODOLOGY

Specifically, the study explores:

Concern about losing money due to investment preferences and its relationship with stress.
Confidence in portfolio creation and management knowledge.

This research contributes to the growing literature on gender disparities in financial markets with a focus on the Turkish context.
The study employs survey data collected from 69 participants (29 female, 40 male) in Turkey. Two logit regression models are used to examine gender effects:

Model 1:
Dependent Variable: Concern about losing money due to investment preferences
Independent Variable: Gender

Model 2:
Dependent Variable: Confidence in portfolio creation and management knowledge
Independent Variable: Gender

The logit model is the most commonly used model among qualitative choice models. In the logit model, the logistic distribution is utilized and is expressed as follows:

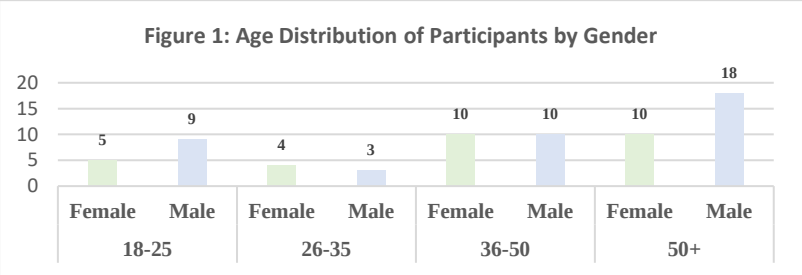
$$E(Y_i) = \frac{1}{1+e^{-\beta' X_i}} = \frac{e^{\beta' X_i}}{1+e^{-\beta' X_i}} \quad (1)$$

$E(Y_i) = P(Y_i = 1)$ $\beta' X$ takes value -∞ and +∞. $F(\beta' X_i)$ takes values between 0 and 1. This distribution closely resembles the cumulative normal distribution, except in the tails. However, it is easier to calculate. (Yerdelen Taoğlu, 2020, p.256)

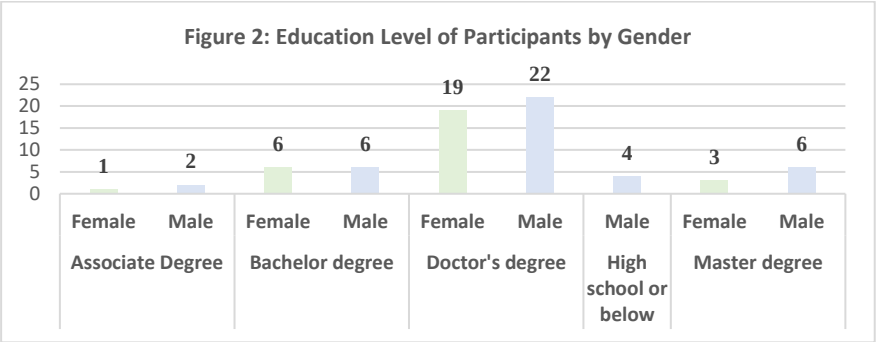
4. FINDINGS AND DISCUSSION

In this section, the age and education details of the participants are thoroughly examined first, followed by a gender-based analysis of their responses to stress and confidence-related questions. Secondly, the differences in financial risk perception, the impact on investment decisions, and confidence in financial knowledge between male and female participants are evaluated using a logit model.

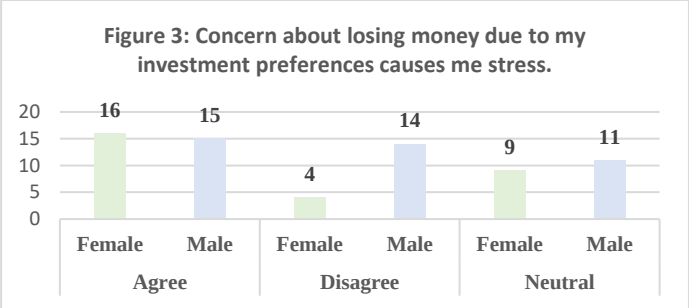
Figure 1 shows the age distribution of participants by gender, revealing notable differences. In the 18-25 age group, the number of male participants (9) exceeds that of females (5). In the 26-35 age group, females (4) slightly outnumber males (3). In the 36-50 age group, there is an equal distribution, with both genders having 10 participants each. However, in the 50+ age group, male participants (18) significantly outnumber females (10). Overall, older male participants dominate the distribution, while younger age groups also show a higher number of male participants.



The Figure 2 illustrates the education level of participants by gender, showing significant variations across categories. Among participants with an Associate Degree, males (2) outnumber females (1). In the Bachelor's Degree category, both genders are equally represented, with 6 participants each. For those holding a Doctor's Degree, males (22) slightly outnumber females (19), making this the most populated category. In the High School or Below category, only males (4) are represented, with no female participants. In the Master's Degree group, males (6) are double the number of females (3). Overall, while male dominate in most education levels, the Doctor's Degree category stands out as having the highest participation for both genders, albeit slightly favoring males.



The analysis of stress levels related to investment preferences reveals gender-based differences in risk perception. A higher proportion of female participants (16) agree that concerns about losing money cause them stress, compared to males (15). Conversely, among those who disagree with this statement, male participants (14) significantly outnumber females (4), reflecting that male experience lower levels of stress regarding financial risks. In the neutral category, female participants (9) are slightly fewer than males (11). These results indicate that female have a heightened sensitivity to financial risks and experience more stress from potential losses in their investment decisions.



The analysis of confidence levels in financial knowledge highlights a significant gender disparity. Only 9 female participants agree that they find their level of knowledge about portfolio creation and management sufficient, compared to 23 males. This indicates that male exhibit substantially higher confidence in their financial knowledge and decision-making abilities. Among those who disagree, females (9) outnumber males (5), reinforcing the lack of confidence among female. In the neutral category, female participants (11) are nearly equal to males (12). The results suggest that female, despite their higher levels of education, perceive themselves as less competent in financial matters compared to male. This lack of confidence may stem from limited practical experience or societal influences. Targeted financial education programs and mentoring initiatives can be implemented to enhance female's confidence and encourage active participation in investment activities.

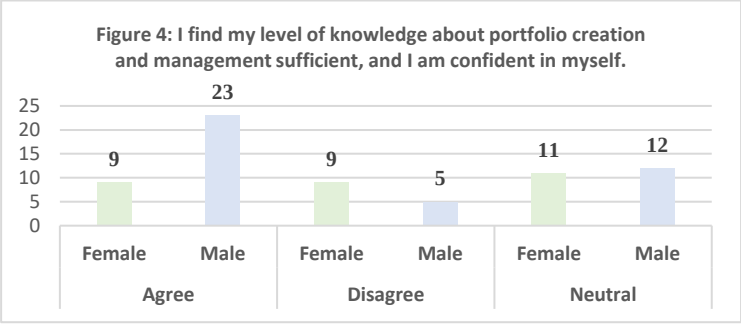


Table 1: Stress Model Result

Variable	Coef.	St.Err.	t-value	[95% conf. interval]	
Gender	1.214***	0.632	1.92	-0.026	2.453
Constant	0.619***	0.331	1.87	-0.031	1.269
Mean dependent var		1.029	**SD dependent var**		0.747
Pseudo r-squared		0.052	**Number of obs**		69

Chi-square	4.142	**Prob > chi2**	0.042
Akaike crit. (AIC)	79.065	**Bayesian crit. (BIC)**	83.533

Note.*** indicate 1% significance levels, respectively.

Table 1 show that gender variable is statistically significant in the model. The Pseudo R^2 is 5.2%. Since the model is a logit regression, it is more meaningful to calculate and interpret the marginal effects rather than interpreting the coefficients in their current form.

Table 2: Stress Model Marginal Effects Results

Variable	dy/dx	Std. err.	z	P>z	[95% conf. interval]		X
Gender	0.212	0.099	2.140	0.032	0.018	0.406	0.42

Holding other variables constant, it was found that female's stress levels due to concerns about losing money from their investment preferences are 21.2% higher compared to male.

Table 3: Confidence Model Results

Variable	Coef.	St.Err.	t-value	[95% conf. interval]	
Gender	-1.147*	0.624	-1.84	-2.371	0.076
Constant	1.945***	0.478	4.07	1.009	2.883
Mean dependent var		1.130	**SD dependent var**		0.726
Pseudo r-squared		0.051	**Number of obs**		69
Chi-square		3.541	**Prob > chi2**		0.06
Akaike crit. (AIC)		70.065	**Bayesian crit. (BIC)**		74.534

Note. * and *** indicate 10% and 1% significance levels, respectively.

Table 3 reveals that gender also has a statistically significant effect on participants' confidence in their knowledge about portfolio creation and management. The Pseudo R^2 is 5.1%.

Table 4: Confidence Model Marginal Effects Results

Variable	dy/dx	Std. err.	z	P>z	[95% conf. interval]		X
Gender	-0.185	0.100	1.840	-0.065	-0.382	0.011	0.42

Holding other variables constant, it was found that female are 18.5% less likely than male to perceive their level of knowledge about portfolio creation and management as sufficient and to have confidence in this regard.

5. CONCLUSIONS

This study demonstrates that gender significantly influences investment behaviors in Turkey, revealing notable differences in stress levels, risk perception, and confidence between male and female. Women experience 21% higher stress levels than male due to concerns about financial risks, reflecting a greater sensitivity to financial uncertainty and a higher tendency toward risk aversion. Moreover, female exhibit 18.5% lower confidence in their financial knowledge and portfolio management abilities compared to male, indicating a gap in perceived competence and self-assurance. These findings align with the behavioral finance literature, which consistently highlights female's cautious investment behaviors and risk-averse tendencies.

The results underscore the critical need for targeted financial education and awareness programs to bridge gender gaps in financial literacy and confidence. By enhancing female's financial skills and providing tools for risk assessment and management, such programs can empower female investors, reduce stress stemming from financial decisions, and foster greater participation in financial markets. Additionally, gender-inclusive financial policies that address societal and cultural barriers can further support female's financial engagement, contributing to both individual empowerment and broader economic inclusion. Addressing these disparities is essential for promoting equality in financial decision-making and improving overall financial well-being.

REFERENCES

Bacher, A. (2024). The Gender Investment Gap over the Life Cycle. Working paper available online at https://annikabacher.github.io/Bacher_GenderInvestmentGap.pdf

Barber, B. M., & Odean, T. (2001). Boys Will Be Boys: Gender, Overconfidence, and Common Stock Investment. *The Quarterly Journal of Economics*, 116(1), 261–292.

Demir, G., Cihangir, M., & Şak, N. (2016). Demografik özelliklerin finansal okuryazarlık üzerine etkisinin multinomial logit model ile incelenmesi. *The Journal of Academic Social Science, 4*(33), 345-356.

Bayyurt, N., Karışık, V., & Coşkun, A. (2013). Gender Differences in Investment Preferences. *European Journal of Economic & Political Studies*, *6*(1), 71-83.

Croson, R., & Gneezy, U. (2009). Gender Differences in Preferences. *Journal of Economic Literature*, 47(2), 448–474.

Grable, J., & Lytton, R. H. (1999). Financial risk tolerance revisited: the development of a risk assessment instrument☆. *Financial services review*, *8*(3), 163-181.

Hira, T. K., & Loibl, C. (2008). Gender differences in investment behavior. In *Handbook of consumer finance research* (pp. 253-270). New York, NY: Springer New York.

Yerdelen Tatoğlu, F. (2020). *Ekonometri Stata Uygulamalı.* Beta Basım Yayım Dağıtım AŞ, İstanbul.