BIG FIVE GOVERNANCE MODEL: GENDER DIFFERENCES IN INVESTMENT DECISION-MAKING — THE DEVELOPING MARKET STUDY

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Abstract

This study aims to examine the impact of gender on individual investment decisions in the stock market. The data were collected from survey responses of individual investors in the Vietnamese stock market through both online and offline formats. The Cronbach's alpha reliability analysis results, conducted using SPSS software, indicated that five personality traits (neuroticism, agreeableness, extraversion, conscientiousness, and openness) and risk perception contribute to differences in investment decisions between men and women. The findings suggest that the influence of all five personality traits on investment decisions is greater among female investors than among male investors, indicating that women's decisions are more frequently affected by emotions and personality traits. Factors such as gender differences in risk perception and approach, education and investment experience, as well as investment objectives, may help explain these variations in decision-making. The results of this study imply that individual investors, brokers, securities firms, financial institutions, and policymakers can apply this model to develop investment strategies, business plans, and financial service offerings tailored to different types of investors based on their personality traits and risk perceptions.

Keywords: Investment Decisions, Risk Perception, Personality, Gender

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1. INTRODUCTION

The authors identified several common personality traits exhibited by investors, including caution, pride, impatience, patience, and laziness. Forbes (2009) emphasized that an investor's personality can influence the investment decision-making process and, at times, result in ineffective investment outcomes.

The Big Five model, also known as the five-factor model (FFM) or the OCEAN model, is a widely accepted psychological framework for describing human personality. It consists of five broad dimensions of personality traits. The Big Five model is extensively applied in various fields, including clinical psychology, organizational psychology, career counseling, and marketing research. Furthermore, it offers a comprehensive structure for understanding and analyzing personality traits, with implications across multiple disciplines such as psychology, sociology, organizational behavior, and public health. Its significance lies in its predictive capacity, cross-cultural relevance, practical utility, and contribution to advancing scientific understanding of human personality.

Nguyen and Tran (2021) found that the five personality traits influence the decision-making of individual investors and have recently attracted the interest of many researchers. However, few studies have specifically addressed how these five personality traits affect the intention to invest in securities. Therefore, this study aims to explore the personal characteristics that influence the intention to invest in securities through the lenses of risk perception, uncertainty perception, and investment outcome evaluation. The study conducted by Barber and Odean (2001) demonstrated that differences in investment decision-making between men and women primarily stem from variations in personality traits, particularly risk-taking propensity, and confidence. Their findings revealed that men are more likely to invest in riskier stocks and engage in more frequent trading compared to women. This behavior is attributed to the higher levels of risk tolerance and confidence exhibited by male investors. Additionally, the study indicated that male investors tend to evaluate their investment choices less favorably than female investors.

The study conducted by Hirshleifer et al. (2018) revealed that the personality of an investor significantly influences their investment decisions. Specifically, the personality of women is believed to have a positive impact on investment decisions, while the personality of men has a negative influence. The article by Chiu and Haight (2018) demonstrates that women tend to accept safer investments and make investment decisions based on knowledge rather than intuition, while men tend to evaluate higher risks and make investment decisions based on intuition rather than knowledge. The findings highlight the important roles of gender and personality traits in investment decision-making, and investment advisors should consider these factors when providing investment advice to clients.

Women's participation in investment activities in developing markets can contribute to the expansion of financial markets, increased capital formation, and overall economic prosperity. Besides, gender differences in investment decision-making within developing countries will contribute to efforts aimed at promoting financial inclusion in developing markets. By understanding the needs, preferences, and constraints faced by women investors, financial institutions can develop innovative products and services tailored to address the specific challenges they encounter, thereby expanding access to financial services and fostering greater financial inclusion. The study of gender differences in investment decision-making contributes to the field of behavioral finance, which examines how psychological biases and cognitive factors influence financial behavior. Insights from this research can enhance our understanding of investor behavior and inform the development of behavioral interventions to improve investment outcomes.

Over the past year, the world stock market in general, and Vietnam's stock market, in particular, have experienced strong fluctuations with violent mortgages, causing the stock price to plunge unstoppably in the context of a complete loss of liquidity. Vietnam's stock market is about 90% individual investors, accordingly, the interest of female investors in Vietnam's stock market is increasing, and the results they bring are very positive. Therefore, to ensure the stable and healthy development of the stock market, it is very necessary and meaningful to pay attention to researching the differences in investment decisions of male and female investors. Based on the aforementioned introductions, in this research, we aim to answer two questions:

RQ1: Which personality factors influence investors' decisions in the Vietnamese stock market, and how do they influence them?

RQ2: Are there any differences in the impact of personality factors on investment decisions between male and female investors in the Vietnamese stock market? If so, what are those differences?

Our paper contributes to the literature in several aspects. Firstly, this paper shows behavioral finance, which addresses the conceptual framework of investors' behavior. Secondly, we provide a component of the FFM.

The remainder of this paper is structured as follows. Section 2 discusses the literature review of behavioral finance and develops the hypotheses. Section 3 presents the research methodology. Section 4 provides the empirical results. Section 5 concludes the paper.

2. LITERATURE REVIEW AND RESEARCH HYPOTHESES

2.1. Behavioral finance

Behavioral finance is a financial concept that combines insights from psychology and economics to understand how psychological factors and emotions impact financial decision-making. In Rambow (2021), behavioral finance is explained as an economic theory that explains often irrational financial behavior, such as overspending on credit cards or panic selling during a market downturn. People often make financial decisions based on emotions rather than rationality. Behavioral finance theory is based on the fundamental argument that "markets are not always efficient" and represents a significant contrast to the "effective market" theory, which underpins other theories. The theory of behavioral

finance represents some aspects of psychological finance, such as bounded rationality, heuristics, loss aversion, overconfidence, anchoring, herd behavior, regret aversion, behavioral biases, prospect theory, and emotional influences.

Traditional financial, and economic theories show that individuals make rational decisions based on all available information, but behavioral finance recognizes that human behavior can deviate from this rational model, i.e., using financial psychology to analyze investors' actions. The behavioral aspects of psychology and sociology are indispensable catalysts in this area of research:

1) Psychology: The study of behavior and cognitive processes, influenced by human psychology, thought, and the environment. Various psychological effects can influence investor bias decisions.

2) Sociology: The study of the social behavior of individuals, focusing primarily on the influence of social relationships on people's attitudes and behavior.

3) Finance: Involves a tight focus on valuation and decision-making.

Fama (1969) describes a market as being informationally efficient if asset prices fully reflect all available information. He argued that psychological biases and irrational behavior led to market inefficiencies, making it possible for investors to exploit mispricings.

The term "behavioral finance" was introduced by Selden (1912) in his book. The behavior of investors or traders depends on human nature, and she/he must overcome potential behavioral errors. Then, the concept of behavioral finance was developed specifically by psychologists and economists like Kahneman and Tversky (1979). Unlike traditional economic assumptions of rationality, they explained how people evaluate risks and make decisions under uncertainty. In addition, as stated by Thaler (1980), fluctuation of stock prices can be long-lived and substantial because of anomalies in financial markets, i.e., stock price movements that couldn't be fully explained by traditional models. He highlighted the existence of behavioral biases, such as overreaction and underreaction in financial markets.

In recent studies, behavioral finance is considered to have begun to solidify as a distinct field of study. Many scholars recognize the importance of understanding investor behavior and the psychological factors that can impact financial markets (Shiller, 2003; Statman, 2020) Moreover, participants in the market are now interested in a wide range of empirical studies: investor sentiment, herding behavior, and the impact of cognitive biases on financial decision-making, i.e., they take consideration on incorporating insights from behavioral finance into investment strategies, risk management, and portfolio management. Nowadays, behavioral finance plays a crucial role in explaining how economists, investors, and policymakers approach the study and practice of finance.

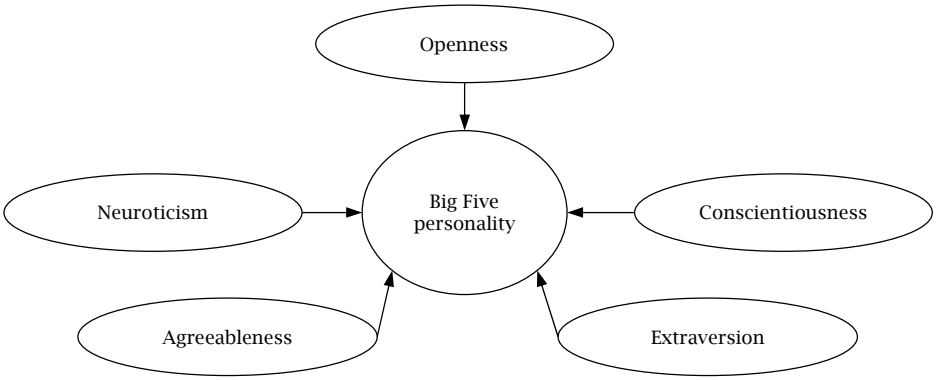
2.2. Personality and gender differences

As stated above, behavioral finance explains how psychological factors influence financial decision-making and the irrationality of investors' behavior. Whereas personality and gender differences in terms of finance can play a role in exploring individual behavior and attitudes in connection with financial choices. In behavioral finance, personality traits are related to risk aversion or risk tolerance, overconfidence, emotional stability, and financial planning behavior, these traits can impact significantly investment decisions, e.g., an individual with a high level of openness to experience might be more accepted to take financial risks, frequent trading of overconfident individuals can lead to increased transaction costs and potentially unexpected outcomes, emotionally stable individuals may be less prone to panic-selling during market downturns. Gender differences in behavioral finance are composed of risk perception, overconfidence and trading behavior, long-term perspective, and diversification. On average, women may have a more conservative approach to risk compared to men. This can influence investment choices and portfolio allocation. Men are considered to exhibit higher levels of overconfidence than women in investment, potentially leading to more active trading. Women are more likely to take a long-term perspective in investing, focusing on goals and objectives rather than short-term market fluctuations, and adopt a diversified investment approach compared to men. Hager (2022) concludes that men are greater sensation seekers and more overconfident than women, and he argues that female executives are more likely to make decisions that are for the good of all (such as shareholders). Men also want to secure the best interests of all, but may be too overconfident and not weigh decisions well enough. Male executives were often too overconfident in their own decisions, even though they turned out to be wrong in retrospect.

The Big Five personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) are frequently used to explain how employee behavioral traits can be divided into certain personalities in the field of finance. Research suggests correlations between certain traits and investment choices, portfolio diversification, and risk perception. The Big Five personality traits are the most widely adopted personality model (Gosling et al., 2003; Borghans et al., 2008)

Eysenck (1997) suggested that there were only three major factors in a theory of personality (extraversion, neuroticism, and psychoticism), and he also mentioned the importance of a hereditary basis for personality and intelligence. Kelland (2010). McCrae and Costa (2003) expanded slightly upon the number of second-order factors, because they disagreed factor of psychoticism with Eysenck (1997). Instead, they launched openness in the FFM of personality, and this model deserves to be referred to as the five-factor theory.

Figure 1. The five-factor model (OCEAN)



Source: Authors' elaboration.

Following the study of McCrae and Costa (2003), the variables in this research are described as follows:

• *Extraversion.* An individual who scores high on extraversion is characterized by high energy, positive emotions, talkativeness, assertiveness, and sociability (Costa & McCrae, 1995). Those with low extraversion scores prefer to be alone and/or in smaller groups, enjoy quietness, prefer solitary activities, and avoid large social situations. It is not surprising that individuals who score high on both extraversion and openness are more likely to engage in risky sports and adventures due to their curious nature and thrill-seeking (Tok, 2011).

H1a: Extraversion influences risk perception significantly.

Due to the importance of Extraversion in the field of communication between individuals, it can be expected that women will always score higher than men while men score higher than women on assertiveness and excitement seeking (Feingold, 1994; Costa et al., 2001).

H1b: Extraversion had a greater influence on males' risk perception.

• *Neuroticism.* High neuroticism is characterized by a tendency to experience unpleasant emotions such as anger, anxiety, depression, or vulnerability. Neuroticism also refers to the degree of emotional stability and impulse control of an individual. Individuals with high neuroticism tend to experience emotional instability and are characterized by anger, impulsiveness, and hostility (Costa & McCrae, 1995). Watson and Clark (1984) found that individuals with neuroticism also tend to feel anxious and unhappy. Conversely, individuals with low neuroticism scores tend to be calm and composed (Costa & McCrae, 1995).

H2a: Neuroticism affects risk perception.

It has been found that women score higher than men on Neuroticism when measured on the FFM of personality, as well as on most aspects of neuroticism, including in the general measure of the Big Five, Revised NEO Personality Inventory (NEO-PI-R) (Costa et al., 2001).

H2b: Neuroticism had a greater influence on females' risk perception.

• *Agreeableness.* According to Costa & McCrae (1995), agreeable people are polite, friendly, and trustworthy. They are very forgiving, gentle, kind-hearted, and recognized by colleagues. Those with low agreeableness scores are often described as rude and uncooperative.

H3a: Agreeableness affects risk perception.

Women consistently score higher than men on agreeableness and related measures, such as gentleness (Feingold, 1994; Costa et al., 2001).

H3b: Agreeableness had a greater influence on males' risk perception.

• *Conscientiousness.* Conscientious individuals are self-disciplined, responsible, competent, thoughtful, and strive for achievement (such as goal-oriented behavior). It differs from the moral meaning of "having a conscience"; instead, this trait focuses on the amount of intentionality and thoughtfulness that an individual puts into their behavior. Individuals with high conscientiousness prefer planned behavior over spontaneous behavior and are typically organized, diligent, and reliable. Individuals with low conscientiousness have a more relaxed approach, are spontaneous, and may be disorganized.

H4a: Conscientiousness affects risk perception.

Women have slightly higher conscientiousness than men in some aspects, such as orderliness, dutifulness, and self-discipline (Feingold, 1994; Costa et al., 2001)

H4b: Conscientiousness had a greater influence on females' risk perception.

• *Openness to experience.* Openness includes appreciation for art, emotion, adventure, unusual ideas, curiosity, and a variety of experiences (McCrae & Costa, 2003). Openness reflects the level of curiosity, intelligence, creativity, and love for novelty and diversity of an individual. It is also used when describing the level of imagination or independence of an individual (Martins, 2016); it describes personal preferences for a variety of activities versus a strict routine. Individuals who score high on openness enjoy novelty, while those who score low prefer to maintain habits (McCrae & Costa, 2003). This study combines the five major personality traits as the main independent variable affecting an individual's investment behavior.

H5a: Openness influences risk perception.

In general, openness has a significant impact on the ability to handle agents and the preference for participating in activities. However, at the level of individual preferences, there are no significant differences due to gender, but rather, differences arise due to personality traits. For example, women are often found to score higher than men on the aesthetics and feelings aspects (Costa et al., 2001), while men tend to score higher on the ideas aspect (Feingold, 1994; Costa et al., 2001).

H5b: Openness had a greater influence on males' risk perception.

2.3. Investment decision and risk perception

Investment decisions are decisions related to the total value of assets and the value of each component of assets (short-term and long-term assets). This is the most important decision because it creates value for the business and investors.

Risk perception is a way for someone to interpret risks that differ from estimates or thoughts and reality. Risk perception is part of cognitive bias.

H6a: Risk perception has an effect on risk perception.

The higher the bias in a person's behavior, the lower their perception of risk (Simon et al., 2000). According to Weber and Camerer (1998), Differences in risk perception can explain differences in the trading behavior of investors. Investors with higher levels of risk perception tend to make decisions based on more information, while investors with lower levels of risk perception tend to rely more on feelings and intuition.

H6b: Risk perception had a greater influence on females' risk perception.

3. METHODOLOGY

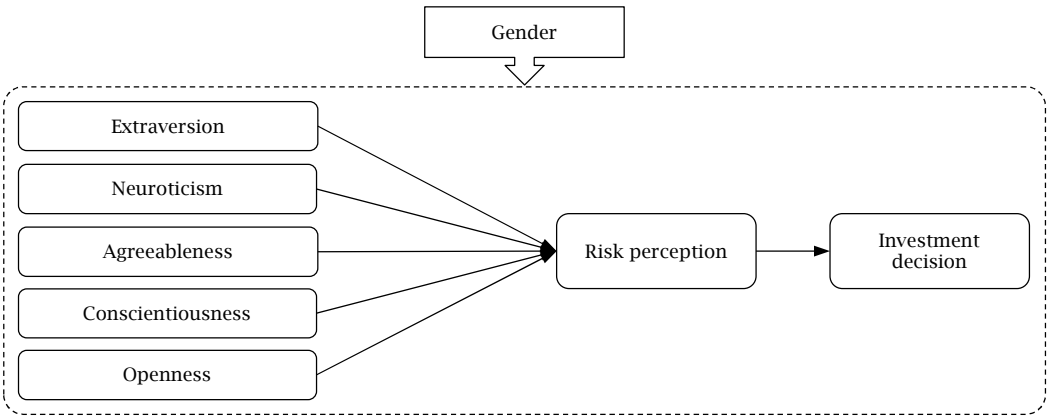
3.1. Qualitative method

We conducted in-depth interviews with nine male investors and seven female investors with more than 10 years of experience in investing in the Vietnamese stock market. This interview is aimed at testing the factors, completing the model, and creating a preliminary questionnaire. After having the results of the model and preliminary questionnaire, we continued to conduct in-depth interviews with a group of investors with more than three years of experience in the stock market, including 20 male investors and 14 female investors. Then, we will complete the questionnaire as well as provide solutions for the current volatile stock market. Thus, we built the most complete and appropriate survey questionnaire. We have adjusted, added, or removed the observed variables used to measure the main factors. Building a questionnaire based on a five-point Likert scale, for the scale of some questions in the risk perception factor, participants answered by choosing the appropriate answer. And finally, the design and implementation of the survey questionnaire.

3.2. Quantitative method

We carried out sampling by the paper distribution method and online questionnaire through social networking sites for investors participating in the stock market. Out of 384 completed questionnaires, there are 353 valid questionnaires, accounting for 92%. The group methods used to analyze the data include: data processing, data encryption, statistical characteristics of the observed sample, evaluating the reliability of the scale, exploratory factor analysis (EFA), confirmatory factor analysis (CFA), the linear structural equation model (SEM), bootstrap test, and multigroup analysis.

Figure 2. Research models



Source: Authors' elaboration.

4. RESULTS

4.1. Research sample

Table 1 provides information on survey participants; male investors accounted for 47.03%, while female investors accounted for 52.97%. The survey group is between the ages of 26 years old and 35 years old, which is 45.45%. 71.33% of total investors have a university degree. Nearly 42% of total investors are office workers. Approximately 70% of investors have less than 3 years of experience in securities investment. The average income is from 10 to 15 million, accounting for 38.46%.

Table 1. Statistics of research sample (N = 353) (Part 1)

Variable		*The number of investors*	*Percentages (%)*
Gender	Male	166	47.03%
	Female	187	52.97%
Age	18–25 years old	106	30.07%
	26–35 years old	160	45.45%
	36–55 years old	81	23.08%
	> 55 years old	5	1.40%

Table 1. Statistics of research sample (N = 353) (Part 2)

Variable		*The number of investors*	*Percentages (%)*
Marital status	Single	178	50.35%
	Married	168	47.55%
	Divorced	7	2.10%
Education	University degree	252	71.33%
	Masters	69	19.58%
	Doctor	20	5.59%
	Professor	2	0.70%
	Other	10	2.80%
Type of job	Student	52	14.69%
	Employees	59	16.78%
	Office staff	148	41.96%
	Business	74	20.98%
	Other	20	5.59%
Investment experience	< 1 year	81	23.08%
	1–3 years	165	46.85%
	> 3–5 years	64	18.18%
	> 5–10 years	37	10.49%
	> 10 years	5	1.40%
Average monthly income (unit: million VND)	< 1 year	81	23.08%
	5–10	69	19.58%
	Over 10–15	136	38.46%
	Over 15–20	67	18.88%
	Over 20–30	52	14.69%
	Over 30	30	8.39%
Invested products	Share	348	98.58%
	Bonds	133	37.68%
	Futures contracts	33	9.35%
	Warrants	7	1.98%
	Exchange-traded funds (ETFs)	127	35.98%

Source: Authors' elaboration.

Most of the investors in the survey sample choose stocks as one of their investment products (98.58%). The number of investors investing in futures contracts (33 people) and warrants (seven people) is still quite modest, accounting for only about 11% of the total sample.

4.2. Reliability test

Cronbach's alpha is used to confirm reliability in this part. Observable variables *EXT5, NEU5, AGR4*, and *DEC3* have a total correlation coefficient that is removed because it is less than 0.3 (Hair et al., 2010).

Table 2. Cronbach's alpha

Variable	*Scale code*	*Cronbach's alpha*		*Notes*
		Initial	*After adjustment*	
Extraversion	*EXT*	0.754	0.812	Remove *EXT5*
Neuroticism	*NEU*	0.755	0.816	Remove *NEU5*
Agreeableness	*AGR*	0.741	0.804	Remove *AGR4*
Conscientiousness	*COS*	0.892	0.892	Not adjustment
Openness	*OPEN*	0.847	0.847	Not adjustment
Risk perception	*RISK*	0.806	0.806	Not adjustment
Financial decision	*DEC*	0.657	0.824	Remove *DEC3*

Source: Authors' elaboration.

The retained observed variables will continue to be included to perform the EFA to identify the structure of the relationship between the variable and the respondent.

4.3. Exploratory factor analysis

To confirm the data is suitable for factor analysis in the model, the Kaiser-Meyer-Olkin measure (KMO) and Bartlett's test are used to test. According to the results, the KMO value is 0.902, which meets the requirement of the rule of thumb (Kaiser, 1974). This shows that factor analysis is suitable and indicates the sampling is adequate. Bartlett's test has statistical significance (sig. = 0.00 < 0.05), showing that the null hypothesis (H_0) in KMO: The correlation matrix is an identity matrix (i.e., variables are unrelated), is supported, and observed variables are correlated with each other in the factor, variances are equal across groups or samples.

Table 3. KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		0.902
Bartlett's test of sphericity	Approx. Chi-square	4802.947
	df	435
	Sig.	0

Source: Authors' elaboration.

Initial eigenvalues of all variables are greater than 1 to help identify all factors to be retained in the analytical model. The total variance extracted for the first seven factors is 65.811% (> 50%). That shows that the EFA model is consistent with our original assumptions.

Table 4. Total variance extracted

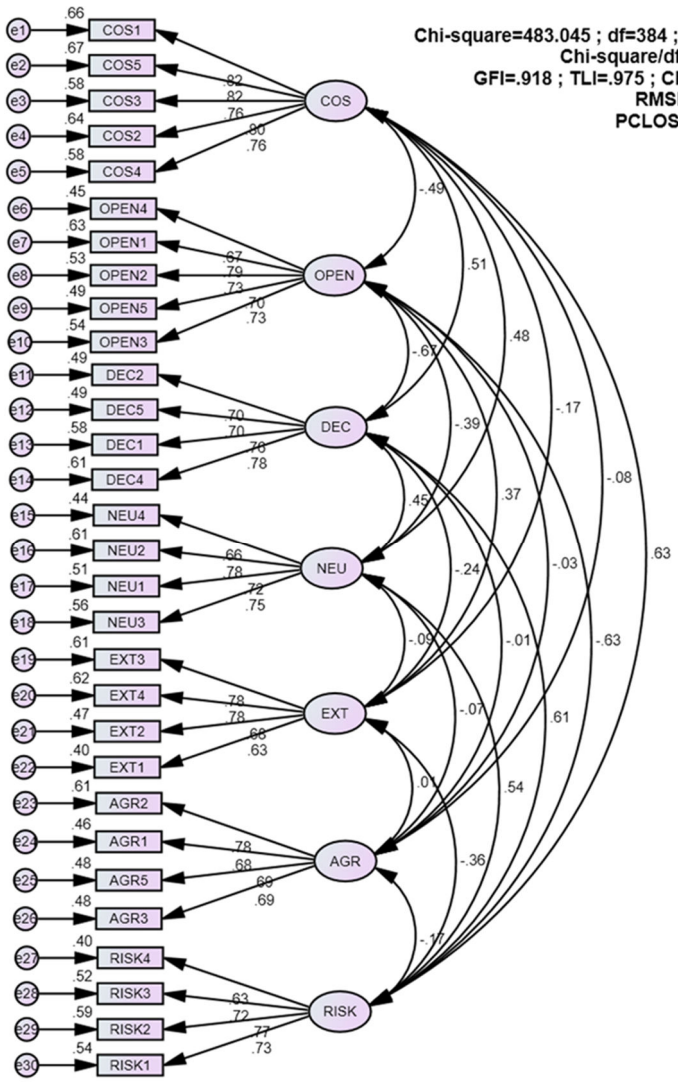
Factor	*Initial eigenvalues*			*Extraction sums of squared loadings*			*Rotation sums of squared loadings*
	Total	*% of variance*	*Cumulative %*	*Total*	*% of variance*	*Cumulative %*	*Total*
1	8.471	28.237	28.237	8.471	28.237	28.237	5.783
2	2.790	9.299	37.535	2.790	9.299	37.535	5.697
3	2.515	8.384	45.920	2.515	8.384	45.920	4.407
4	1.829	6.097	52.017	1.829	6.097	52.017	3.255
5	1.738	5.794	57.811	1.738	5.794	57.811	5.147
6	1.265	4.216	62.027	1.265	4.216	62.027	2.605
7	1.135	3.784	65.811	1.135	3.784	65.811	5.560

Source: Authors' elaboration.

4.4. Confirmatory factor analysis

The result of the CFA analysis of the model's fit indicators shows that the value Chi-square/df < 3, confirmatory fit index (CFI) > 0.9, goodness-of-fit index (GFI) > 0.9, root mean square error of approximation (RMSEA) < 0.03, so the model is suitable for the market. The results of the p-value of all observed variables representing the factors are *** (0.000); therefore, the observed variables are confirmed to have a good representation of the factor in the CFA model.

Figure 3. The results of the confirmatory factor analysis



Note: TLI — Tucker-Lewis index.
Source: Authors' elaboration.

4.5. Structural equation modeling and multigroup analysis

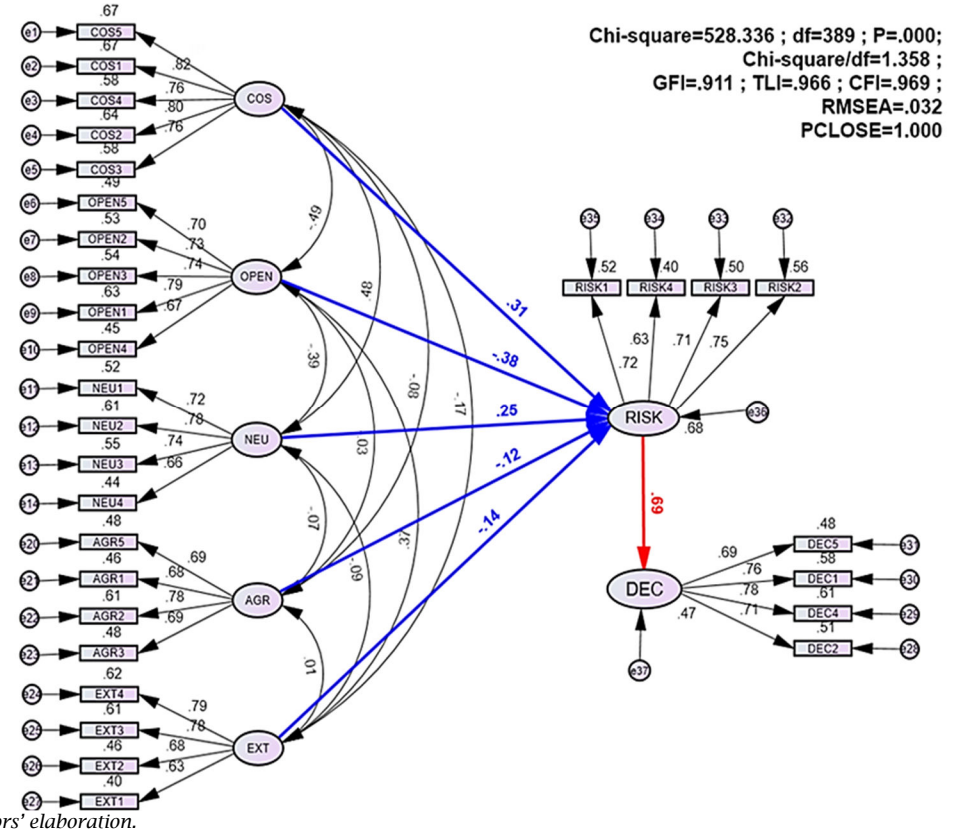
The criteria for measuring the fit of the model show that the Chi-square/df = 1.358 < 3, CFI = 0.969 > 0.9, RMSEA = 0.032 < 0.05, and PCLOSE = 1.0, so the model achieves market data fit (Hu & Bentler, 1999). The results of the p-value of all variables all have lower values than 0.05 (with a 95% confidence level). This shows that the independent variables all show an influence on the dependent variable.

Table 5. Regression weights (Overall model)

Relationship	Estimate		Std. error	CR	P	Label
	Unstandardized	Unstandardized				
RISK ← COS	0.268	0.0314	0.051	5.257	***	0.268
RISK ← OPEN	-0.326	-0.382	0.056	-5.835	***	-0.326
RISK ← NEU	0.254	0.251	0.059	4.333	***	0.254
RISK ← AGR	-0.121	-0.120	0.047	-2.567	0.010	-0.121
RISK ← EXT	-0.110	-0.143	0.039	-2.815	0.005	-0.110
DEC ← RISK	0.582	0.686	0.061	9.565	***	0.582

*Note: *** p = 0.000, CR — composite reliability.*
Source: Authors' elaboration.

Figure 4. Structural equation modeling results



Source: Authors' elaboration.

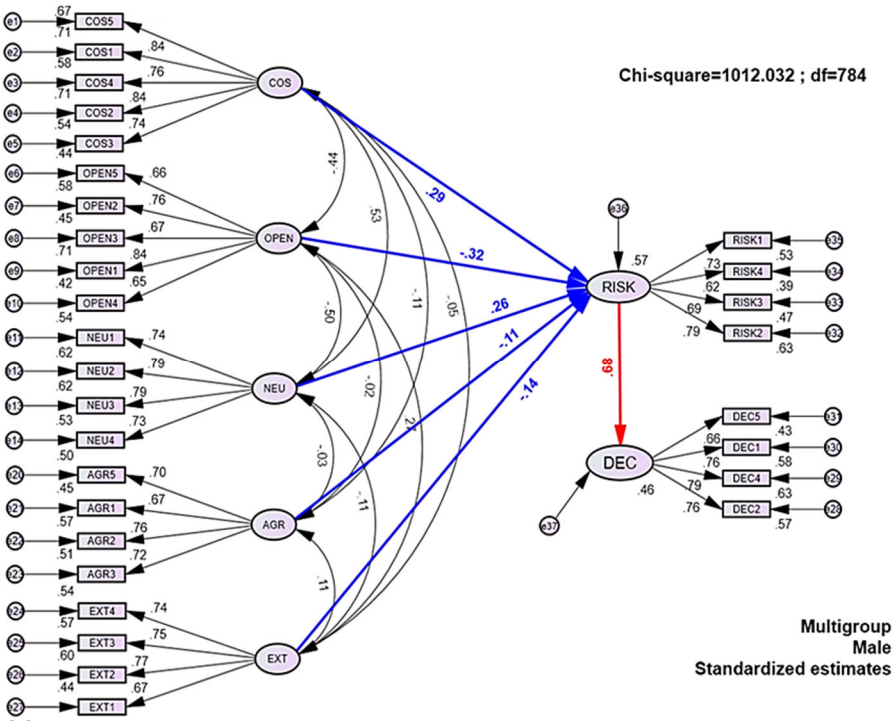
The analysis results have shown that there are differences in the impact relationships between the male model and the female model. This suggests that gender has an influence on these impact relationships. SEM analysis shows that the impact relationships are statistically significant with the model of each gender (p-value < 0.05).

Table 6. Regression weights (Male model)

Relationship	Estimate		Std. error	CR	P	Label
	Unstandardized	Unstandardized				
RISK ← COS	0.253	0.286	0.050	5.110	***	B1
RISK ← OPEN	-0.323	-0.317	0.054	-6.031	***	B2
RISK ← NEU	0.271	0.265	0.057	4.740	***	B3
RISK ← AGR	-0.124	-0.112	0.045	-2.755	.006	B4
RISK ← EXT	-0.128	-0.138	0.037	-3.508	***	B5
DEC ← RISK	0.583	0.678	0.060	9.645	***	B6

*Note: *** p = 0.000.*
Source: Authors' elaboration.

Figure 5. Structural equation modeling results with the male model



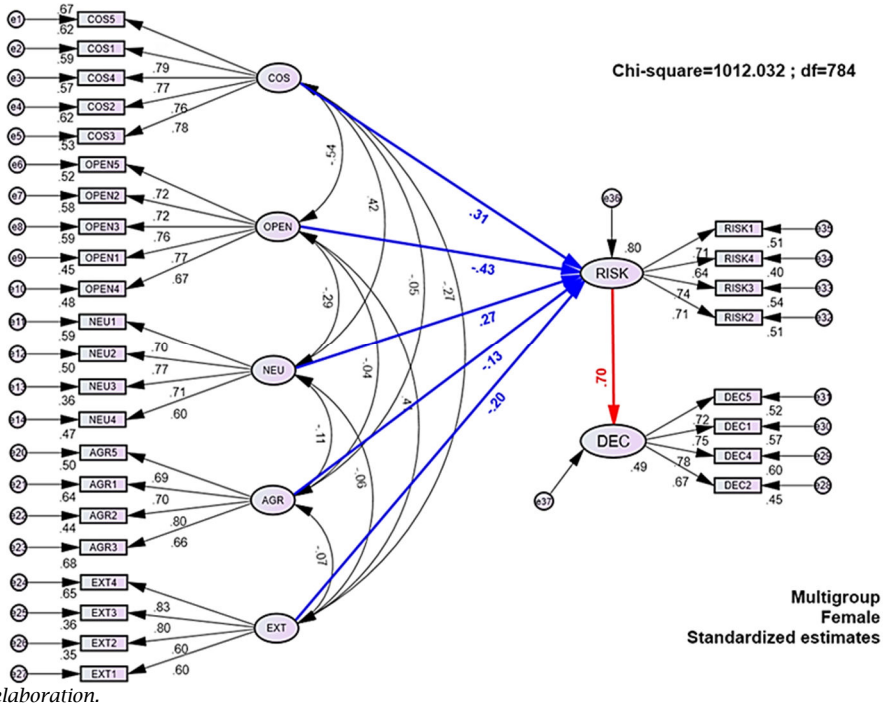
Source: Authors' elaboration.

Table 7. Regression weights (Female model)

Relationship	*Estimate*		*Std. error*	*CR*	*P*	*Label*
	Unstandardized	*Unstandardized*				
RISK ← COS	0.253	0.306	0.050	5.110	***	B1
RISK ← OPEN	-0.323	-0.433	0.054	-6.031	***	B2
RISK ← NEU	0.271	0.268	0.057	4.740	***	B3
RISK ← AGR	-0.124	-0.135	0.045	-2.755	0.006	B4
RISK ← EXT	-0.128	-0.197	0.037	-3.508	***	B5
DEC ← RISK	0.583	0.703	0.060	9.645	***	B6

*Note: *** p = 0.000.*
Source: Authors' elaboration.

Figure 6. Structural equation modeling results with an overall female model



Source: Authors' elaboration.

Based on the results above, we can make some conclusions as follows.

• Impact of personality on risk perception and gender role (group of hypotheses *H1a* and *H1b to H5a, H5b*). The analysis results show that all five personality traits have an influence on investors' risk perception.

Extraversion and openness have a negative impact on risk perception with -0.143 and -0.382, respectively. The more extroverted or more open investors are, the lower their risk perception decreases. These investors tend to enjoy more adventurous activities, seek out new experiences, and take more risks in the process of achieving their goals. This result was also found in studies of Natalia et al (2022). However, female investors (β = -0.197; β = -0.433) are more affected than male investors (β = -0.138; β = -0.317). The above results can be explained by the fact that women are more extroverted than men (Feingold, 1994); they prefer to communicate and establish relationships, and the more open, liberal, and modern women are, the better their brains are affected (Ismatullina & Voronin, 2017). So, hypotheses *H1a* and *H5a* are supported, and *H1b* and *H5b* are rejected.

Similarly, agreeableness also has a negative effect on investors' risk perception (β = -0.121). Highly agreeable investors may be better able to withstand stress and pressure from risks and assess risks more optimistically. Meanwhile, investors with low tolerance have more difficulty in facing and managing risk and may be more susceptible to emotional influences in decision-making. This result reinforces the previous view of Weber et al. (2002), who also suggested that individuals high in agreeableness tend to perceive financial risks as less threatening, these investors may be more optimistic and less inclined to view potential losses as significant. It can also be seen that female investors are more affected than male investors. So, hypotheses *H3a* and *H3b* are supported.

Conversely, neuroticism has a positive impact on the risk perception of securities investors (β = 0.251). This means that the more neurotic investors are, the higher the level of risk perception, whereas the less sensitive investors will have lower risk perception. The results are similar to previous research by Chauvin et al. (2007) and Sjöberg (2003), regarding investors with emotional stability or low sensitivity, will tend to perceive less risk relative to a range of hazards. The reason may be that women are more sensitive than men (Costa et al., 2001) and tend to be more anxious (Feingold, 1994). So, the hypotheses *H2a* and *H2b* are supported.

Conscientiousness also has a positive effect on investors' risk perception (β = 0.314). Investors with a high degree of conscientiousness tend to have a better risk perception. The results are similar to the point of view of Sadi et al. (2011), investors with a high degree of conscientiousness avoid depending on misconceptions, and this gives them a more specific view of business investment choices and risk tolerance. However, the results of multigroup analysis also show that men are more affected by these two personality traits than women. According to Costa et al (2001) and Feingold (1994), women and conscientiousness is slightly higher than men in some aspects, such as order, duty, and self-discipline. So, hypotheses *H4a* and *H4b* are supported.

It can be seen that personality has a significant influence on risk perception. Therefore, when facing investment decisions, both male and female investors should carefully consider and consult advice from analysts to minimize risks.

• Impact of risk perception on stock investment decision and gender differences (hypotheses *H6a* and *H6b*). The analysis results show that risk perception has a positive impact on investment decisions, with the impact level being β = 0.686. Investors with a high level of risk perception will make safer investment decisions. There is also a difference in the influence of risk perception on investment decisions between the sexes, but this difference is not significant. Specifically, for women, the impact of risk perception on investment decisions is β = 0.703, while in men, this index is lower than β = 0.678. This means that women's investment decisions are influenced by risk perception more than men's. So, hypotheses *H6a* and *H6b* are supported.

• Gender differences in the impact of personality on financial investment decisions. According to the results, the influence of all five personality traits on investment decisions of female investors is greater than that of male investors, which shows that women's decisions are often dominated by emotions and personality more than men's. This finding is consistent with the research results of Hager (2022). This result suggests that female investors, when making financial decisions, need to consult experts more and consider carefully, to avoid emotional or personality factors, which can lead to unsafe decisions.

Table 8. Gender differences in the impact of personality on financial investment decisions

Personality trait	*Impact of personality traits on risk perception (a)*		*Impact of risk perception on financial investment decisions (b)*		*Impact of personality traits on financial investment decisions (a) * (b)*	
	Male	*Female*	*Male*	*Female*	*Male*	*Female*
Extraversion	-0.138	-0.197	0.678	0.703	-0.094	-0.138
Neuroticism	0.265	0.268			0.180	0.188
Agreeableness	-0.112	-0.135			-0.076	-0.095
Conscientiousness	0.286	0.306			0.194	0.215
Openness	-0.317	-0.433			-0.215	-0.304

Source: Authors' elaboration.

5. CONCLUSION

The study uses the Big Five model as a foundation to examine the impact of personality on investors' stock investment decisions and also evaluates the gender difference in this influence level. The analysis results show that all five personality factors have an impact on the stock investment decision. In which openness is the personality trait that has the strongest impact on investment decisions, extraversion, and agreeableness are found to have a weaker impact than other personality traits. The research results show that the influence of personality factors on the decisions of male and

female investors on the Vietnamese stock market is different. The influence of all five personality traits on investment decisions of female investors is greater than that of male investors, which shows that women's decisions are often influenced by emotions and personality more than men's.

In summary, studying gender differences in investment decision-making is essential for understanding how gender influences financial behavior, promoting gender equity in finance, enhancing financial literacy, improving wealth accumulation strategies, optimizing risk management practices, advancing behavioral finance research, and addressing broader social and cultural dynamics related to gender and finance. Understanding how gender influences investment decisions is crucial for economic policy-making and financial market regulation. Gender differences in investment behavior can have significant implications for asset prices, market stability, and overall economic growth. By identifying barriers and constraints that may hinder women's participation in investment activities, policymakers can design targeted interventions to empower women economically and promote inclusive economic growth.

Our study also has some limitations, such as the limitation in data collection, the sample data is not large enough, and the diversity of occupations in both sexes. In this study, the authors also chose to ignore the analysis of micro and macro factors, as well as factors related to investor behavior, these factors can contribute to a deeper understanding more about the gender difference; however, they are outside the scope of the study.

In future research, we will study how personality change affects the investment decisions of each type of investor, such as rational investors and irrational investors, to explain their actions in the Vietnam stock market. This study will support the concept of behavioral finance in the developing market.

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