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The Effect of Demographic Characteristics and Personality Traits on Investors' Financial Risk Tolerance. A Case Study of Investors in Mardan

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Abstract
Financial risk tolerance is an individual's ability to tolerate and accept a particular level of risk linked with financial decisions. Demographic characteristics and personality traits are different characteristics that differentiate one person from another based on their financial risk tolerance. As a result, financial advisers and asset managers must assess a client's financial risk tolerance and recommend products based on that level. Hence, this study is designed to check whether the differences in demographics and personality traits influence investors' financial risk tolerance. The purpose of this study is to determine if demographic characteristics and personality traits influence individuals' financial risk tolerance. For this study, 200 respondents were chosen using the convenience sampling method. The data were analyzed using SPSS In order to determine a relationship between dependent and independent variables. The data suggest that some demographic characteristics are associated with the financial risk threshold. Gender, Monthly Income, Age, and education level revealed significant connections, whereas married status and gender did not. Additionally, the study found a significant relationship between financial risk tolerance and personality factors such as extroversion, conscientiousness, agreeableness, and openness to experience. However, neuroticism does not show a significant relationship. These findings highlight the need to take into consideration individual differences when estimating risk tolerance and giving individualized investment advice. Asset managers and financial advisors can utilize this information to understand investors' risk preferences better and develop strategies that match their personal needs.

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Key Words: Financial risk tolerance, conscientiousness, extroversion, behavioral finance, expected utility theory, modern portfolio theory.

1. Introduction

Behavioral finance becomes visible as a response to the limitation of traditional finance, which assumes that investors always make thoughtful decisions. This field is searching to develop traditional finance by incorporating insight from psychology into our understanding of investor behavior and financial markets (Nauman et al., 2019). Behavioral finance recognizes the significance of psychological factors in decision-making processes, as compared to traditional finance, which assumes that investors make consistently rational decisions (Nauman et al., 2019). It combines psychological theories with standard financial ideas to solve the problem of individuals making irrational decisions. Behavioral finance analyzes how a person's psychology affects their decision-making (Shefrin, 2010). It is a framework that combines insights from psychological and traditional theories of finance to understand how an individual's psychology influences their investing decisions (Alwahaibi, 2018). In this new discipline, it has been recognized that investors do not always make financial decisions based only on available information. Rather, psychological factors influence their decision-making. Behavioral finance investigates financial and investing decisions by using factors such as personality traits (Wagdi, 2017). Individuals' psychological abilities and risk tolerance have a significant impact on investment, which is approximately the allocation of available assets (monetary or non-monetary) with expectations of future financial gain (Ahmad & Mauchun, 2019; Bhatt & Shah, 2013).

Risk plays an essential role in investing decisions, indicating the deviation between actual and expected returns (Raheja &Dhiman, 2017). Investment decision-making depends significantly on risk tolerance, which is affected by personality traits (Big Five) and demographic Characteristics (Dhinaiya & Gondaliya,2016). Financial advisors frequently use an individual's risk attitude to predict their behavior in the financial market (Grabel & Lytton, 2003). It is a critical task for financial managers to measure individual attitudes to predict behavior according to risk tolerance (Kourtidis, Sevic & Chatzoglou, 2011). These behaviors are influenced by a range of factors: demographic (Cox & Oslen et al., 2001) and psychological factors (Dolan et al., 2012). This study aims to fill that gap by investigating the relationship between personality traits like the Big Five and demographic characteristics with financial risk tolerance.

A country's stability and economic growth may be obtained by investment, so in this viewpoint, investment plays a crucial role in economic development. Researchers need to identify barriers to promote investment. Individual financial risk tolerance is one of the major issues in investments. Every individual financial risk-taking behavior differs in their willingness and ability to take a given number of losses and expectation of some return. As mentioned before, risk tolerance differs from person to person.

However, in fact, some individual investors use herd psychology and invest in accordance with other investors while neglecting their own risk tolerance capacity. Therefore, financial advisors, investment managers, and policymakers must analyze each investor's financial risk tolerance level in order to allocate their investments across different risk pools. Investment managers and financial

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experts must evaluate personality traits for economic development (Raheja & Dhiman, 2017). Moreover, according to Lutfi (2010), investment managers must consider demographic Characteristics as well as personality traits when offering investments to their customers based on their financial risk tolerance level.

The purpose of this research was to investigate the relationship between an individual investor's financial risk tolerance, personality traits (the Big Five), and demographic characteristics. This research is helpful for individual investors, investment managers, financial advisors, and policymakers in many ways. Firstly, the finding of this research is significant for investment managers to identify the financial risk tolerance level of clients and offer assets to their clients according to their financial risk tolerance, keeping in mind investors' demographic as well as personality traits. Second, the findings of this study are useful for financial advisors to guide their clients based on their traits and tell them which financial asset best suits their personality. Thirdly, the findings of this study are helpful to practitioners to counsel their investors in the right portfolio selection.

2. Literature Review

Individual characteristics, psychological traits, and demographic factors all have an impact on financial decision-making, making it a complex process. This theoretical framework aims to investigate how personality traits and demographic characteristics interact with financial risk tolerance, using ideas from different economic and behavioral finance theories.

2.1 Theoretical framework

2.1.1 Arbitrage Pricing Theory

The theory states that investors buy and sell assets to get profit from price fluctuations. The theory's primary premise is that returns may be categorized into components that can and cannot be diversified and that systematic risk can be evaluated as access to a limited number of relevant factors. (lehmann & Modest 1985). Arbitrage pricing theory follows the assumption (Krause, 2001). Arbitrage Pricing Theory (APT) is a financial theory that describes how asset prices and influencing factors relate to risk and return in financial markets. While APT focuses on systematic risk variables that influence asset prices, it indirectly addresses the effect of personality traits on investors' financial risk tolerance.

APT assumes that rational and risk-averse investors seek better returns for taking on more systematic risk, implying that individual risk tolerance, which is influenced by personality traits such as risk aversion, can impact investing decisions.

2.1.2 Expected Utility Theory

Since the 1940s, expected utility theory, an axiomatic theory of decisions under uncertainty, has played an important role. Individual random selections, according to expected utility, are a linear function of their probability and utility, dependent on certain assumptions (Briggs, 2014).

This theory is a normative approach to decision-making under risk. That assumes investors seek utility maximization. It is a subjective assessment of how satisfied one is with a certain outcome. Neumann and Morgenstern (1944)

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proposed this theory, which is regarded as the basis for modern decision-making (Bernoulli, 1738; Savage, 1954). Economists take into account that risk aversion emerges as a result of the concaveness of wealth function due to the expected utility theory. Because of diminishing marginal value, investors believe that a dollar spent on poverty alleviation is more useful than a dollar spent on making an investor wealthy.

Therefore, this hypothesis maintains that when investors do not see significant rewards, their attitude toward risk is neutral. Individuals make decisions in accordance with EUT based on the probability and expected values of the outcomes (Von Neumann & Morgenstern, 1944). In other words, the theory suggests that decision-makers evaluate all possible outcomes, give each one a probability, and then select the choice that has the highest expected value or utility. In conclusion, without its limitations, the EUT is still a popular theory in decision-making.

According to the literature review, there appears to be a gap in research on the role of psychological and demographic Characteristics in shaping financial risk tolerance and investment behavior. While some studies have focused on specific cultural contexts, such as Korea and China, there is a need for more research on how psychological and demographic Characteristics**,** such as age and gender, education, income, and marital status, along with personality traits, influence financial risk tolerance.

Additionally, there is a need for additional longitudinal research that can help to understand the causal relationships between demographic characteristics, personality traits, and financial risk tolerance/investment behavior across time. Finally, further study is needed to understand how variations among people in risk perception, cognitive biases, and decision-making processes impact financial risk tolerance and investing behavior.

2.2 A Behavioral Finance Approach Toward Financial Risk Tolerance

It is generally understood that every financial action has the possibility of not yielding the desired return. Financial risk tolerance refers to an individual's ability and willingness to take on and agree to a specific amount of risk. (Prabhakaran & Karthika, 2011) Another definition of risk tolerance is a person's attitude towards uncertainty in terms of expected benefits. (Hallahan, Faff, and McKenzie, 2004). Davey and Roszkowski (2010) revealed that risk tolerance exists in both variable and constant features.

2.3 Demographic characteristic of Financial Risk Tolerance

2.3.1 Financial risk tolerance and gender differences

Different researchers like Bajtel and Barnasek (1996) discovered that female behavior regarding risk tolerance is low compared to males. Various research suggests that males are more risk-tolerant than females. Hence, they choose more risky assets for their financial portfolio. Financial experts believe that women are more careful than males when it relates to portfolio selection (Wang, 1994). The wealth gap between men and women is due to women's conservative behavior. Hallahan et al. (2004) investigated that gender is an important driver of risk tolerance and that women are more risk-averse than males. According to List, Gilkenson, and Dwyer (2002), females choose lower-risk mutual fund

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investments than males.

2.3.2 Age and Financial Risk Tolerance

It is generally thought that as people become older, their capacity for risk-taking decreases. This statement is logically based on the belief that because of age uncertainty, elderly investors are afraid to make riskier investments. According Finke and Huston (2003) found a negative association between age and financial risk tolerance. In contrast, Lindamood and Hanna (2008) found a positive association between age and risk tolerance, claiming that younger people have more time to recover from possible losses and are more likely to invest in risky businesses in looking for higher returns. Young investors may be more willing to invest in new markets, speculative properties, or properties that require significant development.

2.3.3 Financial Risk Tolerance and Marital Status

Individual risk tolerance is significantly affected by marital status (Grable, 2000). However, the literature regarding marital status in terms of financial risk tolerance is not adequate. Generally, Single people are considered to be more risk-tolerant than married people since they have fewer household responsibilities (Yao et al., 2004)

2.3.4 Financial Risk Tolerance and Education

In general, education and financial risk tolerance are seen to have a positive and significant relationship. Several research on risk tolerance and education have found that a higher degree of education makes people more analytical, allowing them to analyze risk and return, hence increasing financial risk tolerance. (Grable et al., 2009). Investors with a formal bachelor's degree are regarded as the most risk-tolerant. At the same time, those with a lower education level are considered less risk-tolerant. Halek and Eisenhauer (2005) investigated the fact that as the level of education increases, the risk tolerance also increases (Schalkwyk, 2012).

2.3.5 Income and Risk Financial Tolerance

Individuals with higher salaries are more risk-tolerant because they may invest a portion of their earnings in investment property, which has the potential to increase their wealth (Kannadhasan, 2015). According to O'Neil (1996), higher-income investors can use unplanned resources to meet their obligations. Because of their disposable cash, they are able to take high risks. Cohen et al. (1975) suggest that when an investor's wealth increases, they should include risky assets in their portfolio. As a result, wealth and income are considered crucial components that significantly affect financial risk tolerance.

2.4 Personality Traits and Financial Risk Tolerance

2.4.1 Financial Risk Tolerance Agreeableness

According to Sadiq and Khan (2019), the trait of agreeableness is associated with kindness, personal friendliness, empathy, helpfulness, and collaboration. Friendly individuals prefer to avoid conflicts when investing, which does not affect their risk tolerance. (Costa and McCrae, 1992). According to Durand et al. (2008), those who are more pleasant tend to take greater risks. According to

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Amiri, Chavoshani, and Jamshidnavid (2012), people with agreeableness as a trait of personality tend to have complex beliefs, which leads to herding behavior. The control behavior involves following and acting on the instructions of the majority since the majority's decisions are always correct.

2.4.2 Conscientiousness and financial risk tolerance

Individuals with high conscientiousness are usually self-disciplined, hardworking, and reliable, and they are frequently motivated by a desire to achieve their objectives and perform their responsibilities (John & Srivastava, 1999). According to Furnhan and Cheng (2017), those with high conscientiousness prefer to engage in risky financial activity. Similarly, Hira and Mugenda (1998) argue that those who are wealthy and responsible are more inclined to save for retirement and invest in long-term financial planning. This idea is supported by Robb and Woodyard's (2011) findings, which found that more conscientious individuals were more likely to engage in problem-solving behavior related to their finances, allowing them to manage their financial concerns and improve their ability to deal with negative outcomes.

2.4.3 Financial Risk Tolerance and Openness to Experience

Openness to experience is a trait of personality that represents a person's ability to explore and take on new ideas, beliefs, or experiences. In contrast, financial risk tolerance refers to an individual's willingness to take financial risks in order to get higher returns. Furnham and Cheng (2017) found that there is not always a clear relationship between openness to experience and financial risk tolerance. According to them, individuals with high openness to experience are likely to be more open to new ideas and experiences; however, this does not always suggest that they will take greater financial risks. Furthermore, Rettl and Weber (2016) discovered no link between risk-taking behavior and openness to experience in a sample of German university students completing a financial decision-making assignment.

2.4.4 Financial Risk Tolerance and Extraversion

According to Costa and McCrae's (1992) research, those who are extraverted are more social, energetic, and actively engage with their surroundings. Furthermore, they appreciate other people's perspectives and consider them crucial sources of knowledge. This personality attribute is also highly linked to risk tolerance and specific types of behavior. According to Oehler and Wedlich (2018), extroverts tend to be less risk-averse and choose more risk when making investing decisions. According to Rabbani et al. (2019), higher levels of extraversion are associated with a higher risk tolerance among investors.

2.4.5 Financial Risk Tolerance Neuroticism

Neuroticism, a personality trait associated with anxiety, worry, and emotional instability, is inversely associated with financial risk tolerance. Multiple researches on this relationship have shown consistent findings. For example, in a study done by Lachance and Gondzio (2017), they discovered that those with greater degrees of neuroticism suggested less risk-taking behavior while making financial decisions. .. Similarly, Kim and Lee (2018) found that neuroticism was negatively correlated with financial risk tolerance among Korean adults.

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Furthermore, Brown and Taylor's (2014) meta-analysis indicated a significant negative connection between neuroticism and financial risk-taking behavior across multiple studies.

3 Data and Research Methodology

3.1 Data Collection Tool

Aleka's (2020) self-administered questionnaire was the primary tool used to collect primary data for this research study. To ensure reliability, the cited scholar used Cronbach's alpha. The questionnaire was derived from the cited scholar and includes closed-ended questions. The first section of the questionnaire asks about individual demographic characteristics, while the second section focuses on personality traits. Which are scored on a Likert scale ranging from strongly disagree to agree strongly.

The third part of the questionnaire consists of questions about risk tolerance. According to Aleka (2020), risk tolerance can be measured in two ways. Firstly, by directly asking individuals a single-item question about their level of risk tolerance.

3.2 Sample Size and Sampling Technique

Due to practical limitations such as financial and time limits, researchers often cannot survey the entire population. They must select a sample to make statistical inferences about the population of interest. Sampling is the process of choosing a sample of a population to represent the entire population. The researcher used non-probability sampling in this study. The questionnaire approach was used to collect primary data from 200 investors in Mardan.

Slovin's formula was used to calculate the required number of samples (n) given the known population size (N) and acceptable margin of error (e). Using this method, one can calculate the required sample size from the target population.

$$(\boldsymbol{n}) = \frac{\boldsymbol{N}}{\boldsymbol{1}} + \boldsymbol{N}(\boldsymbol{e2}) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \ (\mathbf{1})$$

Where:

n= sample size

N= population

E= error

$n=500/1+500(0.07)^2$

$n =500/1+500(0.0049)$

$n =500/3.45$

$n =200$

Table 1: Cronbach's Alpha Test Results

Variables	No of items	Cronbach's Alpha
Extraversion	5	.857
Openness To Experience	4	.778
Agreeableness	5	.808
Conscientiousness	5	.805
Neuroticism	5	.890

3.3 Validity of the Questionnaire

The cited scholars have already established the instrument's reliability and validity. The author previously stated that he chose the instrument from Aleka (2020), who used the same questionnaire with some modifications from

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Mayfield, Perdue, & Wooten (2008) and Pak & Mahmood (2015). Cronbach's Alpha test used for to measure validity and reliability of the questionnaire. if Scores less than 0.6 indicate poor reliability; 0.6-0.7 indicate moderate reliability; 0.7-0.8 indicate good reliability; 0.8-0.9 indicate very good reliability; and scores more than 0.9 indicate outstanding dependability.

3.4 Research Approaches and Design

To explain the relationship between financial risk tolerance personality qualities (Big Five) and demographic characteristics, this study uses an explanatory research technique.

$$Financial\ Risk\ Tolerance = \beta O + \beta 1Ex + \beta 2Oppen + \beta 3Agree + \beta 4Cons + \beta 5Neuro + \beta 6Gender + \beta 7Martial\ status + \beta 8\ income + \beta 9\ Education + \beta 10\ Age + \epsilon \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Equation two represents the regression model for this study, where the dependent variable is Financial Risk Tolerance, and the independent variables are Personality traits (Big Five) and Demographic Characteristics like Gender, Age, Marital status, Education, and Monthly income.

4. Results and Discussion

This section analyzes and interprets the data collected from respondents. To do this, statistical tools were used to analyze the participants' demographic characteristics as well as data on their personality traits that may influence their financial risk tolerance.

4.1 Demographic Characteristics of the Respondents

In Table 4.1 below, the respondent's gender distribution shows that 36(17%) are female investors and 167 (82.2) are male investors. In this study, men and women are both involved. According to the report, males are the majority of investors. While women are less than compared to men. This shows how men define Mardan culture and that women are mostly limited to taking care of their families.

According to Table 4.1, the age group of the respondents, 69(34%) have gained 30 years or less, 85 (41.9%) have aged between 30 and 45 years 42 (20.7%) have between 45 to 60 years and 7 (3.4%) have above 60 years, more than half of the respondents age 30 to 45 years.

Table 4.1 shows that 59 (29%) investors are single with regarded marital status, and 144 (71%) are married.

It shows that married people are more economically successful and contribute to the economy than single people because of their familial responsibilities.

Table 4.1 shows that 80 (39.4%) respondents have a master's or higher master's degree, while 70 (34%) have a bachelor's degree. 40 (19.7%) have intermediate degrees, while 13 (6.4%) have matriculation degrees. This percentage indicates that those with higher levels of education are more aware of investment activities than those with lower levels of education.

Finally, Table 4.1 shows that 61 (30%) investors have an income of less than or equal to 50000, then 74 (36.5%) have an income of Rs. 51000-Rs.100000,

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45(22.2%) who have an income of Rs.101000-150000, and 23(11.3%) who have an income of Rs.151000-200000. It indicates the majority of respondents have a significant monthly income, which allows them to invest in certain economic activities.

Table 4.1

Variables	Category	Frequency	Percent	Cumulative
Gender	Male	167	82.3	82.3
	Female	36	17.7	100
	Total	203	100	
Age	Less than 30	69	34	34
	31-45	85	41.9	75.9
	46-60	42	20.7	96.6
	61 Above	7	3.4	100
	Total	203	100	
Marital status	Single	59	29	29
	Married	144	71	100
	Divorced	0	0	0
	Total	203	100	
Education Level	Master above	80	39.4	39.4
	Bachelor	70	34.5	73.9
	Intermediate	40	19.7	93.6
	Matriculate	13	6.4	100
	Total	203	100	
Monthly income	Less than5000	61	30	30
	51000-100000	74	36.5	66.5
	101000-150000	45	22.2	88.7
	151000-200000	23	11.3	100
	Total	203	100	

4.2 Descriptive Statistics for Personality Traits

The following part includes descriptive statistics on personality traits. The responses of the participants to each personality question are given below.

Table 2.
Descriptive Statistics for Extroversion

Responses	Frequency	Percent	Cumulative
Strongly Disagree	6	2.9	2.9

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Disagree	15	7.4	10.3
Neutral	40	19.7	29.5
Strongly Agree	108	53.2	82.7
Agree	34	16.7	100
Total	203	100	

4.2.1 Descriptive Statistics for Extroversion

Table 4.2 displays statistical data related to the extroversion dimension of respondents' personalities. As mentioned, the scholar has taken the Mean for each dimension from different statements of each dimension. Hence, according to the above Table, 6 (2.9%) strongly disagree with extroversion, followed by 15(7.4%) who disagree with this statement. On the other hand, 40(19.7%) are neutral, 108(53.2%), and 34(16.7%) Investors strongly agree on the extroversion dimension of personality.

Table3.
Descriptive Statistics of Openness to Experience

Responses	Frequency	Percent	Cumulative
Strongly Disagree	6	2.9	3
Disagree	22	10.8	13.7
Neutral	44	21.6	35.3
Strongly Agree	95	46.7	82.2
Agree	36	17.7	100
Total	203	100	

4.2.2Descriptive Statistics of Openness to Experience

According to the descriptive statistics in Table 4.2, 6 investors, or 2.9% of total respondents, significantly disagree on the openness to experience dimension of personality. According to the data in Table, 22 people (10.8%) disagree on this personality characteristic dimension. 44 (21.6%) investors are Neutral on the personality trait. 95 (46.7%) strongly Agreed, 36 (17.7%) and agreeing on the personality link to openness to experience.

Table 4
Descriptive Statistics of Agreeableness

Responses	Frequency	Percent	Cumulative
Strongly Disagree	11	5.4	5.4
Disagree	13	6.4	11.8
Neutral	49	24.1	35.9
Strongly Agree	91	44.8	80.8
Agree	39	19.2	100
Total	203	100	

4.2.3 Descriptive Statistics of Agreeableness

Table 4.3 shows a descriptive statistic of the agreeableness personality traits. According to the table, 11 or (5.4%) investors are strongly disagreeing on

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agreeableness. And investors13 (6.4%) disagree on agreeableness. Meanwhile, 49 (24.1%) people feel neutral about agreeableness. Also, 91(44.8%) strongly agree on agreeableness, whereas 39 (19.2%) agree on that particular personality trait.

Table 5.
Descriptive Statistics of Consciousness

Responses	Frequency	Percent	Cumulative
Strongly Disagree	4	1.9	1.9
Disagree	9	4.4	6.3
Neutral	54	26.6	32.9
Strongly Agree	84	41.3	74.2
Agree	52	25.6	100
Total	203	100	

4.2.4 Descriptive Statistics of Consciousness

Table 4.4 shows descriptive statistics for the conscientiousness dimension of personality: 4 (1.2%) strongly disagree, 9 (4.4%) agree, and 54 (26.6%) are neutral. Conscientiousness is strongly agreed upon by 84(41.3%) and 52 (25.6%) individuals with agreeing. This reflects that the majority of investors in Mardan are conscientious and use their calculations and parameters in decision-making rather than believing in other people's saying.

Table 6.
Descriptive Statistics of Neuroticism

Responses	Frequency	Percent	Cumulative
Strongly Disagree	28	13.7	13.7
Disagree	39	19.2	33
Neutral	53	26.1	59.1
Agree	63	31.5	90.2
Strongly Agree	20	9.8	100
Total	203	100	

2.2.5 Descriptive Statistics of Neuroticism

Table 4.5 displays descriptive statistics for neuroticism for this trait. 28 (13.7%) strongly disagree with this trait, whereas 39(19.2%) disagree with it. 53 (26.1%) are Neutral on this dimension, followed by 63 (31.5%) who agree and 20 (9.8%) who strongly agree on neuroticism. The results show that the majority of people strongly agree, agree, or are neutral about neuroticism. 4.7 shows that a significant portion of investors in Mardan have a desire to they cannot take any financial risk.

Table 7.
Descriptive Statistics of Financial Risk Tolerance

Risk Tolerance	Frequency	Percent	Cumulative
High Risk	36	17.7	17.7
Above-average	32	15.7	33.4

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tolerance			
Average Risk	37	18.2	51.6
No Risk	98	48.4	100
Total	203	100	

4.2.6 Descriptive Statistics of Financial Risk Tolerance

Table 4.6 shows that 98(48.4%) investors cannot bear any financial risk. 37 (18.2%) people are average risk takers. 32(15.7%) investors take on above-average risks in order to earn an excellent return. 36(17.7%) take a high risk in order to earn a higher return.

4.3 Inferential statistics

Inferential statistics is a statistical method that uses a small sample of data to make conclusions about a large population. It uses statistical methods to evaluate data, estimate population characteristics, and test hypotheses. The basic aim of inferential statistics is to answer problems that cannot be addressed only by looking at sample data. It is frequently utilized in many industries, including business, healthcare, and social sciences. Hypothesis testing, confidence intervals, and regression analysis are examples of commonly used inferential statistical procedures. Inferential statistics are significant because they allow researchers to draw meaningful conclusions from limited data.

Table 8.
Model Summary

Model	R	R Square	Adjusted R Squares	Std. Error of the Estimate
1	.832	.692	.684	.690

R represents the strength and direction of the linear relationship between the observed values and the predicted value of the dependent variable (Financial risk tolerance). The strong R-value of (.832) and high R^2 (.69.2%) show that demographic characteristics and personality traits significantly contribute to explaining financial risk tolerance. The Adjusted R^2 (.684) demonstrates that the model remains acceptable even after influencing for a number of predictors. The low standard error (.690) suggests that the model's predictions are valid.
These findings provide acceptance to the hypothesis that an individual's characteristics and personality traits influence their financial risk tolerance.

Table 9.
4.3.1 ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	210.154	5	42.013	88.397	.000
Residual	93.669	193	.475		
Total	303.823	202			

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Dependent Variables: Financial Risk Tolerance

The ANOVA results indicate that personality traits and demographic factors explain a significant amount of the variability in risk tolerance. The high F-statistics (88.397) and extremely low P-value (.000) suggest that the model is effective in predicting risk tolerance, with personality traits and demographic factors playing a significant role**.**

Table 10.
Variance inflation factors

Model	Collinearity Statistics	
	Tolerance	VIF
Extraversion	.399	2.507
Agreeableness	.255	3.920
openness to experience	.399	2.507
conscientiousness	.249	4.023
Neuroticism	.321	3.119

4.3.2 Collinearity Diagnoses

Table 4.10 shows the tolerance and VIF statistics for each variable in the model. Tolerance measures how much of the variation in a predictor variable is not explained by other predictor variables. In contrast, VIF measures how much of a predictor variable's variance is inflated due to multicollinearity. The VIF values of all variables are less than the generally accepted threshold of 5, indicating poor evidence of multicollinearity. However, the tolerance levels for several variables are fairly low, suggesting that they may contribute to some level of multicollinearity.

4.3.3 Regression Models of Personality Traits and Demographic Characteristics

Table 11. The Effect of demographic characteristics and personality traits on financial risk tolerance

	Coef. B	**Std err**	**Beta**	**T**	**sig**
(Constant)	1.839	.458		4.016	000
Extroversion	.440	.085	359	5.195	000
Neuroticism	-.331	.076	-.306	-4.377	000

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Openness to Experience	.199	.085	.174	2.220	.028
Agreeableness	.572	.083	.474	6.858	.000
Conscientiousness	.216	.091	.188	2.373	.019
Age	-0.218	0.103	-0.147	-2.106	.036
Gender	-0.123	0.226	-0.038	-0.546	.586
Marital status	-0.066	0.167	-0.066	-0.954	.341
Education	-0.026	0.094	-0.019	-0.275	.784
Monthly income	-0.065	0.088	-0.053	-0.734	.464

4.4 Result Discussion

Table 4.10 shows that all personality traits analyzed (Extroversion, Openness to Experience, Conscientiousness, Agreeableness, and Neuroticism) are statistically significant predictors of risk tolerance. Extroversion, Openness to Experience, Conscientiousness, and Agreeableness tend to have higher risk tolerance, making them willing to take investment risks and have a positive relation with risk tolerance. On the other hand, neuroticism has a negative relation with risk tolerance, as individuals with lower risk tolerance avoid risky financial decisions. This suggests that potential investors with these extroversion traits may have a higher risk tolerance due to their positive emotions and energy when dealing with risk. Mathur and Nathani (2019) also support this finding, citing a study by Oehler and Wedlich (2018). The attitude suggests that extroverts have a high-risk tolerance. According to Sadi et al. (2011) and Mathur & Nathani (2019), introverts tend to be risk-averse individuals. Kubilay and Bayrakdaroglu (2016) found that extraversion predicts financial risk tolerance and suggests that extroverts are better at managing risk preferences. Furnham and Cheng (2017) found that there is not always a clear relationship between openness to experience and financial risk tolerance. According to them, individuals with a high openness to experience are more accepting of new ideas and experiences; however, this does not mean that they would take greater financial risks. Furthermore, Rettl and Weber (2016) discovered no link between risk-taking behavior and openness to experience in a sample of German university students completing a financial decision-making assignment. According to Sadiq and Khan (2019), the trait of agreeableness is associated with kindness, personal friendliness, empathy, helpfulness, and collaboration. Friendly individuals prefer to avoid conflicts when investing, which does not affect their risk tolerance. (Costa and McCrae, 1992). According to Durand et al. (2008), those who are more pleasant tend to take greater risks. According to Amiri, Chavoshani, and Jamshidnavid (2012), people with agreeableness as a trait of personality tend to have complex beliefs, which lead to herding behavior. The control behavior involves following and acting on the instructions of the majority since the majority's decisions are always correct. Furnhan and Cheng (2017) found that those with high conscientiousness prefer to engage in risky financial activity. Similarly, Hira and Mugenda (1998)) It was revealed that those who are wealthy and responsible are more willing to save for retirement and invest in long-term financial

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planning. According to Pak and Mahmood (2015), neurotic individuals tend to be risk-averse, have insufficient analytical abilities, and have poor critical thinking and conceptual understanding. Multiple research studies on this relationship have shown consistent findings. For example, a study done by Lachance and Gondzio (2017) discovered that those with greater degrees of neuroticism suggested less risk-taking behavior while making financial decisions. The demographic data demonstrate that age is the only characteristic that has a significant effect on risk tolerance, with a negative connection indicating that older people are ready to accept less risk. Income, gender, and education level had no significant influence on risk tolerance in this model since their p-values were greater than the conventional significance limit (0.05). According to the study's findings, older investors are less willing to take major risks owing to life expectancy and familial obligations, which is consistent with previous research that has revealed a negative significant association between age and financial risk tolerance. Lichtenstein and Slovic (1971) discovered that young persons are more active in risk-taking challenges, whereas aged investors are more risk-averse. Kable and Glimcher (2007) support this argument by saying that younger investors have a higher risk tolerance than older investors. Therefore, they are more likely to gamble, whereas elderly investors are more cautious and unwilling to take significant risks. Other research, such as Kim and Hanna (2012), found a negative association between financial risk tolerance and age. . A number of research have found no significant association between marital status and financial risk tolerance (McInish, 1982; Masters, 1989; Haliassos and Bertaut, 1995).This is consistent with the findings of Daly and Wilson's (2001) research, which concluded that when responsibility rises with marriage and having children, a male becomes more risk averse. Sunden and Surette (in Adhikari and O'Leary, 2008) discovered that marriage makes people, both men and women, more risk-averse when it comes to plans for retirement. . The level of education is meant to impact a person's willingness to take risk. Higher degrees of education are considered to improve a person's capacity for evaluating risk and hence be positively connected with higher financial risk tolerance (Baker and Haslem, 1974; Haliassos and Bertaut, 1995; Sung and Hanna, 1996). , people with higher incomes may not want to make more money, so they are unwilling to take any financial risks. Bhatti and Riaz (2016) found that popular opinion may influence young people's spending and saving habits, lending support to this hypothesis. Particularly, they observed that young individuals are more willing to spend money on products that are in demand among their peers than they are to save or reinvest their money.

However in this section hypothesis was discussed below by creating a section with a name of hypothesis testing.

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Table 12.
Summary of the Hypothesis

Hypothesis	Description	Results
H_1	Extroversion and financial risk tolerance have a positive statistically significant relationship.	Supported
H_2	Openness to experience and financial risk tolerance have a significant relationship.	Supported
H_3	Agreeableness and financial risk tolerance have a significant positive relationship.	Supported
H_4	Conscientiousness and financial risk tolerance have a positive significant relationship.	Supported
H_5	Neuroticism and financial risk tolerance have a negative relationship.	Supported
H_6	Gender significantly affects risk tolerance, with males exhibiting higher financial risk tolerance.	Supported
H_7	A marital status has a negative relationship with financial risk tolerance, with married individuals displaying lower risk tolerance.	Supported
H_8	Age has a negative relationship with risk tolerance. Younger individuals have more risk tolerance.	Supported
H_9	Higher education levels positively influence financial risk tolerance.	Supported
H_{10}	Higher-income level positively influences financial risk tolerance.	Supported

5. Conclusion

The goal of this study was to examine the relationship among demographic characteristics, personality traits, and financial risk tolerance. The introduction to this study discusses the importance of investment for economic growth and prosperity. Therefore, issues that arise during the investing process must be investigated. An issue with investment is a person's financial risk tolerance. Individual risk tolerance levels differ from one another. Investment managers and policymakers benefit from categorizing investors based on their financial risk tolerance. To investigate how personality traits and demographic factors affect individual investors' risk tolerance, the study conducts a theoretical, empirical, and conceptual analysis of relevant literature. The primary data source for the study was used to achieve its objectives. This study used A convenient sampling technique. The population of this study was current and potential investors in Mardan. A self-administered questionnaire was distributed to collect data from respondents. A total of 220 questionnaires were distributed for data collection, with 203 returned and a response rate of 94%. The data was analyzed using SPSS. The Demographic data show that age is the only variable that has a significant impact on risk tolerance, with a negative relationship showing that older individuals are willing to take fewer risks. Income, gender, and education level had no significant effect on risk tolerance in this model. People with higher levels of extraversion, conscientiousness, openness to experience, and agreeability have a higher risk tolerance, making them more likely to accept investing risks. This suggests that these characteristics have a positive impact on financial decision-making among investors in Mardan. On the other hand, people who are more neurotic have a lower risk tolerance and avoid making risky financial decisions.

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5.1 Implication of the study

The findings of this study are significant for both investors and policymakers considering investments in Mardan. First, investing plans should take into consideration age and personality factors. For example, old people might prefer low-risk alternatives, but those with high conscientiousness may accept moderate- to high-risk investments. Financial literacy programs are especially important for those who have low educational backgrounds since they improve risk tolerance and informed decision-making. Furthermore, marital status generally positively increases risk tolerance, implying that married couples may be better suited to manage and spread investment risk collectively. Furthermore, gender has no significant effect on risk tolerance. Thus, policymakers should promote investing methods for both men and women. Finally, psychological traits such as extroversion and neuroticism influence investing behavior, emphasizing the need to evaluate personality traits and emotional responses while making financial decisions.

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