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Affiliation:
Karishma Rukhsar
University of Agriculture,
Faisalabad, Pakistan.
E-mail: karishmarukhsar@gmail.com

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Effect of Financial Literacy on Financial Risk Tolerance with Conscientious Personality Mediation. Does the Neuroticism Personality Moderate?

Karishma Rukhsar*

Abstract: *This research work makes underpinning of the Financial Risk Seeking through the window of finance education. This study explores that how Conscious personality perform a mediatory role while neurotic personality act as a moderator in the relationship of finance education and financial risk seeking. For accomplishment of the study purpose data set is gathered from university students of Faisalabad, Pakistan. The online survey technique is employed for generating the data set which integrated 200 respondents. The PLS (SEM) modelling was used for data analysis. The path analysis shows that the finance education proved as a statistically noteworthy positive association with financial risk seeking. The conscientious personality trait has a statistically noteworthy direct mediating association between finance education and financial risk bearing. The neurotic personality has inverse and statistically significant moderation association between finance education and financial risk bearing. This study will be helpful for government, policy makers, wealth managers and scholars for chalking out strategies as well as for individual and institutional investors for rational decision making for best portfolio development.*

Keywords: Financial literacy; Financial Risk Tolerance; Conscious Personality Trait; Neurotic Personality Trait: PLS-SEM.

Introduction

The financial markets are going to become progressively multifarious and tricky. Unpredictable culture of financial markets and a greater number of investment choices create uncertainty for investors. The identification of investors' actions in financial market is the most crucial factor in financial decision. The risk that an investor faces in a stock market is financial risk There are two types of financial assets: "risk financial assets and risk-free financial assets". The risky investment avenues included "informal and formal savings accounts, cash holdings, and treasury bills and bonds" while the later involve "stocks" (Jianakoplos & Bernasek, 1998). The investor decision for choosing these Risky financial assets depend on individual risk seeking capacity that involved financial risk bearing. The foundation of financial risk seeking derived at the time of "the Hindu-Arabic numbering system that moved the west almost eight hundred years ago". The financial risk seeking

*University of Agriculture Faisalabad, Pakistan. E-mail: karishmarukhsar@gmail.com,

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has an ability to ease accomplishment of investment boxes, assets collection, along with appropriate portfolio allotment (Bossone, 2019). The two kinds of financial risk include the “subjective financial risk and objective financial risk”. The “subjective financial risk” is the risk that person or investor wish to take in its investment decisions. Conversely ”objective financial risk” risk that person or investor can bear after calculating Variance Analysis (VAR) (Van de Venter, Michayluk, & Davey, 2012).

In routine linguistic, risk tolerating is the degree of willingness to “take a chance.” In conventional finance, the risk is said to be an objective risk. But in behavioral finance, it is said as a subjective risk. In behavioral finance, the microeconomic aspect of risk is undertaken, whereas in conventional finance the macroeconomic aspects of risk are envisaged (Lucarelli & Brighetti, 2010). Risk bearing can be stipulated as “ A degree to which an investor is willing and able to accept the possibility of an uncertain outcome to an economic decision. A measure of risk tolerance is useful in summarizing an investor’s perception about the tradeoff between risk and the compensation required for bearing risk” (Harlow & Brown, 1990). Risk bearing/tolerating approach rented from the field of “economic psychology” and have an indirect link to economics theory of “risk aversion”. For assessing risk bearing of individual investors through lens of behavioral finance, projection bias as well as regret theory plays vital role for individual investor in financial market. The investor inclination of using the present state for projecting hooked on the upcoming state is the state of projection mental short cut. Regret concept proposes a person crack for tumbling regret in ambiguous and riskier state. This concept is useful to know the variation of risk bearing of individual investor at financial market (Grable, Lytton, & O’Neill, 2004).

The financial market that is a playground of investors for different securities handling and managing. In this ground the financial literacy gives a winning situation to an investor and financial market trading become frequent with more financial education (Van Rooij, Lusardi, & Alessie, 2011). The Finance literacy is “a person’s capability for understanding and utilization of financial products”. The studies researched out that financial literacy has direct influence on a multiplicity of financial comportments. A person with a more financial literacy has a greater tendency for tolerating risk (Aren & Zengin, 2016). Beside financial literacy the other most important construct that affect investor risk tolerance is his/her personality dimension. The research is yet going to the association on financial literacy, risk-bearing capacity, and financial decision making. In the literary framework, “financial knowledge and financial literacy” is taken as interchangeable. At the time of introduction “financial literacy” is considered as “financial capability” (Kempson, Collard, & Moore, 2006). The OECD is the initial association that officially elevated the Jingle of financial education in 2005 through the publication of “improving financial literacy.” In the contemporary world requirement, finance literacy is “A combination of awareness, knowledge, skill, attitude, and behavior necessary to make sound financial decisions and ultimately achieve individual financial well-being” (Atkinson & Messy, 2012). Financial literacy has an important consideration in both developed and developing nations. All developed and developing countries acknowledged its importance. In Pakistan state bank of Pakistan launched the NFLP-Y National Financial literacy program for youth.

Personality is a motif of belief, hunch and performance that metamorphoses a person. It is a yardstick for differentiating individuals. The early classification edifice exertions concerning personality dimensions have corroborated in the work embarked by Allport and Odbert (1936). They indicated nearly "forty-five hundred dictionary words" which described the personality dimension. Cattell in 1943 cut down these series of dimensions in 35 categorical constructs and after that Cattell in 1945 cut down these in twelve factorings. Norman in 1967 indicated the 5 key personality traits. The dimensions of personalities have regularly been operational in employing the "Big-Five personality traits" alternately as a "Five-Factor Model". At the time of 1990s, the 2 squads of the researcher "Paul Costa and Robert R. McCrae 1992 of the National Institutes of Health and Warren Norman and Lewis Goldberg of the University of Michigan at Ann Arbor and the University of Oregon", observed that there have five domains of a human personality.

The Personality dimension has greatly influenced the investment selection decision and it has higher influential tendency. The personality characteristics direct the habits of investors risk bearing capacity in a divergent realm of individual life which include investment decisions (Soane, Dewberry, & Narendran, 2010). In the nutshell personality attributes act as a guiding star for resolving an ambiguous state. In this way the research is still conducted among the relationships of financial education, risk seeking capacity and investment decision. Personality attributes originated the influence risk seeking capacity, investing administration as well as on disbursement (Krishnan & Beena, 2009). Personality characteristics of big five model includes five types of personalities, e.g., Extroverted, Agreeable, openness to experience, consciousness, and neurotic people. The students with conscious personality are good in mathematics and science subjects. Indignation occurrence is a major distinguish between neuroticism and agreeable investor. Neurotic personality that they often have an addiction of drink and smoke. These types of peoples have less reasoning, logical, investigative, and theoretical ability (Nicholson, Soane, Fenton-O'Creevy, & Willman, 2005). So, investor with openness trait attributed more likely to get their financial advisor counselling.

Motivation of the study

Previous literature (Bayar, Y., Sezgin, H. F., Öztürk, Ö. F., & Şaşmaz, M. Ü., 2020; Hermansson & Jonsson, 2021) indicates that the finance education had increased the risk-taking level of individuals. Oehler, Wendt, Wedlich, and Horn (2018); Rabbani, Yao, and Wang (2019) found negative association between neurotic personality trait and financial risk tolerance. On the other hand Kaur and Goel (2022); Rabbani et al. (2019) also found that personality traits conscientious individuals were likely to involve in the lower level of financial risk tolerance. So, this study is motivated to check the mediating role of conscious personality between financial literacy and financial risk tolerance. The present study find out that not only single factor financial literacy influence the financial risk tolerance but the conscious personality trait mediate it.

The objectives of the research study are as following: To ascertain the factors affecting financial risk seeking and analyzing the impact of financial literacy on financial risk seeking; to ascertain the mediating impact of conscientious personality traits between financial literacy and financial risk seeking; to analyze the moderating role of neuroticism personality traits between financial literacy and financial risk seeking; to develop strategies for various stakeholders in sound financial decision making.

Novelty

This research is a pioneer study on finance literacy role on Financial Risk seeking due to the mediating-moderating role of conscious and neurotic personalities respectively. This study has an emphasis on financial literacy importance on those investors who do not take risky investment. The risk aversion scale for measuring risk seeking of neuroticism and conscientious personality trait is used. Because they are risk averse personalities (Nicholson et al., 2005). Previously there is no any study which have used risk aversion scale for measuring these personality risk tolerance behavior. Because it only includes the risk avoiding question and neuroticism and conscientious personality traits are always seeming as a risk avoider personality trait of big five personality trait model. This study provides an important contribution in literature as well as in practice on the issue of financial risk seeking.

This study also provides important insight that when a person is literate no matter whether conscientious or a neuroticism personality trait, their decision making depict their financial literacy not their personality trait. Financial literacy has a direct association with these personalities. In previous studies, financial literacy and financial risk bearing take as independent and dependent variables respectively. This is a first study who includes the conscientious personality trait as a mediating between these independent and dependent variables while neuroticism takes as moderating between financial literacy and financial risk seeking. The personality traits conscientious have a statistically noteworthy direct mediating relationship between financial literacy and financial risk bearing. The findings of this research are novel in the field for future researchers. This study has a major contribution in behavioral finance literature.

Research Gap

A problem identified that more financial literate persons have a higher tendency for risk tolerance. The literature review is not conclusive about Financial Risk seeking. So, it is investigated that Financial literate persons with neurotic and conscious personality traits either behave heterogeneously or according to their financial literacy homogeneously towards Financial Risk seeking. "Whether the financial literacy in financial risk tolerance equally affecting neurotic and conscious personalities. The statement that financial literate person takes more risk but in Big five personality trait model the conscious and neurotic trait always risk averse. Whether all neurotic and conscious personality people have not financially literate or less literate. The other tentative statement is that whether financial literacy not impacted these personalities financial risk seeking.

Scope of the research

The author analyze varies individual with different personality traits that will help prospect investors in choosing a good tactic of investment. This study will also be helped the investor-consultant in recommending best portfolio. Investor-consultant will get help from this literature that how to behave, mold, tackle and manipulate the psyche of investor for investing in a well-suited manner. Investor consultant can give financial information to their investors so that they take decision without biasness. Government can get awareness for launching financial skill programs for the employed as well as unemployed people. Policy makers can make tactics, strategies for their investors according to their psychology.

Literature Review and Hypothesis Development

The Prospect Theory described that in an uncertain situation investor is not behaving according to standard of conventional finance (Kahneman, 1979). Prospect theory opens the doors in behavioral finance literature that yield a profitable relationship for investors in an uncertain situation. Not only a risk return is a yard stick in affecting investor decision making but some other random factors are also working. It includes the individual risk avoiding in the sphere of return as well as a risk taking in the sphere of losing. This theory explains risk bearing of individual investors in various dimensions. So, it is recommended that risk seeking of individuals must be studied out as discretely. Prospect theory simply hypothesized that investor investment choice process is sensible and not easy to rationalize. This research paper validate the prospect Theory.

Financial literacy and financial risk seeking

The paradigm of "Behavioral finance" regarded the "projection bias" along with "Regret theory" known as financial risk-bearing. The focus of research on the financial riskbearing is not an emerging topic. For a long period, it had been studied out by many financial engineers, financial organizations, stakeholders as well as academies. Aren and Zengin (2016) indicated that investor personality type had no significant association in selecting investment avenues. Whereas the degree of financial awareness and perspicacity of risk were the center of attention for investors in the investment decision. In addition, discernment for risk was influenced through the finance awareness along with gender, meanwhile, marital status had no influence. The risk avoider investors were likely to invest in the form of bank savings. Whereas the risk seekers were invested in the form of "foreign exchange, equity, and portfolio". Bannier and Neubert (2016) employed probability regression analysis and revealed that the definite and perceived financial education were pertinent for financial risk tolerance with various degrees in gender. The "structural equation modeling and multigroup structural equation modeling" had indicated the "emotional intelligence and locus of control" direct influence on financial risk-taking. Whereas risk-avoiding had an indirect influence. Besides, there was a positive association between risk-related investment attitude and finance awareness.

Zhu (2019) discussed the financial risk bearing capacity of teenager. The analysis of hierarchical model showed that Financial Risk Tolerance (FRT) had directly influenced by household earnings, imminent inclination, ability to read Chinese language, and subjective finance awareness whereas finance learning as well as proficiency had indirect relationship. Salem (2019) integrated the constructs that affected the financial decision making. The results indicated that the higher tendency of Arab females was shown "herding behavior". Meanwhile, they had less finance literacy and low financial risk bearing as well as they were not confident at all. So, they did not make a frequent trading in a financial market. Ferreira and Dickason-Koekemoer (2020) discussed the risk bearing of females financiers. The 1065 respondents of "nine provinces of Africa" had taken by "purposive sampling" technique. The SEM technique indicated that the risk bearing capacity of individual investor was depending on investor personality dimension, degree of financial literacy and intensity of risk seeking and were found a gender difference in taking risk. Financial literacy was also playing a significant role in risk taking. There had inverse relationship between risk tolerant capacity and financial literacy. An investor with more financial literacy were less risk seeker while less financial literacy leads towards taking higher risk.

Bayar et al. (2020) pointed out that finance literacy was a crucial factor that had a direct affect in individual risk bearing capacity of investment. The empirical investigation pointed out that demographic factors and finance literacy had a great impact on financial risk bearing capacity. The risk bearing capacity could have diversified with increase in finance awareness. Hermansson and Jonsson (2021) investigated that financial interest had a great influential power as compared to finance awareness. The results of "Quantile regression" revealed that the financial interest had a higher relationship with medium to higher kind of risk bearing while the finance awareness had a higher relationship with the lower kind of risk bearing. Vu et al. (2021) indicated individuals that with more wealth, educational level, inheritance, self-esteem about health-related matters, public relations had invested in risky investment avenues in Wave 2 along 4. But at the same time in the wave 4 "household size" had indirectly associated with risky investment avenues. After the financial trouble of 2008 individuals were made investment in less risky assets. The dynamic results indicated that individuals with more wealth in all waves "stronger (weaker)" for holding a "financial risky asset". Furthermore, individuals with more education had showed two-time variant behavior concerning a possibility of investment in risk financial securities.

Zhang, Yang, and Chen (2022) revealed that the finance education had a direct association with the financial risk taking. The "Generalized self-efficacy" plays a mediating part between finance education and financial risk seeking but partially. The "only child identity" act as a moderator between the finance education and "Generalized self-efficacy" and it further negatively moderate the association between the finance education and investors financial risk taking via "Generalized self-efficacy". Mohta and Shunmugasundaram (2023) investigated the influence of financial literacy on financial risk seeking and concluded that there is a strong association between both construct of financial literacy and risk capacity and propensity. On the basis of previous studies, the following hypothesis are makeup.

H1: Financial literacy positively influence the financial risk seeking.

Conscientious personality as a mediator and neuroticism as a moderator

A considerable frame of studies specifies the inclination for risk tolerance is linked with individuality (Lauriola & Levin, 2001; Nicholson et al., 2005). The personality dimension has a greater influence on financial decision making than that of another demographic construct of an individual. The personality elements directed the individual risk-bearing ability in different monarchy of human life involving investing decisions also (Soane et al., 2010). Personality can be defined as technique according to which a person interrelates, behave on basis of their personal characteristics. The neuroticism personality explained the propensity of experiencing emotional instability along with adverse emotional state for illustration, nervousness, sadness. Neurotic nature, people are more riskaverse (Becker, Deckers, Dohmen, Falk, & Kosse, 2012). In contrast, several investigators said that they are risk lovers. Extroverted as well as neurotic personality has a much influence in affecting the decision of an individual. In the study of Pak and Mahmood (2015) concluded that investors' personality dimension had a great impact on how they behaved with risk in response which subsequently affected the financial decision making of investors and disclosed that conscious and agreeable personality inversely behaved with risk tolerance. The study concluded that they did not depend on their own decisions. The neurotic people also had an inverse relationship with risk. They underestimated the yield when there was a market beneficially going on and overvalued their yield when not a favorable market was going on. Gender difference appeared, as females had lower risk bearing capacity than males.

Wong and Carducci (2016) discussed the association between "financial risk-bearing and the personality dimensions of sensation-seeking, locus of control, ambiguity tolerance, and financial dishonesty". The data set had integrated the 255 individuals for the study objective. The regression analysis indicated that there had a direct association between risk-bearing along "sensation-seeking". This association had strongest enough that the influence of "gender, age, GPA, and college academic standings" had not alleviated it. So, for "locus of control", "the more one believes one had control over one's outcome, the higher risk one can tolerate". Startlingly, there was not any type of association of risk-bearing with "ambiguity tolerances". In addition, Fraudulence/Financial dishonesty had not any influence on a risk-bearing too. Though, the association had existed in young as well as those individuals having a less GPA. Lin and Lu (2015) discussed the interrelationship among cognitive social-demographic characteristics of speculators in forming their financial risk-taking in a sports lottery speculation. The structural equation modeling (SEM) revealed that gender along age had no significant association with financial risk-taking. An indirect association between normative herding and age had found. Women speculators had faced the "informational herding" in contrast to males. Experienced speculators had taken the more financial risk and were involved in informational herding. The empirical analysis revealed the gender gap and herd behavior in a sports lottery speculation. The neurotic personality trait of speculators had an indirect association with financial risk-bearing. Whereas the conscious, agreeableness, openness to experience, extroverted personality traits had directly associated with financial riskbearing.

Oehler et al. (2018) discussed that extroverted and neurotic personified had an impact on investment intention. The findings revealed that extraverted as well as neurotic personality had a significant impact on a person intention toward investment. Higher level of neurotic degree in a person nature had likely to make investment in assets which contained lower risk level but comparatively to those individuals with less neurotic nature in their personality. While a significant descriptive influence had obsessed through gender gap, the research quiet found that extraverted and neurotic personality significantly influenced later, when it controls for gender influence. Dhiman and Raheja (2018) investigated the demographic factors of personality dimensions and emotional quotient on the risk-bearing of individual investors. Multiple regression techniques revealed that personality dimension and emotional quotient had significantly associated with risk bearing. Rabbani et al. (2019) analyzed that personality dimension had influenced the financial risk bearing capacity. The findings revealed that the high level of extraverted, emotionally stabile, as well as openness personality were showed high capacity of risk bearing whereas high level of agreeable as well as conscious personified were seems to be as a risk averse. Huang, Baruah, and Ward (2023) concluded that neurotic, agreeable and openness personality traits had a greater impact on Risk management of SMES.

From the literature, it is obvious that personality traits are a driven force for financial risk seeking, i.e., neurotic take less risk, conscious personality takes less risk and meanwhile, having less or no financial literacy also leads to taking less risk tolerance. Whether neurotic, conscious personality is likely to get less financial education and the other confusion phenomena is there. Why they are risk-averse? What is the association between, personality traits, financial risk seeking (FRS) and financial literacy? The researcher makes premise that the finance awareness influences the big five personality traits and that in turns has an impact on financial risk seeking and hypothesizes in such a following way.

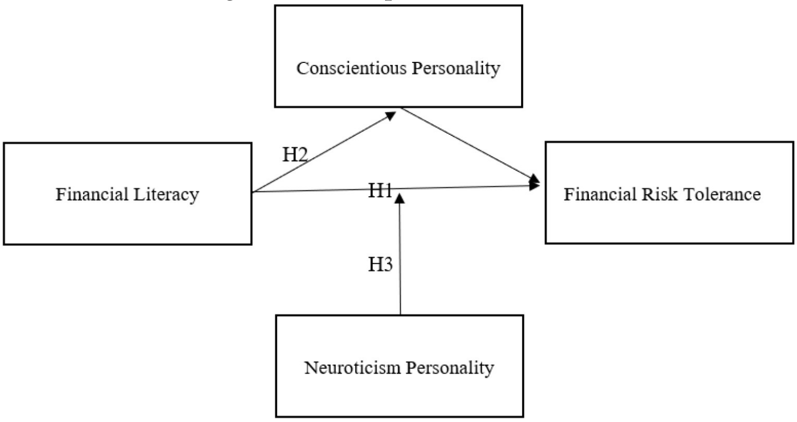
H2: Conscious personality trait mediate the relationship between financial literacy and financial risk seeking.

H3: Neuroticism personality trait moderate the relationship between financial literacy and financial risk seeking.

Research Methodology

The scientific line employed of this research work is deductive, In this study, the researcher used the quantitative research strategy. The Conceptual frame work of the study is as follows Figure 1.

Figure 1: Conceptual Framework



Population and Sampling

The quantitative and qualitative research involved some technique of data collection. Without data gathering, we cannot inaugurate research study. The online survey was used for data gathering. The population of this study is all students (both male and females) studying in Government college universities Faisalabad, Pakistan. The "unit of analysis" that taken for research purpose is individual because objective of research is to identify the individual investor financial risk bearing. In this study sample of 200 students at three universities (Government college university Faisalabad, University of Agriculture Faisalabad, The Faisalabad university) was taken. The sampling frame consisted of students of all fields of disciplines. The sampling location is students studied in the universities of Faisalabad, Pakistan. Sampling methods defined as a technique used for identifying the sample from certain population. In this study, the researcher gathered data through the non-probability sampling technique of convenience sampling. The convenience sampling technique is used because of nonrandomization of cases in the sample and due to convenience and ease (Etikan, Musa, Alkassim, et al., 2016).

The instrument, data collection and processing

In this study sample of 200 students at three universities (Government college university Faisalabad, University of Agriculture Faisalabad, The Faisalabad university) was taken. The "10-times rule method has been a favorite due to its simplicity of application. it builds on the rule that the sample size should be greater than 10 times the maximum number of inner or outer model links pointing at any latent variable in the model" (Hair, Ringle, & Sarstedt, 2011). As in this study there was 18 indicator that was multiplied with 10. It recommended 180 sample size. The author distributed 210 questionnaire for meet the required sample size in which 10 was incomplete and inaccurate. The questionnaire is a tool, that is employed for eliciting rejoinders from respondents concerning the definite explored event. The questionnaire served as a host of the surveys. Accordingly, the plenty of time along premeditated intelligence require to allocate for its preparing.

The structured questionnaire that consisting of a Likert scale which is consisted of 1 to 5 scale in which 1 is used as "strongly Disagree" while the 5 is used as "strongly Agree" employed for gathering dataset. The questionnaire firstly described about the purpose of conducting the survey. The second section consisted of demographic factors, the third section consisted of some subsections included the questions of financial literacy, personality trait, and financial risk seeking of individual investors. For achieving conciseness and from escaping the respondents from ambiguity and from time-wasting only a few selected items from all these three construct scales were chosen. For measuring financial literacy, is used. The personality trait measure scale developed by Vieira, Potrich, and Mendes-Da-Silva (2019) that included Big five personalities extroverted, Conscious, Openness to experience, Neurotic as well as agreeable personality is employed for measuring personality traits. The Gomez-Mejia and Balkin (1989) developed a financial Risk aversion scale that was also employed in her empirical study of study of risk aversion This scale for measuring financial risk aversion which included four questions of "I am not willing to take risk when choosing a stock or investment", "I prefer a low risk/high return investment with a steady performance over an investment that offers higher risk/higher return", "I prefer to remain with an investment strategy that has known problems rather than take the risk trying a new investment strategy that has unknown problems, even if the new investment strategy has great returns", "I view risk in investment as a situation to be avoided at all cost".

This study employed financial risk tolerances (FRT) as a dependent variable (DV) financial literacy used as an independent variable (IV). The conscientious Personality traits as mediating variables; that affects the relation of the other two variables (DV, IV) while the neuroticism takes as a moderating variable between independent and dependent variables of study interest.

Results

Respondents' profile

The 504 responses were received through an online survey, which consisted of 469 valid whereas 29 questionnaires were incomplete. The 226 males and 243 females contributed to this survey. Most of the respondents were in the age group of less than 25. As 64.17% were age group of less than 25. The 33.9% were age group of less than 50 and 1.91% were age group of 50 and above. The participation of respondents with a graduation to master's degree was higher. As it was 48.4%. The respondent with qualification of less than graduation was very low with the ratio of 19.4% only. The participation with master's and above degrees was 32.1%. The participants with a monthly income of ranges 50,000 - 100,000 were 36.8%, while the monthly income with less than 50,000 and 100,000 and above was 30.0% and 33.0% respectively as shown in Table 1.

Table 1: Demographic Profile

Variables	Frequency (%)
Gender	
Male	48.1 (226)
Female	51.8 (243)
Age	
Less than 25	64.17 (301)
25–50	33.9 (159)
50 and above	1.91 (9)
Monthly Income	
Less than 50,000	30.0 (141)
50,000–100,000	36.8 (173)
100,000 and above	33.0 (155)
Education	
Less than Graduation	19.4 (91)
Graduation to Masters	48.4 (227)
Masters and above	32.1 (151)

Measurement model analysis

Reliability Analysis

The composite reliability threshold indicated that > 0.70 value is acceptable in PLS(SEM) (Hair Jr, Sarstedt, Hopkins, & Kuppelwieser, 2014). If the construct has consisted of five to eight items, then the threshold value should be at least 0.80. As all variables have met the criterion. The value of financial literacy, conscious, neurotic personality trait and financial risk seeking is good. All are at a higher level of reliability. The significant level of outer loading is above 0.7 (Henseler, Ringle, & Sarstedt, 2012). All values in the table met the criteria of significance. All values are highly significant. Cronbach's alpha tackles the question of whether the indicators for latent variables show the convergent validity and hence exhibit reliability. The Cronbach's alpha value that is > 0.7 shows an acceptable level. As all the variables have met the criterion. The financial literacy, agreeable, extroverted, neurotic, and financial risk tolerance values are good. The consciousness, openness to experience personality, and financial risk tolerance reliability is excellent.

Table 2: Reliability Analysis

Reliability Analysis	Original sample	Sample mean	Std.dev	T-stats
Financial Literacy -> Consciousness -> Financial Risk Tolerance	0.018	0.019	0.011	1.552

All the constructs item factor loading values are greater than 0.7. All items show greater internal reliability.

Table 3: Factor Loading and Variance Inflation Indicator

Variable	Item	Factor Loading	VIF	CR	AVE
Consciousticus	CONS1	0.789	1.432	0.733	0.648
	CONS2	0.809	1.377		
	CONS3	0.818	1.584		
Financial Literacy	FL1	0.734	2.172	0.923	0.623
	FL2	0.780	1.775		
	FL3	0.780	2.561		
	FL4	0.819	2.351		
	FL5	0.864	2.592		
	FL6	0.750	2.275		
Financial Risk Tolerance	FRT1	0.822	1.785	0.834	0.663
	FRT2	0.777	1.645		
	FRT3	0.828	1.885		
	FRT4	0.828	1.829		
Neuroticism	NEU1	0.759	1.398	0.806	0.543
	NEU2	0.731	1.694		
	NEU3	0.758	1.684		
	NEU4	0.710	1.718		
	NEU5	0.726	1.387		

Validity analysis

*Convergent Validity The average variance extracted (AVE) employed for computing the convergent and divergent validity. The convergent validity explains variance of construct in explaining its convergence. All the values have met the criteria. The threshold value above 0.05 acceptable level of AVE. AVE $<$ .50 shows "error variance exceeds explained variance" (Fornell & Larcker, 1981). The significant level of outer loading is above 0.7 (Henseler et al., 2012). All values in the table met the criteria of significance. All values are highly significant.

Discriminant Validity

"The square root of AVE appears in the diagonal cells and correlations appear below it. Therefore, in absolute value terms, if the top number (which is the square root of AVE) in any factor column is higher than the numbers (correlations) below it, there is discriminant validity". The results met the criterion so there is existed discriminant validity.

Table 4: Discriminant Validity

Constructs	Heterotrait-monotrait ratio (HTMT)					Fornell-Larcker Criteria				
	CONS	FL	FRS	NEU	NEU x FL		CONS	FL	FRS	NEU
CONS						**CONS**	0.805			
FL	0.094					**FL**	0.070	0.789		
FRS	0.644	0.359				**FRT**	0.507	0.332	0.814	
NEU	0.524	0.117	0.802			**NEU**	0.413	0.046	0.680	0.737
NEU x FL	0.038	0.066	0.217	0.045						

Multicollinearity

The best formative models must not be posed multicollinearity because it underestimates the research purpose. The multicollinearity is computed through the VIF (Variance inflation factor). The two of VIF is assessed that is inner VIF and outer VIF. The outer VIF is useful for formative model. So that researcher can know the degree of correlation in the variable. The threshold value for VIF < 10 is acceptable level.

Outer VIF

A higher degree of correlation among variables denotes the problem of multicollinearity. The value of VIF < 10 shows that there is not existed the problem of multicollinearity. In this collinearity statistics the problem of multicollinearity is not take place.

Inner VIF

The inner VIF is used for structural model values which is then used for interpretation of path coefficient. The values of FRT with other study variables are highly correlated. Their values are less than 10. So, there is not existed a problem of multicollinearity for all the constructs.

Mediation and Moderation Analysis with PLS bootstrapping

Fisher in 1950 advocated that "P $\leq$ 0.05 (how much level of significance one's take 5%, 10%, 1% significance) as a standard level for concluding that there is evidence against the hypothesis tested". The bootstrapping of 5000 sample is conducted for hypothesis testing. Which gives the values of path coefficient, the total effect of estimated variable, specific indirect effect of estimated variables, the total indirect effect of estimated variables.

Table 4 shows path coefficient is a direct effect of estimated variables. The significantly direct relation existed between financial literacy and financial risk seeking (β = 0.281, p $\leq$ 0.05). The direct effect is significant. The conscious personality traits statistically significant and directly influenced by financial literacy (β = 0.070, p $\leq$ 0.1). Highest coefficient value shows that the variable has a strong predictive power. Neuroticism Personality trait has a strong predictive power for financial risk seeking (β = 0.556, p $\leq$ 0.05). The conscientious personality trait significantly influenced the financial risk seeking (β = 0.252, p $\leq$ 0.05). The neuroticism personality trait has an indirect moderating association with financial literacy as well as financial risk seeking. (β= -0.160, p $\leq$ 0.05). There is existed a moderating and mediating association. The results support the all hypothesis of the study.

The financial literacy significantly and positively influenced the conscientious personality trait (β=0.070, p $\leq$ 0.1). The personality traits conscious, are statistically significant direct association with financial risk seeking (β=0.252, p $\leq$ 0.05). The neurotic personality has a positive and statistically significant association with financial risk seeking (β=0.556, p $\leq$ 0.05). The neuroticism negatively moderating relationship between financial literacy the financial risk seeking (β= -0.160, p $\leq$ 0.05).

Table 5: Path Coefficients

Relationship	Original sample	Sample mean	Std dev.	T-stats	P-value
Path Coefficient					
Conscientious → Financial Risk seeking	0.252	0.253	0.034	7.391	0.000
Financial Literacy → Conscientious	0.070	0.073	0.044	1.588	0.056***
Financial Literacy → Financial Risk seeking	0.281	0.282	0.028	10.183	0.000
Neuroticism → Financial Risk seeking	0.556	0.556	0.029	19.304	0.000
Neuroticism x Financial Literacy → Financial Risk seeking	-0.160	-0.161	0.027	5.928	0.000
Total effect					
Conscientious → Financial Risk seeking	0.252	0.253	0.034	7.391	0.000
Financial Literacy → Conscientious	0.070	0.073	0.044	1.588	0.056***
Financial Literacy → Financial Risk seeking	0.298	0.301	0.028	10.788	0.000
Neuroticism → Financial Risk seeking	0.556	0.556	0.029	19.304	0.000
Neuroticism x Financial Literacy → Financial Risk seeking	-0.160	-0.161	0.027	5.928	0.000
Total indirect effect					
Financial Literacy → Financial Risk seeking	0.018	0.018	0.011	1.553	0.060***
Mediation Analysis (Specific Indirect Effect)					
Financial Literacy → Conscientious → Financial Risk seeking	0.018	0.019	0.011	1.552	0.060***

*** significant at 10% with one tail. The rest of variables are significant at 5% with two tail test.

The indirect effect is significant. The financial literacy has a direct, statistically significant relationship with financial risk seeking (β = 0.018, p $\leq$ 0.01). The higher the financial literacy the high the level of financial risk seeking. There is significant indirect effect. The personality traits conscientious statistically significant and positively mediate the relation between financial literacy and financial risk seeking. Model-fit and goodness of fitness The effect size is measured through the F-square value. The threshold for F-Square value indicates that ".02 represents a "small" f^2 effect size, .15 represents a "medium" effect, and .35 represents a "high" effect size" (Cohen, 2013). The higher value of f square shows the strong relationship. The relationship between financial literacy and financial risk tolerance f^2 0.211 shows medium effect size. While moderating relationship of neurotic personality also shows the small size effect between financial literacy and financial risk tolerance as its value of f^2 is 0.064. While the relation between the conscious personality and financial risk seeking is f^2 0.142 that shows a medium size effect. While the relation between the conscious personality and financial literacy f^2 0.125 shows medium effect size. The relationship between neurotic personality and financial risk seeking shows high effect size f^2 0.694 it indicates a very strong relationship. There is show no effect size between financial literacy and financial risk tolerance f^2 0.064.

PLS-SEM chiefly focused on the interaction concerning the "prediction" and "theory testing" then upshots are validated correspondingly. Goodness of fit is a summation of "geometric mean of AVE and average R^2". These findings of r square 63 % and 61 % indicate a moderate to large degree of explanatory power, demonstrating that the models effectively account for an important portion of the variability in the dependent variables. The values of q square 55 % and 51 % indicates that the models' defined variables and linkages go above and beyond what a straight forward null model might do to explain or projected the variance in the dependent variables (FRS and CONS). All value of q square and r square represents a good fit. R-square termed as "coefficient of determination". The R- square is also termed as "in-sample predictive power". It indicates the complete "effect size measure" of structural model. The threshold value for r-square that contain 0.75, 0.50 and 0.25 are "substantial", "moderate" and "weak" correspondingly (Hair et al., 2011). For r-square first the analyst ensures the VIF value of a variable. The data set should be free from multicollinearity problem. The larger the number of variables the higher the R-square values.

All variables in this research model have a strong explanatory power. The greater the r-square value, the higher the explanatory power exists. The R^2 value shows that model is fit. The R^2 values shows strong effect. The financial risk seeking has strongest power among all other variables as it explained 63 %. The conscientious personality trait R^2 value is 61 %. The results confirm the q square value that is 0.55 and 0.51 respectively that is confirm with f square value. The predictive relevance concluded a significant effect.

Table 6: Industry-wise Sample

Construct	q^2	R^2
FRS	0.557	0.630
CONS	0.514	0.610

Discussion

The study makes the investigation of the financial education on financial risk-seeking in which mediating character of conscientious personality and moderating role of neuroticism personality trait. The findings indicate that finance education has a direct relationship with a financial risk-bearing that is confirmed in the study of Bayar et al. (2020); Zhu (2019) also. So, getting education more and more on financial awareness is a pivotal element in financial risk bearing. The financial literacy has affecting financial risk seeking of individual investors because making investments without financial education is like a hit and trial method. The making investment decision on the basis of knowledge provide a logical framework with comfort of mind and confidence. The individuals can get conceptual clarity on all types of investment bucket that which one investment avenue is best for them.

Financial literacy is directly influencing the conscientious personality trait. The personality traits conscientious has influenced financial risk seeking as literature concluded in the study of Rabbani et al. (2019). The personality traits conscientious have a statistically significant positive association with a financial risk-bearing that is according to the study of Rabbani et al. (2019). The, conscientious personality trait investors tend to take more financial risk. There are statistically significant positive mediating association of conscientious personality trait between the financial education and financial risk-bearing. The neurotic personality trait has negative and statistically significant moderating effect on the financial education and financial risk-bearing relationship. This is because the neurotic is a such type of nature that in financial matters, they are usually hesitant to invest.

This is a novel study which finds a moderating association of neuroticism personality trait and mediating association of conscientious personality trait in the relationship of financial education and financial risk-bearing. The findings of this study are noteworthy that give a significant contribution in a real-time world, both in academics and in industries. The respondent's that taken in the study, their confidence in their financial expertise were less. The results of the study raised a question that why neurotic personality have negatively moderated the association between financial literacy and financial risk seeking that leads towards a research to do with qualitative method.

Practical Implications

The present study is important for stakeholders' policymakers, practitioners, government, financial institutions, and academics. This study is a pioneer exploration of mediating role of Conscientious personality trait and moderating impact of neuroticism personality dimension in influencing the association of financial education along financial risk-bearing of individual investors for developing economies. This study gives guidelines for wealth managers, financial advisors as well as for individual investors in choosing best portfolio. This research work shows that the need of measuring financial risk-bearing of investors for the best portfolio establishment is compulsory. The government can get understanding in launching financial literacy as well as personality development programs. The financial engineers can launch different financial products for targeting the investors of different types of personality traits in financial risk-bearing. The practitioners can make assessments of individual investor financial risk-bearing.

Limitations and future research directions

The following guidelines will be helpful for prospect researchers who want to explore the topic of financial risk tolerance. The more advanced methodology must be used in future research. This study is approaching the quantitative technique of research. The future research should have utilized qualitative tests, or the mixed (both qualitative and quantitative) approach can be used for future research. The more defined population should be used in future research. Larger sample size must be taken in future studies or more accuracy. Future research should be done by adding more variables like cognitive and emotional biases. Social, economic, and cognitive factors must be used as mediating factors in future research. The findings of this research study are widely applicable, yet it has suffered from some limitations that are as follows. The sample size is small. This study covered only one city Faisalabad, Pakistan university student's data. Faisalabad is a city of middle-income people, and the sample cannot be generalized to the overall population. The sample is not diverse at all. The respondent ratio is usually belonging to the middle-income group than the general population.

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