



Impact of Personality Traits on Investment Intention: The Mediating Role of Risk Behaviour and the Moderating Role of Financial Literacy

Muhammad Nauman Sadiq *

Raja Ased Azad Khan †

Abstract: This study investigates the role of risk behaviour in mediating the association between personality traits and investment intention and moderating role of financial literacy between the association of risk behaviour and investment intention within a sample of 284 students with finance background. Regression analyses was executed in a series to test the impact of independent variables on dependent variables. Along this, separate models for the mediator and for the moderator were appraised to get more vibrant results. Results suggest that individuals who are active, sympathy toward others, determined, well-organized are more willing toward Investment. Further results revealed that risk behaviour partially mediates the relationship of Personality traits with STII. However, in case of Long run Risk behaviour partially mediates the relationship of “Extraversion”, “Agreeableness”, “Openness to Experience”, and “Conscientious” with LTII and fully mediate the relationship of “Neuroticism” and LTII. Beside this, Study revealed that financial literacy has significant impact on STII and LTII. However, financial literacy does not moderate the association of risk behaviour and investment intention. The study could have implications for financial managers, Financial institutions, and governments to comprehend the role of financial literacy and risk behaviour while advising individuals to make investment.

Keywords: Personality traits, financial literacy, risk behaviour, investment intention.

Introduction

Traditional financial paradigm grounded on the postulation that investors are rational, when they face ambiguity and uncertainty in decision making, used cognitive biases to makes decisions (Nga & Ken Yien, 2013). However, the Arguments of rationality by traditional financial paradigm is opposed by a new paradigm named behavioural finance which divulged personal and situational factors influence the investors investment decision. Study revealed, these factors influence individual’s perception of financial risk, ultimately their perception of risk discloses their behaviour for investment (Mayfield, Perdue, & Wooten, 2008). Risk tolerance is a vital factor of financial decision, saving and investment choices. Financial managers generally rely on the measurement of individuals risk behaviour to predict their behaviour in financial markets (Grable & Lytton, 2003). It is important to correctly assess the individuals risk behaviour and allocate portfolio accordingly that a customer can handle. Despite the significance of risk behaviour, decisions can be driven by behavioural and psychological factor (Kourtidis, Šević, & Chatzoglou, 2011).

* Government Postgraduate (Boys) College Bagh, A.K. Pakistan. E-mail: nauman_sns22@yahoo.com

† Islamic international University, Islamabad, Pakistan. E-mail: rajaasadazad@gmail.com

In response, researchers disclosed various behaviour driven factors such as demographic features Barber and Odean (2001); Olsen and Cox (2001); Bali, Demirtas, Levy, and Wolf (2009); Özmen and Sümer (2011); Hallahan, Faff, and McKenzie (2003) psychological factors Bailey and Kinerson (2005); Shleifer (2000); Dolan, Elliott, Metcalfe, and Vlaev (2012); Chang (2008). Personality R. B. Durand, Newby, and Sanghani (2008), and financial literacy Van Rooij, Lusardi, and Alessie (2012). These factors not only drive the individuals decision but also their risk behaviour. Theory of planned behaviour (TPB) discussed various background factors (Personality, socioeconomic status, sex, age, ethnicity, education, past experiences) which can potentially influence the behavioural beliefs that people hold resulting influence attitude toward behaviour and intention (Ajzen, 1985, 1991, 2002). However, the theory of Planned behaviour has not been used to understand individual investment intention which is based above mention factors. Thus, to gain further insight into the underlying reasons for understanding the individual investment intention ,present study examine the important background factor that is individual's personality and financial literacy. Personality signifies "the way an individual interacts, reacts and behaves with others and is often exhibited through measurable traits" (Crysel, Crosier, & Webster, 2013). Financial literacy is considered with the view that, does this financial literacy has an influence on investment intention. Consequently, the present study aims is to explore the role of risk behaviour between the association of personality traits and investment intention and does by providing financial literacy the individuals risk behaviour and investment intention can drive. Rispen (2013) argues that "financial literacy has real potential to change migrant behaviors". Financial literacy has become the phenomenon of interest for policy makers and academicians because of its relevance to financial decisions (Aren & Aydemir, 2014). This study will helps investment advisor and policy makers to attract individuals to involve in investment activities according to their personality traits and risk behaviour and by providing financial literacy.

Literature Review

Personality Traits

Personality is well-defined as "the way an individual interacts, reacts and behaves with others and is often exhibited through measurable traits" (Crysel et al., 2013). Different studies have proposed different personality traits however, "Big five factor model" is the most commonly used classification developed by Allport and Odbert (1936). This model comprising Openness to Experience, extraversion, conscientiousness Neuroticism and agreeableness. Personality traits comprised cognitive, motivational, and emotional characteristics which inclined individuals several decisions (Dolan et al., 2012). Such as Financial decisions (Crysel et al., 2013). Investors' "personalities are associated with their investment choices and outcomes" (R. B. Durand et al., 2008).

Personality Traits and Investment Intention

Extraversion and Investment Intention

An Extraversion is “active, optimistic, excitement seeking and tend to socialize in large crowd” (Leary, Reilly, & Brown, 2009; McCrae & Costa J, 1997). Pan and Statman (2013) revealed “extraversion deliberate only positive information, which influences their assessment of the probability of success and instigated overconfidence in financial decision making”. Mayfield et al. (2008) directed a study among business school undergraduates and revealed that extraversion trade frequently and tend to invest their more money in stock market. Furthermore, he finds negative association between extraversion and risk aversion. Another study who examine the association between personality traits and financial decision making of household, finds that “extroversion is associated with unsecured debts and financial assets” (Brown & Taylor, 2014). R. B. Durand et al. (2008) in his study divulged that “individuals with higher degrees of extraversion appear to take more risk to achieve higher returns”. Therefore, we hypothesize:

H1(a): Extraversion has positive impact on investment intention.

Neuroticism and Investment Intention

Neurotic individuals are “Pessimistic, depressed, anxious and exhibit more fear of uncertainty and ambiguity” (Williams, 1992; McCrae & Costa J, 1997; Migliore, 2011). Anxious subjects are risk averse in general and favour less risky portfolios (Gambetti & Giusberti, 2012). Niszczoła (2014) revealed that neurotic subjects evade uncertainty and tends to avoid the foreign equities and foreign debt securities. Neurotic individuals have lack of analytical ability, critical thinking, cognitive skills, and conceptual understanding. These deficiencies incline Neurotic individuals toward afraid of failure and feeling of anxious during risky decision making (McCrae & Costa J, 1997; Young, Gudjonsson, Carter, Terry, & Morris, 2012). Pak and Mahmood (2015) revealed that Neuroticism has negative association with risky behaviour. Neurotic individuals undervalue the gain during favourable situation of market and overestimate the risk during unfavourable situation of market. Another study revealed “risk-taking behaviour is related to neurological impairments, those with low neuroticism feel greater anxiety when making risky decisions” (Vigil-Colet, 2007). Therefore, we hypothesize:

H1(b): Neuroticism has negative impact on investment intention.

Agreeableness and Investment Intention

Agreeableness trait indicate “altruism, personal warmth, sympathy toward others, helpfulness, and cooperation” (Mayfield et al., 2008). Agreeable individuals avoid conflicts with others. They positively consider the information provided by others without any critical assessment (Costa & McCrae, 1992). The trading behaviour of agreeable investors also disclosed that “they follow herd behavior in the market and trade stocks intensively”

(Cloninger, Przybeck, Svrakic, & Wetzel, 1994). Pak and Mahmood (2015) revealed that agreeableness has negative association with risky behaviour. Agreeable individuals rely on the financial analyst's judgement and feel hard to make personal financial decision. Therefore, we hypothesize:

H1(c): Agreeableness has positive impact on investment intention.

Openness to Experience and Investment Intention

Individuals with this attribute are creative, resourceful, and broadminded (Martins, 2002). These individuals have charisma toward aesthetics, novelty, and new thoughts (Gunkel, Schlaegel, Langella, & Peluchette, 2010). Openness "exert a positive influence on long-term investments in business school US undergraduates" (Mayfield et al., 2008). Nandan and Saurabh (2016) described that individuals having Openness to Experience trait tend to take higher risk than his counterparts. Nga and Ken Yien (2013) concluded that "Openness in individuals promotes greater willingness to embrace unconventional rules of thumb prescribed in financial decision making". These individuals have positive association with risk tolerance and willing to invest in stock. Therefore, we hypothesize:

H1(d): Openness has positive impact on investment intention.

Conscientious and Investment Intention

Conscientious individuals are "determined, well-organized, reliable, persistent, and punctual and take higher risks less impulsively" (Mayfield et al., 2008). Conscientious individuals actively involved in decision making (Gunkel et al., 2010). Conscientiousness individuals have positive association with trading behaviour (R. B. Durand, Newby, Peggs, & Siekierka, 2013) and trading more to get desire results. Conscientious investors do not rely on delusions and prudently make their investment decisions. This ability makes them more particular about the choice of investment and risk tolerance (Sadi, Asl, Ros-tami, Gholipour, & Gholipour, 2011). Pak and Mahmood (2015) finds negative association between Conscientious and financial risk tolerance. Therefore, we hypothesize:

H1(e) : Conscientious has positive impact on investment intention.

Personality Traits and Risk Behaviour

Individuals risk behaviour determine their investment style (Fellner & Maciejovsky, 2007) However, numerous factors influence individual's risk behaviour such as financial knowledge (Young et al., 2012) past experiences (Hunter & Kemp, 2004) emotions (Gable & Lytton, 2003) market volatility (Diacon, 2004) Love for money (Tang, 2007). Personal traits (Corter & Chen, 2006). Among personality traits, Big five ((Extraversion, Neurotism, Agreeableness, Openness to Experience, Conscientious) personality traits model is

most commonly used, present study also used this model in relations in investment intention. Personality traits impact individuals spending, investment management and risk behaviour (Mayfield et al., 2008; Krishnan & Beena, 2009). Study disclosed that “Extroverted people are more prone to be guided by external tangible stimulators and, consequently, take risks more impulsively than introverts” (Sadi et al., 2011). Mayfield et al. (2008) also divulged similar results for the relationship of extroverted people and investment intention, beside this, he further disclosed that Conscientious individuals take higher risks less impulsively, while individuals with openness to experience trait are higher risk taker. Another study shows that Neurotic individuals feel anxiety and scared of failure so, they also feel anxiety during risky decision making (Young et al., 2012). Therefore, we hypothesize:

H₂: Personality traits have an impact on risk behaviour.

Risk Behaviour and Investment Intention

According to risk homeostasis theory, “people have a certain target level of risk, and to reach this level they engage in activities that have the highest net balance of benefits over losses” (Burns & Wilde, 1995). Risk is considered as an important factor regarding investment behaviour (Kiev, 2003). Keller and Siegrist (2006) revealed that “financial risk tolerance, income level and investment account have significant impact of investment intention”. Wanyana (2011) categories investors risk tolerance attitude into three subcategories i.e. “low-risk”, “medium-risk” and “high-risk”. Investors bearing low risk invest in saving account and prefer holding of cash and bonds (Grable & Lytton, 2003), where high risk taker prefer stock and derivatives trading (Wood & Zaichkowsky, 2004). Risk aversion, the opposite of risk tolerance was understood as tendency or an attitude to avoid risk (Douglas & Wildavsky, 1982). Study disclosed that negative relationship is exist between Risk aversion and investment intention (Lim, Soutar, & Lee, 2013). Therefore, we hypothesize:

H₃: Risk behaviour has an impact on investment intention.

The Mediating Role of Risk Behaviour

Behavioural intention involves subject’s readiness to involve in investment. This intention is associated with risk behaviour and personal financial capabilities (Fishbein, Jaccard, Davidson, Ajzen, & Loken, 1980). Risk behaviour disclosed individual’s estimation of risk. Negative behaviour instigated overestimation of risk which led to lose the money-making investment opportunities (Lo, Wang, & Fang, 2005). Investors having positive behaviour tend to buy stock i.e. Ranked as high-risky investment (Keller & Siegrist, 2006). Individuals having low risk tolerance behaviour hold cash and bonds (Grable & Lytton, 2003). Nandan and Saurabh (2016) directed a study and disclosed that “Risk behaviour acts as mediator between personality traits and short-term investment intentions as well as long term investment intentions of individual”. Nandan and Saurabh (2016) further

divulged that “risk behaviour mediated the relationship between neuroticism and short-term investment intention, extraversion and short-term investment intention and Openness to experience and short-term investment intentions. However, Risk behaviour was not found to acts as mediator between personality traits and long-term investment intention”. Pak and Mahmood (2015) divulged that individuals personality traits influence their risk tolerance behaviour which in turn influence investment decision making. Based on the above discussion we hypothesized:

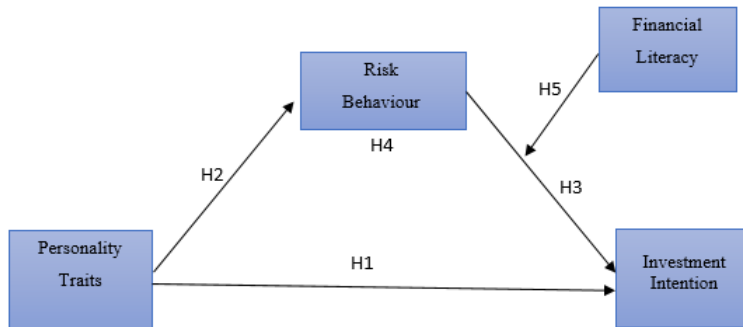
H₄: Risk behaviour mediate the relationship between Personality traits and investment intention.

The Moderating Role of Financial Literacy

Financial Literacy is the “the ability to make informed judgments and take effective decisions regarding the use and management of money” (Noctor, Stoney, & Stradling, 1992). Financial literacy has become the phenomenon of interest for policy makers and academicians because of its relevance to financial decisions (Aren & Aydemir, 2014). Financial literacy is important to rational investment decision and long-term financial stability. Lack of financial literacy caused individual to stay away from investment (Jureviciene & Jermakova, 2012). Study divulged that financial literacy enable investors to manager their investment and get maximum return from investment (Lusardi & Mitchell, 2008). (Rispen, 2013) argues that ‘ financial literacy has real potential to change migrant behaviors’ Adequate financial literacy is necessary to made rational decisions ((Mandell & Klein, 2009). Financial literacy is directly associated with financial decisions (Hilgert, Hogarth, & Beverly, 2003). Study disclosed that increase in the level of financial literacy upsurge the possibility of someone’s participation in the stock market (Lusardi & Mitchell, 2008). Individuals having less information about the financial instruments have less willingness to participate in financial markets (Bönte & Filipiak, 2012). Beside its significance to financial behaviour, financial literacy is also relevant to risk behaviour. Risk behaviour and financial literacy are key determinant of investment decision (Kabara, Mishra, & Dash, 2010). Study finds that individuals with lower level of financial literacy and financial experts had different perceptions about financial risk. Financial experts prefer risky areas of investment as compare to less financially literate people (Diacon, 2004). Study revealed that individuals with less information of financial instruments ,less likely to participate in financial market (Bönte & Filipiak, 2012). Weber and Milliman (1997) revealed that individual with more financial awareness, less perceive the financial risk and have higher intention toward investment. Study also revealed that individual perception of risk determined their decision of holding assets. Similiar results are also disclosed by another study revealed individual with financial knowledge and expertise has low risk perception and higher level of trading intention (Wanyana, 2011). Therefore, we hypothesize:

H₅: Financial Literacy moderate the relationship between risk behaviour and investment intention.

Figure 1
Theoretical Framework



Based on the objective of the present study, Figure one signifies the theoretical framework of the study. The extended theoretical framework is based on the reviewed literature. In present study individual's personality traits are used as independent variable and their investment intention is used as dependent variable. Every personality trait has a financial risk behaviour which may impact the individuals investment intention, hence risk behaviour is recognised as mediating variable (Nandan & Saurabh, 2016). Beside this individuals with more financial awareness, less perceive the financial risk and have higher intention toward investment (Weber & Milliman, 1997). Therefore, Financial literacy is identified as the moderating variable among the relationship of risk behaviour and investment intention. Individuals investment intention is further categories into short term and long-term investment intention as sorts by Mayfield et al. (2008).

Research Methodology

Data and Sample

Current study included business undergraduate and graduate students from selected universities as sample. These participants have finalised courses in Finance, accounting and investment analysis and portfolio management. Numerous similar studies also select the group of students (studying business education) to direct the study (R. Durand, Newby, Tant, & Trepongkaruna, 2013; Nga & Ken Yien, 2013; Mayfield et al., 2008). This groups of individuals can well answer the questions regarding investment decision making because of their anticipated level of financial knowledge (Salehi & Mohammadi, 2017).

Concepts and Measurements

Independent Variable

Present study used “Big five personality traits” (“neuroticism, extroversion conscientiousness agreeableness and openness to experience”) as independent variables. To measure personality traits a total of 23 items were chosen from preceding study conducted by [Mayfield et al. \(2008\)](#). Among these 23 items, “5 were used to measure Neuroticism, 4 were used to measure Extraversion, 5 were used to measure Openness to experience, 4 were used to measure Agreeableness and 5 were used to measure Conscientiousness”. “These items were measured using a five-point Likert scale”.

Dependent Variable

Investment intention of individuals is used as dependent variable. Items were selected from the study directed by [Mayfield et al. \(2008\)](#). Five questions were used to quantify “short term investment intention” in respondents and five were used to quantify “long term investment intention” in respondents. The responses of individuals were measured using a “5-point rating scale” ranging from “strongly disagree to Strongly agree with each of given statements”.

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Moderating Variable

Financial literacy is used as moderating variable in current study. To measure financial literacy study used questionnaire developed by [Van Rooij et al. \(2012\)](#). This questionnaire measure financial literacy in two dimensions, i.e. “basic financial literacy, and advance financial literacy”. Questionnaire used five question for basic financial literacy and eleven advanced literacy questions. “Basic financial literacy” measures individual’s awareness about “numeracy, compounding interest, inflation, time value of money and money illusion”. While Advance financial literacy measures individual’s awareness about “stock market operations, Bond, Stock, and the relationship between bond prices and interest rates”(Van Rooij et al., 2012). Present study only measures the one dimension of individuals i.e. basic financial literacy level. Each question has “only one correct answer. By assigning one point to each correct answer study calculate an index” ([Van Rooij et al., 2012](#)).

Mediating variable

Risk behaviour is used as mediating variable in current study. For measuring "Risk behaviour" study utilize 4 items used by [Mayfield et al. \(2008\)](#). These items were measured using a "five-point Likert scale" as 1= "Strongly Disagree," 2 = "Disagree," 3 ="Neutral," 4 ="Agree" and 5="Strongly Agree." A high score specifies individual tendency to avoid the financial risk (Negative Behaviour) associates with an investment, otherwise positive risk behaviour.

Data Analysis and Results

Present study executed Reliability analysis and Common Method Bias (CMB) analysis to check the reliability and unbiasedness of the data. After this, a series of regression analyses was executed to test impact of independent variable on dependent variable. Study also conducted separate models for the mediator and for the moderator to get more vibrant results. To end this, study applies ([Baron & Kenny, 1986](#))'s method to observe the mediating role of the "Risk behaviour" on the association between personality traits and investment intention, and used moderated multiple regression to observe the moderating role of financial literacy between the association of risk behaviour and investment intention. To end this, study used SPSS -20 version software as data analysis tool.

Descriptive Statistics

Table 1

Basic financial literacy

"%age of correct and incorrect answers" (N= 284)					
	Numeracy	Interest compounding	Inflation	Time value of money	Money illusion
Correct	88.70%	52.80%	56%	44%	53.50%
Incorrect/ Do not know	11.30%	47.20%	44%	56%	46.50%
Total			100%		

The portion of correct answer in each case ("numeracy, interest compounding, inflation and money illusion") shows that more than 50% students give the write answer which revealed that students have enough basic financial literacy . However, in case of time value of money more than 50% students were unable to correctly answer the question.

Reliability

Initially, reliability checking of instrument was done. Studies shown that instrument must produce the reliability coefficient ranging from 0.5 to 0.8 to show the consistency ([Pedhazur, 1982](#)). Present instrument shown the "Cronbach's coefficient alpha" greater than .50 which shown the reliability of the instrument.

Table 2
Reliability value of the scale

Scale	No. of items	Cronbach's alpha (α)
Financial Literacy	5	0.583
Risk behaviour	4	0.807
Extraversion	4	0.678
Neuroticism	5	0.773
Agreeableness	4	0.562
Openness to Experience	5	0.603
Conscientious	5	0.563
"Short Term investment intention"	5	0.666
"Long Term investment intention"	5	0.679

Common Method Bias (CMB)

Common method bias is a "measurement error which may arise when data is collected from the single source". This bias "threatens the validity of a conclusion drawn upon statistical results" (Podsakoff, MacKenzie, & Podsakoff, 2012). Present study also collected the data from same respondents through a questionnaire so, there is a change of CMB. Study executed "Harmon's One Factor test" using SPSS to check CMB. Result shown 33.976% variance (less than 50%) is explained by a single factor which concluded CMB is not a concern in current study.

Correlation Analysis

To determine the relationship among all study variables. We conducted the Correlation through SPSS and reported results in Table 3. The results show that there is a significant positive association between Extraversion and STII ($\beta = .547^{**}$) as well as LTII ($\beta = .540^{**}$). A significant negative association is exist between Neuroticism and STII ($\beta = -.214^{**}$) as well as LTII ($\beta = -.130^{*}$). Other personality traits shown significant positive relationship with STII and LTII such as "Agreeableness" ($\beta = .526^{**}$, $.456^{**}$), Openness to Experience ($\beta = .457^{**}$, $.443^{**}$), Conscientious ($\beta = .576^{**}$, $.562^{**}$). Personality traits other than Neuroticism shown significant negative relationship with STII and LTII and Neuroticism shows positive relationship. Financial Literacy shows significant positive relationship with STII and LTII ($\beta = .485^{**}$, $.519^{**}$).

Table 3
Correlation Analysis

	EXTR	NEUR	AGRE	OPEN	CONS	FL	Risk	STII	LTII
EXTR	1								
NEUR	-.245**	1							
AGRE	.550**	-0.085	1						
OPEN	.585**	-0.036	.561**	1					
CONS	.514**	-0.043	.506**	.601**	1				
FL	.500**	-.230**	.429**	.373**	.357**	1			
Risk	-.525**	.187**	-.467**	-.469**	-.510**	-.496**	1		
STII	.547**	-.214**	.526**	.457**	.576**	.485**	-.663**	1	
LTII	.540**	-.130*	.456**	.443**	.562**	.519**	-.622**	.578**	1

Notes : ***Correlation is significant at the 0.01 level (2-tailed);

*correlation is significant at the 0.05 level (2-tailed)"

Where, "EXTR = Extraversion, NEUR = Neuroticism, AGRE = Agreeableness, OPEN= Openness to Experience, CONS = Conscientious, FL= Financial Literacy, STII= Short term investment intention, LTII= Long term investment intention".

Regression Analysis

Present study conducted regression analysis using the OLS method to check the Hypothesis:1. Result shown the overall significance of the model for Hypothesis:1 with F-statistics = 51.449 and R^2 56.6% for STII and with F-statistics = 43.33** and R^2 = 52.4% for LTII. The result of initial regression (Table 4) revealed that the individuals with personality traits "Extraversion", "Agreeableness" and "Conscientious" has positive impact on STII. These results suggest that individuals who are active, sympathy toward others, determined, well-organized are more willing toward STII. The result of second regression (Table 5) suggest that individuals with personality traits "Extraversion" and Conscientious has significant positive impact on LTII. These outcomes propose that individuals who are active, determined, and well-organized are more willing toward LTII. The result of second regression also revealed that "Financial literacy has significant impact on LTII. These results suggest that by giving financial literacy to individual's we can induce them toward LTII. Risk behaviour (Negative) shown significant negative relationship with STII and LTII.

Table 4
Regression results using the OLS method

Independent variables	β	SE	t-statistics	p-value
(Constant)	2.768	0.356	7.775	0.000
Extraversion	0.101	0.056	1.806	0.072
Neuroticism	-0.065	0.037	-1.779	0.076
Agreeableness	0.156	0.055	2.849	0.005
Openness	-0.054	0.058	-0.934	0.351
Conscientious	0.269	0.058	4.657	0.000
Financial Literacy	0.351	0.178	1.977	0.049
Risk Behaviour	-0.324	0.045	-7.140	0.000
R^2 - 56.6%, F-statistics - 51.449**				
Dependent Variable (Short Term investment intention)				

Table 5
Regression results using the OLS method

Independent variables	β	SE	t-statistics	p-value
(Constant)	2.482	0.375	6.615	0.000
Extraversion	0.151	0.059	2.557	0.011
Neuroticism	0.022	0.039	0.577	0.565
Agreeableness	0.034	0.058	0.599	0.550
Openness	-0.047	0.061	-0.776	0.439
Conscientious	0.280	0.061	4.611	0.000
Financial Literacy	0.722	0.187	3.855	0.000
Risk Behaviour	-0.281	0.048	-5.877	0.000
R^2 - 52.4%, F-statistics - 43.33**				
Dependent Variable (Long Term investment intention)				
Notes: * Significant at 1% level (two-tailed); ** significant at 5% level (two-tailed); *** significant at 10% level (two-tailed)				

Mediation Analysis

Present study applies Baron and Kenny (1986) method to examine the mediating role of the "Risk behaviour" on the relationship between Personality traits and investment intention. Table 6 shows that the direct impact (*c*) of all personality traits on "STII" after controlling for risk behaviour was weaker than the total effect (*c*) but was still significant, which revealed that risk behaviour partially mediates the relationship of "Extraversion", "Neuroticism", "Agreeableness", "Openness to Experience", and Conscientious with STII. However, in case of Long run (Table 7) Risk behaviour partially mediates the relationship of "Extraversion", "Agreeableness", "Openness to Experience", and "Conscientious" with LTII and fully mediate the relationship of "Neuroticism" and LTII.

Figure 2
Mediation Analysis

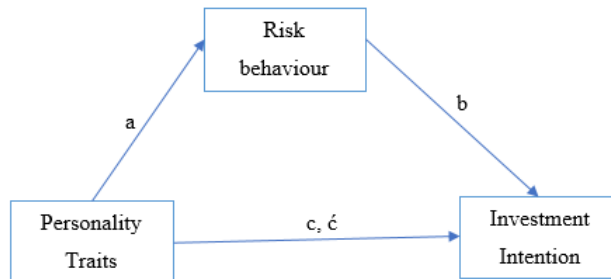


Table 6
Mediation Analysis

Predictors	c		a		b		c	
	β	t	β	t	β	t	β	t
Extraversion	.547***	10.96	-.525***	-10.36	-.519***	-10.39	.274***	5.498
Neuroticism	-.214***	-3.67	.187***	3.191	-.645***	-14.29	-.093**	-2.061
Agreeableness	.526***	10.399	-.467***	-8.866	-.533***	-11.16	.278***	5.816
Openness to Experience	.457***	8.618	-.469***	-8.925	-.575***	-11.65	.187***	3.783
Conscientious	.576***	11.83	-.510***	-9.961	-.498***	-10.32	.322***	6.670

Dependent Variable (Short Term investment intention)

Table 7
Mediation Analysis

Predictors	c		a		b		c	
	β	t	β	t	β	t	β	t
Extraversion	.540***	8.862	-.525***	-10.36	-.468***	-9.000	.295***	5.666
Neuroticism	-.130***	-2.204	.187***	3.191	-0.62	-13.04	-0.014	-0.304
Agreeableness	.456***	8.613	-.467***	-8.866	-0.523	-10.21	.212***	4.135
Openness to Experience	.443***	8.289	-.469***	-8.925	-0.532	-10.30	.193***	3.740
Conscientious	.562***	11.40	-.510***	-9.961	-.454***	-8.975	.330***	6.529

Dependent Variable (Long Term investment intention)

Moderation Analysis

To find the moderating effect of financial literacy on the relationship between risk behaviour and investment intention we used moderated multiple regression. We entered the independent variable and moderating variable in the first step. and product term of the independent and moderator variables in second step. Results in table 8 and 9 shown that the interaction term of RISK FL is not significant both for short-term and long-term investment intention which divulged that financial literacy does not moderate the relationship between risk aversion and investment intention.

Table 8
Moderation Analysis

Predictors	β	t
Step 1		
Financial Literacy	.208***	4.160
Risk Aversion	-.560***	-11.21
Step 2		
Financial Literacy	.204***	4.081
Risk behaviour	-.564***	-11.28
Financial Literacy * Risk behaviour	-0.057	-1.309

Dependent Variable: STII

Table 9
Moderation Analysis

Predictors	β	t
Step 1		
Financial Literacy	.279***	5.452
Risk behaviour	-.484***	-9.474
Step 2		
Financial Literacy	.282***	5.509
Risk behaviour	-.481***	-9.388
Financial Literacy * Risk behaviour	-0.049	1.100

Dependent Variable: LTII

Conclusion and Discussion

Our study is the first study with the perspective of Pakistan which used integrated model combining both Financial literacy and risk behaviour to understand the investment intention among individuals having different personality traits. Secondly, it observed the role of risk behaviour between individual's personality traits and investment intention. Thirdly, this study observes, does the financial literacy moderate the relationship of risk behaviour with investment intention .

To address these relations, we used "Big Five personality traits" (McCrae & Costa J, 1997) and examined the data collected from 284 students with finance background. To clear understand the intention of individuals regarding investment, study divide it into two type i.e. Short term and long term. Individuals with short term financial goals revealed "short term investment intention", while individuals with long run financial goals revealed "long term investment intention" (Mayfield et al., 2008).

Results revealed that the individuals with personality traits “Extraversion” , “Agreeableness” and “Conscientious” has positive impact on STII. These results suggest that individuals who are active, sympathy toward others, determined, and well-organized have short term financial goals and are more willing toward STII. Result also revealed that individuals with personality traits “Extraversion” and Conscientious has significant positive impact on LTII. These outcomes propose that individuals who are active, determined, and well-organized also have long term financial goals and are more willing toward LTII. These result are consistent with [Krishnan and Beena \(2009\)](#); [Nandan and Saurabh \(2016\)](#). Beside this, study also concluded that risk behaviour partially mediates the relationship of Personality traits with STII. However, in case of Long run Risk aversion partially mediates the relationship of “Extraversion”, “Agreeableness” , “Openness to Experience”, and “Conscientious” with LTII and fully mediate the relationship of “Neuroticism” and LTII. While exploring the moderating role of the financial literacy study revealed that Financial Literacy does not moderate the relationship of Risk aversion with STII and LTII, however, financial literacy has significant positive impact on investment intention.

Implications of the Study

This study revealed the role of the Personality Traits, Risk behaviour and Financial literacy in investment intention. The study could have implications for financial managers, Financial institutions, and governments. As the Government of Pakistan is trying to develop the capital market and appealing the individuals for investment. The Government of Pakistan could use the result of the study and can start Financial literacy programme relevant to different investments fields along with the initiative of SECP. SECP is spreading the financial literacy in a bulk, however , the findings of the present study could help SECP to select and train the appropriate candidates . The results of the study also suggest that financial managers and investment advisor should consider the personality traits and financial risk behaviour among other factors while giving advice to them. Beside this, by providing financial literacy they can induce individuals towards investment.

Limitations and Directions for Future Research

Beside important implications, this study has certain limitations that should be take into consideration when interpreting the result of the present study. First, study has collected the data from the Pakistan So, the generalization of the findings needs to be considered carefully. Second, this study only considers the personality traits, other factors such as demographic traits, psychological factors, could also have significant influence on risk behaviour and investment intention. Future study should consider all relevant factors which may influence the intention of individuals toward investment.

Third, the study has small sample size and data is collected from 5 universities, Future study not only increase the sample size, but also try to collect the data from all major universities of Pakistan for generalization of the findings. Despite these limitations, the study

provides valuable insight in understanding the role of personality traits, Risk behaviour and financial literacy on investment intention.

References

- Ajzen, I. (1985). *From intentions to actions: A theory of planned behavior*. Heidelberg: Springer.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
- Ajzen, I. (2002). Perceived behavioral control, self-efficacy, locus of control, and the theory of planned behavior. *Journal of Applied Social Psychology*, 32(4), 665–683.
- Allport, G. W., & Odbert, H. S. (1936). Trait-names: A psycho-lexical study. *Psychological Monographs*, 47(1). doi: 10.1037/h0093360
- Aren, S., & Aydemir, S. D. (2014). A literature review on financial literacy. *Journal of Financial Researches and Studies*, 5(11), 33–49.
- Bailey, J. J., & Kinerson, C. (2005). Regret avoidance and risk tolerance. *Journal of Financial Counseling and Planning*, 16(1), 23–28.
- Bali, T. G., Demirtas, K. O., Levy, H., & Wolf, A. (2009). Bonds versus stocks: Investors' age and risk taking. *Journal of Monetary Economics*, 56(6), 817–830.
- Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *The Quarterly Journal of Economics*, 116(1), 261–292.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173–1182.
- Bönte, W., & Filipiak, U. (2012). Financial literacy, information flows, and caste affiliation: Empirical evidence from India. *Journal of Banking & Finance*, 36(12), 3399–3414.
- Brown, S., & Taylor, K. (2014). Household finances and the “big five” personality traits. *Journal of Economic Psychology*, 45, 197–212.
- Burns, P. C., & Wilde, G. J. S. (1995). Risk taking in male taxi drivers: Relationships among personality, observational data and driver records. *Personality and Individual Differences*, 18(2), 267–278.
- Chang, C.-H. (2008). The impact of behavioral pitfalls on investors' decisions: The disposition effect in the taiwanese warrant market. *Social Behavior and Personality: An International Journal*, 36(5), 617–634.
- Cloninger, C. R., Przybeck, T. R., Svrakic, D. M., & Wetzel, R. D. (1994). The temperament and character inventory (TCI): A guide to its development and use. *Center for Psychobiology of Personality, Washington University, St Louis, MO*.
- Corter, J. E., & Chen, Y.-J. (2006). Do investment risk tolerance attitudes predict portfolio risk? *Journal of Business and Psychology*, 20(3), 369–381.
- Costa, P. T., & McCrae, R. R. (1992). *NEO PI-R professional manual, psychological assessment resources*. Odessa: TX.
- Crysel, L. C., Crosier, B. S., & Webster, G. D. (2013). The dark triad and risk behavior. *Personality and Individual Differences*, 54(1), 35–40.

- Diacon, S. (2004). Investment risk perceptions: Do consumers and advisers agree? *International Journal of Bank Marketing*, 22(3), 180–199.
- Dolan, P., Elliott, A., Metcalfe, R., & Vlaev, I. (2012). Influencing financial behavior: From changing minds to changing contexts. *Journal of Behavioral Finance*, 13(2), 126–142.
- Douglas, M., & Wildavsky, A. (1982). *Risk and culture: An essay on the selection of technical and environmental dangers*. California: University of California Press.
- Durand, R., Newby, R., Tant, K., & Trepongkaruna, S. (2013). Overconfidence, overreaction and personality. *Review of Behavioral Finance*, 5(2), 104–133.
- Durand, R. B., Newby, R., Peggs, L., & Siekierka, M. (2013). Personality. *The Journal of Behavioral Finance*, 14(2), 116–133.
- Durand, R. B., Newby, R., & Sanghani, J. (2008). An intimate portrait of the individual investor. *The Journal of Behavioral Finance*, 9(4), 193–208.
- Fellner, G., & Maciejovsky, B. (2007). Risk attitude and market behavior: Evidence from experimental asset markets. *Journal of Economic Psychology*, 28(3), 338–350.
- Fishbein, M., Jaccard, J., Davidson, A. R., Ajzen, I., & Loken, B. (1980). *Predicting and understanding family planning behaviors*. Prentice Hall.
- Gambetti, E., & Giusberti, F. (2012). The effect of anger and anxiety traits on investment decisions. *Journal of Economic Psychology*, 33(6), 1059–1069.
- Grable, J. E., & Lytton, R. H. (2003). The development of a risk assessment instrument: A follow-up study. *Financial Services Review*, 12(3), 257–275.
- Gunkel, M., Schlaegel, C., Langella, I. M., & Peluchette, J. V. (2010). Personality and career decisiveness: An international empirical comparison of business students' career planning. *Personnel Review*, 39(4), 503–524.
- Hallahan, T., Faff, R., & McKenzie, M. (2003). An exploratory investigation of the relation between risk tolerance scores and demographic characteristics. *Journal of Multinational Financial Management*, 13(4-5), 483–502.
- Hilgert, M. A., Hogarth, J. M., & Beverly, S. G. (2003). Household financial management: The connection between knowledge and behavior. *Federal Reserve Bulletin*, 89, 309–332.
- Hunter, K., & Kemp, S. (2004). The personality of e-commerce investors. *Journal of Economic Psychology*, 25(4), 529–537.
- Jureviciene, D., & Jermakova, K. (2012). The impact of individuals' financial behaviour on investment decisions. *Electronic International Interdisciplinary Conference*, 242–250.
- Kabra, G., Mishra, P. K., & Dash, M. K. (2010). Factors influencing investment decision of generations in India: An econometric study. *Asian Journal of Management Research*, 308–326.
- Keller, C., & Siegrist, M. (2006). Investing in stocks: The influence of financial risk attitude and values-related money and stock market attitudes. *Journal of Economic Psychology*, 27(2), 285–303.
- Kiev, A. (2003). *The psychology of risk: Mastering market uncertainty*. United States: John Wiley & Sons.
- Kourtidis, D., Šević, Ž., & Chatzoglou, P. (2011). Investors' trading activity: A behavioural perspective and empirical results. *The Journal of Socio-Economics*, 40(5), 548–557.

- Krishnan, R., & Beena, F. (2009). Measurement of conformity to behavior finance concepts and association with individual personality. *IUP Journal of Behavioral Finance*, 6(3/4), 25-40.
- Leary, M. M., Reilly, M. D., & Brown, F. W. (2009). A study of personality preferences and emotional intelligence. *Leadership & Organization Development Journal*, 30(5), 421-434.
- Lim, K. L., Soutar, G. N., & Lee, J. A. (2013). Factors affecting investment intentions: A consumer behaviour perspective. *Journal of Financial Services Marketing, Nature Publishing Group*, 18(4), 301-315.
- Lo, S.-K., Wang, C.-C., & Fang, W. (2005). Physical interpersonal relationships and social anxiety among online game players. *Cyberpsychology & Behavior*, 8(1), 15-20.
- Lusardi, A., & Mitchell, O. S. (2008). Planning and financial literacy: How do women fare? *American Economic Review*, 98(2), 413-417.
- Mandell, L., & Klein, L. S. (2009). The impact of financial literacy education on subsequent financial behavior. *Journal of Financial Counseling and Planning*, 20(1), 15-24.
- Martins, N. (2002). A model for managing trust. *International Journal of Manpower*, 23(8), 754-769.
- Mayfield, C., Perdue, G., & Wooten, K. (2008). Investment management and personality type. *Financial Services Review*, 17(3), 219-237.
- McCrae, R. R., & Costa, J. P. T. (1997). Personality trait structure as a human universal. *American Psychologist*, 52(5), 509-516.
- Migliore, L. A. (2011). Relation between big five personality traits and Hofstede's cultural dimensions: Samples from the USA and India. *Cross Cultural Management: An International Journal*, 18(1), 38-54.
- Nandan, T., & Saurabh, K. (2016). Big-five personality traits, financial risk attitude and investment intentions: Study on Generation Y. *International Journal of Business Forecasting and Marketing Intelligence*, 2(2), 128-150.
- Nga, J. K., & Ken Yien, L. (2013). The influence of personality trait and demographics on financial decision making among Generation Y. *Young Consumers*, 14(3), 230-243.
- Niszczoła, P. (2014). Neuroticism, uncertainty, and foreign investment. *Poznań University of Economics (Working Paper)*.
- Noctor, M., Stoney, S., & Stradling, R. (1992). *National Westminster Bank*. Washington: The Times.
- Olsen, R. A., & Cox, C. M. (2001). The influence of gender on the perception and response to investment risk: The case of professional investors. *The Journal of Psychology and Financial Markets*, 2(1), 29-36.
- Özmen, O., & Sümer, Z. H. (2011). Predictors of risk-taking behaviors among Turkish adolescents. *Personality and Individual Differences*, 50(1), 4-9.
- Pak, O., & Mahmood, M. (2015). Impact of personality on risk tolerance and investment decisions: A study on potential investors of Kazakhstan. *International Journal of Commerce and Management*, 25(4), 370-384.
- Pan, C. H., & Statman, M. (2013). Investor personality in investor questionnaires. *Journal of Investment Consulting*, 14(1), 48-56.

- Pedhazur, E. J. (1982). *Multiple regression in behavioral research: Explanation and prediction*. Fort Worth, TX: Holt, Rinehart and Winston.
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, 63, 539–569.
- Rispens. (2013). *Financial literacy and financial inclusion of migrant workers: The case of Indian migrant workers in Qatar*. Wilmer Foundation, Hong Kong.
- Sadi, R., Asl, H. G., Rostami, M. R., Gholipour, A., & Gholipour, F. (2011). Behavioral finance: The explanation of investors' personality and perceptual biases effects on financial decisions. *International Journal of Economics and Finance*, 3(5), 234–241.
- Salehi, M., & Mohammadi, N. (2017). The relationship between emotional intelligence, thinking style, and the quality of investors' decisions using the log-linear method. *Qualitative Research in Financial Markets*, 9(4), 325–336.
- Shleifer, A. (2000). *Inefficient markets: An introduction to behavioural finance*. Oxford University Press.
- Tang, T. L.-P. (2007). Income and quality of life: Does the love of money make a difference? *Journal of Business Ethics*, 72(4), 375–393.
- Van Rooij, M. C., Lusardi, A., & Alessie, R. J. (2012). Financial literacy, retirement planning and household wealth. *The Economic Journal*, 122(560), 449–478.
- Vigil-Colet, A. (2007). Impulsivity and decision making in the balloon analogue risk-taking task. *Personality and Individual Differences*, 43(1), 37–45.
- Wanyana, B. (2011). *Investor awareness, perceived risk attitudes, and stock market investor behaviour: A case of Uganda securities exchange*. Makerere University, Business School, Kampala (Unpublished doctoral dissertation).
- Weber, E. U., & Milliman, R. A. (1997). Perceived risk attitudes: Relating risk perception to risky choice. *Management Science*, 43(2), 123–144.
- Williams, D. G. (1992). Dispositional optimism, neuroticism, and extraversion. *Personality and Individual Differences*, 13(4), 475–477.
- Wood, R., & Zaichkowsky, J. L. (2004). Attitudes and trading behavior of stock market investors: A segmentation approach. *The Journal of Behavioral Finance*, 5(3), 170–179.
- Young, S., Gudjonsson, G. H., Carter, P., Terry, R., & Morris, R. (2012). Simulation of risk-taking and its relationship with personality. *Personality and Individual Differences*, 53(3), 294–299.