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EFFECT OF NEUROTICISM, CONSCIENTIOUSNESS ON INVESTMENT DECISIONS. MEDIATION ANALYSIS OF FINANCIAL SELF-EFFICACY

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ABSTRACT

This research adds value in comprehension of investor's personality and its effects on investment decisions. Data was collected through questionnaires from 506 individual investors of Pakistan Stock Exchange. Mediation analysis was performed using Hayes (2013) PROCESS macro in SPSS. This study examined the relationship between Neuroticism, Conscientiousness and Investment decisions. The results of the study supported a positive relationship between neuroticism, conscientiousness and long-term investment decisions. The results from bootstrapping also supported the mediating effect of financial self-efficacy between neuroticism, conscientiousness and long-term investment decision. The study in the environment of Pakistan has used personality psychology theory and the theory of planned behavior to discover investor psychology based upon the concept that personality is positively correlated with financial behaviors. It carries an ample value for all parties in the financial and investment sector. Practitioners should know that highly conscientious people are normally confident about their analytical skills and possess a high level of financial self-efficacy and financial self-efficacy of neurotic investor acts as facilitators for making long term investment decisions.

Keywords: Big Five, Financial self-efficacy, Investment decisions.

INTRODUCTION

The rationality of an individual investor has remained the focus of economists since long. Behavioral finance theory debates that human nature can bound or limit rationality during investment decisions (Barber & Odean, 1999) argued that investment decisions particularly in stocks is a difficult task, as the investor has to gather and analyze the information about alternative stocks. Psychologists defined individual behavior by focusing on personality traits and identified multiple factors affecting investment decision (Salovey, Stroud, Woolery & Epel, 2002).

Financial advisors adjust their investment programs on the basis of their client's personality. An individual's confidence to perform certain task is important factor in efficient decision making and Bandura (1977) termed this confidence as self-efficacy. Farrell, Fry and Risse (2016) reviewed this self-efficacy in financial aspect of women and found financial self efficacious women are confindent and manage finances well. Personality studies have talked much about biases effecting investment decision but Krueger and Reilly (2000) pointed that personality is multi-dimensional and many other factors work along with personality so the mechanism through which personality effects is still not answered. Numerous empirical studies contemplating the relationship between various personality traits and individual's investment decision making are available in literature. But most of these lack strong theoretical underpinnings and there is a dire need to understand why and how certain individual's with a particular set of traits exhibits a particular financial behavior. Individual investors have little financial knowledge and apparently base all their decisions on market price of the share and company reputation. The top-notched companies are not aware of the role of cognitive and emotional psychology in their investment decisions. . The current methods employed by investors and financial

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advisors to create investment profiles of their clients are too much inclined towards assessing the risk behavior. No importance is levied upon the personality, cognition of the investor making the decision and this area remains largely unexplored by both academia and practitioners particularly in Pakistan.

The Big Five model is known as the best practical set of traits to explain the Personality differences (McCrae & Costa 1987). With the academic foundation theory of planned behavior, in this study, relevant to investment decisions the construct of financial self-efficacy is employed to predict the investment behavior of individuals.

Theory and Hypotheses

Personality traits of an individual are inherent in character (McCrae & Costa, 1987). However, an individual's self-efficacy develops through cognition, motivation, affection and then effects his behavior (Bandura, 1977). The self-efficacy beliefs may allow inherent personality traits to develop into behavior. Lonnqvist, Verkasalo, Walkowitz and Wichardt (2015) considered Big five comprehensive categorization of five personality traits to depict individual behavior.

Personality Traits McCrae and Costa (1987)

Conscientiousness: This personality dimension includes individuals who are dependable, persistent, reliable and organized. Conscientiousness means a preference for structured, organized instead of impulsive, unpredictable behavior. People who rank low with this personality trait tend to be distracted, disorganized and unreliable.

Neuroticism: This personality trait tends to experience those emotions which are considered negative like anxiety, anger or depression. Neurotic people are emotionally reactive and easily prone to stress. On the other side individuals with low neuroticism are less easily distressed and less emotionally reactive.

Long term Investment Decisions are defined, where individual investor is independent to decide to invest for more than a year (Mayfield, Perdue & Wooten, 2008).

PERSONALITY TRAIT AND INVESTMENT DECISION

In the quest to gain a better picture of financial markets, economists and financial analysts have been struggling to uncover those factors that affect the behavior of an individual investor. It becomes an interesting question and area of special interest for scholars and practitioners, that how and why some individual plays better at the stock markets. Answers to such questions have been provided by Kahneman and Tversky (1979) in explaining the psychological biases related to an investor behavior. Such findings have started a new wave of inquiry in behavioral finance and researchers started looking for other psychological and cognitive factors that may depict individual's behavior in managing finances (Durand, Newby, Tant & Trepongkaruna, 2013).

Investor personality has a substantial role in building their cognition and psychology that may affect decision. Tauni, Fang and Iqbal (2017) by using Big five argued that trading decision involves investor personality which formulates financial choices. Psychology under certain circumstance respond in certain way which distinguish individual from another (Roberts, 2009).

It is difficult to draw a clear line that differentiate personality and cognition however, in order to understand the potential and significant effect on individual financial decisions study on noncognitive determinants is very important. (Conlin et al. 2015) identified the curiosity of stock participation on investor's personality. The Big Five model is known as the most detailed, empirical, data-driven research studies in the historical past of personality psychology (Rizvi & Fatima, 2015). Mueller and Plug (2006) using Big five personality attributes found significant role of personality in earnings management. Based on the literature it is hypothesized that

Hypothesis 1a:
There is a positive relation between neuroticism and long term investment decisions.
Hypothesis 1b:
There is a positive relation between conscientiousness and long term investment decisions.

Financial Self Efficacy

Many of the studies have directly examined the effect of personality on investment decision but still there is a need to find out the mechanism through which personality traits effects investor's decisions. According to theory of planned behavior financial self-efficacy acts as a mediating variable to explain this association. (Farrell et al. 2016) defined financial self-efficacy as one's self-assuredness to manage finances.

Neuroticism and Financial Self Efficacy

Durand, Newby and Sanghani (2008) reported positive association between negative emotions and trading frequency, which is at par with the argument that neurotic investors are disposed to trade more often to lessen the feelings of unpleasantness due to external stimuli. For better long term financial planning, investment and retirement plans, a high conscientiousness and emotional strength are the personality factors that influence the decision of an individual. Whereas low neuroticism helps in better financial planning and commitments to future goals (Yalcin, Tatoglu, & Zaim, 2016). Personality of neurotic individuals is marked by fear, aggression, pessimism, depression and anxious behavior (Costa & McCrae, 1992). Neurotic individuals tend to give more importance to the negative aspects of an information (Dalsky, Ghom, Noguchi & Shiomura 2008). In countries where individuals score high on the neuroticism scale tend to avoid risk while investing in foreign markets (Niszczota, 2014) because they personally lack efficient methods to solve their problems and hence have less belief in their capabilities to make financial decisions. So, it can be inferred that:

Hypothesis 2a:
There is a negative relation between neuroticism and financial self-efficacy.

CONSCIENTIOUSNESS AND FINANCIAL SELF EFFICACY

Tauni et al. (2017) found positive relationship of conscientiousness with investing behavior. Durand et al. (2013) also postulated that consciousness people practice their efforts to attain desired outcomes and therefore trade more. Conlin et al. (2015) identified that different personality traits are significant predictors of investors' stock market participation. Conscientiousness points the manners by which individuals manage their behavior as well as cognitions. McCrae and Lockenhoff (2010) forecast the use of these efficient techniques including behavioral engagement like problem solving along with cognitive restructuring which affect the individual. Accordingly, (Derryberry et al. 2003) linked these

these techniques with conscientiousness to address boring, nasty jobs with high level of conscientiousness and disengage from negative thoughts. These individuals are cautious, thoroughgoing, responsible, organized, well planned, hardworking and achievement oriented (Barrick & Mount, 1991). These characteristics give the individual a certain level of confidence in their financial management abilities. Highly conscientious individuals have well-defined investment goals. Such individuals are highly structured and go for thoughtful analysis and also depict strong intentions to invest in long term investment portfolios (Mayfield et al. 2008). Hence it is expected that they will also have a strong relation with financial self-efficacy.

Hypothesis 2b:

There is a positive relation between conscientiousness and financial self-efficacy.

FINANCIAL SELF EFFICACY AND INVESTMENT DECISIONS

The construct of financial self-efficacy is rooted from the Bandura theory of self-efficacy. It is a subjective indicator which explains financial capability. The individual beliefs, confidence and attitude towards financial decision making is refer to financial self-efficacy (Kempson et al. 2005) evaluated that comparatively to man, women make less risky investments and financial self-efficacy is positively related to the level of risk taken within investment portfolios. Furthermore: it influence on investing gender differences and pension saving techniques, wealth accumulation and portfolio choice (Chatterjee et al. 2011). Loke, Choi, and Libby (2015) discussed that in order to understand the fluctuation in term of saving outcomes one must need to understand the perception and attitude towards financial matters. The study on entrepreneurial self-efficacy depicts more financial control and directly linked it with self-efficacious entrepreneur (Chen, Greene & Crick 1998). Financial satisfaction is positively associated with Financial Self efficacy (Xiao, Chen & Chen 2014).

Hypothesis 3:

There is a positive relation between financial self-efficacy and long term investment decisions.

MEDIATING ROLE OF FINANCIAL SELF EFFICACY

An investor's personality has been of quite interest to behavioral finance researchers in understanding his investment behavior. . In the theory of planned behavior, the authors made addition to the theory of reasoned actions by adding a number of predictor variables also termed as background factors at the individual, social and information level with existing ones. Bandura (1982) discussed that self-efficacy of an individual is also dependent on the context and situation, it act as a cognitive mechanism which explains certain behavior of the personality. Rothwell, Khan and Cherney (2016) concluded that finanical self efficacy acts as a mediator among financial knowledge and invesment decision. Highly conscientious individuals are self-confident in their analytical skills and possess a high level of financial self-efficacy; neurotics are risk averters because they seem to be more threatened from the environment so they are also expected to have a low financial self-efficacy (Chitra & Sreedevi, 2011). In a study conducted by (Farrell et al. 2016) on the financial self-efficacy of women it was found that, those women who were confident in their abilities to handle their finances well also held a diverse portfolio of financial products. The personality analysist analyzied personality factors neuroticism and conscientiousness are the important and best predictors of mental health (Pocnet, Dupuis, Congard & Jopp, 2017) so it can be hypothesized that:

Hypothesis 4:
Financial self-efficacy mediates the relationship between (neuroticism, conscientiousness) and long term investment decisions.

THEORETICAL FRAME WORK OF THE STUDY

The theory of behavioral finance explains that in real life individual investor is influenced by psychological factors. Both rational and emotional aspects combines together and form a complicated domain of investment behavior (Mak & Ip, 2017) Self-efficacy is the belief of individual in his capabilities to perform certain task (Bandura, 1977). The personality traits of an individual are inherent to his character (McCrae & Costa, 1987). However, an individual's self-efficacy develops through cognition, motivation and affection and then effects his behavior (Bandura, 1977). These self-efficacy beliefs may allow inherent personality traits to develop into behavior. The construct of self-efficacy is vital part of Bandura's self-efficacy theory and also forms an integral part of the theory of planned behavior (Fishbein & Ajzen, 2005).

Figure 1: Proposed Theoretical Framework of the Study

RESEARCH METHODOLOGY AND DESIGN

Positivism advocates the use of quantitative studies. Basically, this methodology requires the collecting of scientific data which is specific and even based upon measurement which is usually examined by using statistical tools so that the results can be generalizable. In this study, a standard survey methodology is adopted to obtain data on four variables which reveals the scientific realism model that in turn, pursues for the approximate truth than the actual truth. The current study used a field survey design to collect data from investors.

Sample And Date Collection Procedures
We collected data from 506 Individual investor of Pakistan Stock Exchange through self-administered questionnaire. To confirm that scientifically appropriate instruments are used. We also carried out reliability analysis so as to ensure that the scale had good psychometric properties and Cronbach's alpha reliability were found between .67 and above .70.

MEASURES

We used established and reliable scales to measure the personality traits by (Costa & McCrae, 1992) financial self-efficacy by (Lown, 2011) and investment decision through (Mayfield et al. 2008). All the responses were computed using a Likert type scale of 5 with anchors 1= strongly agree, 2= disagree, 3= neutral, 4 = agree and 5 = strongly agree.

RESULTS

The hypotheses are tested using bootstrap technique suggested by Hayes (2013). The direct effects have been checked through regression and was confirmed by Hayes (2013) PROCESS macro. To test mediation analysis the behavioral statisticians have suggested the usage of bias-corrected bootstrap test (Fritz & MacKinnon, 2007). The bootstrapping adjust the problems occurred due to asymmetric and non-normal sampling distribution of indirect effects (Hayes, 2013; Preacher & Hayes, 2004). This technique is considered as best methods for analysis of mediation. The mediation model for the research study contains the personality traits as an independent, Financial self-efficacy as mediating and long term investment decision as dependent variable. For confidence intervals of indirect effect bootstrapping at 5000 sample is used. If the values between the confidence interval of indirect effect contains zero than mediation effects are considered as significant. Further in order to see up to what extent the co-linearity among the predictor variable effect the accuracy of the regression model we analyzed the score of variance Inflation Factor (VIF) and tolerance statistics.In the analysis the VIF score were less than 5, Neuroticism (2.2) and conscientiousness (1.9) similarly tolerance statistics were greater than 0.1 Neuroticism (.43) and conscientiousness (.63) show multi colinarity was not problem.

DESCRIPTIVE STATISTICS AND CORRELATIONS ANALYSIS

Table 1 shows the Descriptive statistics, correlation analysis and alpha reliabilities for all variables. The average age of the investor who responded the questionnaire is (M = 36.84, S.D = 12.27) these investors average experience of financing in the stock market is more than seven years (M = 7.12, S. D = 7.34) and on average investor have graduation degree in their academic background.

Table 1: Correlation analysis and Reliabilities

No.	Variable	Mean	S.D	1	2	3	4	5	6	7	8	9
1	Age	36.84	12.27	1								
2	Gender	1.22	0.41	-0.299**								
3	Experience	7.12	7.34	.508**	-0.248**							
4	Education	2.19	0.75	-0.04	0.148**	-0.083						
5	Income	3.61	1.58	0.15**	-0.049	0.108*	0.309**					
6	Neuroticism	2.63	0.88	-0.02	0.071	-0.085	-0.033	-0.019	(0.79)			
7	Conscientiousness	3.87	0.80	0.03	0.015	0.041	0.012	0.017	-0.165**	(.73)		
8	Financial Self Efficacy	3.08	0.69	0.05	0.02	-0.023	-0.059	-0.056	0.338**	0.092*	(0.69)	
9	Long Term Investment	3.39	0.79	0.01	-0.04	0.08	0.026	0.102*	0.001	0.239**	0.215**	(0.74)

Note **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed),N=506, Alpha reliabilities are presented in Parenthesis, Male =1, female =2

TEST FOR MEDIATION

Main and Mediation Effects (neuroticism, conscientiousness) with long term investment decision and through financial self-efficacy

The results (Table 2) shows that conscientiousness (β =0.215, $p < 0.05$) financial self-efficacy (β =0.22, $p < 0.05$) is significant with long term investment decision while neuroticism (β = 0.727, ns) shows insignificant relationship. Further, financial self-efficacy shows negative and significant

(β = -0.267, $p < 0.05$) with neuroticism and positive with conscientiousness (β =0.078, $p < 0.05$). Therefore, the Hypothesis 1b, 2a, 2b, 3 accepted and 1a got rejected.

Bootstrap for Indirect effect of neuroticism on long term investment decision through financial self-efficacy

The Table 2 contains the estimate of the indirect effect of Neuroticism 0.073 and conscientiousness 0.017 on long term investment decision through financial self-efficacy. Since the value between the bootstrapped confidence interval of the estimated point does not contain zero the mediating effect is considered as significant with neuroticism 0.073 CI [0.043, 0.110] and conscientiousness 0.017 CI [0.001, 0.044]. Therefore, Hypothesis 3 is accepted.

Table: 2 Regression Results: Direct and Indirect Effects-Mediation of Financial Self Efficacy between Personality traits and Long term Investment decision

Direct and total effect Variables	**B**	**SE**	**T**	**P**
Financial Self Efficacy regressed on Neuroticism	-0.267	0.033	8.065	0.000
Financial Self Efficacy regressed on Conscientiousness	0.078	0.038	2.064	0.039
Mediation on Independent variable				
Long term Investment regressed on Financial Self Efficacy	0.220	0.048	4.576	0.000
Dependent variable on mediation				
Long term investment regressed on Neuroticism	-0.072	0.041	-1.755	0.078
Long term investment regressed on Conscientiousness	0.215	0.041	5.182	0.000
Dependent variable on independent variable.				
Bootstrap results for indirect effects (of Independent variable on dependent variable through Mediation)				
	Effect	Boot SE	LL 95% CI	UL 95 %CI
Indirect effect of Neuroticism to long term investment through financial Self efficacy	0.073	0.020	0.043	0.110
Indirect effect of Conscientiousness to Long term investment through financial self-efficacy	0.017	0.010	0.001	0.044

Note N= 506, Unstandardized Regression coefficients are reported. Bootstrap samples size=5000, LL= Lower Limit; CI= Confidence interval; UL = Upper Limit, Age and experience were controlled in all analysis.

DISCUSSION

To understand the individual investor choices or why the investor makes particular decisions to invest in long term financial instruments is quite a cumbersome task. Moreover, things can get even more complicated since today's dynamic financial markets offer so many options of investment to the investor who is already overwhelmed with market uncertainty and un-predictability. The context in which the investment decision is taking place has a profound impact on the investment decision but the dispositional characteristics of the individual also play an important role in determining people investment in long term financial instruments.

Personality Traits and Investment Decisions

Hypotheses 1a predicted a positive relationship between neuroticism and long term financial decisions, the result of this hypothesis was not supported. Neurotic individuals are emotionally unstable and quite pessimistic in their approach towards decisions in their lives and since in cultures like Pakistan where people are in general short term oriented and avoid taking long term risks, the results predicted the possibility of people avoiding long term investments separate of their dispositional characteristics. Hypothesis 1b predicted that conscientious individuals would invest in long term financial instruments. Since individuals high on conscientious are very careful and responsible and they believe in being prepared so the possibilities are high that they choose to make long term financial investments as supported by the results of this study, hence hypothesis 1b was accepted.

Personality Traits and Financial Self Efficacy

Hypothesis 2b predicted a negative relationship between neuroticism and financial self-efficacy. This hypothesis was supported. In line with previous literature which has identified individuals high on neuroticism has being less efficacious. Since individuals with an increased level of neuroticism are more pessimistic and depressed and give more attention to negative information then positive information Dalsky et al. (2006) due to which their overall confidence in their personalities and decision making abilities is low. From finance point of view, investors high on neuroticism invest less in foreign stock markets and refrain from insecurities related to financial stock markets (Niszczota, 2014). Strobel, Tumasjan and Sporrle (2011) also showed that neuroticism significantly affects self-efficacy. All these studies refer to the personality of neurotics as being overwhelmed with fear, insecurity and uncertainty meaning that they tend to avoid risks as they have low confidence in their financial capabilities.

Hypothesis 2b proposed that conscientious individuals have positive relations with financial self-efficacy. This hypothesis was also accepted. In particular Judge and Ilies (2002) showed that self-efficacy relates negatively to neuroticism and conscientiousness. Highly conscious individuals are hardworking and careful. They are achievement oriented and indulge in detailed planning which gives them more confidence in their abilities to manage their financials. They go for thoughtful analysis before deciding to invest in long term portfolios (Mayfield et al., 2008). A number of previous studies have researched the relationship between conscious individuals and their financial self-efficacy and have reported significant and positive relationships (Karwowski, Lebuda, Wisniewska & Gralewski 2013).

Financial Self Efficacy and Investment Decisions

The results of this study confirmed a positive relationship between financial self-efficacy and long term investment decisions. The results were in line with previous literature. Researchers have found that financial knowledge of financial market instruments is positively correlated to financial behaviors (Lusardi & Mitchell, 2014). An increase in financial self-efficacy was associated with an increase in the probability of savings (Babiarz & Robb, 2014). The role of risk taking behavior and financial self-efficacy were identified as significant predictors of investment behavior of males and females . In another research stream exploring the construct of financial self-efficacy, it was found that financial self-efficacy was not only affected by levels of financial literacy or financial abilities but also elements of an individual's personality, social norms and family background also played an important role in predicting an individual's financial self-efficacy (Hira, 2010). All these studies show that people are willing to make investments when they have confidence in their ability to manage their finances and appropriate financial knowledge of financial market instruments which gives them trust in their financial abilities. Farrell et al., (2016) found that individuals who were confident enough in their abilities to handle their finances held a diverse portfolio including long term investments.

Mediating Role of Financial Self Efficacy between Personality Traits and Investment Decisions

The results of hypothesis 3 were supported for conscientiousness and neuroticism. Numerous researches have been carried out to understand the personality type of the individual investors and their investing decisions and a number of factors have been identified which affect the investor behavior (Mayfield et al., 2008; Chitra & Sreedevi, 2011; Oehler, Wendt, Wedlich & Horn, 2017).

For neuroticism and conscientiousness financial self-efficacy mediated their relationship with investment decisions as predicted. Highly conscientious individuals are self-confident in their analytical skills and possess a high level of financial self-efficacy since they are very careful and thoughtful in their approach, due to their high levels of self-efficacy they even delay short term gratifications and tend to invest in long term financial instruments. Finally, neurotics are risk averters because they are threatened by environmental clues specifically when it comes to stock market investments. They are very pessimistic and have a low level of financial self-efficacy and this may result in their preferences for the more safe long term investments which may also bring higher returns. Results are in line with the various studies conducted on personality types and investment behavior with various cognitive mechanisms (see for example Durand et al., 2008; Mayfield et al., 2008; Oehler et al., 2017).

Conclusion and Recommendations

This research has furnished a synthesis of the promising study on the effect of personality traits on investment decision. It illustrated how investors allow its personality, financial self-efficacy to dominate its investing decisions. For paradigmatic research on the personality influence over investor decision making a strong theoretical support must be backed and accompanied. This study has presented a different competing approach i.e. customization of the original research model while keeping the overall concept of personality. The study examines the theories of personality and investment developed in Western context in an Eastern setting (i.e., Pakistan) to provide implications for further theory development and role of Investor behavior in a developing economy such as Pakistan. Results of the study supported a positive relationship existed between neuroticism, conscientiousness and long term investment decisions. Similarly it also supported the mediating effect of financial self-efficacy between neuroticism, conscientiousness and long term investment decision. This study recommends that practitioners should know that highly conscientious people are normally confident about their analytical skills and possess a high level of financial self-efficacy and financial self-efficacy of neurotic investor acts as facilitators for making investment decisions.

Practical implications

This research has constructed an important step in its attempt to evaluate the influence of behavioral constructs on investors doing investment decisions. It carries a significant value for all parties in the financial and investment sector, including investment marketers, investment advisors as well as the investors themselves. The results of this study can be used to develop a model of psychological testing for potential clients of investment advisory firms. Also, this research is a significant forward movement for the academicians studying and researching investment behavior because a study with theoretical background and Bandura Self Efficacy has not been done in Pakistan before, to the best of the researchers' knowledge.

Limitations and future research direction

Cross sectional theme is the research limitation of the study. The perceptual measures of behaviors by using questionnaire is also a limitation as there might be a chance of response bias and actual measure of behavior. There are other personality traits which may also be checked along these two personality traits in order to get more comphrensive view. A longitudinal study need to be conducted for more elaborative and detail conclusions of the study.

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