



## Does Personality Traits & Gender Affect Loss Sensitivity? A Study of Retail Investors of Pakistan

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### ABSTRACT

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This study aims to investigate psychological and biological constructs of investors towards loss aversion. Big five personality model was used to measure psychological construct. Gender effect has been examined to measure biological construct of investors. Data was collected from 100 investors who directly invest at Pakistan stock exchange. After analyzing data collected from these investors it is observed that two personality traits i.e. neuroticism and Openness to Experience have no significant impact on myopic loss aversion while Conscientiousness, Extraversion and agreeableness have been observed to be more affected by loss aversion bias. Gender has been found to be susceptible towards loss aversion as males are more risk loving and less inclined towards loss aversion as compared to females. This study provides the clear understanding of prospects that how investors deviate from rationality while buying and selling of stocks and make biased decisions being influenced by their dispositions. It is also helpful in understanding the investing attitude of male and female investors toward losses and gains while choosing stocks for investment. The findings of this research could guide financial advisors in tailoring their advice based on investor personality and gender. These insights could potentially aid in developing targeted financial literacy programs. Additionally, it contributes to the broader field of behavioral finance by highlighting the intersection of psychological traits and financial decision-making.

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## 1.0 Introduction

The behavioral finance literature explains that there are certain psychological determinants, such as moods, emotions, or personality characters, that have a significant impact on investors while making certain investment-related decisions (Pompian, Longo, 2004; Szyszka, 2013). The results of psychological research demonstrated that humans have limited cognitive abilities and often rely on emotions when making decisions in risky and uncertain situations. The behavior of those who criticized the assumptions of home economics and market efficiency's hypothesis (Von Neumann, Morgenstern, 1944) shed light on an important assumption. They were also of the view that an investor will suffer from behavioral biases as a result of cognitive and heuristic biases, as well as emotions (Agnew, 2006). These behavioral biases will in turn disturb the rationality of an investment-making procedure and make the market inefficient (Rzeszutek, Czerwonka, 2011, 2012).

Researchers have conducted numerous experiments and studies to observe the dimensions of behavior related to gains and losses that individuals acquire (Kahneman & Versky, 1979). The outcomes of these experiments suggested that individuals exhibit myopic loss aversion (Gneezy & Potters, 1997; Haigh & List, 2005). Observations lead these individuals to display different responses, which become even more evident over the period of investment evaluation. Prospect Theory (Kahneman & Versky, 1979) posits that individuals experience a greater impact from losses compared to an equivalent number of gains, a concept known as loss aversion. Losses also have an emotional impact on individuals, rather than gains. Haigh and List investigated myopic loss aversion using data collected from students and CBOT traders. Results suggested that myopic loss aversion is more common in traders. However, when an individual becomes more expert and professional, myopic loss aversion, regarded here as a component of behavioral biases, tends to decline (List, 2003).

Some other researchers found that certain psychological factors, such as loss aversion and regret, contribute to the development of a risk-averse individual. Kahnemann & Lovallo (1993) explained that loss aversion basically aims at providing a proper understanding of risk aversion. Furthermore, numerous other studies have demonstrated that loss aversion effectively tackles a range of anomalies, including the endowment effect, the disposition effect, the status quo bias, and the experience of regret. Loss aversion refers to investors' perceptions of risks during losses and their avoidance of risk during gains. Loss aversion seeks to explain the reality

that individuals are more sensitive to losses compared to gains. People become emotional and touchy when faced with losses. When they incur a loss, they feel more pain and suffering than when they achieve a gain..

Gender has been an important predictor while studying financial and investment decisions in behavioral finance (Olsen & Cox, 2001; Levin, Snyder, & Chapman, 1988; Johnson & Powell, 1994). Researchers deduce that testosterone, which actively functions during risky financial decisions and other risky behaviors (Coates & Herbert, 2008; Roberti, 2004; Dreber & Hoffman, 2007), contributes to the perception of males as more risk-takers in nature. Dwyer, Gilkeson, and List (2002) studied the different effects of risk on gender based on the riskiest mutual fund investment. Their results suggested that women are more risk-averse as compared to men, while men are more risk-tolerant. They further explained that in a risky and uncertain situation, women tend to hold their assets if they are independent in terms of wealth, whether it is their personal income or any inherited property of a certain value. Conversely, risk explorers (men), who are older, separated, and college educated, tend to invest in risky stocks (Embrey & Fox, 1997). Hence, the relationship between gender role and myopic loss aversion is a suitable consideration in order to study the heterogeneity of individuals with myopic loss aversion.

Viewed from a risk-averse perspective, the inclination to steer clear of risky situations or investments during financial decision-making stems from an individual's inherent risk aversion, leading to the belief that individual differences in disposition shape myopic loss aversion. In other words, personality traits, which refer to the differential disposition effect towards risk aversion and an individual's ability to conceal their reaction to fear of losses, likely predict a person's tendency to exhibit myopic loss aversion. This paper analyzes the roles of the Big 5 personality factors—neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness—in relation to loss sensitivity and risk aversion. Many researchers have studied this five-factor model to examine its impact on individuals when making investment and financial decisions (Durand, Newby, & Sanghani, 2008; Durand et al., 2013; Oehler et al., 2018).

Numerous studies have explored the influence of gender and personality traits, specifically Norman's (1963) five major personality traits, on myopic loss aversion in European nations (Durand, Fung, & Limkriangkrai, 2019; Oehler et al., 2018; Rzeszutek, 2015). Researchers have addressed this gap, examining whether personality traits and/or gender explain this variation in developing countries like Pakistan, where investment and financial businesses

typically experience losses or earn small profits. Furthermore, the subjects recruited to study this behavior are not from a specific sector, institution, or company where these concerned subjects invest. Our subjects are non-specific investors who attempt to determine and measure their risks and losses at the start of any financial or investment decision. So, this paper finds that a subject's propensity to exhibit myopic loss aversion is a function of personality and gender. Investors have the capability to exhibit different myopic loss-aversion behaviors. We have measured personality traits using Norman's Big 5 (1963) traits: neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness, and their direct relationship to myopic loss aversion behavior.

This paper addresses the Pakistani investors and their behavioral patterns. We chose to experiment with this topic in Pakistani society, where individuals make investment and financial decisions, due to the limited scope of empirical studies from Pakistan's perspective. Our research considered both genders (male and female) important as investors in Pakistan, where females rarely approach investments and financial activities.

## **2.0.Literature Review**

To describe deviances from market efficiency, behaviorist theories must shed light on what kind of absurdity is after investor behavior. Behavioral theories classify these deviations as biases in beliefs or inclinations. Rational decision-making revolves around people's choices to maximize their expected utility. It We assume that individuals make decisions in uncertainty without any reference point, viewing real losses as equivalent to forgone gains. neman and Tversky (1979) presented a descriptive theory of an individual's inclination towards different alternative options under the risk prospect theory. Particularly, prospect theory describes that people generally recognize consequences as gains and losses rather than the final situations of capital and well-being. Several fundamental principles differentiate gains and losses. This theory's value function is typically steeper for losses than for gains, indicating loss aversion. It is a psychological theory that describes how human beings select different prospects under uncertainty (Chang et al., 2015).

### **2.1 Loss Aversion**

In the subsequent years after the publication of prospect theory, researchers took special interest to investigate loss aversion, the perception that disutility arouse from a loss is larger as compared to the utility shaped from same level of gain. Vast area of research indicated the role

played by loss aversion in varied financial and social events, consisting of endowment effect and the equity premium puzzle (Benartzi and Thaler 1995). Psychological studies of loss aversion focused on different underlying predispositions of different people towards investment decisions.

Myopic loss aversion (MLA) is a behavioral happening originating from an individual's tendency for loss aversion and mental accounting approach implemented in combining available options, it is believed that persons' differences in disposition present in their propensity to exhibit MLA. Financial analysis of decisions under risk generally consider that individuals take full advantage of expected utility. Many empirical studies proposed that persons violate expected utility theory in a systematic manner. The threat of using predisposed utilities is clear that forecast of decisions will be imprecise. Most significant logic because people deviate from anticipated utility is loss aversion (Camerer 1995, Starmer 2000).

## **2.2 Personality Traits and Loss Aversion**

Evidences from economics literature found that cognitive ability is a strong predictor of financial outputs. It is instinctively understandable that cognition is necessary in learning, and in decision making. Personality traits are described as the simple primary dispositions that rise from genetics and an individual's early education. Similar to the concept of Allport (1961) individuals are believed to hold various levels of each trait. Personality is briefly presented through FFM model (Costa & McCrea, 1988) and this framework is profitable to the research's field in reviewing personality magnitudes by assimilating numerous concepts and measures. Really FFM is a Christmas tree on which outcomes of steadiness, genetic features and cultural variances are suspended like ornaments. (Costa & McCrea, 1992). FFM explained the five personality's facets which are Neuroticism, Extraversion, Conscientiousness, Agreeableness, and Openness to Experience (Church, 2000). These all five personalities perceive losses and gains based on their own perceptions.

Cronqvist and Siegel (2014) described that investment biases have strong correlation with investors' genes. The investigation of personality traits usually related with phenotypes not genotypes. According to Sapra, Beavin, and Zak (2012) genes and success are also strongly correlated as well as associated with personality traits. Szyszka, (2013) verified that people have limited subjective tendencies and are restricted by emotions while picking stocks in risky and unpredicted circumstances. The exposure of investors to different behavioral biases originates from different cognitive tendencies and underlying dispositions. These biases disturb the

rationality of investors and participate in inefficient market reactions. Another study conducted by Ferguson et al., (2011) observed that unnoticeable persons' diversity in psychological traits can aid to develop better understanding about the mechanism of behavioral biases.

Oehler et al. (2018) found that extraversion is more directed towards risk as they are more stimulated and optimistic and are willing to take investment decisions which may have high risk. Extraversion has a desire for well recognized status which plays an important role in targeting rewards and incentives. Borghans et al. (2008) concluded their study by stating that extroverts are more inclined towards taking of high risks just for thrill and enjoyment which enlarge the tolerance level of risk. They are more attracted towards high risk because their predispositions direct them towards risky investment. They take high risk without evaluating their portfolios so they are less occupied with myopic loss aversion bias.

Simmons et al. (2004) reported strong association between neuroticism and loss aversion. Neurotics have attitude of risk averting as these individuals are preoccupied with emotions linked with withdrawal attitude. Their decisions are clouded by aversive behavior and show risk adverse behavior while making investment decisions. According to Aronson Reilly & Lynn (2006) neurotics have unstable emotions and are more directed towards choosing such stocks which have less risk. They feel pain of losses more than gains. Neurotic investors show asymmetric responses to expected gains and losses. Investors with high neuroticism get frightened and prefer to invest in less risky stocks.

Conscientiousness involves high thoughtfulness levels with good self-control and goal-oriented behaviors. While describing their investment behavior, Caliendo, M., Fossen, & Kritikos, A. S. (2009) found that conscientious investors actively explore the project for investing their money. They manage their investments by observing all the gains and losses linked with that project but are more directed towards the risk's avoidance. They suffer from loss aversion bias by leaving an investment having high risk and high return as they are highly affected by losses rather than equal amount of loss.

Investors with high agreeableness trait avoid taking risk. It is as if these investors with high agreeableness are drawn to investment, they invest in less risky stocks. Their kind nature makes them risk averters. Similarly, agreeableness investors are less capable of estimating true gains and losses and make irrational decisions. Therefore, they might be bound to give in to the dread evoked by momentary misfortunes and illustrate more grounded impact of MLA. In a

comparable vein, people who score high on kind nature are less fit for keeping a composed attitude and making rational choices when things are turning out badly, and may in this way show a more noteworthy affinity to the impact of MLA (Durand et al. 2013b).

Fung and Durand (2014) elaborated that openness to experience is connected to the myopic loss aversion as individuals with openness to experience trait give more importance to innovations and has the competency for handling the emotional states. They accept challenges and take risk so the impact of myopic loss aversion is less prominent among these people.

***H1: Personality traits have a significant relationship with loss aversion.***

### **2.3 Gender and Loss Aversion**

Gender appears to effect investment decisions in a sense that men have a tendency to put their money in highly risky stocks as compared to women. Investors' inclination towards risky investment varies from males to females (Goetzmann and Kumar 2008) but earlier studies like (Hisrich et al. 1996) narrated that female investor are similar to their male counterparts in financial affairs. However, large number of studies provided strong evidences that females are likely to suffer from investment biases as compared to males. Like, Rammstedt et al. (2012) found that males are less biased than females because men have more rational approach towards risk perception while investing.

Griffin, Harris, Shu, and Tropaeolum (2011) analyzed the behavioral differences of investors and concluded that men are more risk takers and trade excessively as compared to women who are risk averse and seek to invest in less risky securities. Kovaleva et al. (2012) examined the trading activity of market with reference of gender. It was observed that male investors trade excessively as they are willing to pay higher prices for assets than females because they are more hopeful concerning dividend payment and future prices at which they may resell their stocks.

Martin et al., (2009) proposed that the market has full information of the gender differences in risk aversion, as the researchers found that females are risk averse as compared to males. Overall gender-based differences exist in risk tolerance and can affect the financial condition and reporting of the firm which indicates that women are more disposed of loss aversion than men.

Bonner (2008) investigated that woman feel losses adversely than men. Women hesitate away from risky investing activities because of lower awareness of self-effectiveness in carrying

out financial affairs and also, they need more financial and accounting aid than men.

## ***H2: Gender has significant relationship with myopic loss aversion***

### **3.0 Methodology**

In this study, variables are measured by targeting the responses of investors of stock exchange. For studying these variables, scholars contacted the investors personally to fill the questionnaires. This tool is used for evaluating the outcome of linked variables. This technique reduces cost and time for both defendants and researcher. This study uses convenient sampling as the population is large and unknown. Questionnaires were distributed among 120 retail investors of Pakistan Stock Exchange. Only 100 questionnaires were found usable on which research was conducted.

All of the study variables have been measured on a 5-point Likert scale ranging from Strongly Disagree=1 to Strongly Agree=5. Loss aversion is measured using a 10-items scale which is developed by (Chun & Ming, 2009) and (Swati Vishnoi, 2015). It was a mixed questionnaire of both researches. One sample item is “I am more concerned about a large loss in my stock than missing a substantial gain (profit).” Personality traits is measured using (Digman, 1997). Neuroticism is measured using 5-items scale. One item is “I often feel inferior to others.” Extroversion is measured using 5-items scale. One item is “I really enjoy talking to people.” Openness to experience is measured using 5-items scale. One item is “I am intrigued by the patterns I find in art and nature.” Agreeableness is measured using 4-items scale. One item is “I generally try to be thoughtful and considerate.” Conscientiousness is measured using 5-items scale. One item is “I keep my belongings neat and clean.”

Data analysis is done using SPSS technique in which reliability of scales is determined. After that regression analysis is done for this sample in order to determine the relationship between the dependent and independent variables.

### **3.1 Reliability of Questionnaire**

<b>Table 1</b>	<b>Scale Reliabilities</b>	
<b>Scale</b>	<b>Cronbach's alpha</b>	<b>No. of items</b>
Personality traits		
Neuroticism	.816	5-items
Extroversion	.825	3-items
Openness to Experience	.769	4-items
Agreeableness	.862	5-items
Conscientiousness	.828	20-items
Loss Aversion	.900	14-items



## 4.0 Findings and Results

### 4.1 Descriptive Statistics

It is used to present large sum of data into arranged and summarized form.

**Table 2** Descriptive Statistics

Variable	Sample	Minimum	Maximum	Mean	Std. Deviation
<b>Personality traits</b>					
Neuroticism	100	1.00	5.00	2.6620	.93017
Extraversion	100	1.00	5.00	3.6760	.78459
Openness to Experience	100	1.00	5.00	3.5440	.77386.
Agreeableness	100	1.25	5.00	3.2250	.78857
Conscientiousness	100	1.60	4.80	3.1520	.67277
Gender	100	1.00	5.00	3.2630	.80987
Loss aversion	100	1.00	2.00	1.4200	.49604

The table shows the data related to minimum, maximum and average values for each variable and also shows the mean and standard deviation. Neuroticism has highest mean value 3.6760 with standard deviation .78459. The maximum value for gender is 2 as the gender has been measured on two factor categories as 1 is for male and 2 is for female.

### 4.2. Regression Analysis

Table 4.2 shows the results of regression analysis for separately all three independent variables.

**Table 3.** Results of Regression Analysis

Predictors	Loss Aversion	
	B	P-values
<b>Personality Traits</b>		
Neuroticism	.018	.085
Extraversion	.282	.005
Openness to Experience	-.154	.153
Agreeableness	.223	.023
Conscientiousness	.352	.001
Gender	.217	.012
R square	.363	
Adjusted R square	.322	

+p< .10, \*p< .05, \*\*p< .01, \*\*\*p< .001

Table 3 indicates that all personality traits i.e. extraversion, agreeableness, and Conscientiousness have strong association with the loss aversion. On the other hand, Neuroticism and Openness to Experience have insignificant association with the loss aversion. Gender also has strong relationship with the loss aversion.

## 5.0 Discussion and Conclusion

Results of regression analysis indicate that among five personality traits neuroticism having ( $\beta = .018$ ,  $p=.085$ ) and openness to experience ( $\beta = -.154$ ,  $p=.153$ ) insignificantly effect loss aversion. Results are contradictory with the findings of Fung and Durand (2014) who explained that investors having openness to experience trait accept challenges and take risk and are less suffered from myopic loss aversion. Insignificant relationship is also contradictory with the studies of Aronson Reilly & Lynn (2006) as neurotics have unstable emotions and they feel pain of losses more than gains. Neurotic investors show asymmetric responses to expected gains and losses.

Extraversion, Agreeableness and Conscientiousness have significant effect on loss aversion. Hence the results prove that investors having extraversion, agreeableness and Conscientiousness traits are more inclined towards loss aversion bias. The significant results are in line with the studies of Caliendo, M., Fossen, & Kritikos, A. S. (2009) and Oehler et al. (2018). Extraversion having beta value ( $\beta = .282$ ,  $p=.005$ ) show positive relationship with loss aversion. Extroverts are highly risk takers so they take high risk without evaluating their portfolios and are more directed towards myopic loss aversion bias. ( $\beta = .223$ ,  $p=.023$ ) for agreeableness representing that more agreeable investor are more suffered from loss aversion. The reason could be kind and reserve nature of them which play an important role in making them realize losses more as compared to gains. Conscientiousness ( $\beta = .352$ ,  $p=.001$ ) are also positively correlated with loss aversion. Loss aversion affects them because they are risk averse and prefer to choose less risky investment. Gender has significant and positive relationship with loss aversion. Above table shows that gender with beta value ( $\beta = .217$ ,  $p=.012$ ) positively and significantly affect loss aversion which leads towards the acceptance of hypothesis. Results are consistent with the study of Rammstedt et al. (2012).

## 5.1 Conclusion

This study applied big five personality model to describe the psychological constructs of investors of Pakistan. Empirical findings found that Big Five Personality Model is an appropriate

measure to judge the individual differences towards the investment. Big five model is applied in behavioral finance to investigate the psychological differences of investors because investor's propensity to surrender to myopic loss aversion varies. Neurotics and openness to experience have no effect on myopic loss aversion but individuals with Extraversion, Agreeableness and Conscientiousness have been found to be more affected by loss aversion. The results lead this study to conclude that the role of biological construct gender is very important to explain the behavior of investors. Less response rate of female investors has been found as only ten responses have been generated by female investors. All responses indicate that males are more risk loving as compared to females, so males demonstrate less myopic loss aversion as compared to females.

**Benish Shabbir:** Problem Identification and Theoretical Framework

**Moazzam Ali:** Data Analysis, Supervision and Drafting

**Aqleem Fatimah:** Data Collection, Idea Refinement

#### **Conflict of Interests/Disclosures**

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