Financial Sophistication, Personality and Stock Market Participation:

Theory and Evidence

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Abstract

This study intended to investigate the behavior of human as an investor by capturing and envisioning the reasons for stock market participation. It examines the impact of investor’s personality and emotional quotient on stock market participation. This study add to existing body of literature by investigating the moderating impact of financial sophistication, trading experience and gender between investor’s personality emotional quotient and stock market participation. The study was cross sectional with time lag data collection, used multiple regressions and archival research methodology. Andrew Hayes Process was operationalize to measure the moderating relationships among the variables. The use of regression and Andrew Hayes Process helped to empirically test and validate the research hypotheses.

The study finds that there was positive impact of extroversion and openness to experience on stock market participation. On the basis of literature it was hypothesized that there was negative relationship between conscientiousness, agreeableness, neuroticism and stock market participation. The statistical results also validate and extended the support for the proposed hypothesis. It was also hypothesized that there is positive impact of motivation and self-awareness on stock market participation. Statistical results demonstrated positive impact of motivation on stock market
participation. While results for self-awareness were counter to the expectation and showed negative association with stock market participation. The study concludes that financial literacy, trading experience and gender can modify the relationship between some basic personality traits and stock market participation. It showed that, on the one hand, behavior finance is not completely predetermined by one’s DNA, on the other, it also points out exactly what other traits that are not so influenced by financial literacy, trading experience and gender. Perhaps this implies that these traits are more predetermined by one’s innate characteristics.

The current study has used quantitative data for analysis, using qualitative interviews to gather more improved information would be an addition in the literature with influence of family resource management theory. The study has implications for policy makers and government at micro and macro level. The present study provides valuable insights and protection to vulnerable groups by exploring the financial behavior of individuals in case of financial planning and investments. Study provides interdisciplinary contribution by extending the usefulness of Big Five taxonomy and establishing personality as a viable approach with respect to stock market participation. The results of the study are in line with the Western settings and can be well generalized to the Pakistani settings. Furthermore the findings of this research provide firm grounds for future research.

**Keywords:** financial sophistication, personality, emotional quotient, trading experience, stock market participation.
CHAPTER 1

INTRODUCTION

The chapter one of the study debates in the area of behavioral finance, with respect to financial sophistication, personality, emotional quotient and stock market participation. It provides background of how early researchers had viewed the stock market participation and why it gains importance in behavioral finance. Further, this chapter introduces the importance of financial sophistication, personality and emotional quotient with respect to stock market participation. This chapter further highlights the contribution to the body of knowledge and then formulates research questions and research objectives.

The chapter also provides description of how and in what ways this study contributes in behavioral finance literature. The past literature has been discussed and this sets a sound base for the current study and clearly establishes the gap in the past literature. Therefore, the study examines the impact of personality traits on stock market participation. It also examines the impact of two dimensions of emotional quotient i.e., motivation, and self-awareness on stock market participation. In addition, the study also examines the moderating impact of financial literacy, trading experience and gender between personality, emotional quotient and stock market participation.
1.1 Background

Behavioral finance has sparked off many debates in the area of stock market participation and researchers are continuously trying to find the drivers of stock market participation (Afsharha, 2014). Financial products and markets have become multifaceted, confronting investors with new and complicated financial decisions. Due to this complexity the investors cannot effectively perform in today’s complex markets. Optimal investment is already a complex phenomenon. Finding that financially illiterate individuals choose less advantageous investment than their financially literate peers is an area which needs attention. This raises the question that, what are the forces which motivate people towards stock market participation? The answer to this question is very important. How people are like and how they are likely to think feel and act is important because nature and disposition can be assessed is several ways (Weiner, and Greene, 2017). Economic development and prosperity of individuals, societies and nations are dependent on attitude and personality of individuals. Young people want to improve their lives through investments; grownups want to secure their future. The aged people do not want to be the victims of scams and frauds, community wants to develop and become prosperous. Even age effects the portfolio composition of stocks as individuals approach retirement and impacts stock market exist (Fagereng, Gottlieb, and Guiso, 2017). Therefore, there is a need to propose new drivers for stock market participation in line with Social Learning Theory (SLT). According to social learning theory phenomenon of observational learning induce replication of observational behavior intentions. Based on the fact that a number of researchers have mused for stock market participation, however the research on stock market participation is still inconclusive.
Personality may be an important element which drives individuals towards stock market participation. According to Cobb-Clark and Schurer, (2012) personality has significant impact on the choices of individuals that they make. A Meta analysis conducted by Rauch and Frese, (2007) on the relationship between personality traits of owners, business creation and success suggested that future research should incorporate the moderating variables while checking the relationship between personality traits and business choices. The financial success can be the amalgamation of personality traits and socioeconomic background (Grable, 2000). Personality traits may have transition with the age and plays important role in financing decisions (Soto & John, 2014). It is important to know why one should care about personality. Firstly, managers give due importance to personality. Secondly, they consider individual personal characteristics as important as general mental ability. In the same vein goal achievement has strong association with personality traits (McCabe, Van Yperen, Elliot & Verbraak, 2013). Therefore no manager would ever be willing to hire someone who is careless, lazy, impulsive, unresponsive and slow in achievement striving. Therefore, the behavior of individual plays important role in the dynamics of finances (Brown & Taylor, 2014).

The increased role of behavioral aspects on investing decisions has been supported by the finance literature. A behavioral aspect includes emotional intelligence as ability to access and administer the feeling (Serrat, 2017). Although earlier research in behavioral finance has tested the impact of education, health, gender, age, internet, wealth and political orientation on stock market participation (Van Rooij, Lusardi &
Alessie, 2011; Balloch, Nicolae & Philip, 2014). Similarly in line with the future research directions of Wang (2009), the impact of knowledge on risk taking behavior should be examined in future. The impact of emotional quotient on stock market participation is consistent with Virlics (2012) direction for future research. Therefore, there is a need to check the impact of emotional quotient on stock market participation.

Financial literacy has also been considered another important element which drives individuals towards stock market participation. Multifarious financial products in the market have augmented the significance of financial literacy and attracted the attention of investors (Wang, 2009). There is a growing importance of financial literacy with respect to labour and financial markets. The young generation of Pakistan faces the challenges like: how to deal with new economic environment and emerging financial products? The current study presumes that personality, financial sophistication, and emotions are the key dimensions which may influence the investment behavior of the stock market participants. The research studies conducted in western setting regarding investment behavior of individuals (for e.g, Van Rooij, Lusardi & Alessie, 2011; Balloch, Nicolae & Philip, 2014; Bodnaruk & Simonov, 2015) are helpful for individuals of Pakistan. Therefore, there is a need to contribute in the emerging field of financial sophistication, personality and stock market participation.

Financial knowledge and skills are essential for full participation in the stock markets. The current study has helped in the assessment of financial literacy for individuals of developing country. It has assessed the financial literacy of the
individuals participating in stock markets. Understanding of concepts like numeracy, interest compounding, time value of money, differentiation between stock and mutual funds is known as the knowledge of financial literacy. Financial literacy is a skill, confidence and motivation for the application of such knowledge and understanding for the purpose of making effective decisions in financial context. Financial competence significantly impacts the performance of market participants (Bateman, Eckert, Geweke, Louviere, Thorp & Satchell, 2012). The impact of financial literacy on the behavior is in line with the future research directions of (Cole, Sampson & Zia, 2011). However, financial literacy has importance for the improvement of well-beings and societies which encourage participation in economic life. Investment decision making of individuals is related with financial literacy and consequently with the financial behavior. Less financially literate investors face more investment issues as compared to the people having financial literacy (Lusardi, Mitchell & Curto, 2010). The investors with financial literacy manage their portfolio more actively and their chances to invest in immature diversification strategies are remote. In the same vein, finance literate individuals largely allocate their investments in equities while non finance persons prefer to invest in debt instruments.

It is widely accepted that stock markets are the real engine of economic development (Habibullah, 2007). Therefore, the study tends to exploit the impact of financial sophistication, personality and emotional quotient on stock market participation as suggested by Huston (2010), that defining and measuring impacts of financial literacy is vital. To go one step beyond the prior literature, the current study
takes into account the impact of moderating variables between personality traits and stock market participation. The focal point in the literature elaborates how investor perceives risk and their motivation to take risk in accordance with their personal characteristics. Personality characteristics of investors are more important than the performance of the company. Stock prices may change due to the change in degree of risk aversion of investors participating in the stock markets. Problems that arise in the interpretation of human behavior do carry some concerns with those issues that arise when people make decision based on subjective assessment of probabilities. The subjective assessment is based on Utility Theory which as an expressive model of decision making has recently lost the favor of the researchers. The researchers have developed Prospect Theory as an alternative theory for the purpose of decision making in a risk. In this theory, decision weights have been replaced by probabilities. Stock prices may change due to the change in degree of risk aversion of investors. Higher degree of risk aversion means individuals are not willing to take risks as explained by *Prospect Theory of Kahneman, (1979).* According to this theory “*Individuals try to avoid risk in case of gains, but accept risk to avoid losses*”. Pointing to the need and in view of the foregoing arguments the study assumes that financial sophistication, personality, emotional quotient are yet other important determinants of stock market participation. To assess this assumption, there is a need to study the impact of financial sophistication, personality and emotional quotient on stock market participation. Therefore, the current study seeks to fill this gap by empirically testing their relationships. The current study has also tried to provide empirical evidences that
financial literacy, trading experience and gender may be the likely paths by which 
personality and emotional quotient affects stock market participation.

1.2 Problem Definition

Personality traits have been studied from financial, economic, social and career 
perspectives. Numerous researchers have explored the association of big five personality 
traits with different variables like financial and economical perspectives which includes 
portfolio preference (Belcher, 2010), risk aversion (Filbeck, Hatfield & Horvath, 2005),
household finances (Brown & Taylor, 2014), earnings (Nyhus & Pons, 2005),
unemployment (Viinikainen & Kokko, 2012), material values for managers (Donnelly, 
Iyer & Howell, 2012) and unemployment duration (Uysal & Pohlmeier, 2011). A social 
perspective on big five involves knowledge sharing (Matzler, Renzl, Muller, Herting & 
Mooradian, 2008), unwillingness to compete (Müller & Schwieren, 2012) and transition 
of personality traits (Soto & John, 2014). Career perspective on personality comprises of 
career success (Boudreau, Boswell & Judge, 2001), job outcomes (Heineck & Anger, 
2010), job performance (Zeigler-Hill, Besser, Vrabel & Noser, 2015), goal achievement 
(McCabe, Van Yperen, Elliot & Verbraak, 2013), learning style and achievement 
(Komarraju, Karau, Schmeck & Avdic, 2012) and prediction for personal goals (Reisz, 
Boudreaux & Ozer, 2013). Therefore, overwhelming research on personality traits 
focuses on decision making or thinking style of different personality traits. How people 
are like and how they are likely to think, feel and act is important because nature and 
disposition can be assessed is several ways (Weiner, and Greene, 2017).
However, the impact of personality on stock market participation is missing in the current body of literature. Therefore, the current research has examined the relationship between personality and stock market participation. At the same time study has illustrated that financial literacy, trading experience and gender may be the likely paths by which personality impacts stock market participation.

The role of financial literacy is very important in making optimal investment choices and is very closely linked with individual’s well being. Financial literacy is one of the important factors which explain behavioral changes. A strong correlation exists between financial literacy and behavior of individuals (Cole, Sampson & Zia, 2011). A growing body of research on financial literacy focuses on household savings (Hogarth & Beverly, 2003; Lusardi, 2008a; Hilgert, Lusardi, 2008b; Calvet, Campbell & Sodini, 2009; Gallery, Brown, Furneaux & Palm, 2011; Almenberg & Gerdes, 2012; Jappelli & Padula, 2013; Bucher-Koenen & Ziegelmeyer, 2013), pension and retirement planning (Lusardi & Mitchell, 2005; Lusardi & Mitchell, 2007a; Lusardi & Mitchell, 2007b; Lusardi, 2008; Lusardi 2008b; Lusardi & Mitchell, 2009a; 2009b; Fornero & Monticone, 2011; Bucher & Lusardi, 2011; Van Rooij, Lusardi & Alessie, 2011; Lusardi & Mitchell, 2011), young and adult (Lusardi, Mitchell & Curto, 2010) and investment behavior of individuals (Hilgert, Hogarth, & Beverly, 2003; Balloch, Nicolae & Philip, 2014: Bodnaruk & Simonov, 2015; Jappelli & Padula, 2013; Abreu and Mendes, 2010; Calcagno & Monticone, 2015; Gaudecker & Von, 2015). Low financial literacy has negative consequences for individuals as well as for societies. These consequences badly affect individuals’ short term and long term financial well being.
Less financially literate individuals also become a greater burden on governments and other tax payers.

In explaining the phenomenon of investment, the factors which are barriers for investment and stock market participation are driven by trust on financial markets (Guiso, Sapienza & Zingales, 2008), optimism (Puri & Robinson, 2007), intelligence level (Grinblatt, Keloharju & Linnainmaa, 2011), political orientation (Kaustia & Torstila, 2011), experience in stock market returns (Malmendier & Nagel, 2011), genetics and heredity (Barnea, Cronqvist & Siegel, 2010). Emotional and psychological dynamics may also have influence on the risk perception of individuals (Virlics, 2012).

There was significant diversity across individuals in investment behaviors with respect to investment in stock markets and asset allocation (Barnea, Cronqvist & Siegel, 2010).

Therefore, researchers have identified the need to research in the area of personality, emotional quotient and stock market participation. Despite extensive search not known study could be traced on the relationship between personality, emotional quotient and stock market participation. Major research with respect to stock market participation has been conducted in developed countries. Where people are more educated, stock markets are more developed and people have more opportunities to invest. Tsui, Nifadkar and Ou, (2007) are of the opinion that for the generalisability of the theories developed in the United States should be tested in non-Western settings to give confidence to researchers and practitioners. The current study has addressed this gap and tested the theories and concepts practiced in Western settings. In addition to this the current study
has operationalise the *Prospect Theory of Kahneman*. According to this theory stock prices may change due to the change in degree of risk aversion of investors. Higher degree of risk aversion means individuals are not willing to take risks (Kahneman, 1979). According to Prospect theory “*Individuals try to avoid risk in case of gains, but accept risk to avoid losses*”. According to World Bank Development Indicator/Financial Times Stock Exchange/Economic Watch, Pakistan is developing Economy. The significance of financial literacy/investment awareness less studied in Pakistan as compared to other economies. Therefore, the current study has extended theoretical and practical knowledge of financial sophistication, personality, emotional quotient in relationship to stock market participation as to give more ground work for next research. Therefore, motivated by the gap which exists in the literature, the study answers the following research questions.
1.3 Research Questions

1. What effect did extroversion have on stock market participation?

2. How do openness to experience drives individuals towards stock market participation?

3. Does neuroticism have any role in enhancing or reducing stock market participation?

4. How does conscientiousness trait impact stock market participation?

5. What is the impact of agreeableness on enhancing or reducing stock market participation?

6. Does motivation drives individuals towards stock market participation?

7. What impact self-awareness has on stock market participation?

8. Whether and how financial literacy, trading experience and gender moderate the relationship between personality traits, emotional quotient (i.e., motivation, self-awareness) and stock market participation?
1.4 **Research Objectives**

1. To empirically investigate what effect did extroversion has on stock market participation.

2. To examine how openness to experience drives individuals towards stock market participation?

3. To establish how neuroticism drives individuals towards stock market participation?

4. To investigate the impact of conscientiousness on stock market participation.

5. To assess and empirically investigate the impact of agreeableness on stock market participation.

6. To examine and empirically test the impact of motivation on stock market participation.

7. To analyze the impact of self-awareness on stock market participation.

8. To investigate whether and how financial literacy, trading experience and gender moderate the relationship between personality, emotional quotient (i.e., motivation, self-awareness) and stock market participation.
1.5 Significance of the Study

The current study provides new prospective and methods in the domain of behavioral finance by studying the impact of personality traits on stock market participation. Prospect theory has enabled to better describe the reality, and to measure the impact of personality on stock market participation. The current study establishes that financial literacy and stock market participation complementing each other. The study established whether financial capability and financial well being are interrelated or not? It is an established fact that education plays dominant role in decision making and risk taking behavior of investors. Therefore, one of the objectives of the current study was to extend theoretical and practical knowledge of personality traits, financial literacy and stock market participation to give more ground work for next research. The current study has significant implications for investors and industry. Investors with financial expertise can exert significant influence on investment decisions. The current study helped to measure the financial capabilities and thereby financial well being of Asians. The current research has established the need of consumer financial education and relevant strategies to implement financial schemes. It is well said “No country can really develop unless its citizens are educated” (Nelson Rolihlahla Mandela). But now; “No country can really develop unless its citizens are financially educated”. From an academic perspective the current study provides an opportunity to test hypotheses concerning the factors that drives individuals towards stock market participation. This current study is the first step for those individuals who are vulnerable in developing countries with low financial literacy. According to Bruhn, de Souza Leao, Legovini, Marehetti and Zia, (2013) financial education had an impact on both students and
parents. Based on the fact that number of researchers had mused for stock market participation however, current study proposed new drivers of stock market participation. The current research has provided different approaches to encourage individuals towards stock market participation for improved financial uplift.

The current study has directed the attention of educationists, researchers, governments and industrialists to take into consideration the personality traits and financial literacy in their respective fields. The study has helped in the development of financial literacy programs keeping in view the personality of investors to prevent wrong investments. Identification of personality traits and financial literacy relevant to investment management has an important step towards stock market participation. It will help in the development of financial literacy programs.

Study identifies the role for professors, educationists and policy makers to boost financial literacy for improved stock market participation. More specifically, it provides guidance to the least financially literate investors for financial decision making. In the succeeding paragraphs different definitions of stock market participation, personality traits, financial literacy, motivation, self-awareness, trading experience and gender have been provided. It then connects personality traits, financial literacy, trading experience and gender with stock market participation. The study starts with an overview of literature and casts personality traits, emotional quotient and financial literacy in the form of new drivers for stock market participation. Indigenizing the importance of financial literacy between personality traits and stock market participation has important
implications for welfare as well as for the policies intended to enhance financial literacy. This is followed by the examination of the moderating impact of financial literacy, trading experience and gender between personality traits, emotional quotient and stock market participation.
1.6 Organization and of the Thesis

The thesis comprises of five chapters. The chapter one of the study debates in the area of behavioral finance, investment management, financial literacy, emotional quotient and stock market participation. Chapter one also introduced the topic, provides background of the study and explains the research questions and research objectives of the study. Chapter ends with the significance of the study. Chapter two discusses theoretical framework which will assist in the interpretation of statistical findings. It briefly describes the theories relevant to the dependent and independent variables. It further provides literature review of variables which had helped in the formation of hypotheses to test the research questions. Chapter three reports and discusses research methodology and data analysis techniques for testing the hypotheses linked with the research questions. This chapter explains about the measurement of variables, their reliabilities, sources and use of data analysis techniques. It also reports the questionnaires and data collection. Chapter four reports descriptive statistics of the study variables. It demonstrated the results of empirical tests such as correlation, regression and moderated regression of the study variables. It also provides the interpretation of the results along with the comparison of the previous research finding. This chapter also provides the justifications of the results. Chapter five presents and concludes the thesis by summing up the main idea, research problem and its solutions. This chapter demonstrated contribution of the study, implication for research, implication for practice, implication for policy and suggestions for future research.
CHAPTER 2

LITERATURE REVIEW

2.1 Chapter Introduction

This chapter begins with theoretical framework and provides critical literature review on Big Five personality traits, financial sophistication, and two dimension of emotional quotient i.e., motivation and self-awareness. It also provides an overview of the existing literature on independent variables, dependent variable and moderating variables. Theoretical framework has helped in the formulation and interpretation of testable hypotheses. Other sections of this chapter provide theoretical alignment of the variables.

Chapter (2) literature review consists of 15 sections. Section 2.2 discusses the theoretical framework which includes Markowitz Portfolio Theory, Prospect Theory of Kahneman and Tversky, Buy the Rumor; Sell the Fact Theory and Social Learning Theory. The theoretical framework provides basis for the development of hypotheses. Section 2.3, 2.4, 2.5, 2.6, 2.7 discusses the literature review on extroversion, openness to experience, neuroticism, conscientiousness and agreeableness. Section 2.8, 2.9, 2.10 discuss the literature review on emotional intelligence, motivation and self-awareness. Section 2.11, 2.12, 2.13, 2.14 discuss the literature review on financial literacy, trading experience and gender. These sections also include the literature review on moderating impact of financial literacy, trading experience and gender. Finally, the last section 2.15 concludes the chapter.
2.2 Theoretical Framework

The goal of this section is to discuss the theoretical framework which provides basis for the development of hypotheses. Additionally, the theoretical framework also assists in the interpretation of statistical findings.

2.2.1 Markowitz Theory and Stock Market Participation

Markowitz portfolio theory is a striking contribution in the field of investment management. This theory suggests that individuals should make investment in different portfolios instead of focusing on a single investment opportunity in order to minimize risk. Investors take risks through new investments to maximize their profits and diversify their risks by investing in different companies. In this way, they apply “experimental system” which is natural and fast. It is generally accepted that human beings were able to survive during the long era of evolution due to this experimental system which is said to be the most natural and common approach to respond to the risks that exist today. But such responses to risk are viewed as irrational by the advocates of formal risk.

Current insight argues both views. Both these rational and experiential systems seem dependent on each other for guidance as both operate in parallel. Studies reveal that an effective analytical reasoning is guided by both emotion and affect. Proper integration of both schools of thought is required for rational decision making. In
Pakistan decisions are made based on past experiences guided by feelings and emotions. People prefer to take steps with the blend of feelings and experience. If they have some feeling of danger, they avoid stepping into that dark street (Slovic, Finucane, Peters & MacGregor, 2004).

Management may take into consideration the risks and returns involved in investment decisions, but they are not formally aware of the theory of risk and return. Markowitz theory helps investors in finding the expected return and risk mathematically (Perold, 2004). In the case of stock market participation, emotional and psychological dynamics may influence the risk perception and decision making of individuals. Every individual perceives risk subjectively and this perception is based on his mental and emotional dynamics. Evidence showed that mental and emotional dynamics have important and helpful role in the decision making of investors (Virlics, 2013). So how individuals perceive risk; according to their personality while participating in the stock exchange would be interesting to explore.

2.2.2 Prospect Theory of Kahneman and Tversky

It is believed traditionally that to make an evaluation of a choice as desirable or not, the net effects involved with every gain or loss are combined. For the description of contentment and enjoyment, academics use “utility”, that those instances are preferable for us that maximize utility. But, research says something opposite to it. According to research, this information is not processed in such a rational way by us. In 1979, an idea called Prospect Theory was presented by Kahneman and Tversky.
According to this theory, gains and losses are differently valued by the people and decision making is mostly based on observed gains than losses. Thus, if two equal choices one stating losses and other stating gains were given to people, the former will be chosen by them even if the same economic end result is to be achieved. *The theory states that losses bear more emotional influence than gains of an equivalent amount.* When multiple events of gains/losses occur, every event is valued individually and then joined in the creation of a cumulative feeling. Prospect theory can be used for explaining few financial behaviors which are quite illogical. For instance, some people dislike putting their money in bank for earning interest while others are reluctant to overtime work in order to avoid additional taxes. Although they can financially benefit from the extra money, this feeling of gain is not much strong to overcome their feeling of loss.

### 2.2.3 Prospect Theory and Stock Market Participation

According to prospect theory, there exists a disposition factor which can be called as a tendency for investors to hold lost stocks for a long time and sell winning stocks too soon. Here, the desirable logical action should be of holding winning stocks in order to get additional gains and selling losing stocks to prevent increasing losses. It is well known that investment in stocks involves the risk of losing money. Thus, mixed prospects are concerned with stocks. Regulations that decrease the uncertainty of stock market outcomes may increase stock market participation. Higher degree of risk aversion means individuals are not willing to take risk as explained by *Prospect Theory*
According to this theory “individuals try to avoid risk in case of gains, but accept risk to avoid losses”.

2.2.4 Buy the Rumor; Sell the Fact Theory

The above phrase refers to a phenomenon where market members carry on a trade on their expectations, which may produce a different than expected result. For example, if the news of a massive storm that can affect wheat crops start to revolve, the traders will likely start buying huge amount of wheat as a massive rise in its price is expected by them. As this news will be heard by more traders, they will start buying wheat in order to avoid losses. Thus, the theory of investment i.e., “buy the rumor, sell the fact” has played its role in the above situation. This myth is especially an appealing one because it indicates that investors are attracted by the newest and important rumors revolving in the markets. The investors acting on this rule are supposed to attain a special status in the financial world. This makes an ego flatter to imagine about what you hear and rightly determine which rumors are important to believe and which are just noise. This old axiom is of more meaning to traders than investors.

2.2.5 Buy the Rumor; Sell the Fact Theory and Stock Market Participation

Stock markets participants are likely to apply buy the rumor; sell the fact theory when the wind of an approaching acquisition or merger comes to them. To distinguish the quality of rumor is tough. To get knowledge about the authenticity of the rumor is to
know its source from where it came from. There are many institutions from where one can confirm a moving rumor and all those sources are considered reliable. Investors and traders always try to stay ahead of the market and predict market’s movement or direction. So, when different rumors start to revolve in the market, most of the times a run-up or increase in the stock price is noticed. The investors in advance start to “price-in” the rumor’s worth (either positive or negative) without genuine confirmation or announcement; thus, “buying the rumor”. But once the rumor (whether positive or negative) is authenticated, many times a decline in the stock price is noticed; thus “selling the fact”.

2.2.6 Social Learning Theory and Stock Market Participation

How people think and what elements define their behavior is described by Social Learning Theory. Three way relationships between cognitive elements, environmental stimulus and behavior are determined by Social Learning Theory (SLT). Social learning occurs in four steps, through close contact, learning from seniors, clarity of concepts and through role model behavior. It is the process and perspective through which learning takes place. Learning recognized two types of behavior, the behavior of respondent and the behavior of operant. The behavior of respondent is based on emotional dynamics. Operant behavior describes the changes in environment and their producing prizes or penalties for the performer. According to social learning theory, the primary observational learning is demonstrated through individualism and attention. Symbolic coding, perceptive group, symbolic practice and motor trial is included in retention.
Physical competences, self-observation of reproduction and correctness of response are included in motor reproduction. Outer, mediated and self-reinforcement are included in motivation. Both cognitive and behavioral frameworks are magnitudes by SLT because learning comprises attention, memory and motivation. The value sallied with SLT is the maximum learning by practicing and representative through behavior. Results of modeled behavior that value the most to individuals are probably used.

2.3 Extroversion and Stock Market Participation

“Extroversion includes characteristics such as excitability, sociability, talkativeness, assertiveness and high amounts of emotional expressiveness” (Barrick & Mount, 1991). Investors with extrovert personality show more eagerness and stimulation regarding most of the portfolios (Mitteness, Sudek & Cardon, 2012). It is further documented that extroverts prefer investment opportunities that balance out their alternatives. It has been observed that with the passage of time the satisfaction level of extroverts at work place enhances but as far as neuroticism is concerned the magnitude of their satisfaction level decreases (Scollon, Napa & Diener, 2012). With the aim of taking accurate decisions, investors having extrovert investment personality would like to make comparison of the value of stock and assessment of concerning stock with the passage of time (Jamshidinavid & Chavoshani, 2012). Personalities with characteristics of courage have positive correlation with the creativity (Galang, Castelo, Santos, Perlas & Angeles, 2016). The prominent quality of extroverts also includes the interaction with various types of people (Zhao & Seibert, 2006) Extroverts are happy to be social. So, in
this regard a study states that individuals with more social contacts are risk lover (Wasiuzzaman & Edalat, 2016).

Individuals with extrovert traits are innovative and mainly achieve superior portfolio performance. Extroversion also helps to enhance the performance of trader (Durand, Newby & Sanghani, 2008). However, individuals having extrovert personality trait shows lot of excitement in every aspect of life, therefore, the study hypothesize that:

*Hypothesis 1*: Investors with extrovert personality show more eagerness and motivation towards stock market participation.

### 2.4 Openness to Experience and Stock Market Participation

Openness to experience defines “individuals who are creative, curious, and cultured versus practical with narrow interests” (Salgado, 1997). Having an attitude of openness to experience investors are advised to scrutinize the information prevailing in the stock market vigilantly and consult with individual adept in that field. They must evaluate their capabilities and edge their fake self-confidence through making more investments (Jamshidinavid & Chavoshani, 2012). Stock market participation and profile of investors has an association. The investors with high profile perform better than those with moderate and low profile. The magnitude regarding risk acceptance, self-belief and self assessment of high profile investors is also greater than others. Old
age and experienced stockholder use to adopt rules of thumb that reveal better information regarding investment opportunities but their investment skills become useless because of age effects (Korniotis & Kumar, 2011). By perusing the correlation between personalities of investors and perceptional error, study by Sadi, Rostami, Gholipour and Gholipour, (2011) constitute that some personality types have a positive association with perceptional error but others have negative. But as far as extroversion and openness is concerned, these have direct relation with hindsight bias and over confidence bias that are showed in investment. Risk tendency has a strong link with big five personality patterns (Nicholson, Soane, Creevy & Willman, 2005).

In the same vein several studies (for example, Dohmen, Falk, Huffman, & Sunde, 2010; Borghans, Golsteyn, Heckman & Meijers, 2009) found a negative relationship between openness to experience and risk aversion. The investors having trading experience and possessing high open personality have the tendency to invest more (Mitteness, Sudek & Cardon, 2012). Individual with personality trait of openness to experience express positive attitude towards risky tasks, so the individuals having openness to experience personality trait are risk taker (Mendonca, 2016). Therefore, it is proposed that:

*Hypothesis 2:* The more the individuals are open to experience, the greater their intentions to participate in stock markets.

### 2.5 Neuroticism and Stock Market Participation
“Neuroticism refers to degree of neuroticism, impulse control, and anxiety” (Komarraju, Karau, Schmeck & Avdic, 2011). In financial decision making, behavior influence procedure, but it has not been searched that what type of genes controls, financial decisions (Kuhnen, Samanez-Larkin & Knutson, 2011).

It has been emerged that mental and emotional stimuli had great impact on decision assessment, but in the case of risk and uncertainty these factors are very fruitful in investment decisions (Virlics, 2013). Financial decision making contains a significant genetic component, but still it is unknown that how genes influence financial decision making. According to Virlics, (2013) individuals who invest less in equities and participate less in investment decisions possess a short version of the gene. Psychological evidence shows that neuroticism avoids risky and complex financial choices. The investors with a high level of neuroticism experience much regret than those having lower neuroticism while facing wrong investment decisions (Xiao, Wang & Liu, 2009). Findings of Lauriola and Levin, (2001) demonstrate that individual with high scores on Neuroticism has less tendency towards risk taking. Therefore on the basis of above arguments, the study hypothesizes that:

**Hypothesis 3:** The individuals with neurotic personality avoid risky and complex financial choices and are less likely to participate in the stock market.

### 2.6 Conscientiousness and Stock Market Participation
“Conscientiousness is exemplified by being disciplined, organized, and achievement oriented” (Komarraju, Karau, Schmeck & Avdic, 2011). Individuals having conscientiousness follows the rules of planning, organizing and prioritizing (Barrick & Mount, 1991).

Analyses show that trading and disposition effects are associated with conscientiousness (Durand, Newby, Peggs & Siekierka, 2013). The people have highly conscientious personality trait show positive attitude towards stock market participation. The influence of personality traits has a significant impact on investment management (Nga & Ken Yien, 2013). It is further argued that cooperative behavior is more strongly related to conscientiousness, extroversion, and agreeableness than to task performance. Therefore on the bases of above arguments it is hypothesize that:

Hypothesis 4: The individuals with conscientiousness personality have fewer chances of stock market participation.

2.7 Agreeableness and Stock Market Participation

“Agreeableness personality dimension includes attributes such as trust, altruism, kindness, affection, and other pro social behaviors” (Barrick & Mount, 1991). Investors with agreeableness, extroversion & conscious personalities are positively associated with overconfidence bias, but a third personality type which is neuroticism has inverse links with overconfidence bias (Zaidi & Tauni, 2012). Agreeableness, neuroticism and
openness personality of investors should analyze the market conditions before going to take any financial decision to overlook herding bias. Big five personalities are also influenced by risk taking behavior, but the demographics have no impact (Bashir, Azam, Nazish, Butt, Javed & Tanvir, 2013). So, on the basis of above argument it can be said that:

Hypothesis 5: The greater the level of individuals’ agreeableness, the lesser will be the chances of his stock market participation.

2.8 Emotional Quotient

The emotional quotient has its roots in the term ‘Mindfulness’ that is linked with Buddhist and eastern spiritual systems that has focused on imagination and conscientiousness (Bishop, Lau, Shapiro, Carlson, Anderson & Carmody, 2004) Emotional Quotient (EQ) is different from Intelligence Quotient (IQ). The IQ is generally measured by intelligence while EQ is measured through emotions of individuals’. The effective application of emotional quotient ensures more productivity. A behavioral aspect of emotional intelligence is based on the ability to manage emotions (Serrat, 2017). Assessing emotional intelligence is an easy way to assess human talent (Goleman, Boyatzis & Rhee, 2000). Goleman links emotional intelligence with the work place success. It becomes more important when the work place under consideration is stock exchange. Recent literature has mused for emotional intelligence as high performers among the others are differentiated due to emotional intelligence at the work place (McClelland, 1998). Emotional intelligence is also a distinguishing factor among
high level leaders (Boyatzis, Goleman & Rhee, 1999; Higgs & Aitkin, 2003). High quality of life is generally linked with emotional quotient (Morgan, 2003). Goleman defines emotional intelligence in terms of workplace success. The Goleman model links emotional intelligence with the work place success. It becomes more important when the work place under consideration is a stock exchange. Therefore, emotional intelligence helps to regulate and monitor emotions which endorse intellectual growth (Mayer & Salover, 1077)

The extensive research of Goleman, (1998) has proposed self-awareness, self-regulation, motivation, empathy and social skills as the core dimensions of emotional intelligence. Extensive literature review shows that there is lot of disparities among the emotional quotient dimensions (Razzar & Aftab, 2015). However Daniel Goleman, (1995) divides the emotional intelligence quotient into two streams; the relationship management skills and self management skills. The relationship skills include empathy and social skills while self-awareness, self-regulation and motivations are included in self management skills. The present study will consider only two of them, i.e., motivation and self-awareness. These dimensions are very close to the phenomena of stock market participation. The Us Army in 1918 first time used the IQ test for the recruitment at large scale. Howard Gardner’s, (1983) develop a theory of intelligence, than Salovey and Mayer, (1990) developed theories of emotional intelligence. The term emotional intelligence was popularized after the publication of emotional intelligence by Daniel Golman in (1995).

2.9 Motivation and Stock Market Participation
“Motivation has been defined as acting or behaving in a particular way. It is also defined as a reason for doing something.” Motivation is a passion which makes the individuals work beyond any type of status or monetary gains. Motivation encompasses optimism, strong commitment to achieve organizational and personal objectives. “Motivation has also been defined as acting or behaving in a particular way. It is also defined as a reason for doing something”. Emotional intelligence is an easy way to assess human talent (Goleman, Boyatzis & Rhee, 2000).

They discuss the competence of each person to demonstrate the intelligent use of the emotions, so that they can be effective at the work. It can be used to capture individual’s capability. Emotional quotient might be considered individual competences, which they use essentially for organization preference (Chiva & Alegre, 2007). The relationship between emotions and stock market participation has strong ties. The current research studies the motivation as driver of stock market participation. Emotional intelligence describes that how emotionally intelligent people behave and function in academic and workplace settings (Brackett, Rivers, Shiffman, Lerner & Salovey, 2006). The Resolving whether motivation plays a significant role in stock market participation has implications for policy makers and financial advisors. Motivation has been tested by Barrick, Stewart and Piotrowski (2002) their results proved that it mediates the relationship between personality and job performance. Explaining the investment phenomenon, factors which are barriers for investment and stock market participation are driven by optimism (Puri & Robinson, 2007) and intelligence level (Grinblatt, Keloharju & Linnainmaa, 2011). Stock market participation
is strongly and heavily influenced by emotions because one has to expedite decision making to exploit gain opportunities. An individual stock market participant surely needs emotional intelligence. It highlights the need for investigating the impact of emotional competencies at work place (Dulewicz & Higgs, 2000). Similarly, emotional intelligence is a distinguishing attribute among high level performers (Higgs and Aitkin, 2003). The current study dilates about motivation, the basic dimension relevant to stock market participation. Therefore, we can formulate the following hypothesis:

**Hypothesis 6:** Motivation has positive impact on stock market participation and drives individuals towards stock market participation.

### 2.10 Self-awareness and Stock Market Participation

“The awareness means the state or condition having consciousness and knowledge”. “The self-awareness has been defined as “awareness of some one’s own personality, including one’s traits, feeling and behaviors”. Self-awareness, ability is concerned with an individual to perceive and learn emotional states with him/her. The state of self-awareness is comprised of an individual’s knowledge about his/her own emotions, critical self-evaluation and relies on one’s own self. This dimension of emotional quotient took a long time to evolve. Gardner (1993) talk about multiple intelligences and inter-personal intelligences while Daniel Goleman (1995) added social and communication skills. Literature on emotional quotient and stock market participation is vast and growing exponentially (Grinblatt, Keloharju & Linnainmaa, 2011). Complex financial markets require individuals with more intelligence and self-
awareness for financial decisions. According to Daniel Goleman, (1995) emotional intelligence consists of five dimensions, like self-awareness, self regulation, motivation, empathy and social skills. The relevance and importance of emotions in decision making process has been emphasized by research (Sevdalis, Petrides & Harvey, 2007). They further argued that individual’s differences in the preference and exposure of emotion have been overlooked.

Emotional quotient seized a new life in aftermath of research works and bestselling book “Emotional Intelligence” by Daniel Goleman published in 1995. The conscious application of emotions ensures productivity (Danciu, 2010). Therefore, self-awareness can influence individuals to participate in the stock market. There is fast and vast growing literature on emotional quotient and stock market participation. Emotional intelligence is strongly related to stock market participation (Grinblatt, Keloharju & Linnainmaa, 2011). Emotionally intelligent employees are more committed to organization and emotional intelligence helps to reduce stress and improves job satisfaction (Abraham, 2000). In the same vein today’s complex financial markets requires individuals with more intelligence and self-awareness. It would be important to explain the stock market participation puzzle in relation to self-awareness. Self-awareness is comprised of an individual’s knowledge about his own emotions, critical self-evaluation and relies on one’s own self which very important for financial decision making. Therefore, self-awareness can influence individuals to participate in the stock market. The above arguments provide ample support to draw conclusion that there exists relationship between self-awareness and stock market participation. However, empirical
inquiry must be undertaken to substantiate the association between self-awareness and stock market participation. Therefore we, formulate the hypothesis:

*Hypothesis 7:* Self-awareness has positive impact on stock market participation and drives individuals towards stock market participation.

2.11 Financial Literacy

Financial literacy presents the concepts which are regularly practiced and keeps on changing with the passage of time (Bay, Catasu & Johed, 2014). Lack of financial knowledge has an adverse impact on investors (Yoong, 2010). Illiteracy regarding financial matters may be detrimental for investors and individuals who are unaware of the basic finance concepts which can damage investment ability. It is also found that household equip with financial knowledge has not suffered much from the recent financial crises due to their financial literacy (Bucher-Koenen & Ziegelmeyer, 2011). Investors who make decisions on brokers’ provided information need to judge risk and return of that particular investment (Volpe, Kotel & Chen, 2002). The financial literacy in investors is positively correlated with investment diversification (Abreu & Mendes, 2010). While lacking of financial literacy leads to poor confidence towards credit market participation (Disney & Gathergood, 2013).
2.12 Moderating Role of Financial Literacy

Finance literature has highlighted the significance of behavioral finance in financial decisions. Individual financial decisions are affected by financial literacy. There is an association among financial knowledge, wealth growth and financial decisions (Jappelli & Padula, 2011).

Investors who are older, more intuitive, having a high open personality have the tendency to invest more (Mitteness, Sudek & Cardon, 2012). Investor possessing extroversion personality trait makes investment on a short term basis but, on the other hand, investors who are risk adverse avoid making investment on short term as well as long term basis. In the same vein, persons open to experience are more inclined towards long term investments; however, openness does not foresee short term investments (Mayfield, Perdue & Wooten, 2008). Individual behavior regarding investment in the stock market is quite different for every individual who sale out attractive investment by keeping downsizing investment and consider only previous positive operations. Individuals avoid negative information and do not like to own diversified stocks (Barber & Odean, 2011). Therefore, this study proposes that:

Hypothesis 8: Financial literacy moderates the relationship between big five personality traits, emotional quotient and stock market participation.
2.13 Moderating Role of Gender

Generally, the degree of risk aversion increases with age. Individuals with older age are more risk averse than the younger ones. Furthermore, gender might play an important role in stock market participation. Generally, female are more risk averse than the males. The attitude of adults towards risk also affects their children. Children of risk adverse parents are more likely to become more risk averse in the future. There is a difference in the attitude of men and women regarding stock market participation. In the same vein individual risk taking ability depend upon his knowledge regarding rules of investment, wealth level and gender (Dulebohn, 2002). Men are commonly more likely to own stocks than women. Also, due to long term inequalities imposed on women, even now a day they are less active in stock market participation. In line with Prospect Theory of Kahneman and Tversky (1979), “people try to avoid risk in case of gain and accept risk to avoid losses”. The risk taking behavior of individuals is in accordance with Prospect Theory. There was significant difference between level of financial literacy between males and females (Adam, Boadu & Frimpong, 2017). The combine study of financial literacy and attitude proved that financial literacy is independent of generic attitude towards inequality based on gender and race (Montagnoli, Moro, Panos & Wright, 2017). Investors who are older, more intuitive, having a high open personality have the tendency to invest more (Mitteness, Sudek & Cardon, 2012). Consequently, this study hypothesizes that:

Hypothesis 9: Gender moderates the relationship between big five personality traits, emotional quotient and stock market participation.
2.14 Moderating Role of Trading Experience

When investors share their experience with peers, the latter might learn the basic concepts of the stock market and they may start to participate in the stock market. Even portfolio composition of stocks is effected by age as individuals approach retirement and also impacts stock market exist (Fagereng, Gottlieb, and Guiso, 2017). Investors who are older, more intuitive, having a high open personality have the tendency to invest more (Mitteness, Sudek, & Cardon, 2012). Increased stock market participation among peers automatically triggers others towards stock market participation. Nicolosi, Peng and Zhu, (2009) documents that traders experience helps with performance of the portfolio, particularly most experienced investors have a higher chance of return on their portfolios. In the same vein investors who are older, more intuitive, having a high open personality has the tendency to invest more (Mitteness, Sudek & Cardon, 2012). Therefore, personality traits may have transition with the age and plays important role in financing decisions (Soto & John, 2014). The return motivates investors for stock market participation. Therefore, trading experience and stock market participation may move together in the same direction. The study proposed that:

Hypothesis 10: Trading experience moderates the relationship between big five personality traits, emotional quotient and stock market participation.
2.15 Summary

This chapter provides literature review on financial sophistication personality and stock market participation. Majority of the literature cited has focused on the Big five personality traits that are extroversion, openness to experience, neuroticism, conscientiousness and agreeableness in relation to stock market participation. This section also provides extensive literature review on financial sophistication, emotional quotient, trading experience and gender with respect to stock market participation. The theoretical framework has also been discussed. Hence the thesis examines the direct impact of personality and emotional quotient on stock market participation. In addition to this thesis also provided the moderating impact of financial literacy, trading experience and gender between personality, emotional quotient and stock market participation. Theories related to personality, emotional quotient and investment management are discussed in order to establish bases for development of research questions and hypothesis to empirically test the research questions. Review of literature helped to align the relationship of personality emotional quotient and stock market participation.
CHAPTER 3

RESEARCH METHODOLOGY

3. Chapter Introduction

This chapter reports and discusses the collection of data, measurements of the study variables, conceptualization and operationalisation of statistical models. It shows the research methodology and data analysis techniques use to test the hypotheses linked with the research questions. The hypotheses were developed on the bases of theoretical framework presented in the previous chapter. Current chapter explains the measurement of the variables, their reliabilities, and data analysis techniques. It also highlight the procedure followed in the collection of data, creation of questionnaires on Google Forms for online data collection. The statistical models have been drawn by using Andrew Hayes process (2013). These statistical modeling provides help in empirically testing and validating the hypotheses developed in literature review section.

Chapter 3 proceeds as follows: section 3.1 explains about collection of data, section 3.2 explains measures of financial sophistication, measure of personality traits, measure of motivation and self-awareness, control variables and their scales. Section 3.4 to 3.8 briefs about type of study, study settings, unit of analysis, population and sampling technique. Section 3.9 to section 3.15 explains about data analysis, correlation analysis, regression analysis and moderating regression analysis. Section 3.16 to section 3.34 explains about model specifications for empirical analysis by using Andrew Hayes process (2013). Finally section 3.35 summaries the chapter.
3.1 Research Design

The research is intended to investigate the actual behavior of human as an investor capturing highly important dimension of stock market participation and envisioned the reasons for stock market participation. Therefore, this study is descriptive type. With the aim of testing, research model and analyzed study variables. Correlation and regression is being used and is considered best in the world for hypotheses testing. The Ordinary Least Square (OLS) has the following assumptions: that linear regression models are linear in parameters, sample must be drawn randomly from the population, the conditional mean should be zero. There is no multi-collinearity, homoscedasticity and autocorrelation. There error terms are normally distributed. The limitations of ordinary least square includes the outliers, non-linearities as in reality most systems are not linear, too many variables can cause difficulties, dependence among variables may lead to poor prediction when independent variables are correlated, wrong choice of error function may cause heteroskedasticity, there may also be wrong choice of independent variables and noise in the independent variables.

The study is a non-contrived (field study with minimal researcher interference) and data collection is cross sectional with time lag (at different point of time, twice from each respondent). In collection of primary data following cautions are made to avoid biasness; minimal researcher interference, bundle of reverse questionnaires, screening of nebulous responses. Non contrived study settings give the researchers a true picture as the researcher does not influence the environment while observing or collecting the data.
3.2 Collection of Data

To capture the representative sample the data has been collected from Karachi, Lahore and Islamabad stock exchanges now named as Pakistan stock exchange. Currently stock markets are complimented with sizable Muslim population with the ambition of ‘One Belt, One Road’. The future of Pakistan stock exchange will shine brighter than ever. Therefore Pakistan being an important Asian country in terms of stock market has been selected for acquisition of data. The brokerage houses working in the big cities of Pakistan were also contacted through personal and professional links. Access to stock market participants were also made possible through the owners of brokerage houses. The data has been collected through onsite administration of questionnaires. A cover letter was attached with the questionnaires to assured respondents for the confidentiality of responses and purpose of the study. The cover letter also contains the information regarding voluntary participation and confidentiality of the respondents. Respondents completed the survey 1 that contained information related to personality and stock market participation. In addition to this each respondent reported his gender, age, trading experience, email and phone number and name in the demographics part of the survey. Respondents were again contacted after three to four weeks for survey 2 which contained information related to financial sophistication, and emotional quotient i.e., motivation and self-awareness. The two surveys were cross checked through demographics, as both forms contained demographic information of respondents including gender, age, email, phone number and name.
The questionnaires were distributed among the Pakistan Stock Exchange (PSE) participants, of the 600 distributed questionnaires, we received 451 complete questionnaires. Therefore our final response rate for the 451 useable matched responses was 75%. The study was cross sectional with time lag data collection through survey one and survey two. The time lag data collection procedure had helped the respondents to provide their thoughtful response. This procedure of data collection has also helped to avoid common method biased. Institute of Cost and Management Accountants of Pakistan (ICMAP) and Institute of Chartered Accountants of Pakistan (ICAP) are the professional institutes which provide financial education to their students. Both the institutes maintain the database of their members working in different industries including stock exchanges and brokerage houses of Pakistan.

The researcher is a fellow member of (ICMAP). Therefore, being a fellow member of the institute, I was able to gain access to the members who were actively involved in stock market participation. The questionnaires were mailed to them by using database maintained by their institutes; afterwards they were also persuaded through reminder mails and phone message service to fill the questionnaires. The online data collection may be vital mean of data collection because individual are free to response the questions independently. This also enables researchers to know exactly what respondents want to say.

3.2.1 Collection of Data through Google Form
The data has also been collected through online survey using Google Forms. Surveys (one & two) were created on Google Forms and responses were collected from stock market participants. The Google Forms helped researchers to connect to stock market participants. The data collection through internet and Google Forms helps to avoid reporting biases (Chary & Krosnick, 2009). Even sometimes individual’s are not ready to response the questions fairly in face to face collection of data, so if this is the case then online data collection may be vital mean of data collection because under this method, individual are free to response the question independently. This also enables researchers to know exactly what respondents want to say. The following links were created to collect the data.

3.2.2 The Link of Survey 1:

Below mentioned link represents the online survey 1 conducted for the sake of subject study. From this link all questions regarding study variable can be traced. https://docs.google.com/a/riphah.edu.pk/forms/d/1Z_lqWCK72G87mVn4mXIPHyguCJx8hX9IpeHVXthCstU/edit?usp=forms_home&ths=true

3.2.3 The Link of Survey 2:

The second survey about the study variable is available at link mentioned below. https://docs.google.com/a/riphah.edu.pk/forms/d/1V45ro3HhwbPfbN3He47rrUTX_EMqXpCQnY-MyFsSNzM/edit?usp=forms_home&ths=true

3.3 Measures
3.3.1 Scale and Measures for Financial Literacy

Financial literacy is defined as "people's ability to process economic information and make informed decisions about financial planning, wealth accumulation, debt, and pensions" (Lusardi & Mitchell, 2014). Financial literacy helps in short term and long term financial decisions process (Fernandes, Lynch & Netemeyer, 2014). The questions of financial literacy comprises of three parts, i.e., fundamental financial literacy, basic financial literacy and advance financial literacy. These are known as the Big Three. The first question tests the knowledge about interest rate. The second question tests the knowledge of inflation. The third tests the knowledge of risk diversification. In this scenario respondent should know the difference between single company stock and mutual fund.

3.3.2 Measure for Fundamental Financial Literacy

Some researchers (Lusardi, 2008; Lusardi & Mitchell, 2008; Lusardi & Mitchell, 2009; Lusardi & Mitchell & Curto, 2010; Lusardi & Mitchell, 2011(a) 2011(b); Lusardi and Mitchell, 2013) has used first three questions (Numeracy, compounding of interest rate and impact of inflation) for measuring financial literacy and named them as fundamental financial literacy concepts.

3.3.3 Measure for Basic Financial Literacy

Basic financial literacy is relevant to interest rates, interest compounding, inflation, discounting and nominal versus real values. The first question numeracy of
this survey deals with computation of the simple interest rate, second question of survey tackle the issue of how compound interest rate annually calculated, the third question is designed to access impact of interest rate on investment, question number four aware us about the fluctuation in the value of money with the passage of time and fifth question deals with illusion in the value of money. All these five questions are used to measure basic financial literacy (Lusardi & Mitchell, 2008; Lusardi & Mitchell, 2009; Van Rooij, Lusardi & Alessie, 2011; Lusardi & Alessie, 2011; Almenberg & Gerdes, 2012; Gathergood, 2012; Bucher-Koenen & Ziegelmeyer, 2013; Gaudecker & Von, 2015).

3.3.4 Measure for Advance Financial Literacy

Advance financial knowledge is relevant to risk diversification, impact of interest rates on bond prices and functioning of stock markets (Van Rooij, Lusardi & Alessie, 2011; Almenberg & Gerdes, 2012; Balloch & Philip, 2014). These questions are designed to access the advance financial knowledge of the society.

3.3.5 Measure for Financial Sophistication?

Financial sophistication has been measured by using financial literacy scale developed by Lusardi and Mitchell (2008; 2011). The scales contain the questions regarding numeracy, interest compounding, inflation and risk diversification. The first three questions are named as “The Big Three.” The first question out of the Big Three measures numeracy and capacity to do simple calculations, regarding interest rates. The second question out of Big Three measures understanding regarding inflation in the context of simple financial decision. The third question out of Big Three measure joint knowledge about difference between stock and stock mutual funds. To answer question
three the respondent requires the knowledge of the difference between stock and stock mutual funds.

*The Big Three* questions are simple, brief and good differentiators (Olivia, Mitchell & Lusardi, 2015). *The Big Three* also helps to create differentiation among degrees of financial sophistication. The basic four principals followed in the formation of these questions includes, simplicity, relevance, brevity, and capacity to differentiate (Olivia, Mitchell & Lusardi, 2015). Simplicity means questions measures basic knowledge relating to decision making in an intertemporal settings. Relevance means the questions are relating to the people’ day to day financial decision making over the life cycle. These questions capture general instead of specific idea. Brevity means the less number of questions can secure widespread adoption. Capacity of differentiation: means the questions have the capacity to differentiate between financial knowledge for comparison. Survey two was designed to measure and evaluate financial sophistication. The financial sophistication was measured using seven questions including *Big Three*. These questions contained numeracy, interest compounding, inflation, time value of money and money Illusion. The sixth and seventh questions, measure the individual knowledge about risk and portfolio, risk diversification, portfolio choices and investment, the riskiness of a company and stock versus a stock mutual fund. Such as, “Is it safer to invest in one business or multiple businesses”? “Buying a single company stock usually provides a safer return than a stock mutual fund”. Five options were provided for each question which contains one correct and four incorrect options. Only one option for each question was correct the remaining options were incorrect. The
options of do not know and refuse to answer were also provided. These questions have been used by different researcher to measure financial sophistication (Lusardi and Mitchell, 2014; Lusardi and Mitchell, 2007, Lusardi and Alessie, 2011). These concepts are normally used by individuals in normal life for financial planning and financial decision making (Van rooij, Lusardi and Alessie, 2011).

3.3.6 Measures for Personality

Personality is usually defined as “an individual's unique and relatively stable patterns of behavior, thoughts and emotions” (Baron, 1993). Researchers are of the opinion that there are five core personality dimensions. Researchers have mused for the dimensions of personality over many years. Starting from the study of Fiske (1949) and further this research was expended by Norman (1967), Smith (1967), Goldnerg (1981), McCrae, & Costa (1987), Costa & McCrae, (1992) and Bay, Catasus, and Johed, (2014). A big five personality dimension represents a range between two dimensions. Like extroversion represents a range between extreme extroversion and extreme introversion. Therefore normally people lies somewhere between two ranges of each dimension. Personality traits have been measured by using The Big Five Inventory of (John, Donahue, & Knetle, 1991) on a five point Likert scale ranging from disagreeing strongly = 1 to agree strongly = 5. With anchors 1 = strongly disagree, 2 = agree, 3 = neither agree/nor disagree, 4 = agree, 5 = strongly agree. The Big Five Inventory has been developed by John, Donahue and Knetle (1991) of University of California, Berkley, Institute of personality and social research. The scale is also available in John and Srivastava (1999) named as The Big Five trait taxonomy: History, measurement, and
theoretical perspectives. *Handbook of personality: Theory and research*: 102-138, New York: Guilford Press. The current study contains five constructs of personality traits. This includes extroversion, openness to experience, neuroticism, conscientiousness and agreeableness. For measurement of personality traits high levels scores communicate to high levels of construct and low level of scores communicate to low levels of construct.

3.3.7 Measures for Extroversion

Extroversion has been assessed using a five point Likert scale ranging from disagreeing strongly = 1 to agree strongly = 5. With anchors 1 = strongly disagree, 2 = agree, 3 = neither agree/nor disagree, 4 = agree, 5 = strongly agree. Examples of the items include, “I see myself as someone who is talkative” Confirmatory Factor Analysis (CFA) is commonly used method to develop tests, for example test for personality, test for intelligence or test for surveys (Asparouhov & Muthen, 2009). Therefore, to measure the impact of extroversion on stock market participation, confirmatory factor analysis has been conducted to test whether measure of construct are consistent with researchers understanding of the specific construct. The results of (CFA) revealed a good fit for the model. Goodness of Fit Index (GFI) = 0.92 and Root Mean Square Error of Approximation (RMSEA) = 0.05. Therefore, to create overall measure of extroversion, the study averaged scores on all 8 items relating to extroversion, such that high score reflected high in extroversion and low score reflected low in extroversion. The Cronbach alpha reliability for extroversion was 0.84. The reliability meets the acceptable standard criteria of (Nunnally & Bernstein, 1994). Refer to Table (3.5)
extroversion has been calculated by the following questions which also include reverse questions:

Extroversion: 1, 6r, 11, 16, 21r, 26, 31r, 36

### 3.3.8 Measures for Openness to Experience

Openness to experience has been measured using a five point Likert scale ranging from disagreeing strongly = 1 to agree strongly = 5. With anchors 1 = strongly disagree, 2 = agree, 3 = neither agree/nor disagree, 4 = agree, 5 = strongly agree. Example of items includes, “I see myself as someone who can be tense”. The Confirmatory Factor Analysis (CFA) was conducted. The results of (CFA) revealed a good fit for the model. Goodness of Fit Index (GFI) = 0.95 and Root Mean Square Error of Approximation (RMSEA) = 0.05. Therefore, to create overall measure of openness to experience, the study averaged scores on all 10 items relating to openness to experience, such that high score reflected high in openness to experience and low score reflected low in openness to experience. The internal consistency reliability for openness to experience was 0.83. The reliability meets the acceptable standard criteria. Refer to Table (3.5), the openness to experience has been calculated by the following questions which also include reverse questions:

Openness to experience: 5, 10, 15, 20, 25, 30, 35r, 40, 41r, 44

### 3.3.9 Measures for Neuroticism
Neuroticism has been assessed using a five point Likert scale ranging from disagreeing strongly = 1 to agree strongly = 5. With anchors 1 = strongly disagree, 2 = agree, 3 = neither agree/nor disagree, 4 = agree, 5 = strongly agree. Example of items includes, “I see myself as someone who does a thorough job”. The (CFA) was conducted. The results of (CFA) revealed a good fit for the model. Goodness of Fit Index (GFI) = 0.93 and Root Mean Square Error of Approximation (RMSEA) = 0.06. Therefore, to create overall measure of neuroticism, the study averaged scores on all 8 items relating to neuroticism, such that high score reflected high in neuroticism and low score reflected low in neuroticism. The Cronbach alpha reliability for neuroticism was 0.77. The reliability meets the acceptable standard criteria. Refer to Table (3.5) neuroticism has been calculated by the following questions which also include reverse questions:

Neuroticism: 4, 9r, 14, 19, 24r, 29, 34r, 39

3.3.10 Measures for Conscientiousness

Conscientiousness has been measured by using a five point Likert scale ranging from disagreeing strongly = 1 to agree strongly = 5. With anchors 1 = strongly disagree, 2 = agree, 3 = neither agree/nor disagree, 4 = agree, 5 = strongly agree. Example includes, “I see myself as someone who does a thorough job”. The (CFA) was conducted. The results of (CFA) revealed a good fit for the model. Goodness of Fit Index (GFI) = 0.92 and Root Mean Square Error of Approximation (RMSEA) = 0.05.
Therefore, to create overall measure of conscientiousness, the study averaged scores on all 9 items relating to conscientiousness, such that high score reflected high in conscientiousness and low score reflected low in conscientiousness. The Internal consistency reliability for conscientiousness was 0.74. The reliability meets the acceptable standard criteria of (Nunnally & Bernstein, 1994). Refer to Table (3.5) conscientiousness has been calculated by the following questions which also include reverse questions:

Conscientiousness: 3, 8r, 13, 18r, 23r, 28, 33, 38, 43r

### 3.3.11 Measures for Agreeableness

Agreeableness has been measured by using a five point Likert scale ranging from disagreeing strongly = 1 to agree strongly = 5. With anchors 1 = strongly disagree, 2 = agree, 3 = neither agree/nor disagree, 4 = agree, 5 = strongly agree. Example of items includes, “I see myself as someone who is helpful and unselfish with other” The Confirmatory Factor Analysis (CFA) was conducted. The results of (CFA) revealed a good fit for the model. Goodness of Fit Index (GFI) = 0.91 and Root Mean Square Error of Approximation (RMSEA) = 0.06. Therefore, to create overall measure of agreeableness, the study averaged scores on all 9 items relating to agreeableness, such that high score reflected high in agreeableness and low score reflected low in agreeableness. The Cronbach alpha reliability for agreeableness was 0.72. The reliability meets the acceptable standard criteria of (Nunnally & Bernstein, 1994). Refer to Table
(3.5) agreeableness has been calculated by the following questions which also include reverse questions:

| Agreeableness: | 2r, 7, 12r, 17, 22, 27r, 32, 37r, 42 |

### 3.3.12 Measure for Motivation

“Motivation has been defined as acting or behaving in a particular way. It is also defined as a reason for doing something.” Motivation is a passion which makes the individuals work beyond any type of status or monetary gains. Motivation encompasses optimism, strong commitment to achieve organizational and personal objectives. Emotional intelligence is an easy way to assess human talent (Goleman, Boyatzis & Rhee, 2000). The competence of each person to demonstrate the intelligent use of the emotions, so that they can be effective at the work. The extensive research of Goleman (1998) has proposed five dimensions of emotional intelligence, such as self-awareness, self-regulation, motivation, empathy and social skills. The present study has focused only two of them, i.e., motivation and self-awareness. These dimensions are very close to the phenomena of stock market participation.

Motivation was measured using five point Likert scale with anchors 1 = not at all describes me, 2 = describes me a little, 3 = describes me moderately well, 4 = describes me well, 5 = describes me very well. The Confirmatory Factor Analysis (CFA) was conducted. The results of (CFA) revealed a good fit for the model. Therefore, to create overall measure of motivation, the study averaged scores on all 12 items relating to
motivation. For motivation high levels of scores communicate to high in motivation and low levels of scores communicate to low in motivation. The Cronbach alpha reliability for motivation was 0.85. The reliability meets the acceptable standard criteria of (Nunnally & Bernstein, 1994).

3.3.13 Measure for Self-awareness

“Awareness means the state or condition having conscientiousness and knowledge”. The self-awareness has been defined as “awareness of some one’s own personality, including one’s traits, feeling and behaviors”. Self-awareness is concerned with an individual’s to perceive and learn emotional states with himself. The state of self-awareness is comprised of an individual’s knowledge about his own emotions and critical self-evaluation. Self-awareness has been measured by using five point Likert scale ranging from not at all describes me = 1 to describes me very well = 5. With anchors 1 = not at all describes me, 2 = describes me a little, 3 = describes me moderately well, 4 = describes me well, 5 = describes me very well. The Confirmatory Factor Analysis (CFA) was conducted. The results of (CFA) revealed a good fit for the model. To create overall measure of self-awareness, the study averaged scores on all 12 items relating to self-awareness, such that high score reflected high in self-awareness and low score reflected low in self-awareness. The Cronbach alpha reliability for self-awareness was 0.80. The reliability meets the acceptable standard criteria of (Nunnally & Bernstein, 1994).
Measures for Stock Market Participation

“Stock market participation is defined as owning individual stocks or mutual funds” (Van, Lusardi, & Alessie, 2011). In this study, stock market participation is a dependent variable. The information has been obtained from individuals who are trading in stock exchanges and brokerage houses of Pakistan. An individual will be considered stock market participant if he owns stocks or mutual funds. The dependent variable, i.e., stock market participation is a dummy variable equal to one for individual owning stock and equal to zero for not owning stocks (Grinblatt, Keloharju & Linnainmaa, 2011). It is reasonable to expect that stock market participant may be the individual who is involved in trading i.e., selling and buying of stocks and mutual funds (Guiso, Sapienza & Zingales, 2008). In the current study stock market participation was assessed using five point Likert scale, ranging from never participated = 1 to very regularly participated = 5. With anchors 1 = never participated, 2 = seldom participated, 3 = sometime participated, 4 = often participated, 5 = always/very regularly participated. Therefore, to create overall measure of stock market participation, the study averaged the score, such that high score reflected high in stock market participation and low score reflected low in stock market participation.

Table 3.8

Measures for Stock Market Participation

How frequently do you participate in stock exchange?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>Seldom</td>
<td>Some time</td>
<td>Often</td>
<td>Very regular</td>
<td></td>
</tr>
</tbody>
</table>
3.4 Control Variables

The study used gender, age and trading experience as control variables because of their possible effect on stock market participation. A one-way ANOVA comparing gender and stock market participation revealed that there were significant difference in stock market participation ($F = 13.479, p < 0.000$). A one-way ANOVA comparing age and stock market participation revealed that there were significant difference in stock market participation ($F = 2.554, p < 0.038$). A one-way ANOVA comparing trading experience and stock market participation revealed that there were significant difference in stock market participation ($F = 17.158, p < 0.000$). Hence the study uses gender, age and trading experience as control variables. The one-way ANOVA were significant for gender, age and trading experience. Therefore while calculating regression control variables were entered in the first step. At the second step independent variables were entered and then at step three moderating variable (their interaction terms) were entered.

3.5 Type of Study

This is a causal study where the impact of personality, motivation and self-awareness has been checked on stock market participation. The study has also explored the moderating role of financial literacy, trading experience and gender between personality traits and stock market participation. In addition to this study has also explored the moderating impact of financial literacy, trading experience and gender between motivation, self-awareness and stock market participation.
3.6 Study Setting

This is a field study because participants, i.e. the stock market participants of Pakistan Stock Exchange (PSE) have been contacted to fill the questionnaires. The stock market participants were contacted personally by visiting them in Islamabad, Lahore and Karachi stock exchanges. The stock market participants who were trading on line were connected through email. In this regard survey one and survey two were created on Google Forms and links of these forms were sent through mail. The participants were reminded through mails and phone (SMS) service.

The brokerage house working in different areas of Pakistan were also contacted to get information from stock market participants, who were trading in (PSE) through these brokerage houses. The link of survey one & two are given below

https://docs.google.com/a/riphah.edu.pk/forms/d/1Z_lqWck72G87mVn4mxIPHyguCJx8hX9IpeHVXthCstU/edit?usp=forms_home&ths=true

https://docs.google.com/a/riphah.edu.pk/forms/d/1V45ro3HhwbPfbN3He47rrUTX_EMqXpCQnY-MyFsSNzM/edit?usp=forms_home&ths=true.

3.7 Unit of Analysis

The unit of analysis for this research was individuals’ participants of Pakistan Stock Exchange (PSE). The individuals who were participating in the stock exchange through different brokerage houses in different areas of Pakistan were also contacted
personally and through Google forms. In this way the sufficient efforts were put in to make data more accurate and reliable.

3.8 Population and Sample Size

The population of the current study was comprised of the individual’s participants of the Pakistan stock exchange and brokerage houses of Pakistan. The sample of the current study was stock market participants trading in Pakistan Stock Exchange. The investors participating in the stock exchange through different brokerage houses has also been included in our sample.

3.9 Sampling Technique

The study was based on purposive sampling for the purpose of data collection. Purposive sampling is non-probability sampling technique which is based on the characteristics of population and study objectives. The data has been collected from the investors participating in stock exchanges and brokerage houses of Pakistan. The rationale behind purposive sampling was to get the data from stock market participants to empirically test the research hypothesis and to achieve research objectives. Based on purposive sampling, appropriate number of questionnaires was distributed among the investors of the stock exchanges and brokerage houses of Pakistan. The questionnaire also includes a set of demographic properties of respondent along with independent, dependent and moderating variables.
3.10 Diagnostic Testing

Data collected for the current research was gathered, categorized and analyzed by keeping in mind the objectives of the study. First of all missing values, outliers, minimum values and maximum values were checked. The reliabilities of questionnaires have been checked by using Statistical Package for Social Sciences (SPSS). Then mean of the variables has been calculated. Correlation analysis has been performed to know the relationship among dependent and independent variables. Regression analysis has been performed to measure the effect of one variable on the other variable. Validity is an assessment to measure if the scale is measuring what it is supposed to measure. The concept of validity has evolved to answer questions whether logical relations built in theory are matching with empirical relations between test scores (Cronbach & Meehl, 1955). The operationalisation of validity is translated into convergent and discriminant validity (Peter, 1981). The mathematical way to assess the convergent validity is to see the loadings of specific items, which are supposed to be greater than twice of standard errors (Anderson & Geribibg, 1988).

3.11 Normality and Scale Reliability

Normality is based on the statistical concept of normal distribution. The data set which has a normal distribution will have a symmetrical mountain shape which confirms its normality. Data distribution which has significant results of high skewness and kurtosis indicates its non-normality which will definitely effect on the estimation of data.
Reliability means dependability of the collected data. Reason of testing the reliability of the data is to find out the accuracy of the data. In the light of classical test theory, reliability is defined as the result of squared correlations between true and observed test scores (Li, 2003). Checking the reliability of the data is the first and most important step while analyzing the data because if the reliability is less than the standard value, then further analysis of the data cannot be conducted and research will be voided. Statistically, reliability is sampling strength of any statistic measurement such as the correlation coefficient, a variance or a mean (Knapp, 2001). The Cronbach alpha coefficient is the most common way to measure the reliability of the scales. Cronbach alpha examines the internal consistency between items which indicates how closely the items are related to one another in a certain group (Cronbach, 1970). The alpha value ranging between 0.7 and 0.8 is “Acceptable”. The alpha value ranging between 0.8 and 0.9 is consider “Good” and the alpha value ranging above 0.9 is consider “Excellent”.

3.12 Correlation Analysis

The very purpose of correlation is to indicate a relationship between two variables. Correlation is used to examine directions of the variables, whether variables move in similar or opposite direction. Correlation is also used to investigate the intensity and to assess the direction of the association among independent and dependent variables. It is different from regression analysis in a way that it does not consider the contributory relationship for the variables under study. The correlation analyzes relationship in view of variables moving in the same or opposite direction. The most common method used to calculate correlation coefficient is the Pearson correlation coefficient also named as Pearson bivariate correlations. The value of correlation
ranges from -1.00 to +1.00. Whereas -1.00 value present perfect negative correlation, while +1.00 indicates perfect positive correlation among the variables.

3.13 Regression Analysis

Regression analysis is widely used to predict and estimate the relationship among variables. Correlation analysis shows the strength of the X variable with Y variable. Whereas the regression analysis reveals the predictions about Y from the values of X. It is used to draw conclusion regarding variable dependence on each other. The regression analysis is also used to estimate the dependence of one variable over the other variable, where the dependent variable is regressed on independent variables. The linear regression between two variables is explained with the help of two factors, i.e., regression line and the factors not taken while regressing. Linear regression is generally used in statistics to find out the relationship between the dependent and independent variables. Ordinary Least Square (OLS) have assumptions like: that linear regression models are linear in parameters, sample must be drawn randomly from the population and the conditional mean should be zero. There is no multi-collinearity, homoscedasticity and autocorrelation. There error terms are normally distributed. The limitations of (OLS) includes the outliers, non-linearities as in reality most systems are not linear, too many variables can cause difficulties, dependence among variables may lead to poor prediction when independent variables are correlated, wrong choice of error function may cause heteroskedasticity, there may also be wrong choice of independent variables and noise in the independent variables.
3.14 **Moderating Effect**

The term moderation refers to “when” or “for whom” a variable that predicts dependent variable (Frazier, Tix & Barron, 2004). A moderator is a variable that change, alter, enhance, reduce or give strength to the relationship between independent and dependent variables (Barron & Kenny, 1986). Moderator variable may be either categorical (e.g. Sex or race) or continuous variable that is age, etc. To check whether moderator has any effect on the predictor and criterion variable, an interaction term is created for which significance is examined between moderator and independent variable and if results provide significant interaction, then it's deemed that moderation takes place.

3.15 **Model Specifications for Empirical Analysis**

Reliability of the scale has been checked by Cronbach alpha as it has the most utility for multi item scale (Cooper & Schindler, 2006). The details of the models for statistical analysis to test the hypotheses are explained below. The hypothesis has been tested by using ordinary least square regression (OLS). In the field of behavioral sciences statistical moderation analyses are usually checked by using Andrew Hayes Process (2013). The same has been applied to check the moderating impact of financial literacy, trading experience and gender between personality, emotional quotient and stock market participation.
Andrew Hayes Process

Andrew Hayes process is defined as “A versatile computational tool for observed variable mediation, moderation, and conditional process modeling” (Hayes, 2013). In the behavioral sciences statistical moderation and mediation analysis is widespread. These analyses are used in the analysis of mediated moderation, moderated mediation or in conditional process modeling. Andrew Hayes process is a statistical computational tool for analysis of moderation and mediation. Process is also used to analysis the combination of moderation and mediation as a conditional process model. Process generates conditional effects in models having moderation and also generates conditional indirect effects in moderation, mediation models with a single or multiple mediators. Multiple moderating variables can be specified to operate in parallel or in sequence in moderation models because of process.

Statistical Model to Check the Impact of Extroversion on Stock Market Participation

Extroverts are more inclined towards social activities. “They are realistic, practical, talkative, and active” (Costa & McCrae, 1992). They show more interest in leadership. Individuals having extrovert personality exhibit energetic approach towards practical world. An extrovert includes traits such as “sociability, activity, assertiveness, and positive emotionality” (Barrick & Mount, 1991). Because of behavior, extrovert
investors show more eagerness and stimulation regarding most of portfolios (Mitteness, Sudek & Cardon, 2012).

The following model was formulated to test the impact of extroversion on stock market participation.

\[ SMP = \beta_0 + \beta_1 (Ext) + \varepsilon_{SMP} \]  

\textit{(Model 1)}

Where:

\[ SMP = \text{Stock market participation} \]
\[ Ext = \text{Extroversion} \]

3.18 Statistical Model to Check the Impact of Extroversion on Stock Market Participation with Moderating Effect of Financial Literacy, Trading Experience and Gender

\[ SMP = \beta_0 + \beta_1(Ext) + \beta_2(FL) + \beta_3(TE) + \beta_4(G) + \beta_5(Ext)(FL) + \beta_6(Ext)(TE) + \beta_7(Ext)(G) + \varepsilon_{SMP} \]  

\textit{(Model 1.1)}

\[ SMP = \beta_0 + [\beta_1 + \beta_5(FL) + \beta_6(TE) + \beta_7(G)]Ext + \beta_2(FL) + \beta_3(TE) + \beta_4(G) + \varepsilon_{SMP} \]  

\textit{(Model 1.1.1)}

Where:

\[ SMP = \text{Stock market participation} \]
\[ Ext = \text{Extroversion} \]
In this model the conditional effect of extroversion on stock market participation is \([\beta_1 + \beta_5(FL)+\beta_6(TE)+\beta_7(G)]EX\). It is clear from the above that effect of extroversion on stock market participation is not a single number. It is a function of financial literacy, trading experience and gender, or simple slop of extroversion. \(\beta_1\) estimates the effect of extroversion on stock market participation, when FL, TE and G=0 and \(\beta_5, \beta_6, \beta_7\) estimates how much the effect of extroversion on stock market participation changes as FL,TE, G, changes by one unit.

### 3.19 Statistical Models to Check the Impact of Openness to Experience on Stock Market Participation

“Openness to experience describes the breadth, depth, originality, and complexity of an individual’s mental and experiential life” (Barrick & Mount, 1991). Having an attitude of openness to experience investor is advised to scrutinize the information prevailing in the stock market vigilantly and consult with individual adept in that field. They must evaluate their capabilities and edge their fake self-confidence through making more investment (Jamshidinavid & Chavoshani, 2012). The
following model was formulated to test the association between openness to experience and stock market participation.

\[
SMP = \beta_0 + \beta_1 (Open) + \epsilon_{SMP}
\]  

*(Model 2)*

Where:

\[ \text{SMP} = \text{Stock market participation} \]

\[ \text{Open} = \text{Openness to experience} \]

### 3.20 Statistical Model to Check the Impact of Openness to Experience on Stock Market Participation with Moderating Effect of Financial Literacy, Trading Experience and Gender

\[
SMP = \beta_0 + \beta_1(Open) + \beta_2(FL) + \beta_3(TE) + \beta_4(G) + \beta_5(Open)(FL) + \beta_6(Open)(TE) + \beta_7(Open)(G) + \epsilon_{SMP}
\]  

*(Model 2.1)*

\[
SMP = \beta_0 + [\beta_1 + \beta_5(FL) + \beta_6(TE) + \beta_7(G)]Open + \beta_2(FL) + \beta_3(TE) + \beta_4(G) + \epsilon_{SMP}
\]  

*(Model 2.1.1)*

Where:

\[ \text{SMP} = \text{Stock market participation} \]

\[ \text{Open} = \text{Openness to experience} \]

\[ \text{TE} = \text{Trading Experience} \]

\[ \text{FL} = \text{Financial Literacy} \]
In this model the conditional impact of openness to experience on stock market participation is \([\beta_1 + \beta_5(FL) + \beta_6(TE) + \beta_7(G)]\)OE. It is clear from the above that effect of openness to experience on stock market participation is not a single number. It is a function of financial literacy, trading experience and gender, or simple slope of openness to experience. \(\beta_1\) estimates the effect of openness to experience on stock market participation, when FL, TE and G = 0 and \(\beta_5, \beta_6, \beta_7\) estimates how much the effect of openness to experience on stock market participation changes as FL, TE, G, changes by one unit.

3.21 Statistical Model to Check the Impact of Neuroticism on Stock Market Participation

“Individuals' steadiness of mood, their ability to withstand minor setbacks, failures, difficulties, and other stresses without becoming upset emotionally is called neuroticism” (Barrick & Mount, 1991). In financial decision making, behavior influences procedure, but it is not researched that what type of genes controls, financial decisions (Kuhnen, Samanez & Knutson, 2011)

The following model was formulated to test the association between neuroticism and stock market participation.

\[
SMP = \beta_0 + \beta_1 (Neur) + e_{SMP}
\]

(Model 3)
Where:

\[ SMP = \text{Stock market participation} \]

\[ \text{Neur} = \text{Neuroticism} \]

### 3.22 Statistical Model to Check the Impact of Neuroticism on Stock Market Participation with Moderating Effect of Financial Literacy, Trading Experience and Gender

\[ SMP = \beta_0 + \beta_1(\text{Neur}) + \beta_2(\text{FL}) + \beta_3(\text{TE}) + \beta_4(\text{G}) + \beta_5(\text{Neur})(\text{FL}) + \]
\[ \beta_6(\text{Neur})(\text{TE}) + \beta_7(\text{Neur})(\text{G}) + \epsilon_{\text{SMP}} \]  
(Model 3.1)

\[ SMP = \beta_0 + [(\beta_1+\beta_5(\text{FL})+\beta_6(\text{TE})+\beta_7(\text{G}))\text{Neur} + \beta_2(\text{FL}) + \beta_3(\text{TE}) + \]
\[ \beta_4(\text{G}) + \epsilon_{\text{SMP}} \]  
(Model 3.1.1)

Where:

\[ \text{SMP} = \text{Stock market participation} \]
\[ \text{Neur} = \text{Neuroticism} \]
\[ \text{TE} = \text{Trading Experience} \]
\[ \text{FL} = \text{Financial Literacy} \]
\[ \text{G} = \text{Gender} \]

In this model the conditional effect of neuroticism on stock market participation is \([(\beta_1+\beta_5(\text{FL})+\beta_6(\text{TE})+\beta_7(\text{G}))\text{OE}.\) It is clear from the above that effect of Neuroticism on stock market participation is not a single number. It is a function of financial literacy,
trading experience and gender, or simple slop of Neuroticism. \( \beta_1 \) estimates the effect of Neuroticism on stock market participation, when FL, TE and G=0 and \( \beta_5, \beta_6, \beta_7 \) estimates how much the effect of Neuroticism on stock market participation changes as FL, TE, G, changes by one unit.

3.23 Statistical Model to Check the Impact of Conscientiousness on Stock Market Participation

“Features of this dimension include high levels of thoughtfulness, with good impulse control and goal-directed behaviors” (Goldberg, 1990). Those high in conscientiousness tend to be organized and mindful of details. While selecting momentum stocks in portfolio selection, conscientiousness, agreeableness and femininity are found to be associated. Analyses of trading and disposition effects are associated with conscientiousness (Durand, Newby, Tant & Trepongkaruna, 2013). The following model was formulated to test the association between conscientiousness and stock market participation.

\[
SMP = \beta_0 + \beta_1 (\text{Cons}) + \varepsilon_{SMP} \quad (\text{Model 4})
\]

Where:

\[
\text{SMP} = \text{Stock market participation} \\
\text{Cons} = \text{Conscientiousness}
\]
3.24 Statistical Model to Check the Impact of Conscientiousness on Stock Market Participation with Moderating Effect of Financial Literacy, Trading Experience and Gender

\[ SMP = \beta_0 + \beta_1(Cons) + \beta_2(FL) + \beta_3(TE) + \beta_4(G) + \beta_5(Cons)(FL) + \beta_6(Cons)(TE) + \beta_7(Con)(G) + \varepsilon_{SMP} \]  
(Model 4.1)

\[ SMP = \beta_0 + [\beta_1 + \beta_5(FL) + \beta_6(TE) + \beta_7(G)]Cons + \beta_2(FL) + \beta_3(TE) + \beta_4(G) + \varepsilon_{SMP} \]  
(Model 4.1.1)

Where:

- SMP = Stock market participation
- Cons = Conscientiousness
- TE = Trading Experience
- FL = Financial Literacy
- G = Gender

In this model the conditional effect of conscientiousness on stock market participation is \([\beta_1 + \beta_5(FL)+\beta_6(TE)+\beta_7(G)]Con\). It is clear from the above that effect of Conscientiousness on stock market participation is not a single number. It is a function of financial literacy, trading experience and gender, or simple slop of Conscientiousness.
B₁ estimates the effect of Conscientiousness on stock market participation, when FL, TE and G=0 and β₅, β₆, β₇ estimates how much the effect of Conscientiousness on stock market participation changes as FL, TE, G, changes by one unit.

3.25 Statistical Model to Check the Impact of Agreeableness on Stock Market Participation

“Agreeableness includes attributes such as trust, altruism, kindness, affection, and other pro social behaviors” (Barrick & Mount, 1991). Investors with agreeableness, extroversion & conscious personalities are positively associated with overconfidence bias, but a third personality type which is neuroticism has inverse links with overconfidence bias (Zaidi & Tauni, 2012).

The following model was formulated to test the association between agreeableness and stock market participation.

\[ SMP = \beta_0 + \beta_1 (\text{Agree}) + \varepsilon_{SMP} \]  

(Model 5)

Where:

- SMP = Stock market participation
- Agree = Agreeableness

3.26 Statistical Model to Check the Impact of Agreeableness on Stock Market Participation with Moderating Effect of Financial Literacy, Trading Experience and Gender
\[ SMP = \beta_0 + \beta_1 (\text{Agree}) + \beta_2 (\text{FL}) + \beta_3 (\text{TE}) + \beta_4 (G) + \beta_5 (\text{Agree})(\text{FL}) + \]
\[ \beta_6 (\text{Agree})(\text{TE}) + \beta_7 (\text{Agree})(G) + \varepsilon_{\text{SMP}} \]  
\text{(Model 5.1)}

\[ SMP = \beta_0 + (\beta_1 + \beta_5 (\text{FL}) + \beta_6 (\text{TE}) + \beta_7 (G))\text{Agree} + \beta_2 (\text{FL}) + \beta_3 (\text{TE}) + \beta_4 (G) + \varepsilon_{\text{SMP}} \]  
\text{(Model 5.1.1)}

Where:

- SMP = Stock market participation
- Agree = Agreeableness
- TE = Trading Experience
- FL = Financial Literacy
- G = Gender

In this model the conditional effect of agreeableness on stock market participation is \([\beta_1 + \beta_5 (\text{FL}) + \beta_6 (\text{TE}) + \beta_7 (G)]\text{Ag}\). It is clear from the above that effect of agreeableness on stock market participation is not a single number. It is a function of financial literacy, trading experience and gender, or simple slop of agreeableness. \(\beta_1\) estimates the effect of agreeableness on stock market participation, when FL, TE and G=0 and \(\beta_5, \beta_6, \beta_7\) estimates how much the effect of agreeableness on Stock market participation changes as FL,TE, G, changes by one unit.

3.27 Statistical Model to Check the Impact of Motivation on Stock Market Participation
The following model was formulated to check the impact of motivation on stock market participation.

\[ SMP = \beta_0 + \beta_1 (M) + \varepsilon_{SMP} \]  

(Model 6)

Where:

\( SMP = \) Stock market participation.

\( M = \) Motivation.

3.28  

Statistical Model to Check the Impact of Motivation on Stock Market Participation with Moderating Effect of Financial Literacy, Trading Experience and Gender

\[ SMP = \beta_0 + \beta_1(M) + \beta_2(FL) + \beta_3(TE) + \beta_4(G) + \beta_5(M)(FL) + \beta_6(M)(TE) + \beta_7(M)(G) + \varepsilon_{SMP} \]  

(Model 6.1)

\[ SMP = \beta_0 + [\beta_1 + \beta_5(FL) + \beta_6(TE) + \beta_7(G)]M + \beta_2 (FL) + \beta_3 (TE) + \beta_4 (G) + \varepsilon_{SMP} \]  

(Model 6.1.1)

Where:

\( SMP = \) Stock market participation

\( M = \) Motivation

\( TE = \) Trading Experience

\( FL = \) Financial Literacy

\( G = \) Gender
In this model the conditional effect of motivation on stock market participation is 
\[\beta_1 + \beta_5(FL) + \beta_6(TE) + \beta_7(G)\]. It is clear from the above that effect of motivation on stock market participation is not a single number. It is a function of financial literacy, trading experience and gender, or simple slop of motivation. \(\beta_1\) estimates the effect of motivation on stock market participation, when FL, TE and G=0 and \(\beta_5, \beta_6, \beta_7\) estimates how much the effect of motivation on stock market participation changes as FL, TE, G, changes by one unit.

3.29 Statistical Model to Check the Impact of Self-awareness on Stock Market Participation

The following model was formulated to test the impact of self-awareness on stock market participation.

\[SMP = \beta_0 + \beta_1(Self-awareness) + \varepsilon_{SMP}\]  \hspace{1cm} (Model 7)

Where:

\(SMP = \) Stock market participation.

3.30 Statistical Model to Check the Impact of Self-awareness on Stock Market Participation with Moderating Effect of Financial Literacy, Trading Experience and Gender
\[ SMP = \beta_0 + \beta_1 (Self\text{-}awareness) + \beta_2 (FL) + \beta_3 (TE) + \beta_4 (G) + \beta_5 (Self\text{-}awareness)(FL) + \beta_6 (Self\text{-}awareness)(TE) + \beta_7 (Self\text{-}awareness)(G) + \varepsilon_{SMP} \]  
\hfill (Model 7.1)

\[ SMP = \beta_0 + [\beta_1 + \beta_5 (FL) + \beta_6 (TE) + \beta_7 (G)] \text{Self-awareness} + \beta_2 (FL) + \beta_3 (TE) + \beta_4 (G) + \varepsilon_{SMP} \]  
\hfill (Model 7.1.1)

Where:

- SMP = Stock market participation
- TE = Trading Experience
- FL = Financial Literacy
- G = Gender

In this model the conditional effect of self-awareness on stock market participation is \([\beta_1 + \beta_5 (FL) + \beta_6 (TE) + \beta_7 (G)]\)M. It is clear from the above that effect of self-awareness on stock market participation is not a single number. It is a function of financial literacy, trading experience and gender, or simple slop of self-awareness. \(\beta_1\) estimates the effect of self-awareness on stock market participation, when FL, TE and G=0 and \(\beta_5, \beta_6, \beta_7\) estimates how much the effect of self-awareness on stock market participation changes as FL, TE, G changes by one unit.

3.31 Impact of Personality and Emotional Quotient on Stock Market Participation with Moderating Role of Financial Literacy
The following model was formulated to test the impact of personality and emotional quotient on stock market participation with moderating role of financial literacy.

\[
SMP = \beta_0 + \beta_1(Ext) + \beta_2(Open) + \beta_3(Neur) + \beta_4(Cons) + \beta_5(Agree) + \\
\beta_6(Ext)(FL) + \beta_7(Open)(FL) + \beta_8(Neur)(FL) + \beta_9(Cons)(FL) + \\
\beta_{10}(Agree)(FL) + \beta_{11}(self-awareness)(FL) + \beta_{12}(Motivation)(FL) + \varepsilon_{SMP}
\]

(Model 8)

Where:

SMP = Stock market participation

Ext = Extroversion

Open = Openness to experience

Neur = Neuroticism

Cons = Conscientiousness

Agree = Agreeableness

FL = Financial Literacy

3.32 Impact of Personality and Emotional Quotient on Stock Market Participation with Moderating Role of Trading Experience
The following model was formulated to test the impact of personality and emotional quotient on stock market participation with moderating role of trading experience.

\[
SMP = \beta_0 + \beta_1(Ext) + \beta_2(Open) + \beta_3(Neur) + \beta_4(Cons) + \beta_5(Agree) + \beta_6(Ext)(TE) + \beta_7(Open)(TE) + \beta_8(Neur)(TE) + \beta_9(Cons)(TE) + \beta_{10}(Agree)(TE) + \beta_{11}(Self-awareness)(TE) + \beta_{12}(Motivation)(TE) + \varepsilon_{SMP}
\]

(Model 9)

Where:

- SMP = Stock market participation
- Ext = Extroversion
- Open = Openness to experience
- Neur = Neuroticism
- Cons = Conscientiousness
- Agree = Agreeableness
- TE = Trading Experience

3.33 Impact of Personality and Emotional Quotient on Stock Market Participation with Moderating Role of Gender

The following model was formulated to test the impact of personality and emotional quotient on stock market participation with moderating role of gender.
$SMP = \beta_0 + \beta_1(Ext) + \beta_2(Open) + \beta_3(Neur) + \beta_4(Cons) + \beta_5(Agree) + \\
\beta_6(Ext)(G) + \beta_7(Open)(G) + \beta_8(Neur)(G) + \beta_9(Cons)(G) + \\
\beta_{10}(Agree)(G) + \beta_{11}(self-awareness)(G) + \beta_{12}(Motivation)(G) + \varepsilon_{SMP}$

(Model 10)

Where:

$SMP = $ Stock market participation

Ext = Extroversion

Open = Openness to experience

Neur = Neuroticism

Cons = Conscientiousness

Agree = Agreeableness

G = Gender

Table 3.9

The Summary of Variables, Label, Description and Data Source

<table>
<thead>
<tr>
<th>Variable</th>
<th>Label</th>
<th>Nature of Variables</th>
<th>Description</th>
<th>Data Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable</td>
<td>SMP</td>
<td>Numerical</td>
<td>Measured through five options</td>
<td>Questionnaire</td>
</tr>
<tr>
<td>Stock Market Participation</td>
<td>SMP</td>
<td>Numerical</td>
<td>Measured through five options</td>
<td>Questionnaire</td>
</tr>
</tbody>
</table>
### Independent Variables

<table>
<thead>
<tr>
<th>Financial Sophistication</th>
<th>Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numeracy</td>
<td>Num</td>
</tr>
<tr>
<td>Interest Compounding</td>
<td>Int.C</td>
</tr>
<tr>
<td>Inflation</td>
<td>Inflat</td>
</tr>
<tr>
<td>Time value of Money</td>
<td>TVM</td>
</tr>
<tr>
<td>Money Illusion</td>
<td>M.illu</td>
</tr>
<tr>
<td>Risk</td>
<td>Risk</td>
</tr>
<tr>
<td>Portfolio</td>
<td>Port</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personality</th>
<th>Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agreeableness</td>
<td>Agree</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>Cons</td>
</tr>
<tr>
<td>Extroversion</td>
<td>Ext</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>Neur</td>
</tr>
<tr>
<td>Openness to Experience</td>
<td>Open</td>
</tr>
</tbody>
</table>
### 3.34 Summary of the Chapter

This chapter describes the methodology to test the hypothesis developed in the previous chapter. Selection of appropriate research methodology and data collection is very important in conducting research. The research methodology chosen for this study is quantitative approach. The research studies mentioned in the chapter, attempt to find out the relationship between financial sophistication, Big five personality traits,
emotional quotient and stock market participation. Statistical models have been drawn for each research question. These models have been operationalised by using SPSS data analysis technique. On the bases of these statistical models the research question have been examined to achieve research objectives of the study.

There are ten hypotheses, the first hypothesis $H_1$ test the impact of extroversion on stock market participation. Hypothesis $H_2$ test the impact of openness to experience on stock market participation. $H_3$ test the impact of neuroticism on stock market participation. $H_4$ and $H_5$ test the impact of conscientiousness and agreeableness on stock market participation respectively. $H_6$ tests the impact of motivation on stock market participation. $H_7$ tests the impact of self-awareness and stock market participation. Hypotheses $H_8$, $H_9$, $H_10$ test the moderating impact of financial literacy, trading experience and gender between personality, emotional quotient and stock market participation. Summary of research questions, research objectives, and hypotheses has been provided. In the following chapter four empirical analysis statistical results, findings, in line with research question and objectives has been discussed.

CHAPTER 4

EMPIRICAL ANALYSIS

4. Chapter Introduction

The chapter begins with descriptive and demographic statistics, empirical results of correlation, regression and moderation of the study variables. It also provides the
interpretation of the results along with the comparison of the previous research findings and justifications of the results. The structure of the chapter is provided as follows: descriptive analysis, demographics, results of financial literacy, scale reliabilities, summary of variables, correlation, regression results of the variables, results by Andrew Hayes Process, to show the moderating impact among the variables and comparison of research questions, objectives, hypothesis and findings.

Chapter 4 proceeds as follows: Section 4.1 elaborates the primary summary of the variables used in the study along with descriptive analysis and demographics. Section 4.2 elaborate results of financial literacy and scale reliabilities. The next section proceeds with the variables, number of items to measure construct, scale reliabilities, correlations and regression results. Section 4.9 explains results of linear multiple regression analysis. Section 4.10 to 4.24 presents the results of the research questions and their measurement. It also contains the results of Andrew F. Hayes’s Process. The summary of research question, research objectives, hypotheses and findings of the study has been presented at the end of the chapter along with the summary of the chapter.

4.1 Descriptive Analysis

Descriptive statistics elaborate the primary summary of the variables used in study. Ordinarily the descriptive statistics exhibit the median, mean, standard deviation, maximum and minimum results of the variables. Descriptive statistics exhibits the summary of the huge data in a very simplistic way. The descriptive statistics has been
presented in tables which show description of variables, reliabilities, summary of variables, and data sources. The tables also show the results for correlations, regressions and reliabilities for all measures. Andrew Hayes process has been operationalized to check the moderating impact of financial sophistication, trading experience and gender between personality, emotional quotient and stock market participation.

The results of the study are divided into three portions. First presents descriptive statistics of the sample, demographics, results of financial literacy and scale reliabilities. It also shows the correlation between different variables. Secondly empirical analysis has been performed to check the impact of different variables on stock market participation. Empirical analysis also provides insight on moderating results of the variables. Finally the findings of the study have been provided by using correlation, regression and Andrew F. Hayes Process.

Table 4.1

*Descriptive Statistics of the variables*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Range</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>S. D</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMP</td>
<td>451</td>
<td>4.00</td>
<td>1.00</td>
<td>5.00</td>
<td>3.521</td>
<td>1.52064</td>
</tr>
<tr>
<td>Num</td>
<td>451</td>
<td>1.00</td>
<td>.00</td>
<td>1.00</td>
<td>.7894</td>
<td>.40822</td>
</tr>
<tr>
<td>Int.C</td>
<td>451</td>
<td>1.00</td>
<td>.00</td>
<td>1.00</td>
<td>.7871</td>
<td>.40978</td>
</tr>
<tr>
<td>Inflat.</td>
<td>451</td>
<td>1.00</td>
<td>.00</td>
<td>1.00</td>
<td>.7871</td>
<td>.40978</td>
</tr>
</tbody>
</table>
TVM. 451 1.00 .00 1.00 .7849 .41133
M.illu. 451 1.00 .00 1.00 .7871 .40978
Risk. 451 1.00 .00 1.00 .7849 .41133
Port. 451 1.00 .00 1.00 .7783 .41587
Ext. 451 4.00 1.00 5.00 3.7470 1.01178
Agree. 451 4.00 1.00 5.00 3.5556 .62710
Cons. 451 4.00 1.00 5.00 3.3954 .68951
Neur. 451 4.00 1.00 5.00 3.0989 .83313
Open. 451 4.00 1.00 5.00 3.5430 .74049
Self-awareness 451 4.00 1.00 5.00 3.9501 .52134
Motivation 451 4.00 1.00 5.00 3.9898 .59662
Age 451 4.00 1.00 5.00 1.9313 .84442
TE 451 5.00 .00 5.00 3.1463 1.48200


4.2 Demographics

The survey regarding financial literacy contained seven questions which were used to access financial literacy of the stock market participants. The response of subject questions represented the knowledge of individuals regarding the following concepts. Numeracy, interest compounding, inflation, time value of money, money illusion, knowledge of risk diversification and difference between stocks and mutual funds.

4.3 Results of Financial Literacy

Among total sample of 451 participants, 86.7% respondent answered the first question that is the question regarding numeracy of the participants in right way that is
(more than Rs.102) but remaining respondent responded this question in wrong way. This response shows that 86.7% of the total respondents are subjectively financially literate. On the other hand 3.1% of the total sample refused to answer this question. The second question was about knowledge of compounding of interest rate. Among all of the survey participants 84.8% responded this question accurately and 1% marked the option of refusal and remaining participants has wrongly answered this question. So, this response rate depict that 84.8% participants own great ability about compounding of interest rate which is near the response rate of first question. Last two questions were asked to access the ability of respondents regarding knowledge of risk diversification and portfolio management. The response rate of these questions showed that among the entire sample size, 90% and 70.7% respondent accurately answered these questions. So, it means that 90% and 70% participants have the ability of risk diversification and knowledge regarding portfolio management.

Table 4.2

*The Results of Numeracy*

<table>
<thead>
<tr>
<th>More than</th>
<th>exactly Rs.102</th>
<th>less than</th>
<th>do not know</th>
<th>Refusal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rs. 102</td>
<td>Rs.102</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>86.7%</td>
<td>7.1%</td>
<td>3.1%</td>
<td>0%</td>
<td>3.1%</td>
</tr>
</tbody>
</table>

Correct Answer: (More than Rs.102)
### The Results of Interest Compounding

<table>
<thead>
<tr>
<th>More than</th>
<th>exactly Rs.200</th>
<th>less than</th>
<th>do not know</th>
<th>Refusal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rs.200</td>
<td>Rs.200</td>
<td>66%</td>
<td>27%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Correct Answer: (More than Rs.200)

Table 4.4

### The Results of Inflation

<table>
<thead>
<tr>
<th>More than</th>
<th>exactly the same</th>
<th>less than today</th>
<th>do not know</th>
<th>Refusal</th>
</tr>
</thead>
<tbody>
<tr>
<td>today</td>
<td>same</td>
<td>9.1%</td>
<td>6.1%</td>
<td>75.1%</td>
</tr>
</tbody>
</table>

Correct Answer: (Less than today)

Table 4.5

### The Results of Time Value of Money

<table>
<thead>
<tr>
<th>My friend</th>
<th>his sibling</th>
<th>they are equally rich</th>
<th>do not know</th>
<th>Refusal</th>
</tr>
</thead>
<tbody>
<tr>
<td>84.8%</td>
<td>8.1%</td>
<td>6.1%</td>
<td>0%</td>
<td>1%</td>
</tr>
</tbody>
</table>

Correct Answer: (My friend)

Table 4.6

### The Results of Money Illusion

<table>
<thead>
<tr>
<th>More than the same</th>
<th>less than today</th>
<th>do not know</th>
<th>Refusal</th>
</tr>
</thead>
<tbody>
<tr>
<td>today</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


8.1%  65.7%  24.2%  1%  1%

Correct Answer: (The same)

Table 4.7

The Results of Risk and Risk Diversification

<table>
<thead>
<tr>
<th></th>
<th>one business</th>
<th>multiple businesses</th>
<th>do not know</th>
<th>Refusal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9%</td>
<td>90%</td>
<td>0%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Correct Answer: (Multiple businesses)

Table 4.8

The Results of Stock versus Stock Mutual Fund

<table>
<thead>
<tr>
<th></th>
<th>True</th>
<th>False</th>
<th>do not know</th>
<th>Refusal</th>
<th>True</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15.2%</td>
<td>70.7%</td>
<td>13.1%</td>
<td>1%</td>
<td>15.2%</td>
</tr>
</tbody>
</table>

Correct Answer: (False)

4.4 Scale Reliability

The scale reliabilities were checked through Cronbach alpha for each variable and have been reported separately. The Cronbach alpha reliability for extroversion was 0.840. The alpha reliability for openness to experience was 0.837. The Cronbach alpha reliability for neuroticism was 0.778, the alpha reliability for conscientiousness was 0.746, and for agreeableness was 0.725. The Cronbach alpha reliabilities for motivation were 0.858 and for self-awareness was 0.809. All these reliabilities meet the acceptable standard criteria of (Nunnally & Bernstein, 1994).
Table 4.9

*The Variables, No. of Item and Cronbach Alpha Reliabilities*

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of Variable</th>
<th>No. of Items to Measure</th>
<th>Cronbach Alpha Reliabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Extroversion</td>
<td>8</td>
<td>0.840</td>
</tr>
<tr>
<td>2</td>
<td>Openness to Experience</td>
<td>10</td>
<td>0.837</td>
</tr>
<tr>
<td>3</td>
<td>Neuroticism</td>
<td>8</td>
<td>0.778</td>
</tr>
<tr>
<td>4</td>
<td>Conscientiousness</td>
<td>9</td>
<td>0.746</td>
</tr>
<tr>
<td>5</td>
<td>Agreeableness</td>
<td>9</td>
<td>0.725</td>
</tr>
<tr>
<td>6</td>
<td>Motivation</td>
<td>12</td>
<td>0.858</td>
</tr>
<tr>
<td>7</td>
<td>Self-awareness</td>
<td>12</td>
<td>0.809</td>
</tr>
</tbody>
</table>

The alpha value ranging between 0.7 and 0.8 is “Acceptable”. The alpha value ranging between 0.8 and 0.9 is consider “Good” and the alpha value ranging above 0.9 is consider “Excellent” (Nunnally & Bernstein, 1994).
Table 4.10
Correlation Matrix, Mean, Standard Deviations, Correlations, and Reliabilities
Extroversion, Openness to Experience, Neuroticism, Conscientiousness, Agreeableness, Emotional Quotient

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td>35</td>
<td>.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>G</td>
<td>.96</td>
<td>.17</td>
<td>.122</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>TE</td>
<td>3.67</td>
<td>1.51</td>
<td>.360</td>
<td>.181</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>FL</td>
<td>.57</td>
<td>.33</td>
<td>.009</td>
<td>.028</td>
<td>.134</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Extroversion</td>
<td>3.76</td>
<td>1.06</td>
<td>.026</td>
<td>.044</td>
<td>-.073</td>
<td>.154</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Openness</td>
<td>3.54</td>
<td>.74</td>
<td>-.001</td>
<td>.080</td>
<td>-.002</td>
<td>.120</td>
<td>.325</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Neuroticism</td>
<td>3.09</td>
<td>.83</td>
<td>.091</td>
<td>.006</td>
<td>.172</td>
<td>-.187</td>
<td>-.339</td>
<td>-.234</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Conscientiousness</td>
<td>3.39</td>
<td>.68</td>
<td>.100</td>
<td>-.011</td>
<td>-.165</td>
<td>.180</td>
<td>-.031</td>
<td>.046</td>
<td>-.101</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Agreeableness</td>
<td>3.55</td>
<td>.62</td>
<td>-.028</td>
<td>-.063</td>
<td>-.281</td>
<td>.104</td>
<td>-.162</td>
<td>.195</td>
<td>-.156</td>
<td>.219</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Motivation</td>
<td>3.98</td>
<td>.59</td>
<td>-.007</td>
<td>-.003</td>
<td>-.080</td>
<td>.067</td>
<td>.100</td>
<td>.113</td>
<td>-.068</td>
<td>.038</td>
<td>.166</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Self-awareness</td>
<td>3.95</td>
<td>.52</td>
<td>.066</td>
<td>.024</td>
<td>-.095</td>
<td>.151</td>
<td>.129</td>
<td>.116</td>
<td>-.065</td>
<td>.079</td>
<td>.156</td>
<td>.569</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>SMP</td>
<td>3.51</td>
<td>1.51</td>
<td>.134</td>
<td>.171</td>
<td>.360</td>
<td>.250</td>
<td>.429</td>
<td>.255</td>
<td>-.186</td>
<td>-.141</td>
<td>-.168</td>
<td>.095</td>
<td>-.025</td>
</tr>
</tbody>
</table>

N= 451; Alpha Reliabilities are presented in the parentheses. G= Gender, TE= Trading Experience, FL= Financial Literacy, SMP= Stock Market Participation, M= Mean, SD= Standard Deviation.

a. Gender type: 0=female, 1=male

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).
The correlation test has been applied to check the relationships between the dependent and independent variables. The correlation analysis also helps to investigate the direction of the relationship between the variables. Table 4.10 presents the correlation matrix which shows the correlation analysis between extraversion, openness to experience, Neuroticism, consciousness, agreeableness (independent variables) and stock market participation (dependent variable). The correlation analysis also presents the relationship analysis between motivation, self awareness and stock market participation. The correlation matrix also show the correlation between gender, trading experience, financial literacy (moderating variables) and stock market participation (dependent variable).

The correlation matrix among the variables shows that agreeableness is negatively correlated with stock market participation. The correlation between agreeableness and stock market participation was negative and significant as “r” value is \( r = -0.168, \ p < 0.01 \). Extraversion was positively correlated with stock market participation. The correlation between extraversion and stock market participation was positive and significant as “r” value is \( r = 0.429, \ p < 0.01 \). Conscientiousness is negatively correlated with stock market participation. The correlation between conscientiousness and stock market participation was negative and significant as “r” value is \( r = -0.141, \ p < 0.01 \). Neuroticism was negatively correlated with stock market participation. The correlation between neuroticism and stock market participation was negative and significant as “r” value is \( r = -0.186, \ p < 0.01 \). Openness to experience was positively correlated with stock market participation. The correlation between
openness to experience and stock market participation was positive and significant as “r” value was \( r = 0.255, p < 0.01 \).

Gender is positively correlated with the stock market participation. The correlation between gender and stock market participation was positive and significant as “r” value is \( r = 0.171, p < 0.01 \). Results also prove that in Pakistan stock markets, male participants are much dominant as compare to female. Age is positively correlated with the stock market participation. The correlation between age and stock market participation was positive and significant as “r” value is \( r = 0.134, p < 0.05 \). Trading experience is positively correlated with stock market participation. The correlation between trading experience and stock market participation was positive and significant as “r” value is \( r = 0.360, p < 0.01 \). From the correlation results it has been proved that with the increase in experience the tendency for stock market participation increases. Financial literacy was positively correlated with stock market participation. The correlation between financial literacy and stock market participation was positive and significant as “r” value is \( r = 0.250, p < 0.01 \).
Table 4.11

*Correlation Matrix, Mean, Standard Deviations, Correlations, and Reliabilities

Motivation, Self-awareness and Stock Market Participation

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age*</td>
<td>35</td>
<td>.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>G</td>
<td>.96</td>
<td>.17</td>
<td>.122**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>TE</td>
<td>3.67</td>
<td>1.51</td>
<td>.360**</td>
<td>.181**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>FL</td>
<td>.57</td>
<td>.33</td>
<td>.099</td>
<td>.028</td>
<td>.134**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Motivation</td>
<td>3.98</td>
<td>.59</td>
<td>-.007</td>
<td>-.003</td>
<td>-.080</td>
<td>.067</td>
<td>(0.85)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Self-awareness</td>
<td>3.95</td>
<td>.52</td>
<td>.066</td>
<td>.024</td>
<td>-.095**</td>
<td>.151**</td>
<td>.569**</td>
<td>(0.809)</td>
</tr>
<tr>
<td>7</td>
<td>SMP</td>
<td>3.51</td>
<td>1.51</td>
<td>.134**</td>
<td>.171**</td>
<td>.360**</td>
<td>.250**</td>
<td>.095'</td>
<td>-.025</td>
</tr>
</tbody>
</table>

N= 451; Alpha Reliabilities are presented in the parentheses. G= Gender, TE= Trading Experience, FL= Financial Literacy, SMP= Stock Market Participation, M= Mean, SD= Standard Deviation, a Gender type: 0=female, 1=male, **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).
4.5 Correlation Analysis between Motivation, Self-awareness and Stock Market Participation

The correlation test has been applied to check the relationships between the dependent and independent variables. The correlation analysis helps to investigate the strength of the relationship and direction of relationship between the variables. Table 12 presents the correlation matrix which shows the correlation analysis between motivation, self-awareness, (independent variables) and stock market participation (dependent variables). The correlation matrix also shows the correlation among gender, trading experience, financial literacy.

The correlation between self-awareness and stock market participation was negative and insignificant as “r” value was ($r = -.025, p > 0.05$). The correlation between motivation and stock market participation was positive and significant as “r” value was ($r = 0.095, p < 0.05$).
Table 4.12

Results for Main Effects and Moderated Regression Analyses

<table>
<thead>
<tr>
<th>Step</th>
<th>Variables</th>
<th>B</th>
<th>AR²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>(Constant)</td>
<td>1.344</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>-.004</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>.955</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TE</td>
<td>.342***</td>
<td>0.141***</td>
</tr>
<tr>
<td>Step 2.</td>
<td>Age</td>
<td>.015</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G</td>
<td>.570</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TE</td>
<td>.358***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ext</td>
<td>.54***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Open</td>
<td>.23***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neur</td>
<td>-.146*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cons</td>
<td>-.189*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agree</td>
<td>-.412***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FL</td>
<td>1.17***</td>
<td>0.332***</td>
</tr>
<tr>
<td>Step 3.</td>
<td>Ext x FL</td>
<td>.043***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Open x FL</td>
<td>.161***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Neur x FL</td>
<td>.060</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cons x FL</td>
<td>-.063***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Agree x FL</td>
<td>-.071</td>
<td>0.224***</td>
</tr>
</tbody>
</table>

N = 451; G = Gender, TE = Trading Experience, Ext = Extroversion, Open = Openness to experience, Neur = Neuroticism, Cons = Consciousness, Agree = Agreeableness, FL = Financial Literacy, SMP = Stock Market Participation. *p < .05. **p < .01. ***p < .001. **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).
4.6 Regression Analysis

In behavioral sciences linear multiple regressions has been commonly used as multivariate predictor technique (Podsakoff and Dalton, 1987). In the current study step wise regression analysis has been performed to show the impact of independent variables on dependent variable. Moderation impact of trading experience, gender and financial literacy between personality, emotional quotient and stock market participation has also been examined by Andrew F. Hayes process (2013).

4.7 Moderating Effect of Financial Literacy, Trading Experience and Gender

To confirm the hypotheses of moderation, control variables were entered in the first step. In the second step personality, self-awareness, motivation (independent variables) and financial literacy, trading experience and gender (moderator variables) were entered. In the third step product terms of the independent and moderated variables which if significant, confirmed moderation. Variance Inflation Factor (VIF) Score (Hair, Anderson, Tatham & Black, 1998) has been applied to check and to measure to extent to which multicollonarity among independent variables affect the accuracy of regression models. The acceptable range of the variance inflation factor score is less than 5, which is typically considers acceptable (Chatterjee & Price, 1991). The correlation and regression result of the impact of extroversion on stock market participation has been provided in section 4.8.
4.8 Impact of Extroversion on Stock Market Participation

The following model was formulated to test the impact of extroversion on stock market participation.

\[ SMP = \beta_0 + \beta_1 (Ext) + \epsilon_{SMP} \]  \hspace{1cm} (Model 1)

Where:

\[ SMP = \text{Stock market participation} \]
\[ Ext = \text{Extroversion} \]

Refer to table (4.10) the correlation matrix among the variables shows that extroversion was positively related with stock market participation. The correlation between extroversion and stock market participation was positive and significant as “r” value was \( r = 0.429, p < 0.01 \).

The results of regression in table (4.12) showed \( \beta \) coefficients, \( P \) values and \( R \) square of direct regression between extroversion and stock market participation. \( R \) square is (0.298) and probability value is \( p < 0.05 \) which show the change explained by extroversion in stock market participation. The sign of the coefficient of extroversion is positive and the value is (0.54), \( t \) value is (8.943) and \( p \) value is \( p < 0.05 \) which means that extroversion has positive and significant relationship at 5% significance level with stock market participation. Statistically it can be interpreted that one unit increase in extroversion will increase (0.54) units in stock market participation while other things remain the constant. The results prove the first hypothesis of the study that investors with extrovert personality are more eager and willing to participate in stock market.
Therefore, extroverts show more eagerness and stimulation towards most of the portfolios (Mitteness, sudek & Cardon, 2012), and the risk taking behavior of extroverts motivates them towards stock market participation (Wasiuzzaman & Edalat, 2016).

4.9 Impact of Extroversion on Stock Market Participation with

Moderating Effect of Financial Literacy, Trading Experience and Gender

\[
SMP = \beta_0 + \beta_1 (Ex) + \beta_2 (FL) + \beta_3 (TE) + \beta_4 (G) + \beta_5 (Ext)(FL) + \beta_6 (Ext)(TE) + \beta_7 (Ext)(G) + \epsilon_{SMP} \quad (Model 1.1)
\]

\[
SMP = \beta_0 + [\beta_1 + \beta_5 (FL) + \beta_6 (TE) + \beta_7 (G)] Ext + \beta_2 (FL) + \beta_3 (TE) + \beta_4 (G) + \epsilon_{SMP} \quad (Model 1.1.1)
\]

Where:

- SMP = Stock market participation
- Ext = Extroversion
- TE = Trading Experience
- FL = Financial Literacy
- G = Gender

The hypotheses have been formulated by applying Andrew F. Hayes, (2013) process. To confirm the hypotheses of moderation, in first step control variables were entered. In the second step extroversion (independent variables) and financial literacy,
trading experience and gender (moderator variables) were entered. In the third step, product terms of the independent and moderated variables which if significant, confirmed moderation. Variance Inflation Factor (VIF) Score (Hair, Anderson, Tatham & Black, 1998) has been applied to check and to measure to extent to which multicollinearity among independent variables affect the accuracy of regression models. The acceptable range of the variance inflation factor score is less than 5, which is typically considers acceptable (Chatterjee & Price, 1991).

Refer to Table (4.10) Financial literacy was positively correlated with stock market participation. The correlation between financial literacy and stock market participation was positive and significant as “r” value was \( r = 0.250, \ p < 0.01 \). Refer to Table (4.12) the interaction term of extroversion and financial literacy (Ext x FL) was significant for stock market participation \( (\beta = 0.043, \ p < 0.05; \Delta R^2 = 0.224, \ p < 0.05) \). Financial literacy moderates the relationship between extroversion and stock market participation. The interaction term of extroversion and trading experience (Ext x TE) was significant for stock market participation \( (\beta = 0.67, \ p < 0.05; \Delta R^2 = 0.225, \ p < 0.05) \). Trading experience was the second moderator of the study also moderates the relationship between extroversion and stock market participation. The interaction term of extroversion and gender (Ext x G) was significant for stock market participation \( (\beta = 0.349, \ p < 0.05; \Delta R^2 = 0.224, \ p < 0.05) \). The moderating impact of gender between personality and stock market participation was also checked. The result of the study showed that gender moderate the association between extroversion and stock market participation. The same had been documented by (Mitteness, Sudek & Cardon, 2012; Jamshidinavid & Chavoshani, 2012; Brown & Taylor, 2014; and Wasiuzzaman &
Prospect Theory of Kahneman and Tversky, explained that gains and losses are differently valued by the people and decision making is based on observed gains than losses. Thus, if two equal choices one stating losses and other stating gains were given to people, the former will be chosen by them even if the same economic end result is to be achieved. This theory states that “*losses bear more emotional influence than gains of an equivalent amount*”.

Table 4.13

*Results of the Impact of extroversion on Stock Market Participation Moderating Role of Financial Literacy (Variables, Coefficients, Se β, t, P, LLCI and ULCI) values by Andrew F. Hayes Process*

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>Se β</th>
<th>t value</th>
<th>p value</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extroversion</td>
<td>0.1996</td>
<td>.0737</td>
<td>2.7063</td>
<td>.0071</td>
<td>.0547</td>
<td>.3445</td>
</tr>
</tbody>
</table>

Independent variable = extroversion, moderator = financial literacy, outcome variable = stock market participation. Alpha level used for confidence intervals: 0.05, N = 451, LLCI = lower level confidence interval, ULCI = upper level confidence interval.

The figure 1 plots the statistical results to illustrate the interactive effects of financial literacy (FL) and extroversion (Ext) on stock market participation (SMP) at a value high i.e., mean plus standard deviation and at a value low i.e., mean minus standard deviation (M±SD).
4.10 Impact of Openness to Experience on Stock Market Participation

The following model was formulated to test the association between openness to experience and stock market participation.

\[ SMP = \beta_0 + \beta_1 (\text{Open}) + \epsilon_{SMP} \quad (Model\ 2) \]

Where:

SMP = Stock market participation

Open = Openness to experience
Refer to Table (4.10) Openness to experience was positively correlated with stock market participation. The correlation between openness to experience and stock market participation was positive and significant as “r” value was ($r = 0.255, p < 0.01$).

Refer to Table (4.12) the regression table shows the direct regression between openness to experience and stock market participation. $R$ square is (0.23) and probability value is ($p < 0.05$) which show the change explained by the model in stock market participation. The sign of the coefficient of openness to experience was positive and the value was (0.23), $t$ value was (3.834) and $p$ value was ($p < 0.05$) which means that openness to experience has positive and significant relationship at 5% level of significance with stock market participation. Statistically it can be interpreted that one unit increase in openness to experience will increase (0.23) units in stock market participation while other things remain the same.

The results proves the second hypothesis of the study that the more the individuals are openness to experience, the greater their chances to participate in stock exchange. The results of the study are in line with the findings of Nicholson, Soane, Creevy and Willman, (2005). Investors who are older, more intuitive, having a high open personality have the tendency to invest more (Mitteness, Sudek & Cardon, 2012).
4.11 Impact of Openness to Experience on Stock Market Participation

with Moderating Effect of Financial Literacy, Trading Experience and Gender

\[ SMP = \beta_0 + \beta_1 (\text{Open}) + \beta_2 (FL) + \beta_3 (TE) + \beta_4 (G) + \beta_5 (\text{Open})(FL) + \beta_6 (\text{Open})(TE) + \beta_7 (\text{Open})(G) + \epsilon_{SMP} \]  \hspace{1cm} (Model 2.1)

\[ SMP = \beta_0 + [(\beta_1 + \beta_5 (FL) + \beta_6 (TE) + \beta_7 (G))\text{Open} + \beta_2 (FL) + \beta_3 (TE) + \beta_4 (G) + \epsilon_{SMP}] \]  \hspace{1cm} (Model 2.1.1)

Where:

- SMP = Stock market participation
- Open = Openness to experience
- TE = Trading Experience
- FL = Financial Literacy
- G = Gender

In this model the conditional effect of openness to experience on stock market participation is \([\beta_1 + \beta_5 (FL) + \beta_6 (TE) + \beta_7 (G)]\text{Open}\). It is clear from the above that effect of openness to experience on stock market participation is not a single number. It is a function of financial literacy, trading experience and gender, or simple slope of openness to experience. \(B_1\) estimates the effect of openness to experience on stock market participation, when FL, TE and G=0 and \(\beta_5, \beta_6, \beta_7\) estimates how much the effect of
openness to experience on stock market participation changes as FL, TE, G, changes by one unit.

The hypotheses have been formulated by applying Andrew F. Hayes, (2013) process. To confirm the hypothesis of moderation, in first step control variables were entered. In the second step openness to experience (independent variables) and financial literacy, trading experience and gender (moderator variables) were entered. In the third step product terms of the independent and moderated variables which if significant, confirmed moderation. Variance Inflation Factor (VIF) Score (Hair, Anderson, Tatham & Black, 1998) has been applied to check and to measure to extent to which multicollinearity among independent variables affect the accuracy of regression models. The acceptable range of the variance inflation factor score is less than 5, which is typically considers acceptable (Chatterjee & Price, 1991).

Refer to Table (4.12) the interaction term of openness to experience and financial literacy (Open x FL) was significant for stock market participation ($\beta = 0.161, p < 0.05; \Delta R^2 = 0.224, p < 0.05$). Financial literacy moderated the relationship between openness to experience and stock market participation. The interaction term of openness to experience and trading experience (Open x TE) was significant for stock market participation ($\beta = 0.065, p < 0.05; \Delta R^2 = 0.230, p < 0.05$). Trading experience which was second moderator of this study has also moderated the association between openness to experience and stock market participation. The interaction term of openness to experience and gender (Open x G) was significant for stock market participation ($\beta = 0.146, p < 0.05; \Delta R^2 = 0.045, p < 0.05$). The result of the study shows that gender
Financial literacy moderated the relationship between openness to experience, and stock market participation. Trading experience which was second moderator of this study has also moderated the association between openness to experience and stock market participation. Gender impact on the association between stock market participation and rest of the variable was also checked. The result of the study shows that gender moderated the association between openness to experience and stock market participation. While establishing the relationship of financial literacy between personality and stock market participation it was established that financial literacy has significant impact, because financially literate individuals are more likely to choose better investments (Gathergood & Weber, 2017). The findings are in line with the meta-analysis of 126 impact evaluation studies which proved that financial education significantly impacts financial behavior (Kaiser & Menkhoff, 2017).

Table 4.14

Results of the Impact of Openness to Experience on Stock Market Participation

Moderating Role of Financial Literacy (Variables, Coefficients, Seβ, t, p, LLCI and ULCI values) by Andrew F. Hayes Process

<table>
<thead>
<tr>
<th>Variables</th>
<th>β</th>
<th>Seβ</th>
<th>t value</th>
<th>p value</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Openness to Experience</td>
<td>0.1852</td>
<td>.0705</td>
<td>2.6263</td>
<td>.0089</td>
<td>.0466</td>
<td>.3237</td>
</tr>
</tbody>
</table>
Independent variable = openness to experience, moderator = financial literacy, outcome variable = stock market participation. Alpha level used for confidence intervals: 0.05, N = 451. LLCI = lower level confidence interval, ULCI = upper level confidence interval.

The figure 4.2 plots the statistical results to illustrate the interactive effects of financial literacy (FL) and openness to experience (Open) on stock market participation (SMP) at a value high i.e., mean plus standard deviation and at a value low i.e., mean minus standard deviation (M±SD).

Figure 4.2: Interactive Effects of Financial Literacy (FL) and Openness to Experience (Open) on Stock Market Participation (SMP)
4.12 Impact of Neuroticism on Stock Market Participation

The following model was formulated to test the association between neuroticism and stock market participation.

\[ SMP = \beta_0 + \beta_1 (Neu) + \varepsilon_{SMP} \]  \hspace{1cm} (Model 3)

Where:

\[
\begin{align*}
SMP &= \text{Stock market participation} \\
Neur &= \text{Neuroticism}
\end{align*}
\]

Refer to Table (4.10) neuroticism was negatively correlated with stock market participation. The correlation between neuroticism and stock market participation was negative and significant as “r” value was \( r = -0.186, p < 0.01 \).

Refer to Table (4.12) the direct regression between neuroticism and stock market participation. \( R \) square was (0.298) and probability value was \( p < 0.05 \) which show the change explained by the model in stock market participation. The sign of the coefficient of neuroticism was negative and the value was (-0.146), \( t \) value was (-1.386) and \( p \) value was (0.05) which means that neuroticism has negative and significant relationship at 5% level of significance with stock market participation. Statistically it can be interpreted that one unit increase in neuroticism will decrease (0.146) units in stock market participation while other things remain the constant. The results proved the third hypothesis of the study that the individuals with neurotic personality avoid risky and complex financial choices and are less likely to participate in the stock market. Neurotic
personality trait posses low tendency towards risk taking (Lauriola & Levin, 2001). In the same way several studies (for example, Dohmen et al. 2011; Borghans, Golsteyn, Heckman & Meijers, 2009) founded a negative relationship between neuroticism and risk. The investors with a high level of neuroticism experience much regret than those having lower neuroticism while facing wrong investment decisions (Xiao, Wang & Liu, 2009). Therefore, individuals with neurotic personality avoid risky and complex financial choices and are less likely to participate in the stock market.

4.13 Impact of Neuroticism on Stock Market Participation with

Moderating Effect of Financial Literacy, Trading Experience and Gender

\[
SMP = \beta_0 + \beta_1(\text{Neur}) + \beta_2(\text{FL}) + \beta_3(\text{TE}) + \beta_4(\text{G}) + \beta_5(\text{Neur})(\text{FL}) + \\
\beta_6(\text{Neur})(\text{TE}) + \beta_7(\text{Neur})(\text{G}) + \epsilon_{SMP} \quad \text{(Model 3.1)}
\]

\[
SMP = \beta_0 + [(\beta_1 + \beta_5(\text{FL}) + \beta_6(\text{TE}) + \beta_7(\text{G}))\text{Neur} + \beta_2(\text{FL}) + \beta_3(\text{TE}) + \\
\beta_4(\text{G}) + \epsilon_{SMP} \quad \text{(Model 3.1.1)}
\]

Where:

SMP = Stock market participation

Neur = Neuroticism

TE = Trading Experience

FL = Financial Literacy

G = Gender
In this model the conditional effect of neuroticism on stock market participation is \( [\beta_1 + \beta_5(FL) + \beta_6(TE) + \beta_7(G)] \text{Neur} \). It is clear from the above that effect of neuroticism on stock market participation is not a single number. It is a function of financial literacy, trading experience and gender, or simple slop of neuroticism. \( \beta_1 \) estimates the effect of neuroticism on stock market participation, when FL, TE and G = 0 and \( \beta_5, \beta_6, \beta_7 \) estimates how much the effect of neuroticism on stock market participation changes as FL, TE, G, changes by one unit.

The hypothesis has been formulated by applying Andrew F. Hayes, (2013) process. To confirm the hypothesis of moderation, in first step control variables were entered. In the second step neuroticism (independent variables) and financial literacy, trading experience and gender (moderator variables) were entered. In the third step product terms of the independent and moderated variables which if significant, confirmed moderation. Variance Inflation Factor (VIF) Score (Hair, Anderson, Tatham & Black, 1998) has been applied to check and to measure to extent to which multicollinarity among independent variables affect the accuracy of regression models. The acceptable range of the variance inflation factor score is less than 5, which is typically considers acceptable (Chatterjee & Price, 1991).

Refer to Table (4.12) the interaction term of neuroticism and financial literacy (Neur x FL) was insignificant and for stock market participation \( (\beta = 0.060, p > 0.05; \Delta R^2 = 0.224, p < 0.05) \). Financial literacy does not moderate the relationship between neuroticism, and stock market participation. The interaction term of neuroticism and
trading experience (Neur x TE) was significant for stock market participation \((\beta = 0.07, p < 0.05; \Delta R^2 = 0.044, p < 0.05)\). Trading experience which was second moderator of this study has moderated the association between neuroticism and stock market participation. The interaction term of neuroticism and gender (Neur x G) was insignificant and negative for stock market participation \((\beta = -0.118, p > 0.05; \Delta R^2 = 0.045, p < 0.05)\). The result of the study shows that gender does not moderated the association between neuroticism and stock market participation.

Financial literacy does not moderate the relationship between neuroticism and stock market participation. The findings are in line with the study of Stolper and Walter (2017) that the economically vulnerable groups may face disadvantage because of lack of financial knowledge. Trading experience was the second moderator of the study. In case of neuroticism, trading experience moderate the relationship between neuroticism and stock market participation. Gender impact on the relationship between stock market participation and rest of the variable was also checked. The results of the study showed that gender does not moderate the relationship between neuroticism and stock market participation.

Table 4.15

*Results of the Impact of Neuroticism on Stock Market Participation Moderating Role of Financial Literacy (Variables, Coefficients, Seβ, t, P, LLCI and ULCI values) by Andrew F. Hayes Process*
<table>
<thead>
<tr>
<th>Variables</th>
<th>$\beta$</th>
<th>$\text{Se}\beta$</th>
<th>$t$ value</th>
<th>$p$ value</th>
<th>LL CI</th>
<th>UL CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroticism</td>
<td>-0.0321</td>
<td>.0575</td>
<td>-.5590</td>
<td>.5764</td>
<td>-1.1451</td>
<td>-0.0808</td>
</tr>
</tbody>
</table>

Independent variable = Neuroticism, moderator = financial literacy, outcome variable = stock market participation. Alpha level used for confidence intervals: 0.05, $N = 451$, LLCI = lower level confidence interval, ULCI = upper level confidence interval.

### 4.14 Impact of Conscientiousness on Stock Market Participation

The following model was formulated to test the association between conscientiousness and stock market participation.

$$SMP = \beta_0 + \beta_1 (\text{Con}) + \varepsilon$$  \hspace{1cm} (Model 4)

Where:

- $SMP$ = Stock market participation
- $\text{Con}$ = Conscientiousness

Refer to Table (4.10) conscientiousness was negatively related with stock market participation. The correlation between Conscientiousness and stock market participation was negative and significant as “$r$” value is ($r = -0.141, p < 0.01$). These results render support to hypothesis 4: that the individuals with conscientious personality have fewer chances of stock market participation.

Refer to Table (4.12) the direct regression between conscientiousness and stock market participation. $R$ square is (0.332) and probability value is ($p < 0.05$) which show
the change explained by the model in stock market participation. The sign of the coefficient of conscientiousness was negative and the value was (-0.189), t value was (-1.935) and p value was (0.05) which means that conscientiousness has negative and significant relationship at 5% level of significance with stock market participation. Statistically it can be interpreted that one unit increase in conscientiousness will decrease (0.189) units in stock market participation while other things remain the constant. The result proves the fourth hypothesis of the study that the individuals with conscientious personality have fewer chances of stock market participation. The results are in line with the findings of George and Zhou, (2007). The influence of personality traits has a significant impact on investment management (Nga, Ken & Yien, 2013). Therefore, the results provided empirical evidence of negative relationship between conscientiousness and stock market participation.

4.15 Impact of Conscientiousness on Stock Market Participation with Moderating Effect of Financial Literacy, Trading Experience and Gender

\[
SMP = \beta_0 + \beta_1(Con) + \beta_2(FL) + \beta_3(TE) + \beta_4(G) + \beta_5(Con)(FL) + \\
\beta_6(Con)(TE) + \beta_7(Con)(G) + \varepsilon_{SMP} \quad (Model \ 4.1)
\]

\[
SMP = \beta_0 + \{\beta_1 + \beta_5(FL) + \beta_6(TE) + \beta_7(G)\}Con + \beta_2(FL) + \beta_3(TE) + \\
\beta_4(G) + \varepsilon_{SMP} \quad (Model \ 4.1.1)
\]

Where:
SMP = Stock market participation

Con = Conscientiousness

TE = Trading Experience

FL = Financial Literacy

G = Gender

In this model the conditional effect of conscientiousness on stock market participation is \([\beta_1 + \beta_5(FL) + \beta_6(TE) + \beta_7(G)]\)Con. It is clear from the above that effect of Conscientiousness on stock market participation is not a single number. It is a function of financial literacy, trading experience and gender, or simple slop of Conscientiousness. \(\beta_1\) estimates the effect of Conscientiousness on stock market participation, when FL, TE and G=0 and \(\beta_5\), \(\beta_6\), \(\beta_7\) estimates how much the effect of Conscientiousness on stock market participation changes as FL,TE, G, changes by one unit.

The hypotheses have been formulated by applying Andrew F. Hayes, (2013) process. To confirm the hypotheses of moderation, in first step control variables were entered. In the second step Conscientiousness (independent variables) and financial literacy, trading experience and gender (moderator variables) were entered. In the third step product terms of the independent and moderated variables which if significant, confirmed moderation. Variance Inflation Factor (VIF) Score (Hair, Anderson, Tatham& Black, 1998) has been applied to check and to measure to extent to which multicollairnity among independent variables affect the accuracy of regression models. The acceptable range of the variance inflation factor score is less than 5, which is typically considers acceptable (Chatterjee & Price, 1991).
Refer to Table (4.12) the interaction term of conscientiousness and financial literacy (Con x FL) was significant for stock market participation ($\beta = 0.063, p < 0.05; \Delta R^2 = 0.224, p < 0.05$). Financial literacy moderated the relationship between conscientiousness, and stock market participation. The interaction term of conscientiousness and trading experience (Con x TE) was insignificant for stock market participation ($\beta = 0.057, p > 0.05; \Delta R^2 = 0.044, p < 0.05$). Trading experience which was second moderator of this study does not moderate the association between conscientiousness and stock market participation. The interaction term of conscientiousness and gender (Con x G) was insignificant for stock market participation ($\beta = 0.071, p > 0.05; \Delta R^2 = 0.045, p < 0.05$). Gender impact on association between stock market participation and rest of the variable was also checked. The result of the study showed that gender does moderate the association between conscientiousness and stock market participation. Financial literacy moderates the relationship between conscientiousness and stock market participation. Trading experience was the second moderator of this study. In case of conscientiousness, trading experience does not moderate the relationship between conscientiousness and stock market participation. Financial literacy also moderates the relationship between conscientiousness and stock market participation. Individual with financial literacy are more comfortable while trading in stock markets as compare to others and hence financial literacy leads to higher growth and can help in reaping the fruits of dividend (Priya & Malhotra, 2017). The individuals having conscientiousness personality traits normally do not participate in stock markets. However, if they are financially literate they start participation in stock
markets. Therefore, financial literacy modifies the relationship between some basic personality traits and stock market participation.

Table 4.16

Results of the Impact of Conscientiousness on Stock Market Participation Moderating Role of Financial Literacy (Variables, Coefficients, Seβ, t, P, LLCI and ULCI values) by Andrew F. Hayes Process

<table>
<thead>
<tr>
<th>Variables</th>
<th>β</th>
<th>Seβ</th>
<th>t value</th>
<th>p value</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conscientiousness</td>
<td>-0.1799</td>
<td>.0730</td>
<td>-2.4649</td>
<td>.0141</td>
<td>-.3233</td>
<td>-.0365</td>
</tr>
</tbody>
</table>

Independent variable = conscientiousness, moderator = financial literacy, outcome variable = stock market participation. Alpha level used for confidence intervals: 0.05, N = 451, LLCI = lower level confidence interval, ULCI = upper level confidence interval.

The figure 3 plots the statistical results to illustrate the interactive effects of financial literacy (FL) and conscientiousness (Con) on stock market participation (SMP) at a value high i.e., mean plus standard deviation and at a value low i.e., mean minus standard deviation (M±SD).

Figure 4.3: Interactive Effects of Financial Literacy (FL) and Conscientiousness (Con) on Stock Market Participation (SMP)
4.16 Impact of Agreeableness on Stock Market Participation

The following model was formulated to test the association between agreeableness and stock market participation.

\[
SMP = \beta_0 + \beta_1(Agree) + \epsilon \tag{Model 5}
\]

Where:

\(SMP\) = Stock market participation

\(Agree\) = Agreeableness

Refer to Table (4.10) agreeableness was negatively related with stock market participation. The correlation between agreeableness and stock market participation was
negative and significant as “r” value was \( r = -0.168, p < 0.01 \). These results render support to hypothesis 5 of the study that the greater the level of individuals’ agreeableness, the less will be his chances of stock market participation.

Refer to Table (4.12) the direct regression between agreeableness and stock market participation. R square was (0.298) and probability value is \( p < 0.05 \) which show the change explained by the model in stock market participation. The sign of the coefficient of agreeableness was negative and the value was (-0.412), \( t \) value was (-6.136) and \( p \) value was (0.05) which means that agreeableness has negative and significant relationship at 5% level of significance with stock market participation. Statistically it can be interpreted that one unit increase in agreeableness will decrease (0.412) units in stock market participation while other things remain the constant. The results prove the fifth hypothesis of the study that the greater the level of individuals’ agreeableness, the less will be his chances of stock market participation.

### 4.17 Impact of Agreeableness on Stock Market Participation with Moderating Effect of Financial Literacy, Trading Experience and Gender

\[
SMP = \beta_0 + \beta_1(\text{Agree}) + \beta_2(FL) + \beta_3(TE) + \beta_4(G) + \beta_5(\text{Agree})(FL) + \\
\beta_6(\text{Agree})(TE) + \beta_7(\text{Agree})(G) + \varepsilon_{SMP} \quad (\text{Model 5.1})
\]
\[ SMP = \beta_0 + [\beta_1 + \beta_5(FL) + \beta_6(TE) + \beta_7(G)]Agree + \beta_2(FL) + \beta_3(TE) + \beta_4(G) + \varepsilon_{SMP} \]

(*Model 5.1.1*)

Where:

- SMP = Stock market participation
- Agree = Agreeableness
- TE = Trading Experience
- FL = Financial Literacy
- G = Gender

In this model the conditional effect of agreeableness on stock market participation is \([\beta_1 + \beta_5(FL) + \beta_6(TE) + \beta_7(G)]\) Agree. It is clear from the above that effect of agreeableness on stock market participation is not a single number. It is a function of financial literacy, trading experience and gender, or simple slop of agreeableness. \(\beta_1\) estimates the effect of agreeableness on stock market participation, when FL, TE and G = 0 and \(\beta_5, \beta_6, \beta_7\) estimates how much the effect of agreeableness on Stock market participation changes as FL, TE, G, changes by one unit.

The hypotheses have been formulated by applying Andrew F. Hayes, (2013) process. To confirm the hypotheses of moderation, in first step control variables were entered. In the second step agreeableness (independent variables) and financial literacy, trading experience and gender (moderator variables) were entered. In the third step product terms of the independent and moderated variables which if significant,
confirmed moderation. Variance Inflation Factor (VIF) Score (Hair, Anderson, Tatham & Black, 1998) has been applied to check and to measure to extent to which multicollinearity among independent variables affect the accuracy of regression models. The acceptable range of the variance inflation factor score is less than 5, which is typically considers acceptable (Chatterjee & Price, 1991).

Refer to Table (4.12) the interaction term of agreeableness and financial literacy (Agree x FL) was insignificant and negative for stock market participation ($\beta = -0.071, p > 0.05; \Delta R^2 = 0.224, p < 0.05$). Financial literacy does not moderate the relationship between agreeableness, and stock market participation. The interaction term of agreeableness and trading experience (Agree x TE) was significant for stock market participation ($\beta = 0.05, p < 0.05; \Delta R^2 = 0.044, p < 0.05$). Trading experience which was second moderator of this study moderates the relationship between agreeableness and stock market participation. The interaction term of agreeableness and gender (Agree x G) was insignificant and negative for stock market participation ($\beta = -0.111, p > 0.05; \Delta R^2 = 0.045, p < 0.05$). Gender does not moderate the association between agreeableness and stock market participation. Trading experience was the second moderator of this study. In case of agreeableness, trading experience moderates the relationship between agreeableness and stock market participation. The results are in line with the study of Dulebohn, (2002), that individual’s risk taking ability depend upon his knowledge regarding rules of investment, wealth level and gender. Investors who make decisions on brokers’ provided information need to judge risk and return of that particular investment (Volpe, Kotel & Chen, 2002).
Table 4.17

*Results of Agreeableness on Stock Market Participation Moderating Role of Financial Literacy*

<table>
<thead>
<tr>
<th>Variables</th>
<th>β</th>
<th>Seβ</th>
<th>t value</th>
<th>p value</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agreeableness</td>
<td>-0.4404</td>
<td>0.0850</td>
<td>-5.1829</td>
<td>0.0000</td>
<td>-0.6074</td>
<td>-0.2734</td>
</tr>
</tbody>
</table>

Independent variable = agreeableness, moderator = financial literacy, outcome variable = stock market participation. Alpha level used for confidence intervals: 0.05, N = 451, LLCI = lower level confidence interval, ULCI = upper level confidence interval.
4.18 Impact of Motivation on Stock Market Participation

The following model was formulated to test the association between motivation and stock market participation.

\[ SMP = \beta_0 + \beta_1(Motivation) + \varepsilon \quad (\text{Model 6}) \]

Where:

\[ \text{SMP} = \text{Stock market participation.} \]
Refer to Table (4.11) motivation was positively correlated with stock market participation. The correlation between motivation and stock market participation was positive and significant as “r” value was ($r = 0.095$, $p < 0.05$).

Refer to table (4.18) the direct regression between motivation and stock market participation. R square is (0.450) and probability value is ($p < 0.05$) which show the change explained by the model in stock market participation. The sign of the coefficient of motivation is positive and the value is (0.450), $t$ value is (6.136) and $p$ value is ($p < 0.05$) which means that motivation has positive and significant relationship at 5% level of significance with stock market participation. Statistically it can be interpreted that one unit increase in motivation will increase (0.450) units in stock market participation while other things remain the constant. These results render support to hypothesis six of the study that motivated person will actively participate in stock markets. Therefore, behavioral aspect includes emotional intelligence as ability, capacity and skill to identify access and manage the emotions (Serrat, 2017). Resolving the phenomenon, whether motivation plays a significant role in stock market participation has implications for policy makers and financial advisors. Motivation has been tested by Barrick, Stewart and Piotrowski, (2002) their results proved that it mediates the relationship between personality and job performance.

4.19 Impact of Motivation on Stock Market Participation with Moderating Effect of Financial Literacy, Trading Experience and Gender
\[ \text{SMP} = \beta_0 + \beta_1 \text{(Motivation)} + \beta_2 (FL) + \beta_3 (TE) + \beta_4 (G) + \]
\[ \beta_5 \text{(Motivation)}(FL) + \beta_6 \text{(Motivation)}(TE) + \beta_7 \text{(Motivation)}(G) + \varepsilon_{\text{SMP}} \]  

(Model 6.1)

\[ \text{SMP} = \beta_0 + [\beta_1 + \beta_5 (FL) + \beta_6 (TE) + \beta_7 (G)] \text{Motivation} + \beta_2 (FL) + \]
\[ \beta_3 (TE) + \beta_4 (G) + \varepsilon_{\text{SMP}} \]  

(Model 6.1.1)

Where:

- SMP = Stock market participation
- TE = Trading Experience
- FL = Financial Literacy
- G = Gender

In this model the conditional effect of motivation on stock market participation is 
\[ [\beta_1 + \beta_5 (FL) + \beta_6 (TE) + \beta_7 (G)] \text{Motivation}. \] It is clear from the above that effect of motivation on stock market participation is not a single number. It is a function of financial literacy, trading experience and gender, or simple slope of motivation. \( \beta_1 \) estimates the effect of motivation on stock market participation, when FL, TE and G=0 and \( \beta_5, \beta_6, \beta_7 \) estimates how much the effect of motivation on stock market participation changes as FL, TE, G, changes by one unit.

The hypotheses have been formulated by applying Andrew F. Hayes, (2013) process. To confirm the hypothesis of moderation, in first step control variables were entered. In the second step motivation (independent variables) and financial literacy, trading experience and gender (moderator variables) were entered. In the third step
product terms of the independent and moderated variables which if significant, confirmed moderation. Variance Inflation Factor (VIF) Score (Hair, Anderson, Tatham & Black, 1998) has been applied to check and to measure to extent to which multicollinearity among independent variables affect the accuracy of regression models. The acceptable range of the variance inflation factor score is less than 5, which is typically considers acceptable (Chatterjee & Price, 1991).

Refer to Table (4.18) the interaction term of financial literacy and motivation (FL x Motivation) was insignificant and negative for stock market participation ($\beta = -0.157, p > 0.05; \Delta R^2 = 0.231, p < 0.05$). Financial literacy does not moderate the relationship between motivation, and stock market participation. The interaction term of motivation and trading experience (M x TE) was significant for stock market participation ($\beta = 0.059, p < 0.05; \Delta R^2 = 0.231, p < 0.05$). Trading experience which was second moderator of this study moderated the association between motivation and stock market participation. The interaction term of motivation and gender (M x G) was insignificant and negative for stock market participation ($\beta = -0.103, p > 0.05; \Delta R^2 = .231, p < 0.05$).

The result of the study shows that gender does not moderated the association between motivation and stock market participation. Financial literacy does not moderate the relationship between motivation and stock market participation. However it moderates between self-awareness and stock market participation. Trading experience which was second moderator of this study has moderated the association between motivation and stock market participation. The moderating impact of gender between
motivation and stock market participation was also checked. The results of the study showed that gender does not moderate the association between motivation and stock market participation. However, financial literacy represents a significant benefit to individuals and helps them to purchase complex derivatives in stock markets (Hsiao & Tsai, 2018).

Table 4.19

Results of the Impact of Motivation on Stock Market Participation Moderating Role of Trading Experience (Variables, Coefficients, Seβ, t, P, LLCI and ULCI values) by Andrew F. Hayes Process.

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>Seβ</th>
<th>t value</th>
<th>p value</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation</td>
<td>0.0143</td>
<td>0.0807</td>
<td>0.1772</td>
<td>0.8594</td>
<td>-0.1443</td>
<td>0.1729</td>
</tr>
</tbody>
</table>

Independent variable = motivation, moderator = trading experience, outcome variable = stock market participation. Alpha level used for confidence intervals: 0.05, N = 451, LLCI = lower level confidence interval, ULCI = upper level confidence interval.

Figure 4.4: Interactive Effects of Trading Experience (TE) and Motivation on Stock Market Participation (SMP)
4.20 Impact of Self-Awareness on Stock Market Participation

The following model was formulated to test the association between self-awareness and stock market participation.

\[ SMP = \beta_0 + \beta_1 \text{(Self-awareness)} + \varepsilon \]  \hfill (Model 7)

Where:

- \( SMP \) = Stock market participation.

Refer to Table (4.11) self-awareness was negatively but insignificantly correlated with stock market participation. The correlation between self-awareness and stock market participation was negative and insignificant as “\( r \)” value was (\( r = -0.025, p > 0.50 \)).
Refer to Table (4.18) the direct regression between self-awareness and stock market participation. R square is (0.298) and probability value is ($p < 0.05$) which show the change explained by the model in stock market participation. The sign of the coefficient of self-awareness is negative and the value was (-0.484), $t$ value was (-3.857) and $p$ value is ($p < 0.05$) which means that self-awareness has negative and significant relationship at 5% level of significance with stock market participation. Statistically it can be interpreted that one unit increase in self-awareness will cause decrease (0.484) units in stock market participation while other things remain the constant. The results do not proves the seventh hypothesis of the study that individuals who are self-aware are more inclined towards stock market participation. This may be due to the conscious application of emotions, which ensures productivity (Dancius, 2010). As risk and uncertainty are subjectively perceived and involves psychological and emotional factors (Virlics, 2013). In the same vein Sharma, (2012) argued that individuals may apply acquired competences during social interaction which may affect their decision making.

**4.21 Impact of Self-awareness on Stock Market Participation with Moderating Effect of Financial Literacy, Trading Experience and Gender**

$$SMP = \beta_0 + \beta_1(Self-awareness) + \beta_2(FL) + \beta_3(TE) + \beta_4(G) + \beta_5(Self-awareness)(FL) + \beta_6(Self-awareness)(TE) + \beta_7(Self-awareness)(G) + \varepsilon_{SMP}$$  

(Model 7.1)
\[ SMP = \beta_0 + [\beta_1 + \beta_5(FL) + \beta_6(TE) + \beta_7(G)] \text{ Self-awareness } + \beta_2(FL) + \beta_3(TE) + \beta_4(G) + \varepsilon_{SMP} \] 

(Model 7.1.1)

Where:

- SMP = Stock market participation
- TE = Trading Experience
- FL = Financial Literacy
- G = Gender

In this model the conditional effect of self-awareness on stock market participation is \([\beta_1 + \beta_5(FL) + \beta_6(TE) + \beta_7(G)]\)M. It is clear from the above that effect of self-awareness on stock market participation is not a single number. It is a function of financial literacy, trading experience and gender, or simple slop of self-awareness. \(\beta_1\) estimates the effect of self-awareness on stock market participation, when FL, TE and G=0 and \(\beta_5\), \(\beta_6\), \(\beta_7\) estimates how much the effect of self-awareness on stock market participation changes as FL, TE, G, changes by one unit.

The hypotheses have been formulated by applying Andrew F. Hayes, (2013) process. To confirm the hypothesis of moderation, in first step control variables were entered. In the second step Self-awareness (independent variables) and financial literacy, trading experience and gender (moderator variables) were entered. In the third step product terms of the independent and moderated variables which if significant, confirmed moderation. Variance Inflation Factor (VIF) Score (Hair, Anderson, Tatham & Black, 1998) has been applied to check and to measure to extent to which multicoll linearity among independent variables affect the accuracy of regression models.
The acceptable range of the variance inflation factor score is less than 5, which is typically considered acceptable (Chatterjee & Price, 1991).

Refer to Table (4.18) the interaction term of self-awareness and financial literacy (Self-awareness x FL) was significant for stock market participation ($\beta = 0.784, \ p < 0.05; \ \Delta R^2 = 0.234, \ p < 0.05$). Financial literacy moderated the relationship between self-awareness, and stock market participation. The interaction term of self-awareness and trading experience (Self-awareness x TE) was significant for stock market participation ($\beta = 0.054, \ p < 0.05; \ \Delta R^2 = 0.234, \ p < 0.05$). Trading experience which was second moderator of this study has also moderated the association between self-awareness and stock market participation. The interaction term of self-awareness and gender (Self-awareness x G) was negative and significant for stock market participation ($\beta = -0.748, \ p < 0.05; \ \Delta R^2 = 0.234, \ p < 0.05$). Gender impact on association between stock market participation and rest of the variable was also checked. The result of the study showed that gender negatively moderated the association between self-awareness and stock market participation. Financial literacy moderated the relationship between self-awareness and stock market participation. Trading experience which was second moderator of this study has also moderated the association between self-awareness and stock market participation. Gender impact on association between stock market participation and rest of the variable was also checked. The results of the study showed that gender moderated the association between self-awareness and stock market participation. Therefore, financial literacy modifies the relationship between some basic personality traits and stock market participation. Financial literacy also moderates the relationship between self-awareness and stock market participation. In line with the
findings of Lusardi and Mitchels (2017) that the individuals with advanced financial
knowledge are among those who are happy at the time of retirement due to their active
participation in financial dealings. The findings are in line with the meta-analysis of 126
impact evaluation studies which proved that financial education significantly impacts
financial behavior (Kaiser & Menkhoff, 2017).

Table 4.20

*Results of the Impact of Self-awareness on Stock Market Participation Moderating Role
of Financial Literacy (Variables, Coefficients, Seβ, t, p, LLCI and ULCI values) by
Andrew F. Hayes Process.*

<table>
<thead>
<tr>
<th>Variables</th>
<th>B</th>
<th>Seβ</th>
<th>t value</th>
<th>p value</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-awareness</td>
<td>-0.0872</td>
<td>0.0957</td>
<td>-0.9106</td>
<td>0.3630</td>
<td>-0.2752</td>
<td>0.1009</td>
</tr>
</tbody>
</table>

Independent variable = Self-awareness, moderator = financial literacy, outcome variable = stock market participation. Alpha level used for confidence intervals: 0.05, N = 451, LLCI = lower level confidence interval, ULCI = upper level confidence interval.

4.22 Impact of Personality, Emotional Quotient on Stock Market Participation with Moderating Role of Financial Literacy

The following model was formulated to test the impact of personality and emotional quotient on stock market participation with moderating role of financial literacy.
\[ SMP = \beta_0 + \beta_1(Ext) + \beta_2(Open) + \beta_3(Neur) + \beta_4(Cons) + \beta_5(Agree) + \beta_6(Ext)(FL) + \beta_7(Open)(FL) + \beta_8(Neur)(FL) + \beta_9(Cons)(FL) + \beta_{10}(Agree)(FL) + \beta_{11}(self-awareness)(FL) + \beta_{12}(Motivation)(FL) + \varepsilon_{SMP} \] 

(Model 8)

Where:

\begin{align*}
SMP &= \text{Stock market participation} \\
Ext &= \text{Extroversion} \\
Open &= \text{Openness to experience} \\
Neur &= \text{Neuroticism} \\
Cons &= \text{Conscientiousness} \\
Agree &= \text{Agreeableness} \\
FL &= \text{Financial Literacy}
\end{align*}

4.23 Impact of Personality, Emotional Quotient on Stock Market Participation with Moderating Role of Trading Experience

The following model was formulated to test the impact of personality and emotional quotient on stock market participation with moderating role of trading experience.

\[ SMP = \beta_0 + \beta_1(Ext) + \beta_2(Open) + \beta_3(Neur) + \beta_4(Cons) + \beta_5(Agree) + \beta_6(Ext)(TE) + \beta_7(Open)(TE) + \beta_8(Neur)(TE) + \beta_9(Cons)(TE) + \varepsilon_{SMP} \]
The following model was formulated to test the impact of personality and emotional quotient on stock market participation with moderating role of gender.

\[
SMP = \beta_0 + \beta_1(Ext) + \beta_2(Open) + \beta_3(Neur) + \beta_4(Cons) + \beta_5(Agree) + \beta_6(Ext)(G) + \beta_7(Open)(G) + \beta_8(Neur)(G) + \beta_9(Cons)(G) + \beta_{10}(Agree)(G) + \beta_{11}(self-awareness)(G) + \beta_{12}(Motivation)(G) + \varepsilon_{SMP}
\]

(Model 10)

Where:

\[
SMP = \text{Stock market participation}
\]
Ext = Extroversion

Open = Openness to experience

Neur = Neuroticism

Cons = Conscientiousness

Agree = Agreeableness

G = Gender

Refer to Table (4.10) Financial literacy was positively correlated with stock market participation. The correlation between financial literacy and stock market participation was positive and insignificant as “r” value was ($r = 0.360, p < 0.05$). Refer to Table (4.10) gender was positively correlated with the stock market participation. The correlation between gender and stock market participation was positive and significant as “r” value was ($r = 0.171, p < 0.05$). Results also prove that in Pakistan stock markets, male participants were much dominant as compare to female. Refer to Table (4.10) Trading experience was positively correlated with stock market participation. The correlation between trading experience and stock market participation was positive and significant as “r” value was ($r = 0.360, p < 0.05$). Refer to Table (4.10) Age was positively correlated with the stock market participation. The correlation between age and stock market participation was positive and significant as “r” value was ($r = 0.134, p < 0.05$). The hypothesis has been formulated by applying Andrew F. Hayes, (2013) process. To confirm the hypothesis of moderation, in first step control variables were entered. In the second step personality, self-awareness, motivation (independent variables) and financial literacy, trading experience and gender (moderator variables) were entered. In the third step product terms of the independent and moderated variables
which if significant, confirmed moderation. Variance Inflation Factor (VIF) Score (Hair, Anderson, Tatham & Black, 1998) has been applied to check and to measure to extent to which multicollinearity among independent variables affect the accuracy of regression models. The acceptable range of the variance inflation factor score is less than 5, which is typically considers acceptable (Chatterjee & Price, 1991).

Table 4.21

*Research Question, Research Objectives, Hypotheses and Findings*

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Research Objectives</th>
<th>Hypotheses</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>How extroversion impact stock market participation?</td>
<td>To empirically investigate and explore the effect of extroversion on stock market participation.</td>
<td>Hypothesis 1: Investors with extrovert personality show more eagerness and motivation towards stock market participation.</td>
<td>Supported</td>
</tr>
<tr>
<td>How openness to experience personality trait drives individuals towards stock market participation?</td>
<td>To empirically test and explore the impact of openness to experience on stock market participation.</td>
<td>Hypothesis 2: The more the individuals are open to experience, the greater their intentions to participate in stock exchange.</td>
<td>Supported</td>
</tr>
<tr>
<td>Whether Neuroticism personality trait drives individuals towards stock market participation?</td>
<td>To examine the impact of Neuroticism on stock market participation.</td>
<td>Hypothesis 3: The individuals with neurotic personality or Neuroticism avoid risky and complex financial choices and are less likely to participate in the stock market.</td>
<td>Supported</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Whether conscientiousness personality trait helps in stock market participation?</td>
<td>To test the impact of conscientiousness on stock market participation.</td>
<td>Hypothesis 4: The individuals with conscientious personality have fewer chances of stock market participation.</td>
<td>Supported</td>
</tr>
<tr>
<td>Does agreeableness personality trait affect stock market participation?</td>
<td>To empirically investigate the impact of agreeableness on stock market participation.</td>
<td>Hypothesis 5: The greater the level of individuals’ agreeableness, the less will be the chances of stock market participation.</td>
<td>Supported</td>
</tr>
<tr>
<td>Whether motivation has an impact on stock market participation?</td>
<td>To empirically test the affect of motivation on stock market participation.</td>
<td>Hypothesis 6: Motivation will drive individuals towards stock market participation.</td>
<td>Supported</td>
</tr>
<tr>
<td>Hypothesis</td>
<td>Description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypothesis 7:</td>
<td>Self-awareness drives individuals towards stock market participation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partially Supported</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hypothesis 8:</td>
<td>Financial literacy will moderate the relationship between Big Five personality traits, emotional quotient and stock market participation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partially Supported</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.25 Summary of the chapter

The current chapter empirically discusses the relationship of personality, emotional quotient (independent variables) on stock market participation (dependent variables). It also provides empirical evidence on moderating impact of financial sophistication, trading experience and gender between personality, emotional quotient and stock market participation. The research hypotheses were tested and were tied up with the acceptance or rejection of hypotheses to validate the research questions.

The current chapter reports the empirical results of correlation, regression and moderated regression of the study variables. It also provides the interpretation of the results. This chapter also provides the justifications of the results. A summary of research questions along with respective hypotheses has also been provided.
CHAPTER 5

CONCLUSION

5. Chapter Introduction

This chapter presents and concludes the thesis by summing up the main idea, research problem and its solutions. It provides the detailed discussion on the relationship of dependent, independent and moderator variables along with the theoretical background. It also provides the details of the accepted and rejected hypotheses. This chapter demonstrated the contribution of the study, implication for research, implication for practice, implication for policy and suggestions for future research.

The chapter is structure as follows. Section 5.1 explains the results discussion and summary which states that research examined the relationship between financial sophistication, personality, emotional quotient and stock market participation. The current study has provided some tentative empirical evidence for the impact of personality and emotional quotient on stock market participation. At the same time study illustrated that financial literacy, trading experience and gender are likely paths by which personality and emotional quotient affects stock market participation. Section 5.2 highlights the contribution of the study. Section 5.3 provides the recommendations of the study. Section 5.4 provides implications for research and future research directions. Section 5.5 explains about implication for practice. Section 5.6 discusses the implications for policy. Finally section 5.7 provides the summary of the chapter.
5.1 Results, Discussion and Summary

The current research had provided empirical evidence between the relationships of financial sophistication, personality, emotional quotient and stock market participation. At the same time, it established that financial literacy, trading experience and gender are likely paths by which personality and emotional quotient impacts stock market participation. The study had also incorporated the theoretical framework for better understanding the relationship of personality and emotional quotient. Theoretical framework also helped to better explain the moderating impact of financial literacy, trading experience and gender between personality, emotional quotient and stock market participation. The finding reveals that the individuals with extroverts and openness to experience personality traits show more eagerness and interest towards stock market participation. The individuals with neurotic, conscientiousness and agreeableness personality does not show interest towards stock market participation. Motivation shows positive impact on stock market participation in line with finding of the study conducted by Virlics, (2012). However, the results for self-awareness were counter to expectation and showed negative relationship with stock market participation. The results of the moderating variables i.e., financial literacy, trading experience and gender were partially in the expected direction. Trading experience has moderating impact between personality traits and stock market participation. The results were in line with the results of Meta analysis conducted by Rauch and Frese, (2007) on the relationship between personality traits of owners and success. The individuals with conscientiousness and agreeableness show more interest towards stock market participation while having trading experience. The results of conscientiousness and agreeableness were in line with the study conducted
by Cobb-Clark and Schurer, (2012), which documents the impact of personality on the decision of the individual’s. The results of the study showed that financial literacy impacts financial decision making of the investors in line with the results of the study conducted by (Cole, Sampson & Zia, 2011). The results of the study also proved that financial competence significantly impacts the performance of stock market participants consistent with the study conducted by Bateman, Eckert, Geweke, Louviere, Thorp and Satchell (2012). The detailed discussion on the results has been provided below.

5.1.1 Extroversion and Stock Market Participation

The results of the study extended great support for the proposed hypotheses. The finding of the study showed that there is positive relationship between extroversion and stock market participation. Empirical finding provided support to first hypothesis i.e., the investors with extrovert personality trait shows more eagerness towards stock market participation. The same had been documented by (Mitteness, Sudek & Cardon, 2012; Jamshidinavid & Chavoshani, 2012; Brown & Taylor, 2014; and Wasiuzzaman & Edalat, 2016). Prospect Theory of Kahneman and Tversky, explained that gains and losses are differently valued by the people and decision making is based on observed gains than losses. Thus, if two equal choices one stating losses and other stating gains were given to people, the former will be chosen by them even if the same economic end result is to be achieved. This theory states that “losses bear more emotional influence than gains of an equivalent amount”. When multiple events of gains/losses occur, every event is valued individually and then joined in the creation of a cumulative feeling. For instance, some people are reluctant to overtime work in order to avoid additional taxes.
Although they can financially benefit from the extra money, this feeling of gain is not much strong to overcome their feeling of loss. Therefore, they show more eagerness and stimulation towards most of the portfolios (Mitteness, Sudek & Cardon, 2012), and the risk taking behavior of extroverts motivates them towards stock market participation (Wasiuzzaman & Edalat, 2016).

5.1.2 Openness to Experience and Stock Market Participation

The second hypothesis of the study was the positive association between openness to experience and stock market participation. The findings of the study also extended the support to second hypothesis that openness to experience has significant positive impact on stock market participation. The results of the study are in line with the findings of Nicholson, Soane, Creevy and Willman, (2005). Investors who are older, more intuitive, having a high open personality have the tendency to invest more (Mitteness, Sudek & Cardon, 2012). When there would be more investment there would be more possibility of returns. The risk taking ability of openness to experience is in line with the Markowitz theory; “higher the risk higher the return” which stimulates stock market participation. The theory suggests that individuals should make investment in different portfolios instead of focusing on a single investment opportunity in order to minimize risk. This novelty and variety induce individuals having openness to experience personality traits, towards stock market participation.

5.1.3 Neuroticism and Stock Market Participation
The third hypothesis of the study has also been approved. The statistical results of the study provided support for the hypothesis that there is negative relationship between neuroticism and stock market participation. The findings are in line with the study of Virlics, (2013) which shows that individuals with neuroticism personality avoid risky and complex financial choices. The investors with a high level of neuroticism experience much regret than those having lower neuroticism while facing wrong investment decisions (Xiao, Wang & Liu, 2009). Therefore, individuals with neurotic personality avoid risky and complex financial choices and are less likely to participate in the stock market.

5.1.4 Conscientiousness and Stock Market Participation

On the basis of literature it was hypothesized that there is a negative relationship between conscientiousness and stock market participation. The empirical results of the study provided the support for proposed hypothesis. The results are in line with the findings of George and Zhou, (2007) which documents that conscientiousness leads to risk aversion. The influence of personality traits has a significant impact on investment management (Nga, Ken & Yien, 2013). Therefore, the results provided empirical evidence of negative relationship between conscientiousness and stock market participation.

5.1.5 Agreeableness and Stock Market Participation

There is negative association between agreeableness and stock market participation which was fifth hypothesis of this study. The analysis demonstrated that
agreeableness personality trait has negative impact on stock market participation. The results of fifth hypothesis are in line with the Portfolio Theory of Markowitz, (1952).

5.1.6 Motivation and Stock Market Participation

The sixth hypothesis of the study was that there is positive association between motivation and stock market participation. The empirical result of the study also supports this hypothesis that there is positive correlation between motivation and stock market participation. In line with the theory, the relationship between emotions and stock market participation has strong ties. Emotional intelligence describes that how emotionally intelligent people behave and function in academic and workplace settings (Brackett, Rivers, Shiffman, Lerner & Salovey, 2006). A behavioral aspect includes emotional intelligence as ability, capacity and skill to identify access and manage the emotions (Serrat, 2017). Resolving the phenomenon, whether motivation plays a significant role in stock market participation has implications for policy makers and financial advisors. Motivation has been tested by Barrick, Stewart and Piotrowski, (2002) their results proved that it mediates the relationship between personality and job performance. Both cognitive and behavioral frameworks are magnitudes by social learning theory because learning comprises attention, memory and motivation. The value sallied with social learning theory is the maximum level of observational learning that is attained by first forming and practicing the modeled behavior representatively and then ratifying it clearly. Therefore, learning through observation and practicing induce the individuals towards stock market participation. Hence, empirically the study provides evidence that there is positive association between motivation and stock market participation.
5.1.7 Self-awareness and Stock Market Participation

The review of literature relating to self-awareness showed that there was positive correlation between self-awareness and stock market participation. So on the basis of previous studies it was hypothesized that there is positive relationship between self-awareness and stock market participation but empirical results of the study were counter to expectation and show negative relationship with stock market participation. This may be due to the conscious application of emotions, which ensures productivity (Dancius, 2010). As risk and uncertainty are subjectively perceived and involves psychological and emotional factors (Virlics, 2013). In the same vein Sharma, (2012) argued that individuals may apply acquired competences during social interaction which may affect their decision making. “The awareness means the state or condition having conscientiousness and knowledge”. The self-awareness has been defined as “awareness of some one’s own personality, including one’s traits, feeling and behaviors”. Goleman (1995) in expanding the definition of emotional intelligence includes social and communication skills. The relevance and importance of emotions in decision making process has been emphasized by research (Sevdalis, Petrides & Harvey, 2007). Emotional intelligence is strongly related to stock market participation (Grinblatt, Keloharju & Linnainmaa, 2011). The theories of self-awareness show that there is positive association between self-awareness and stock market participation. Result for self-awareness was counter to expectation and shows that self-awareness has negative association with stock market participation. However, emotional and psychological
dynamics may have influence on the risk perception of individuals (Virlics, 2012) which may affect stock market participation.

5.1.8 Financial Literacy and Stock Market Participation

While establishing the relationship of financial literacy between personality and stock market participation it was established that financial literacy has significant impact, because financially literate individuals are more likely to choose better investments (Gathergood & Weber, 2017). The findings are in line with the meta-analysis of 126 impact evaluation studies which proved that financial education significantly impacts financial behavior (Kaiser & Menkhoff, 2017). Financial literacy moderates the relationship between extroversion; openness to experience and stock market participation. Financial literacy also moderates the relationship between conscientiousness and stock market participation. Individual with financial literacy are more comfortable while trading in stock markets as compare to others and hence financial literacy leads to higher growth and can help in reaping the fruits of dividend (Priya & Malhotra, 2017). The individuals having conscientiousness personality traits normally do not participate in stock markets. However, if they are financially literate they start participation in stock markets. Therefore, financial literacy modifies the relationship between some basic personality traits and stock market participation. Financial literacy also moderates the relationship between self-awareness and stock market participation. In line with the findings of Lusardi and Mitchels (2017) that the individuals with advanced financial knowledge are among those who are happy at the time of retirement due to their active participation in financial dealings.
In today’s dynamic environment, cognizant application of financial knowledge ensures efficiency, modifies the basic relations, and hence moderates the relationship between self-awareness and stock market participation. Financial literacy does not moderate the relationship between neuroticism, agreeableness and stock market participation. Financial Literacy has strong relationships with the behavior of investors but does not moderate the relationship between motivation and stock market participation. The results are in line with the study of Dulebohn, (2002). Investors who make decisions on brokers’ provided information need to judge risk and return of that particular investment (Volpe, Kotel & Chen, 2002). The investor’s financial literacy is positively correlated with investment diversification (Abreu & Mendes, 2010). Financial literacy represents a significant benefit to individuals and helps them to purchase complex derivatives in stock markets (Hsiao & Tsai, 2018).

5.1.9 Trading Experience and Stock Market Participation

Trading experience was the second moderator of the study previous research has tested the impact of education, health, gender, age, internet, wealth, political orientation, and trust, on stock market participation (Van Rooij, Lusardi & Alessie, 2011; Balloch, Nicolae & Philip, 2014; Priya & Malhotra, 2017; Hsiao & Tsaj, 2017). However, the study checked the relationship of trading experience as moderator between personality emotional quotient and stock market participation. It moderates the relationship between extroversion and stock market participation. Trading experience also moderated the relationship between openness to experience, neuroticism and stock market participation. This means people with neurotic personality do not normally participate but with the
passage of time and with the increase in trading experience they start active participation in stock markets. Trading experience also strengthen the relationship between agreeableness and stock market participation. Trading experience does not moderate the relationship between conscientiousness and stock market participation. Trading experience moderates the relationship between motivation and stock market participation. It also moderates the relationship between self-awareness and stock market participation. Even portfolio composition of stocks is effected by age as individuals approach retirement and also impacts stock market participation (Fagereng, Gottlieb & Guiso, 2017). The results are in line with the research findings of Mitteness, Sudek, and Cardon, (2012) they documents that investors who are older, more intuitive, having a high open personality have the tendency to invest more. Therefore, when investors share their experience with peers, the latter might learn the basic concepts of the stock market and they may start to participate in the stock market. Increased stock market participation among peers automatically triggers other towards stock market participation. Nicolosi, Peng and Zhu, (2009) documents that traders experience helps with performance of the portfolio, particularly most experienced investors have a higher chance of return on their portfolio. The return motivates investors for stock market participation.

5.1.10 Gender and Stock Market Participation

Gender was the third moderator of the study, the combine study of financial literacy and attitude proved that financial literacy is independent of generic attitude towards inequality based on gender and race (Montagnoli, Moro, Panos & Wright, 2017). However, the results of current study proved that gender moderates the relationship
between extroversion and stock market participation. It also moderated the relationship between openness to experience and stock market participation. It moderates the relationship between self-awareness and stock market participation. In line with the findings of Dulebohn, (2002) that, individual risk taking ability depends upon his knowledge regarding rules of investment, wealth level and gender. Gender does not moderate the relationship between neuroticism and stock market participation. It also not moderates the relationship between conscientiousness and stock market participation. The findings are in line with the study of Stolper and Walter (2017) that the economically vulnerable groups may face disadvantage because of lack of financial knowledge. Gender does not moderate the relationship between motivation and stock market participation. The results are in line with the literature that generally, the degree of risk aversion increases with age. Individuals with older age are more risk averse than the younger ones. Furthermore, gender plays an important role in stock market participation. Generally, female are more risk averse than the males in line with the findings of Loewenstein, Weber, Hsee, and Welch, (2001) that male and female have different financial risk tolerance attitude. The attitude of adults towards risk also affects their children. Children of risk adverse parents are more likely to become more risk averse in the future. There is a difference in the attitude of men and women regarding stock market participation. Men are commonly more likely to own stocks than women. Also, due to long term inequalities imposed on women, even now a day they are less active in stock market participation. Investors who are older, more intuitive, having a high open personality have the tendency to invest more (Mitteness, Sudek & Cardon, 2012). Generally males are most likely to participate in stocks markets as compare to females because of their level of financially literacy. There was significant difference
between level of financial literacy between males and females (Adam, Boadu & Frimpong, 2017). The level of education, customs, social norms and risk aversion may be the determinant factors for low participation of females.

5.2 Contribution of the Study

Number of authors has mused for the importance of stock market participation. However, current study has provided tentative empirical evidence for the impact of personality and emotional quotient on stock market participation. At the same time study established that financial literacy, trading experience and gender are likely paths by which personality and emotional quotient affects stock market participation. In the domain of behavioral finance and with particularly reference to stock market participation is keenly searched area. Behavioral finance has sparked off many debates in the area of stock market participation and researchers are continuously trying to find the drivers of stock market participation. However, the current study utilizes the accepted approach for financial sophistication, personality measurement and stock market participation. It is largely exploratory, methodologically and statistically which use the Big Five taxonomy. It extended the usefulness of Big Five personality traits by establishing personality as a viable approach with respect to stock market participation. The study provides guidance to individual programs to apply such knowledge for the betterment of Pakistani society. The study also provides guidelines for the private and not for profit stakeholders in financial education with respect to Pakistan. The study provides help to vulnerable groups such as families and Micro, Small and Medium Enterprises (MSMEs).
The study helps financial counselors to guide individuals according to their personality traits. Universities professional institutes had a long history of educating students for the purpose of investment management with the objective of creating wealth, for themselves and for strong economy. Now it’s time to identify individuals and to propose change in the educational programs which will help individuals in investment management. The exploratory effort in the present study to establish a measure of stock market participation is important at several levels. It explores the social behavior of individuals in case of financial planning and investment. It also provides interdisciplinary contributions by investigating the impact of financial sophistication, personality, and emotional quotient on stock market participation. The current study empowered financial consumer in an evolving societal and financial context. There is a three step process i.e., financial education, financial inclusion which leads to financial consumer protection. Standard and Poor’s Rating, Gallup Inc., the World Bank Development Research Group and the Global Finance Literacy Excellence Center at George Washington University conducted, most comprehensive and largest survey to measure financial literacy. In which 140 countries of the world participated. The survey was held in November 18, 2015. The results are available on the link http://gflec.org/initiatives/sp-global-finlit-survey/. More than 150,000 peoples from different countries including Pakistan participated in the survey. The survey concluded that the young are vulnerable group and an important target for financial education programs.

Therefore there is a need to highlight the importance of financial education and to define its meaning and scope. Asia has an important role in the global economy because
multinationals are moving towards Asian regions (Abbas, Raja, Darr & Bouckenooghe, 2012). More specifically Pakistan has an important role in the global economy and becoming the major hub for investments due to economic corridor. Therefore to provide confidence to the researchers and practitioners there is a need to test the theories developed in Western setting, to check their generalisability in Asian regions (Tsui, Nifadkar & Ou, 2007). There is also paucity of research in Pakistan with respect to emotional quotient, as most of the models are developed in North America (Batool, 2009). Therefore the association between emotional quotient and market participation would open news avenues for the research.

5.3 Recommendations of the Study

Pakistani education system had a long history of educating the individuals, but the result of the study establishes that there is a need of financial education. The financial education has been ignored by the schools, colleges and universities. It’s the time to identify the individuals according to their personality to enhance investment in the country. Because there could be remarkable loss of welfare of the people due to non-participation in the stock market (Cocco, Gomes & Maenhout, 2005). Therefore, the study recommends the need of financial education, which is a major hurdle for stock market participation. Financial literacy is widespread phenomenon which cannot be cured with limited interventions. The young are ideal for financial education programs participating from school level. There is a need of targeted programs for the
improvement of financial literacy in Pakistan. It is also important to decide about the dosage of financial education which should be given to the students. Therefore, the study recommends that appropriate arrangement should be made by government to create awareness among the people regarding financial literacy and its impact on stock market participation. Lack of stock market participation, poor retirement planning and poor borrowing behavior can be because of ignorance to basic financial concepts (Lusardi & Mitchell, 2014). As an important remedy to tackle the lack of financial literacy, among the people, financial literacy should be added to the school curriculum. The current study has established the importance of financial literacy for Pakistani’s as they would be major human resource for multinationals due to economic corridor. Additionally study recommends that the results of the studies in the Western Settings can be well generalized to the Pakistani Settings. The examination of financial sophistication, personality and emotional quotient is consistent with the theories which were developed and tested in the Western context and settings.

5.4 Implications for Research

The current research provides new prospective and method in the domain of behavioral finance by studying the impact of personality traits on stock market participation. It extends theoretical and practical knowledge of personality and financial sophistication on stock market participation as to give more ground work for next research. Therefore, current study provides a good work for further investigation on the drivers of stock market participation. The current study has established that financial literacy is a skill, confidence and motivation for the application of financial knowledge
for the betterment of individuals and society. Therefore, the further studies on financial sophistication and stock market participation will play important role in the improvement of well-being of individuals, society and will encourage the individual’s participation in economic life. The research problems that arise in the interpretation of human behavior do carry some concerns with those issues that arise when people make decision based on subjective assessment of probabilities. Therefore, future research in financial sophistication, personality and stock market participation will be an excellent contribution in the domain of behavioral finance. In addition to this the current study provided the opportunity to examine the applicability and validity of the concepts of financial sophistication, personality, emotional quotient and stock market participation, which were largely operationalized in developed cultures. As documented by Tsui, Nifadkar and Ou, (2007) that the generalisability of the theories developed in the United States should be tested in non-Western settings to give more confidence to researchers and practitioners. Therefore the current study has created a ground work for the next researchers and practitioners.

5.5 **Implications for Practice**

There are several implications, for Pakistan Stock Exchange (PSE), Securities and Exchange Commission of Pakistan (SECP), professionals, administrators, and educators. Board of directors of (PSE) and (SECP) may benefit from the findings of this study. Being aware of investments made by individuals and institutional investors in equity and debt instruments, (SECP) can increase awareness about the importance of financial literacy and its impact on profitability. (PSE) and (SECP) can offer counseling
sessions and trainings on financial sophistication. Especially on the concepts of numeracy, interest compounding, time value of money, money illusion, risk diversification and portfolio management. This will protect the investors from scams and fraudulent transactions and will boost their confidence towards stock market participation. Principals and deans of schools, colleges and universities can provide benefits to the students by increasing the awareness of financial literacy. They can offer programs which can address the deficits in the area of financial literacy and stock market participation. Financial institutions may benefit from the findings of the study. They will get skilled graduates in finance if they will offer seminars in school, college and universities. They can create awareness among the young’s about the importance and significance of financial literacy. Knowledge about personality and financial literacy will make each individual a key participant towards society and economy. Corporations can work with parents and students in number of settings to establish the need and importance of stock market participation for their financial survival. These efforts will surely improve the level of financial literacy at every institution in Pakistan, which will boost Pakistan economically in return.

**5.6 Implications for Policy**

The study has implications for policy makers and government at micro level for individuals and at macro level for government. For government level the findings of the study suggest that policy makers must develop the policies for Companies Ordinance of Pakistan, Pakistan Stock Exchange (PSE) and for Securities and Exchange Commission of Pakistan (SECP), which must protect the investors from scams and frauds. The strong
policies at micro level for individuals and their true implementations will surely boost the confidence of investors towards stock market participation. In the same vein, parents as well as institutions do influence individuals towards stock market participation and financial literacy for better economic growth. Increased financial literacy among individuals will not only benefit the lives of the individuals but also the nation. However, the low financial literacy may limit the ability of individuals to handle complex financial transactions, which may obstruct their financial development. The study also purpose, number of implications for policy makers at society and state level. Policy makers at schools, colleges and universities must implement the knowledge of stock market participation and financial literacy in their core curriculum. At school, college and university level it may be mandatory to take personal finance course for every student. This will make individuals to have reasonable chances to survive in complicated financial environment. Therefore financial institutions and government must influence individuals through their policies towards stock market participation.

5.7 Directions for Future Research

The current study has used quantitative data for analysis, using qualitative interviews to gather more improved information will be an addition in the literature. This can help to increase the understandability of relationships between financial sophistication, personality, emotional quotient and stock market participation. Future research can investigate the impact of Family Resource Management Theory (FRMT) on stock market participation. This would help to further understand the impact of family background, resources, financial literacy and investment exposure on stock market
participation. Family background, resources, investment exposure and family financial literacy were beyond the scope of the current study. Impact of variables other than financial sophistication, personality and emotional quotient should also be checked on stock market participation. Impact of wealth, family, schooling and parents’ financial literacy may be interesting on stock market participation.

5.8 Summary of the Chapter

The current chapter concludes the thesis by summing up the main idea, research questions, research objectives, research gap and its solutions. It further provides concluding finding on the relationships of extroversion, openness to experience, neuroticism, conscientiousness, agreeableness, motivation and self-awareness. It also highlights the results of moderating impact of financial sophistication, trading experience and gender between personality traits, emotional quotient and stock market participation. This chapter demonstrated the contribution of the study, implication for research, implication for practice, implication for policy and suggestions for future research.