IMPACT OF HEURISTIC AND FRAME DEPENDENT BIASES ON INDIVIDUAL INVESTMENT DECISION, MODERATING ROLE OF ADVANCE FINANCIAL LITERACY.

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ABSTRACT

Behavioral biases are the key factors that influence the investment decision of the investors. The aim of this study is to determine the impact of behavioral biases on investment decision of individuals investing in Pakistan stock exchange. To reach the conclusion a group of 160 financial brokers were surveyed using a structured questionnaire. This survey helps us to determine the impact of behavioral biases and moderation effect of financial literacy on investment decision of individuals. The results suggest that there is a positive significant impact of behavioral biases on investment decision of individuals. It was also observed in the study that advance financial literacy has a significant impact directly on the investment decision but as a moderator it poses an insignificant effect. This study has certain limitation like due to shot=rate of time we could approach all three stock markets of Pakistan. To make it convenient we collected data only form the brokers of Islamabad stock exchange. It also provides guidance for the future researchers they can conduct a new study using the gap left in this study. This study can also be replicated using the same model in any other similar set of environment.

Keywords: Behavioral Biases, Individual investment decision, Financial Literacy.

Dedication

To my beloved Parents

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All thanks to ALLAH Almighty the most gracious and the most merciful who gave me strength and wisdom to complete this task.

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Author's Declaration

I, Saleha Maryam hereby state that my MPhil thesis titled "impact of heuristic and frame dependent biases on individual investment decision, moderating role of advance financial literacy." is my own work and has not been submitted previously by me for taking any degree from this university "Bahria University "or anywhere else in the country/world.

At any time if my statement is found to be incorrect even after my Graduate the university has the right to withdraw/cancel my Mphil degree.

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CHAPTER 1
INTRODUCTION

Investment is a classical concept of finance that remains understudy in almost every era. Finance is key to every business as well as individuals. When money is earned everyone wants to save out of its expenditure and invest it somewhere to make money for future security. While making an investment one should always focus on the return, if an investment gives a higher return there are more possible chances that people will invest more in these stocks. Although there are many other ways to assess an investment portfolio that must be taken into account while investing but the point here is the behaviors of an individual that affect their decision-making process. Behavioral finance is the emerging field of finance which was first introduced by Daniel Kahneman in his theory of prospect. Behaviors of individual bring greater impact on individual investment decision. They deviates the mind of people and instead of taking rational decision investors tends to think irrationally (Niehaus & Shrider, 2014). According to traditional finance theory, an investment must be judge unemotionally by using different methods and procedures while in behavioral finance theory other factors are assessed rather than empirical like social, psychological, and emotional factors. Sometimes these factors influence the mind of the investor and led them to draw a weak decision regarding investment. Toma(2015) focuses on behavioral biases and their influence on the investment decision of the investor. It is also discussed in this study that sometimes investor does not rely on the rationally evaluated project but their investment pattern got infected from behavioral effects. This leads to a worse investment decision. Behavioral finance theory provides us a base to figure out different behavioral biases inculcating an investor’s decision.

Behavioral biases are the illogical factors of beliefs that influence the decision-making process. The study present a reproducible method which might be use to find out the importance of studying behavioral finance (Kumar & Goyal, 2015). Mainly there are two types of behavioral biases heuristic and frame-dependent biases. Heuristic bias means all those factors which help the investor to draft a decision considering his mental judgments. Tversky & Kahneman (1974) discover three heuristic biases in his study they are representativeness bias, availability bias, and anchoring bias they help the investor to reach a final decision in the time of ambiguity. Frame-dependent bias is a type of bias in which options are already framed in other words investors decide on the basis of the opinions and views of others. They can easily be manipulated while making a decision. In this study, both types of biases are included in the model to determine the impact of both types of biases on the decision-making process of the investors in context to the stock exchange of Pakistan currently known as "Pakistan stock exchange".

1.1. Contextual analysis:

Rasool & Ullah (2020) focused on the study about the knowledge of investors about finance and behavioral biases and their impact on the decision-making process of individuals. This study was conducted within the horizon of Pakistan to get an understanding of the investment patterns prevailing in the Pakistani stock market. Behavioral biases are taken as a dependent variable whereas other demographic variables are used as independent variables. The study provides insights into the relationships of behavioral biases, financial literacy, and the response of investors. This study proved that there is an inverse relationship between biases and financial knowledge of people. This means that when people get more aware of finance they would be less affected by behavioral biases. The results of this study also provide

information in an environment like Pakistan the financial knowledge of male investors is more than female. The future recommendation of the study can be used to further enhance the literature; many aspects of behavioral biases are left uncovered in this study so they can be taken as a base for further research.

Toma(2015) discovered based on some relevant studies that behavioral biases pose an impact on investors' sentiments in the Romanian stock market. To reach the conclusions they undertook a cross-sectional study in which they get the data from the 21 individual investors for 2011. They carry forward the work of Chen et al (2007) and conduct the study in three different stages. Multiple regression models were used to examine the effects of selected behavioral biases on the performance of the investors in the stock markets of Romania. Individual traits like age, frequency of investment, etc are taken as independent variables and behavioral biases like representativeness, overconfidence, and disposition are taking as dependent variables. The findings of the research work show that investors do make mistakes while making investment plans. Mostly those investors make mistakes that have strong financial backgrounds. The study also concludes that single investors make more mistakes in making an investment rather than organizational investors. These findings are much more similar to the previous study which was conducted in the market of Chinese stocks. As observed above there are a very less number of respondents in this study, so a new study can be done in the same setting by taking a comparatively larger number of respondents? This will increase the number of observations.

1.2. Gap analysis:

Ateş, Coşkun & Şahin, (2016) took financial literacy as an independent variable and behavioral biases as a dependent variable. They also use demographic

variables like age, gender, etc as the controlled variable. The reason for control variables is to restrict them to bring impact on behaviors of investors they just need to figure out the straight impact of financial knowledge on behaviors of investors. To reach the conclusion they consider the sample of 596 questionnaires filled up by the investors of the Turkish stock market. The results of this study show a significant relationship between behavioral biases and level of knowledge related to finance among investors. The people who have a high level of financial knowledge pose less effect from behavioral biases. This study shows that people investing in the Turkish market have low knowledge of finance.

Shanmugham & Ramya(2012) examine the role of social factors in determining the behavior of trading among individual investors of India. During their investigation they took social interaction as an independent variable and the attitude of investors toward trading is taken as depend on the variable. The conclusion of this study states that there exists a direct association between trading patterns and social factors. The analysis was done using multiple regression models to seek the relation between these variables. 500 questionnaires were spread in the entire market by using a snowball sampling method. They use solvin 1960 formula to reach this figure for sampling.

P.H. & Uchil(2020) discover that there is a positively significant relation between investor sentiments and decision making of the people of India. In the Indian stock market, there is a total of 7669 brokers from where they took a sample of 366 firms. The study reveals that the investor's decision-making process is more influenced by personal sentiments but they are less influenced by social factors. Further, it provides suggestions to research in the future of other authors. It is

suggested that it is a cross-sectional study it can be done in the future taking longitudinal study.

The studies mentioned above state the impact of other factors on behavioral biases. While in the current study we focus on taking behavioral biases as the independent variable and check its impact on individual investor decisions. We also focus in this study on financial literacy by taking it as a moderating variable. The reason for taking financial literacy as a moderating variable is simple because it has a direct impact on behavioral biases as well as on the decision making process.

1.3. Problem statement:

This research is conducted to find out the impact of behavioral biases on the decision of an investor. This study would attempt to bring to light the important concepts of behavioral finance. In behavioral finance, there are thousands of theories that provide a base for the development in the literature. (Pandey & Jessica, 2019) unfold in the study a fact about heuristic biases and their impact on investment decisions. Yalcin, Tatoglu & Zaim, (2016) the focus of the study was to highlight the importance of behavioral factors in finance. Therefore they made an effort to design a model that shows the heuristic biases influencing investment decisions. This study is aimed at identifying those financial behaviors that affect the decision making of the investors in the Pakistan stock exchange.

1.4. Research Objective:

- To determine the impact of behavioral biases on individual investment decisions.
- To figure out the role of advance financial literacy in the financial decisions of investors.

- To work out the impact of over-optimism, representative bias, disposition Effect, and loss aversion on the individual investor.
- To find out the moderating effect of advance financial literacy on behavioral biases and individual investment decisions.

1.5. Research Questions:

- What determine the impact of behavioral biases on individual investment decisions?
- What would be the role of advance financial literacy in the financial decisions of investors?
- What impact over-optimism, representative bias, disposition Effect, and loss aversion bias bring on the individual investor?
- What would be the moderating effect of advance financial literacy on behavioral biases and individual investment decisions?

1.6. Significance of the study:

Investment is a phenomenon that has been taken into account many years ago. Investing is a key element for the success of the organization as well as individuals. Therefore while investing we should be well aware of the types of stock we will hold. The process of investing is very much influenced by some psychological factors, some social factors, some cognitive factors, but the aim is to invest in such a way that we make the best decision for us keeping in view all these factors we must choose the best possible option for us. This study will through light on a complete analysis of these factors and it will also provide possible implications which one can involve in the decision-making process.

This study will provide a complete guide to the users who are interested to understand the impacts of behavioral biases on decision-making while having advance financial knowledge within the framework of the Pakistan stock exchange.

1.7. Organization of study:

The first chapter spot light on the “introduction of the study”. In the second section we will “review the previous literature”. In third section “theoretical framework will be formulated”. In the fourth section we will put light on “data and Methodology”. In section five we will “discuss the results”. In the last section “conclusion will be given and it will also contain recommendations”.

CHAPTER 2
LITERATURE REVIEW

This chapter includes related studies from the past and they will help us to draw a hypothesis. These studies explain the relationship between the variables used in this current study.

2.1. Variables:

In the current study, we are going to explore the relationship between behavioral biases, financial literacy, and investment decision. We take behavioral biases as an independent variable, financial literacy as a moderating variable, and individual investment decisions as to the dependent variable.

2.2. Heuristic behavioral biases:

Behavioral biases can be explained as a set of those behavioral factors which influence the decision-making process of the people. There are two main categories of behavioral biases one is heuristic and another one is frame dependent. Heuristic means the judgment power of the brain of an individual. With this power, people can make frequent decisions but sometimes it leads to mental errors. The brain can think to an extent to which it has known. This may cause a problem for investors and can make them prey for heuristic bias. (Pandey & Jessica, 2019) unfold in the study a fact about heuristic biases and their impact on investment decisions. This study explains the tendency of behavioral biases affecting the investment strategy of investors in the property business. A questionnaire was structured to figure out the response of people. They created a scale including five items all are from heuristic biases except one.

Prosad, Kapoor & Sengupta, (2015) wrote a chapter in the handbook of research to highlight the importance of behavioral finance theory. This chapter shows insights for portfolio managers, investors, etc, and also focuses on the implementation of behavioral factors on them. It's a general perception that the performance of the stocks can be asses based on past performance. This judgment is based totally on the mental ability of the person or in other words we can say that it's based on the decision made by a person using his brain so it can fall under the category of heuristic. Furthermore, if this judgment turns false so this might give birth to heuristic bias. Below explained are some common heuristics biases that we are going to use in our study as independent variables.

Madaan & Singh(2019)conducted a study in national stock exchange India. This study provides deep insights of impact of behavioral biases on investment mechanism of individuals in stock market. They collected data in the for a structures questionnaire. The response was taken from individual investors investing in the stock market. The results of the study show that most of the investors are financially illiterate which give space to behavioral biases to act upon the investors and it leads to poor investment decisions. This study provides some recommendations for the investors that they must consult some relevant professionals and take their expert advice before investing somewhere.Paul Slovic (1972) guaranteed that conduct inclinations have a critical relationship with financial backer sort. Generally, Every financial backer affected by various social inclinations. Along these lines, various financial backers settle on venture choices in an unexpected way. The current examination put forth an attempt to conquer the holes found in the writing and subsequently investigate the effect of four conduct predispositions on financial backer's dynamic. Traditional money doesn't show these examples agreeably; they

regularly hurt the financial backer's portfolio execution. Be that as it may, conduct money gives a palatable exhibit and comprehension of why singular financial backers exchange, how they pick their portfolios, and how is their performance in the market (Subrahmanyam, 2008).

2.2.1 Representative bias:

Representative bias can be defined as a chance of occurrence of two likely events time and again. People most likely compare one event with another that already happened in past and try to make the decision based on the perception that both events have the same circumstances. It was first discovered (Tversky and Kahneman, 1974) in a theory which was later named prospects theory.

Yalcin, Tatoglu & Zaim, (2016) the focus of the study was to highlight the importance of behavioral factors in finance. Therefore they made an effort to design a model that shows the heuristic biases influencing investment decisions. These heuristics biases include availability bias, mental accounting, and representativeness. Findings of the study show that they have a significant impact on the buyer’s decision. Zahera & Bansal, (2018) discovers in the study about investment decisions and all those behavioral factors that influence this decision-making process. For this purpose, they make a descriptive study by collecting information from the previous literature available on this topic. In this study, an attempt has been made to collect the solution to the biases occurring at the time of investment some studies suggest solutions that can reduce the impact of behavioral biases. Nenkov et al. (2009) suggest the improvement of the information provided to investors and making it more clear so people can assess it before investing somewhere.

Tversky & Kahneman, (1974) this study was the first one to discover representative bias in the decision-making process. They proposed a theory called prospect theory it was a landmark in the history of behavioral finance. Uncertainty exists everywhere it cannot be eradicated but can be reduced by providing effective and timely information.

Irshad, Badshah & Hakam (2016) conducted a study on the impact of representative biases on the individual investment decision in Islamabad stock exchange Pakistan. They surveyed the individual investors of Islamabad stock exchange and uses questionnaire to obtain the desired information from the respondents. The significant relationship has been found between investment decision of individuals and representative biases. This study clearly reflects the insights that investors most of the time does not invest rationally rather they become irrational and got influenced by behavioral biases. According to the study of Ikram, (2016) representative bias and availability bias has a significant influence on the investment decision of investors. Study examines that how people get affected by the thought of relating thins with the previous experiences. They questioned the investors of Islamabad stock exchange and monitor the investment pattern of investor's following their behaviors in response to their previous experiences about investing in Islamabad stock exchange. The study shows a positive impact of representative biases on investment decision of individuals. Sometimes individuals utilize the Judgmental heuristic to just dynamic and go about according to their past strategy without mulling over the current circumstance (Brockner, 1992).

2.2.2 Over-optimism bias:

Optimism is a state in which we positively assess things based on gained knowledge. Over-optimism can be defined as a state in which we expect more than required from a particular event or thing. In finance, over-optimism is a state in which we drew a higher probability of expected return and keep the chance of occurrence of risky return as low. Iqbal(2015) discussed in the study about the direct impact of over-optimism bias on the decision-making process of individuals. The study depicts a positive significant impact of over-optimism on an individual decision about investment. This also provides insights to reduce the influence of over-optimism on the investment behavior of people. Mahina, Muturi & Memba, (2020) identified that the behavioral biases posed a significant impact on the stock market of Rwanda. It is a descriptive study emphasizing not only the influences of optimistic biased but also provide remedies to reduce the sway of optimal bias on investment decisions. Mushinada & Veluri, (2019) behavioral biases discuss in this study are overconfidence and self-attribution. The study provides affirmation about the presence of influence of behavioral factors on the rationality of the investor but at the same time, this study also provides some practical implications which guide the investor to learn from the previous mistakes regarding behavioral biases and make their decisions more accurate. Bracha & Brown (2012) conducted a study considering risky and uncertain securities. The theory behind this study describe that in order to make decision making process affective one should consider optimism bias. Over optimism may influence the decision of the individual investor in insurance companies. The investors of insurance companies were thoroughly investigated. The results of this study show that individual investors are more effected by over optimism bias.Glaser, Schäfers & Weber (2008) examined the importance of chief executive officer of the organization for the investment decision of corporation. Managers are

mostly optimistic while making investment. They are very much confident about their experience regarding investment in the stock. They always consider the positive side of the investment decision. Therefore the result of the study shows that Chiefs are idealistic. Directors willfully increment their openness to organization explicit danger more frequently than they decrease it, despite the fact that they ought to, regardless, diminish their openness. Besides, the study describes organizations with idealistic chiefs contribute more. Additionally, the venture income affectability is more for those firms which has managers full of optimism.

Doukas and Petmezas (2007) investigate in the study that investment made by over-optimistic managers contributes to more unusual returns. Pomposity measures depend on high-request obtaining arrangements and insider dealings. They track down that careless bidders acknowledge lower declaration returns than normal bidders and display poor long haul execution.

2.3. Frame dependent behavioral bias:

2.3.1 Loss aversion bias:

The term loss aversion means being reluctant toward losses and prefers to get gains. Loss aversion mostly works in favor of business or individual investors. This highly affects the reputation of the firm in the investment market. Loss aversion became a bias when we take it as a risk-taking agent. Bouteska & Regaieg, (2018) explore the impact of loss aversion on the profitability of a firm from a developed country like the United States. The key findings of the study show that the loss aversion bias hurts the performance of the company. The results also show that the investors of the United States are more rationally confident about their investment therefore they need not be loss averse.