The Influence of Behavioural Biases on the Decision of Investors; Empirical Investigation From Pakistan Stock Exchange

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THE INFLUENCE OF BEHAVIORAL FINANCE ON THE DECISION OF INVESTORS: EMPIRICAL INVESTIGATION FROM PAKISTAN STOCK EXCHANGE.

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DEDICATION TO

ALLAH Almighty, Holy Prophet (P.B.U.H),

My Beloved Parents

&

My Dedicated Supervisor

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ABSTRACT

In Investment getting high rate of return is totally depending on the Rational decision making because rational decision making gives the surety of the successful return of the investment, especially in the stocks. Mostly investment decision making is affected by some different factors some are related to psychological factors, and some are behavioral factors. It is difficult to make the investment decision making in a rational way, researchers are trying to identify the factors that influence the investors behavior about the decision-making process. For the rational successful decision making the investors have tried so many traditional methods but at the end the unsatisfactory result. However, the behavioral finance has identified these types of the factors which affects the investment decision making of the individual investor. Thus, this study aim is to evaluate these types of factors which affects the investment decision making of the investor in the stock exchange market. The three factors have been selected and used to identify the impact of the on the individual investment decision making. These factors are included Overconfidence Bias, Availability Bias, Representativeness Bias. The structured closed ended questionnaire is selected for collection of data from the individual investor which is known as 270 Respondents. This study shows that all three factors have a positive impact on the investment decision making. That’s means the results are significant. This study assists the investor to make the rational decision making in the stock exchange market.

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CHAPTER 1: INTRODUCTION

1.1. Background

As per the research the financial institutions and markets are unpredictable, unstable and uncertain these situations create massive fluctuations in the investment turnover. Investors do not achieve the desired goal or output from the investment because they are human being and their behavioral factor are the should impact the decision since long. (Yuksel, S., & Temizel, E. N. 2020). Behind these fluctuations the reasons are the low capability of the financial measurement tools and standards for example Camp, Apt and Portfolio Theory. (Zahera & Bansal, 2018). Mostly the investors depend on these types of measurement tools, they think these tools will provide rationality in their individual decision making but these standards and tools are incapable to provide the certainty in the accurate decision making which leads to maximum profit or turnover. This occurs because investors are human being, and they cannot be rational all over the time. The irrationality factors of the investor's hind the investment decision making ability. Behind the reason of irrationality choices and decisions may caused by the social and psychological factors. (Francisco, D.S.B. 2020). Emotional and cognitive factors also effect the investment decision making or investment decision making process. So, all these types of factors thoroughly explained in the emerging field which is called Behavioral Finance (Bakara & Yia, 2016). This research based on investment decision psychology. The investors emotions and biases also influence the decision making of the investment. Behavioral Finance explained these types of biases and emotional factors which effect the investment decision making but the traditional measurement tools cannot do that. Birau (2012). The research explained that the markets are inefficient because mostly dealing in finance with the psychological point of view in result inefficiency of the market in result founded.

So, while on the other hand, financial theories are not providing the alternatives which leads to rational decision making but the behavioral factor affect the investment decision making. (Alsabban, S., & Alarfaj, O. 2020). Birau (2011) examined that the most complexify, difficult and challenging situations occurs in which where financial theories are unable to provides the preferable solution which may lead to rational decision making.

1.2. Problem Statement:

Behavioral Finance focus on the emotional and psychological factors which may impact an investor's decisions. The subject evaluates how emotions of the investors lead to errors and mistakes in making investment related decisions. Decision making is related to selecting the most suitable alternatives among the available options. The decision should therefore be based on analysis of all the available options. Making decisions without evaluations lead to poor results and losses. Many decision makers do not consider all options and do not analyze the situation properly, which lead them to making dumb decisions. Decision making is not a simple activity. It is complicated and very challenging. As human psyche and emotions affect their decisions as per previous studies, the factors that impact the human psyche should also play some role. Education, gender, race, age, socioeconomic factors, culture, such demographics structure the human psyche. Therefore, in different contexts and countries with people having different demographics may have different psychological factors affecting the decisions to a different degree. An investor's main goal is to maximize profits through making rational decisions and minimizing the impact of emotions on the decision. Yet as human they make mistakes. They let their emotions get involved in their decisions. Through the knowledge of the areas where they make mistakes, what factors are affecting their decisions, and what biases are leading to poor results, they may be able to reduce their errors and improve the outcomes. Investors for example sometimes make decisions on such stats which are not authentic or important. They for example may invest in such stocks which were growing for a long period but had a substantial fall recently, thinking that it may be a short term fall and they think of it as an opportunity to buy good stocks at low prices. Even though there may be a serious underlying issue leading to the fall. Hence the decision maker should be aware of such biases in order to make an informed decision. After all the study the research founded that investment decision making in millions after every single minute. (Kimeu, 2016). As per the research there are many behavioral factors affects the investment decision making throughout the whole world. So, as we know that the most affective and critical behavioral factor known as the name of psychological factor. So, behind the irrational decision-making reason is based on critical factor is known as psychological factor. The research founded the type of psychological factor is known as cognitive factor which mostly influencing the behavior of the investors towards investment decision making or particularly in the investment decision making. So, we founded that while our research that, in Pakistan this topic is being less taken for the research study, so it is the best gap or opportunity to study on this topic. In developing countries like Pakistan, the perception and attitudes of investors in market are different from developed countries market which affects their decision making. Factors such as political situation, information technology, media, and financial structure are very different in developing countries (Khan et al., 2021) Moreover, the people in Pakistan may have different degree of impact of these factors on their decisions. The research defines that if the investment decision making is based on the behavior of the investor so the profit maximization will be uncertain, unstable, and volatile. Therefore, to solve this issue or gap, there is a thoroughly needed a study to understand and fill this gap regarding the behavioral of investor related to the investment decision making on Islamabad Stock Exchange.

1.3. Objective of Research:

The objective of the research is to understand the impact of the behavioral finance on the investment decision making. (IDM). The specific objectives of the research give below:

- To understand the impact of overconfidence bias on Investment decision making.
- To understand the impact of availability of bias on investment decision making.
- To understand the influence of representativeness bias on investment decision making.

1.4. Research Questions

- Does the overconfident as a factor influence the investment decision making?
- Does the Availability bias as a factor influence the investment decision making?
- Does the investment decision making influenced by the Representativeness bias?

1.5. Research Gap

There are several amounts of research took place to investigate the Impact of Behavioral Biases on the decision of Individual Investor; Empirical Investigation on Karach Stock Exchange Market. According to the F.Mumtaz (2020) The research on this topic is mostly based on the Karachi Stock Exchange Market. So, the gap is identified that there are different region which have different opinion regarding investment decision making. So, we are going to select the Islamabad Pakistan Stock Exchange market.

1.6. Research Significance:

Both for individual investors and as a literary contribution, this work is significant. We are aware that human biases influence financial decisions and have a significant impact on investors' long-term financial performance (Baker & Nofsinger, 2010). The majority of investors in Pakistan lack financial literacy and formal education. They lack the knowledge necessary to develop their own investment strategy and determine how to maximize their return on investment. They rely on the stock market's financial specialists' counsel. They occasionally make financial and investment decisions in accordance with their social group. Additionally, they exhibit herd behavior, which causes them to copy what other people do. They don't evaluate their status in relation to other investors' financial standing, surroundings, circumstances, or timing of investments. They attempt what other investors are doing irrationally. It generates negative returns and investment losses. They occasionally invest in firms whose shares are appreciating in value in the expectation that they will profit handsomely from these shares in the future. They do not use technical and fundamental analysis to generate projections (Butt et al., 2011). As these variables haven't, to the best of our knowledge, been studied together with this methodology and this much massive data, this research will be helpful in explaining and understanding the influence of availability, representativeness, and overconfidence on the financial decision making of investors in Pakistan's Islamabad stock exchange markets. Additionally, it will aid in the financial decision-making of investors and the formulation of policies pertaining to the halting of insider trading, information accessibility, and market efficiency by policymakers.

1.7. Limitation

As per this study mainly based on Islamabad Stock Exchange due to limited period and investors. This shows that this study is limited, and the perception and ideas related to investment decision making is only based on only one region. It means people or investor from different region have different options, perception, and decision about investment decision making. There are some other limitations are founded that the investors shared their point of view and ideas regarding mood, availability, time and other socio and psychological factors. These options and opinion might be different in different context and period. This means the findings of this study should not be subjected or related to those participants feelings.

1.8. Scope

This study defines that the individual investor who invest in the stock exchange markets is significant for those individual investors. This research will help the individual investors to find out the behavioral factors which may help them to make irrational decision making in their investment decision making in the stock exchange. So, this study will help the investor to overcome the behavioral factors and maximize their profit

CHAPTER 2: LITERATURE:

2.1. Literature Review:

As per the study from past 300 years research on this situation and term and condition on the Investment decision making is not new in the finance field. (Saleem, Usman, Haq & Ahmed, 2018) Investors are suffering from past 300 years to create a parameter on which bases they can make the rational decision making. So, the investor’ decision is based on his/her past prior experience and reaction that he/she can easily encountered.

Investment decision making is that type of investment which is based on the two school of thoughts one is descriptive and second is normative. The Descriptive theory explains that the how the individual investor make decision about his/her investment and the normative theory explains that how the investors choose the choice from different alternatives. If the behavior of the investor involved in the investment decision making the rational decision making cannot take place. (Kengatharam & Kengatharam, 2014). Psychology explains that the investment decision making situation based on irrational decision making because the individual investors take their decision on the bases of past experience and future valuation of profit maximization. Behavioral finance is studying the psychological factor and emotional behavioral factor of the investor and understand that why they make mistakes while taking the decision of investment decision. (Hilton, 2001)

Behavioral finance is to be rooted of standard finance and economics which describes the psychological factors and cognitive behaviors for the investment decision making. It examines the psychological and cogitative factors which are affecting investment decision making irrationally (Thakur, 2017). Behavioral finance theory contributes with the psychology to describe that how the cognitive and emotions errors affects the behavior of the individual investors while investment decisions making. (Kengatharan, 2014). The research shows that the behavioral finance oriented from the psychological and cognitive factors. This Study is based on learning about the human behavior that influences by the reasoning, thinking and investment decision making skills. Gitman and Joehnk (2008) defines that the study on the behavioral finance explains that the individual investors influenced by the different view of points, different priorities and perceptions and different thinking level. Bakara & Yia (2016) describes that there are some reasons of individual investor caused overaction which are related to the financial and investment decision making those reasons are belief, biases, priorities and different point of view due to these reasons may lead to the irrational decision making and as per the market sense risk taking. The Heuristic theory working under the behavioral finance which is known as rules of thumb (Fromlet 2001). Mostly this theory is applied in sensitive and unstable situations where the investment decision making is hard, difficult and critical (Shefrin 2000). Heuristic drives another criteria for the evolution of investment decision making to talk the decision straightforward and comfortable. Kengatharan (2014) explores that In 1974 Kahneman and Tversky discovered the availability of bias. After that, Waweru at al (2008) said that according to his perception the overconfidence also included in the heuristic biases. So, there are large numbers of factors influence the investment decision making and some of these factors are define in upcoming studies. Ritter (2013) According to him, with the help of psychological theory, it will help in identifying the actual factor behind this irrational investment decision making of individual investors. Kliger and Kudryyavtsev (2010) divided the behavioral finance into two different dependent variables, and it is known as the strength of behavioral finance. One of them is known as cognitive psychology and the other one is known as it is arbitrage which explores that which is the most suitable and accurate way to invest in the market. There are some factors which are linked to the cognitive psychology defined below:

Heuristic is one of the most influential factors in the cognitive psychology. As mentioned before there are some methods which convert the shape of the problem into simple one and provides the solution of that problems (Kahneman, 2003). In the most unstable, unfavorable and critical situation heuristics provides the guidelines to the individual investors (Chaik, 1987). Mostly investors depend on heuristics because they feel that they can control or overcomes the unfavorable and uncertain situations they feel like the rule of thumb will help them in the critical situations. They can believe that they can reduces the chances of the risks and forecast the outcomes (Raines and Leather, 2011). Sometime investors feels like they are sensible and rational in decision making when they are using the acquisitions are coming (Schijven and Hitt, 2012). This may encourage the individual investors and they overestimate or high expectation to the probability of the investment and dive into the new projects and mostly ending up with the high level of risk. (Wickham, 2003). There are some biases are defined in the following such as: Overconfidence bias, Representativeness of Bias and Availability of Bias

2.1.1 Investment Decision Making:

In this situation we spend some money into the project, stocks and something else to earn profit or maximizes the profit this situation considered as the investment. There should be a clarified mission and mission and accurate forecasting regarding the maximum success. All investors have the objective that is to earn profit or maximizes his/her profits. To achieves this objective the individual investors should be rational in investment decision making. So, the rational decision making is a crucial part of the investment decision making. (Merton 1987) indicates that the rational decision making is known as the dependent variable and the knowledge is known as independent variable and shows significant relationship between them. As the investors have the high level of knowledge and information regarding the financial market it indicates that the investors should be rational in investment decision making. According to the traditional theories, they argue that being an investor there can be always rational regarding investment decision making. However, this situation is totally different in the economics life. Psychological factors affected the individual investor in the investment decision making along with the behavioral factor. In the recent years the researchers are trying to discover those types of factors which are trying to affect the financial decision making. As per the outcomes, the researchers discovers that the human nature is that type of nature which are prone to be affected by those factors and these factors are nature to them day to day life. Behavioral Finance connected both the things together. It creates links between the behavioral factors and financial factors. Consequently, psychological and behavioral factor affects the decision making because there are impact of behavioral factor and psychological factor on Investment decision making means Investment decision making affected by these behavioral and psychological factors.

Investment is the process of investing the money to get the benefit or profit from your investment and the investment can be cold or hot but having knowledge of finance and information regarding the market may lead to success. Investors do the investment in any project and desire the return from their investment to make the optimal decision making. Sharp (1964) shows that the high level of risk may lead to the high level of return which compare to the benchmark. In the financial markets the managers are better than the individual investors in decision making because the manager examines the internal and external factors, but the individual investors examine only external factors. Myers & Maijluf (1984). In the past years, some investors explains that the in optimal and rational decision making is based on the advance financial knowledge. Merton (1987). The researcher perspective shows that the investment decision making is irrational, but the individual investor perception shows that the investment decision making is rational. Harrison & Harrel (1993).

Investors are unable to thoroughly assess all available information and make informed investing selections. Financial prices are the best source for making decisions since they reflect all of the information that is accessible in the market. Additionally, a variety of other factors, such as rumors, behavioral heuristics, the accessibility of knowledge about the risk and return of the stock, a person's background, etc., might influence an investor's choice of investments. The prices are impacted by behavioral biases; prices set by risk-averse and risk-seeking individuals will differ. Moreover, for the investors, it is not realistically possible to actually perfectly analyze the total information and take decisions related to investment perfectly. The stock prices shows the total information, and they usually are the most appropriate source to consider in order to make an investment decision. There are various more factors which influence the decision making related to investment. These factors could include hearsay, accessibility to information related to the share's risk and return, behavioral heuristics, person's background, etc. The behavior heuristics influence the stock prices in the market, and the prices get affected differently by risk takers and risk averse individuals. Some researchers investigated whether companies influence stock investments in ways other than risk and return. They gathered the relevant information from 400 people using a survey method. The findings indicate that the investor had extra motivation to invest in stock beyond the risk and returns of the stock. Instead than investing in just one nation, the investor spreads their money across several nations. The investor decreases the influence of biases by making investing decisions throughout a variety of time frames. There are various biases that influence the choice of an investment. Investors can improve their financial decisions if they are aware of all their biases. (Qasim et al., 2019)

2.1.2. Behavioral Finance:

Olsen (1998) defined behavioral finance as a tool which describe the financial market of psychological and behavioral factors. Behavioral finance is a systematic tool and procedure to forecast or predict the investment decision making outcomes. Belsky (1999) defines that behavioral finance is the study of psychological and cognitive factors which are connected to the financial markets. It is the study that identifying the reasons behind illegal and irrational decision making about investment. On the other side Shefrin (2001), describe about the behavioral finance that BF is the study of understanding the financial behaviors of the individual investor. Previously, Behavioral finance is the study of feelings and emotions which are based on the investment decision of the investor rather than focusing on practical or choosing rational approach. On the other side, depending on the market condition, the changes occur in the market and situation of the profit and loss could be depending on the behavioral aspects and not looking at the systematic structure of the market. He further conclude that the traditional finance cannot solve the issues but the behavioral finance understand and equally answer accurately and providing the rational decision making techniques.

2.1.3. Overconfidence Bias:

Investor's personality traits plays a crucial role in their decision making. The extent of investor's self-confidence is one of the traits. It is a basic human need to improve their self-esteem, and this need directs decision making. Hence investors are influenced by the motivation to build and preserve their self-esteem, and their decisions get influenced by the tension created between their personal temperament and external factors. They tend to give themselves credit for the successes and attribute failures to external factors. The investors tend to believe that they have more abilities than they actually possess. This distorted belief leads to flawed decisions as the investors underestimate the price of the decision and overestimate the benefits of it. This overconfidence in decision making is the result of uncertainty, information overload, and their experience. So it can be said that more experienced decision makers would have more overconfidence since they would more probably be overestimating their abilities due to their experience related to investment. Any individual with overconfidence issues would try to resist any new information which negates the already developed beliefs. Hence the investors may ignore the clues in the external environment and any dissimilarities that can be identified. They only retain those information which confirms their already developed beliefs. (Galavotti, 2021)

Hence this bias which affects the individual investor easily known as the Overconfidence Bias. De Bondt and Thaler (1995) also defines overconfidence bias saying that the overconfidence bias is known as overestimate or over budgeting or over believe on our knowledge and skills which may lead to high level of success is known as overconfidence. Mostly investor biased by the overconfidence just because two reason over belief on the ability and knowledge they have. (Chaudhary, 2013; Shiller, 1998). Mostly investors ignore the possible negative things and over belief on their abilities and knowledge and trust their talent (Johnsson et al.,2002) The investor will bear the high level of risk if the investor has the overconfidence bias within him/herself. According to a study when the investors feels that he/she is expert in investment decision due to his/her abilities and knowledge which lead to higher rate of success containing overconfidence bias. Mostly this factor affects the individual investor when the rate of investment is high or doing frequently doing investment. (Evans, 2006) This also explains that the investor mostly prefers those types of companies which are less diversified because behind this reason is overconfidence bias. The term overestimate or over forecast or feels like you have huge knowledge of market conditions related to the stocks, value or prices while investment decision making in the stock market. Some investors shows that the reason behind their successful investment is their expertise which may lead to overconfident bias and ignores their past mistakes at the end the success of their investment is based on the Luck. Ullah et al (2016) study also displays the same results the overconfidence heuristics has a favorable impact on the investment decision making. Qasim et al (2019) discovers that the Pakistani investors decision have the positive impact of the overconfidence bias. Firms have both positive and negative impact of the overconfidence bias. The study states that with time the relevance of investor's behavior has increase in the subject of financial investment. The Pakistani markets are not yet developed enough, hence not everyone has the access to equal amount of information at their hand.

By gathering brokerage data from China, Chen (2007) investigated effects of the temperament effect, representational heuristics, experience, and overconfidence heuristics on the process of making decisions of growing market investors. The findings indicated that investors make bad decisions and that biases significantly influence investor choice.

Ngoc (2013) has also investigated effect of behavioral biasness on investor choice at stock firms within Vietnam. The results show that these heuristics do have an impact on investment decision making. Lewellen (2006) examined the impact of volatility, debt costs, and other factors on making decisions related to finance. The results implied volatility do have an influence on financial decisions. Moreover, survivability of overconfident traders in competitive equities markets was researched by Hirshleifer and Luo (2001), and the overconfident traders outperformed reasonable investors. By applying regression and two least squares techniques, Jhandir (2014) determined influence of three kinds of heuristics on the decision making related to investment. The findings demonstrated that herding behaviour, overconfidence, and disposition all had a significant and favorable influence on choice related to investment. Libby (2012) used survey method to look into the effects of overconfidence and self-attribution bias in management projections.

Malmendier and Tate (2005) conducted research on how excessive confidence might influence a company's investment decision. Oliver (2005) used data from US corporations with a 25-year history to research the effect of confidence on capital structure. The degree of debt rises as manager confidence grows. The outcome suggests that management confidence raises the capital structure's degree of debt. By collecting information from 502 investors in South Korea, Park (2010) examined effects of overconfidence heuristics or biasness on the outcomes of investments. The findings demonstrated that confirmation causes the investor to become overly confident in his abilities and negatively impacts trader's performance.

Skala (2008) investigated corporate finance structures and psychological overconfidence. The findings show that the overconfidence was beneficial in merger and acquisition transactions and had a huge influence on the financial structure of a firm.

Sindhu (2014) also investigated the relation between overconfidence and investment decision making in Karachi stock exchange. Based on the assumption that past returns on stock results in investors becoming overconfident in themselves, they checked and proved the hypothesis that turnover is positively associated to prior returns. Overconfidence bias of investors lead to higher return volatility. Moreover, the combination of overconfidence and false perception of control effects the decision-making process of investors. Investors tend to focus on the return of the stocks and overlook the market turnover. This results in irrational decision making and poor outcomes. As the over confidence of investors increase, they trade more.

H1: Overconfidence bias has a positive impact on investment decision making.

2.1.4 Representativeness Bias:

People tend to make decisions based on rule of thumb, heuristics and mental shortcuts. They don't want to go through the trouble of process the information available nor do they prefer to get involved in complex analytical processing. (Yates, 1990)

Representativeness bias also affect the investment decision making just like other two variables affect the IDM. Mostly investor take their decision making on the bases recent incident or occasion which may influence the investor to the positive or negative side without any further investigations (Bondt, 1998). Pompian (2012) further explains that the investor decides the present on the bases of the past experience. Shafran (2009) explains that investors mixed two events which are irrational in investment decision making. The prior research and investigations indicate that the investors should divide their past experience into different sections which includes the success or failure rate so the investor choose easily infect the scenario is new for the investor (Athur, 2014).

Representativeness bias can influence the decision of an investor in two ways. When the same kind of information is translated by the investor as a pattern and they base their decision on recent news about the company. Hence they overestimate about the performance of the firm in the long term. Secondly, even if the series is too short to apply the law, people might anticipate a reversion to the mean if they encounter a succession of similar pieces of information. Several researchers like Hirshleifer (2001) states that representativeness bias tend to effect investment decisions. It impacts investor decision making as well as the stock prices. Investors who ignore other elements and ascribe only one cause for a company's rising stock may overreact and make irrational decisions. People tend to place greater emphasis on information that is obvious and attempt to link that knowledge to the possibility of whether a firm would succeed or fail while neglecting any elements other than that, which may be more crucial for making an informed decision.

The Representativeness heuristic is the propensity to categorize occurrences into distinct groups based solely on observable or conspicuous attributes. Due to representativeness bias, the investors overestimate their abilities and disregard sample size and mean reversion. Investors ignore sample size and ultimately the law of probability because of representativeness bias, which makes them believe that a tiny sample represents the entire population. Investors frequently invest in stocks with high abnormal returns in recent history and select these equities due to representativeness bias. There is a ton of research out there that backs up the claim that representativeness does have an impact on investment decision-making. (Irshad, 2016). These individuals who fall for representativeness bias, despite knowing that stock prices are generally unpredictable, they overreact when there is a change in information. They use the past trends to make their investment decisions related to some representative stocks, totally ignoring the basics of a stock. This behavior leads to anomalies. Since they do not focus on any course of action or specific strategies to analyze the performance of stocks, anomalies are created. Further, those individuals who rely on representativeness bias, they concentrate on good qualities of the shares. Hence it further moves them away from proper assessments of performance of these shares and lead them to keep looking for hot shares. These kind of anomalies and stock price changes in market lead to changes in investment decisions of investors. The price change attract their attention and encourage them to concentrate on famous stocks. (Abdin et al., 2017)

Khan et al. (2021) pointed out that such heuristics tend to decrease the mental load of the investor, hence they use them to make decisions. Not only general investors, but professionals and experienced investors with adequate knowledge also ignore basic financial models and tend to rely on heuristic biases in making their decisions related to investment. The investors believe that as the performance of these stocks have been good in recent history, they will perform well in the future too. Similarly, they perceive that if the stocks have been performing poorly in the history, they will perform poorly in the future. Hence they invest in stocks with good performance believing that will continue to grow and their prices will increase. These kind of heuristics can increase the pace of making the investment decisions when compared with rational decision making which demands an in-depth analysis of available information. However, the usage of these shortcuts may lead to structured errors sometimes which results in undesirable outcomes. These structured errors can be named as cognitive biases including representative heuristics. Bloomfield and Hales (2002) discusses in their research that investors even after knowing that future performance cannot be truly predicted by past performance, still took the decision to invest in stocks. Even their work experience, their career, or their training did not impact their preference towards heuristics. As the investors have seen similar patterns of price trends before, they tend to trust it more than going through thorough analysis of information available to them. He further suggests that it is maybe due to the belief of investors that large changes in performance are more probable to reverse to previous state rather than small changes.

Jan et al. (2018) suggests that representativeness bias does not necessarily lead to errors and mistakes. As per the context and situation, even representativeness bias become useful in decision making. His studies suggest significant impact of representativeness bias on investment decision making. Some researches make similar arguments. Liu (2016), for instance suggests that heuristics may help make even better decisions than rational pathways which are usually more detail oriented and based on all information available at hand. Jamal (2001) and Shane (2015) also concluded positive influence of the representativeness heuristics on the decision making of an investor.

H2: Representative bias has a positive impact on investment decision making.

2.1.5 Availability Bias:

The final determinant variable for this study is known as availability bias. The cognitive theory is considered as the short cut ways of making investment decisions making by using the resources of readily and available knowledge of the market for better opinions. (Kimeu, 2016). It's a role of thumb because when the time comes for investment decision making the brain of the investor automatically connecting the past experience and the probability and experience connecting with the past events to formulate the conclusion. Therefore, the decision taken by the investor which are mostly affected by the prior experience which may result in biased results or decisions. Avgouleas (2009) defined that when the accessibility of the ability and knowledge is high the availability bias occurs.

Some researchers defined it as a mental bias that is defined as the propensity of decision makers to overlook alternative choices and only rely on information that is available at hand for analyzing an opportunity related to investment. This behavior can be seen in the financial market when individuals who are looking to invest favor their country's firms' share over that of foreign firms because they know more about their local stocks since they have easy access to information about them. The stock market exhibits a certain pattern as investors' preferences shift in response to any new update or information about the economy and firm performance. This has an impact on investment choices. Inaccurate information can occasionally have an impact on investment decisions. Because investors' risk attitudes alter as a result of easily available information, this irrelevant knowledge has a detrimental impact on investment decisions. Numerous studies have shown that when investors have greater information, they feel at ease and relaxed when making decisions. The availability heuristic significantly affects the choices made by investors since it leads them to mistakenly interpret a share with strong performance as a relatively low dangerous share and a share with weak performance and returns as a relatively more risky share, which leads to poor investment choices. Additionally, investors who base their decisions on the availability heuristic endure greater losses than the market when the economy is in a recession and the stock market is trending downward. One of the causes is that these investors have a tendency to act irrationally when they receive any information concerning shares and desizing. (Khan et al., 2021). Investors evaluate a stock or share on the market by comparing its risk and return to the risk and those of their fellow investors. They respond in accordance with the performance data of the securities (Brauer and Wiersema, 2012). Due to investors' tendency to weigh just recent and accessible information when evaluating a security rather than all pertinent information, this information may cause investors to choose liabilities rather than such resources that could be beneficial for decisions related to financial investments. (Wang et al., 2014). In addition, investors compete with one another to outperform the market, which forces them to act quickly when information becomes available (Bowers et al., 2014) and instead of acting as rational economic actors, individuals rely on mental heuristics like the availability heuristic, which leads to irrational decisions and influences investment choices.

The Vietnam Stock Exchange's behavioral aspects that were related to investors' decision-making and their outcomes were examined by Luong & Thu Ha (2011). Overconfidence, availability bias, herding, market, prospecting, and anchoring were among the issues examined. According to the study's findings, the market component has the greatest influence on decision-making, with all other elements having mild effects.

A decision-maker under Availability Bias relies on information that is easily accessible rather to considering other options and procedures. The information that is obtained during the selection and identification of a stock has an impact on decision-makers in the stock market. Most investors alter their decisions while taking their cost of capital into consideration. Investor preferences alter in accordance with the information that is accessible, resulting to a specific leading pattern and occasionally even influencing irrelevant information. These irrelevant facts have an unfavorable effect on decisions related to investments because they cause decision makers to shift their risk-taking habits with respect to a particular security. According to several earlier research, investors are more at ease making decisions when they have greater knowledge. When a company in the financial market admits to wrongdoing, the investor in that company's stock immediately receives a negative signal and jumps to the wrong conclusion. (Khan et al., 2017)

The availability heuristic causes decision-makers to limit their investment opportunities, which prevents them from diversifying their investment portfolio, selecting investments on the basis of the knowledge they can retrieve instead of doing an analysis of the choices, allocating assets appropriately, and selecting alternative investments when appropriate.

There are several prior research which were conducted to analyze the association between availability bias and investment decisions; some of them discovered a favorable association between the two, indicating the fact that availability bias has assisted investment decisions. Ikram (2016) looked into how behavioral factors affected the choices made by investors who were selling and buying shares in the Islamabad stock exchange and discovered that availability bias had a favorable impact on such selections, increasing individual investors' returns. Khan (2015) discovered that availability bias has a considerable influence on investors' investing choices. (Shah et al., 2018)

H3: Availability Bias has a positive impact on investment decision making.

2.2 Prior Studies.

Kliger (2010) totally focused on the factors of the availability bias which have the impact factor on the irrational decision making. He Studies the availability bias on the bases of risk and other outcomes. So, the study innovated that when there are some positive changes occurs in the stock price in the next stage the decision will be more irrational because the available information and knowledge may lead to the next decision making.

Rasheed, (2018) researchers find the cognitive factors accurately and representativeness and availability biases in the procedure of individual investment decision making to identify the effects of the locus of control. The study is based on the quantitative research and the data gathered from the participants are 227 from the different cities of Pakistan. The model uses for this research is known as structural model of equation with the linear regression. The study of this research shows that the factors affect the individual investment decision making.

Seppala (2009) did research on three of the psychological biases because he wanted to reveal the impact of three psychological biases which may hinder by the investment decision making advisory. The most easy and critical factors is known as overconfidence bias and the most research factor is self-attribution. This study shows that the investment advisors are affected by the hindsight factor and most likely the investors are more experience are affected by their self-attribution. In the end the remaining more experience investors are more confident about their investment decision making.

Bhandari (2008) concluded that the cognitive biases all the time appears wen the investment decision making. As this research is based on 119 participants to proof that if the decision making is taking effectively biases can be reduced when the decision making is rational and accurately as per the terms and conditions. Mostly the rational decision making may lead to the maximization of the profit.

Chen (2008) discovers that in the trading the irrational decision making taken in China. The data was collected from the brokerage house for the analysis. He discovers that when the prices high the investor sell their stocks and when the prices are low the investor their stocks. Some other investors are most likely overconfident just because of excess of selling and buying stocks the most frequently. In the market. So, he discovers that the previous profit and loss may affect the future decision making of the investor.

Chandra (2008) discovers the relationship between the behavioral biases and investment decision making which affected by the risk. As per the traditional finance theory the whole rational decision making may not be achieved entirely. Mostly decision making affected by the fear of loss, anchoring, mental accounting and some other factors which are included in the risk.

Chira (2008) investigates the components whose are dealing with the individual behavior of the investor and their effects on the investment decision making. This study was based on the selective prosperity which is known as business students and data was gathered with the help of questionnaire. Some of those variables which are significant in this study is known as Overconfidence, Loss aversion, and suck cost. As a result, this study is not authentic because the study is based on the business students.

Saleem et al. (2018) did research on Pakistan Stock exchange and collected the data of almost 150 respondents with the help of structural questionnaire. The study totally based on the rationality of individual investment decision making. This study is based on two factors one is demographic factors and the other is behavioral factors. Those Behavioral factors are herding, overconfidence, the illusion of the control, self-attributions, and dispositions. The research data has been collected from Islamabad and Lahore to analyze the relationship between the dependent and independent variables. The technique was used to identified the access of the relationship is SEM. At the end the results shows that the behavioral factors influenced the individual investment decision making. However, the demographics results appear as a negative impact, but the relationship is significant. This result shows that the behavioral biases have a significant impact on the investment decision making.

Birau (2012) research on the study of capital investment market and investment decision making. As per his research shows that the psychological factors have the impact on the individual investment decision making that are the also the part of the behavioral finance. His research discovers that the finance theories are not enough for bringing the evaluation of the investment decision making. Because they are affected by the herding, disposition, overconfidence, and risk averse. This study shows that the behavioral biases are the most important research study in the research field just because it's significant impact on the individual investment decision making

Chaudhary (2013) research on the influence of the behavioral factors on the investment decision making. He shows that the investors easily influenced by the BF. He added the critical factor in the study to easily discover the impact of behavioral biases on the IDM.

Kaheneman (1979) created a model which shows the behavioral biases in the investment decision making is known as prospect theory. He claims that there are many factors whose affect the investment decision making by the individual investors other than the economic factors. He indicates that the value of the investment decision making should be led to profit or loss. This study is not related to the probability of the assets.

Kimeu (2016) shows the difference between the two methods of innovating the decision making about the investment in the stocks. There are two methods which were traditional and classical method and the other BF theory. He proposed some advice regarding the traditional and classical method which are you need to have proper knowledge and understanding regarding the mathematical formulas to measures the rational decision making in the stock market. Investor may have the lack knowledge in the systematic and mathematical to measure profitable stocks. He recommended that the BF theory is the easiest way of measuring the affect of individual investment decision making that may lead to the rationality. He included some behavioral factors knows as herding, heuristic and protect factors to make the decision of the investment decision making in the stock in a way of more rationally and systematically. He uses the questionnaire for data collection tool. He collected the data from 80 respondents as a sample size of his study. He analyzes the descriptive analysis, inferential analysis and regression analysis to find the impact of behavioral bias on the investment decision making. At the end the result shows that the behavioral biases affect the individual investment decision making.

Athur (2013) describes the importance of the BF theory. He examined that with the traditional and classical theory cannot show the big successful picture of the evaluation of the stock in the market. There are some factors affects the investment decision making which lead to the failure in the successful IDM. He examined that due to the incapability of the traditional models for the stocks the anomalies are involved in the stock market frequently. Anomalies means the over pricing of the stocks or under-pricing of the stocks in the stock market. Moreover, he discovers the need of the development in the behavioral finance theory. He added some elements in his behavioral finance study. After adding the elements, he measures the impacts of those elements on IDM. The Results shows the positive relationship means the significant result between the independent variable over dependent variable. Representativeness bias, herding, cognitive dissonance and hindsight biases are included in the study, and they have a significant relationship with the investment decision making. His research also shows that there are some factors which are not possible impact on the investment decision making those are self-attribution, over-optimism and regret aversion.

Bakar (2016) conducted research on the Malaysian Stock Exchange market to measure the impact of the behavioral factors over the investment decision making. His studies show the positive relationship between the BF factors and investment decision making. He discovers that the investment decision took by the investor irrationally as a result turn into the high profit category. This shows that the decision impact on the profit is positive and decision impact is better than the decision taken under the irrationally ways. He used the questionnaire for the data collection tool. He gathered the data from almost 200 respondents. He mostly targeted all age group from 16 to 80 Years. He shows that his finding is almost same to same just like other researchers did. As a result, he concluded that his studies result is positive and the relation between IDM and BF factors are significant related to irrational decision making. He measures the result by MLR equation model. He indicated that if the level of irrational decision making is increased than the efficiency in the stock exchange market will be increase.

Kengatharan (2016) conducted the research on Colombo Stock exchange market to find out the influence of behavioral factors on the investment decision making IDM. The main goal of this study is based on the people of the Srilanka which means they are doing rational decision making or irrational decision making. He also examines that the best way of irrational decision making through behavioral factor theory. In his study he uses the regression model. This study result shows that the independent variables are positive and significant related with the investment decision variable moderately. This study shows that herding, heuristic and other behavioral factors affects the individual investment decision making. If the investor control on these factors while decision making than he can minimized the irrational decision making.

Shafran (2007) research on in different conditions and scenarios and measures the relationship between the BF factors and IDM. The conclusion shows that the investor act differently in the traditional model of evaluation of the stocks. They forecast the future prices of the stocks by the systematic model. On the other hand, investor make their decision on the behalf of past performance of the company and past performance of the stocks. The study results shows that the investors want to hold the high growth rate of the stocks means winning stocks in other words and sell those types of stock which have low level of winning performance. Mostly investors take their decision on the behalf of most available information regarding the company and the stocks and take their decision on the recent performance information available about the stocks.

Kisaka (2015) criticize the traditional model which are not helping in evaluating in the estimation of the future stock's prices such as CAMP etc. and give more attention to the newly emerging theory BF to take decision irrationally. He researches in the Kennya NSE to measure the impact of BF on the investment decision making. Identifying the relationship between the independent variables and dependent variables. He applies the regression analysis. He collected the data through structural questionnaire within two months. After the analysis the results shows that the behavioral factors affect the IDM the result shows positivity or significant in relationship. He included two factors which are overconfidence and loss aversion. If the Investors should be focused on these two factors, they can do their investment decision making more irrationally.

Thakur (2017) studies on the impact of BF factors on IDM. He collected the data of 50 respondents and measures the behavioral finance on investment decision making. This study used ANOVA to analyze the data. The result shows that the herding, overconfidence, availability, loss aversion, and few other factors which have the positive impact on the rational investment decision making. The result shows the significance with the IDM. However, he indicates that there are some factors which have no positive relationship with the IDM on the other hand moderator impact of decision making are positive.

Tekce et al. (2012) analyze the factors of behavioral finance on the IDM who mainly invest in Turkish Stock exchange. They Examined the factor more carefully and included the most debatable factor in their study. They included the factors in his studies are overconfidence, representativeness bias, Incorporate disposition and familiarity bias. They measure the effect of these factors on the investment decision making. This study is based on the demographics changes in the study which may lead to the concerning with the investment decision making. The data is gathered from the close end questionnaire. This study results shows that the familiarity bias and overconfidence bias have a strong correlation. This study shows that the positive and significant relationship between the investment decision making and BF factors.

Zahera (2018) discovers the systematic review of the behavioral factors and their impact on the investment decision making. For this study she studied and analyzed the research paper related to the behavioral factors. For this study she examined many research paper since 1976 to 2016. After reviewing the literature, she discovers that the human being is an investor, and the investor cannot ignore the behavioral biases just because the human nature and emotions affected by the BF factors. So, this shows that the directly or indirectly BF factors affects the individual investor while making the IDM. Due to these biases' investor feel difficult to remove or eliminate these BF factors but the the solution is to overcome these biases while investment decision making about the Investment. The result shows that the behavioral factors affect the Investment decision making. The result seems the positive or significant between the BF factors and Investment decision making.

Cherono et al (2018) research conducted on the Kenya Stock Exchange Market and the goal or aim of this research is to identify the impact of the herding behavioral on the investment decision making. In this research the researcher uses the secondary data and the approach of this study is based on the qualitative. The data was collected from the listed companies in the Nairobi market. The sample size taken form the 4 companies and the tenure of the data collection is from 2004 to 2016. This study result analyzed by the regression analysis. This study shows that the relationship between the IDM and herding biases are positive or significant in the sense of research. Means the impact of the herding bias on the investment decision making is positive. Therefore, the null hypothesis is being rejected and retained the alternative hypothesis. This study shows that the impact of the independent variables are significant on the Dependent variable.

Babajide (2012) conducted the research on the Nigerian Stock exchange Market to evaluate the BF factors on investment decision making. He collected almost 300 responses from the individual investor. The responses gathered with the help of structured questionnaire. This research based on two aims, The first one is to identify the existence of behavioral factors in the Nigerian Stock Exchange or not. The second aim is that impact of the BF factors on this stock market is significant or not. The researcher uses Pearson thought SPSS. Pearson is the process of measurement of coefficient correlation between the independent variables and Dependent variable. The important goal is to identify the existence of the BF factors in the NSM.

Luu (2013) conducted the research on the Vietnam Stock exchange market to find out the impact of the Behavioral factor on the stock exchange market and shows that the BF factors has a moderating impact on the Vietnam stock exchange market. The research uses the well organized and structure questionnaire. The data is collected from the investor and the total responses collected is 188. This study is based on the five factors to identify the impact of the behavioral factors on the Vietnam stock exchange market. These are the five factors are given below Overconfidence, Herding, prospect, anchoring and the market. This study shows that the impact of the behavioral factors on the stock exchange market but in moderating mode not directly.

Masomi and Ghayekhloo (2011) examined that the impact of the behavioral factors on the investment decision making of the individual investor in Tehran Stock exchange market. They also examined the cost of the behavior on the result of the investment. The Research sample based on the 23 institutional investors. This study based on the behavioral factors which are known as representativeness bias, overconfidence bias, anchoring bias, gambler's fallacy, loss aversion, regret aversion and mental accounting. This study results shows that the behavioral factors influenced the investment decision making of the investors in the stock exchange market.

Qureshi and Hunjra (2012) discovers that the behavioral factors such as Overconfidence bias, anchoring bias, representativeness bias, gambler's fallacy and availability bias are some elements which leads to influenced the IDM of the investors. Waweru et al (2008) conducted the study to identify the impact of the behavioral and psychological factors on the decision of individual investor which related to the investment in the stock exchange market. The data collected from the 23 Institutional investors operating in NSE. They concluded that the impact of the behavioral factors on the IDM are significant.

Ngoc (2014) conducted research on the behavioral of the investor and investor in the stock exchange market. The main aim of this study is the individual investor of the VSE market. This study shows that the impact of the herding, disposition effect, overconfidence, anchoring and gambler’s fallacy have a positive or significant impact on the investment decision making in Vietnam stock exchange market.

Kudryavtsev et al. (2012) studies on the topic of the behavioral factors. These behavioral biases are disposition effect, Overconfidence and their impact on the financial decisions. According to the analysis there is no availability of any relationship between these behavioral factors.

Menike, Dunusinghe and Ranasinghe (2015) conducted study on the behavioral and contextual factors which have impact on the individual investment decision making. The sample conducted from the Colombo Stock Exchange Market. The total responses received are 164 individual Investors. The study is based on the quantitative approach and the analysis is based on the correlation and regression analysis which provide the results to the researcher regarding the impact is significant or not. There are five factors included in this study show below Herding, Buying and Selling herding, the contextual factors, representativeness, overconfidence bias, anchoring and the broker recommendation have the significant impact on IDM. This study also included the two more factors are regret aversion and loss aversion. They also have the positive or significant impact on the IDM.

Grover and Singh (2015) research on the study which shows what is the impact of behavioral factors on the investment decision making of the investors of the real estate in Uttarakand. The sample size of the respondents are 200 investors. The data were collected by the structured questionnaire. The study analyzed by the usage of SPSS regarding the regression and correlation analysis. The investors shows that they look the current condition of the market and availability information while they are taking the investment decision making. They also conclude the impact of the real estate in the market.

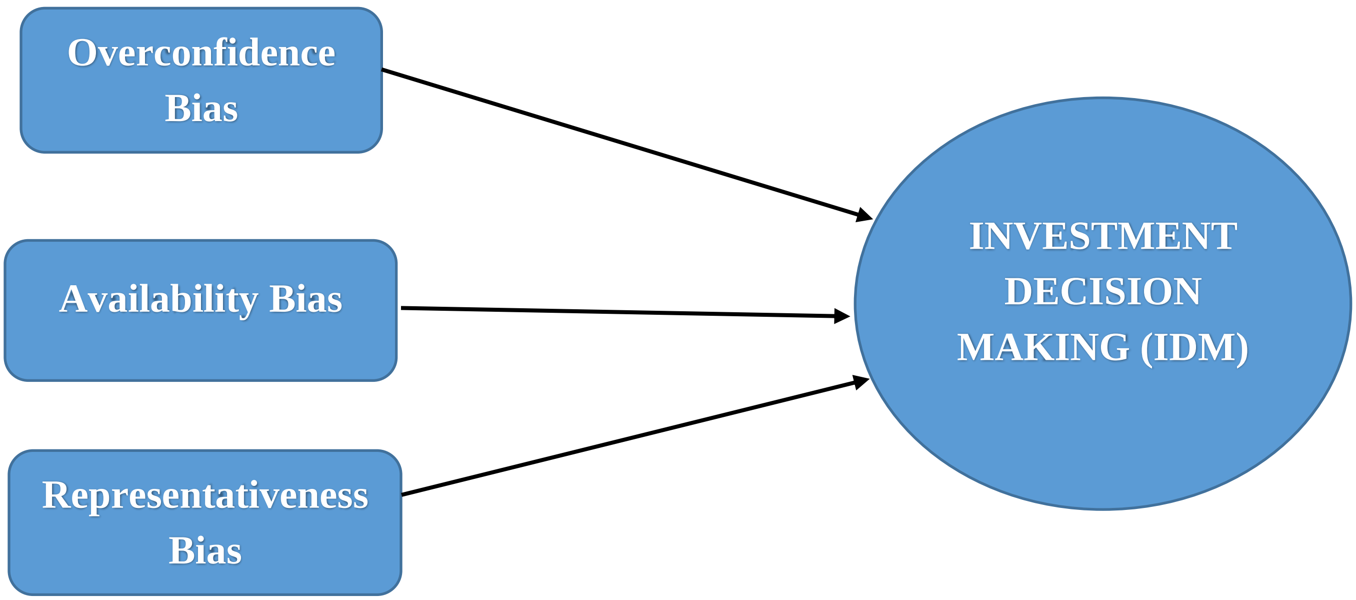
2.3 Underpinning theory:

The current study analyzes the relation between overconfidence bias, representative bias, availability bias, and investment decision making. The theory that supports their relation appropriately is bounded rationality theory. As per the bounded rationality theory, due to mental and psychological constraints, there is a very less probability that individuals attempt to gain all the compulsory knowledge required to make a good decision. Consequently, the investors make choices and decisions that they consider as enough instead of making an ideal one. Humans make choices and decisions that can still be considered as sensible when they only utilize and benefit from the information which is available at hand, however, this information may not be complete information that can be taken from all sources, and which is required to make a perfectly rational decision. Investors when make choices and base their decisions on constrained rationality can result in investors to act in a way that is unaligned with their goals. It is not possible in reality to act in a way that maximizes benefits while minimizing costs in a perfectly optimal way. Individuals have to decide on hundreds of options each day based on the choices they have. Hence, they are unable to take the time to fully investigate each option or map out its potential ramifications since we must make so many decisions in a short amount of time. Consider the amount of knowledge that would need to be kept in their minds at any given time in order for them to be able to make completely logical decisions.

Individuals as humans, hence, have to take short cuts while making decisions because of the limited time, information accessible, and brain capacity (which is partially hampered by cognitive biases). These shortcuts facilitate decision-making for the decision makers, but they impair their capacity for reason, occasionally causing them to make poor choices. (Camerer, 1998). The theory links the independent variables to the dependent variable of the study. Availability bias among individuals encourage them to make decision based on the information available at hand rather than thoroughly analyzing all possible sources due to limited amount of time and other limitations of humans. Overconfidence bias is linked to decision making as investors highly rely on their experience and previous knowledge based on experience, and hence make decisions based on them rather than searching for a lot of information. Similarly, representativeness bias is making the decision based on the patterns observed in the past and predicting future patterns based on that information, and not looking into further information due to several limitations. This implies that the theory is supporting all the three hypotheses formulated in the study and the framework designed based on the relations between independent and dependent variables.

2.4 Conceptual Framework.

As per the above-mentioned study objective is to understand the relationship between the variables which are Investment decision making as a dependent variable and Overconfidence bias, Availability bias and Representativeness Bias which are influencing the investors decision making who mostly invest in Islamabad Stock Exchange. So, the framework adopted from Kisaka (2015).



CHAPTER 3: METHODOLOGY

3.1 Introduction:

The purpose of this study is to measure ‘‘The Influence of Behavioral Biases on the decision of Individuals investor, Empirical investigation from Pakistan Stock Exchange.’’

This study is based on the descriptive in the nature and survey conducted tool used by this research is knows as ‘Online Questionnaire’ which help in data collections from the individual investors. This study is based on the quantitative approach. This chapter is based on the detailed of the methodology and the processes to obtain the data from the targeted segment and to analyze the data through the processes.

3.2 Research Approach:

Research Methodology is known as ‘how one will go for the study regarding the different phenomenon’ (Aziz et al, 2019). The research has two types which are given below the first one is qualitative approach and the second one is quantitative approach. Sometimes research mix these two approaches with each other. The Qualitative Approach is based on un=structural questions and research interpretations.

Whereas in the quantitative approach the data was collected from the targeted people in the numerical form and analyzes the data through statistical and testing of hypothesis to identify the relationship between the independent and dependent variables. Qualitative Approach based on the paradigm of positivism.

As this research aims and goals are to measures the individual investment decision making and the researcher has to find out the relationship between the variables. This research based on the quantitative approach which provides the data into standardize form of all the variables

3.3 Research Strategy:

As per the study the primary data has been collected and gathered from the individual investors who are invest in the Islamabad Stock Exchange to understand the influence of overconfidence. representativeness bias and availability bias on the individual investment decision making. So, for data collection the questionnaire has been developed and the convenient sampling has been used for data collection. So, the circulated questionnaire in the investors were 385 questionnaires. So, 270 questionnaires filled and collected from individual investors and are being included in the research study and ignored the incomplete questionnaire.

3.4 Data Analysis:

After the collection of the data, the data is analyzed and explored by the statistical tool of Statistical Package for Social Sciences (SPSS software) and Partial Least Square (Smart PLS 4). The regression analysis is done on the data to understand the Impact of Investment Decision Making on Overconfidence Bias, Availability Bias and Representativeness Bias. Correlation is done between the variables it will shows the strong relationship between the variables and demographic variables are known as Controlling Variables.

3.5 Variables:

This study is based on two different part one is dependent variable and the independent variables. The dependent variable of this study is knowing as Investment Decision Making (IDM) about the Islamabad Stock Exchange Market and the Independent variables are Overconfidence Bias, Representativeness Bias and Availability Bias. These are the factors who are affecting the investment decision making of Individual investor in the stock market.

3.6 Inclusion Criteria:

This research based on the convenience which is known as the Nonprobability sampling technique is used for the data collection. The research selected this technique just because the time saving and less-expensive nature (Bryman & Bell, 2015) For the Data analysis Linear regression analysis conducted

3.7 Population & Sample Size

Mostly people in Pakistan are interested to invest in the stock exchange market of Pakistan. The most targeted population which are mostly investors who mostly invest their investment in Islamabad Stock exchange. As previously mentioned, that the sample size is 270 individual investors. As per the research convenience sampling technique is used for data collection. To calculate the sample size from the following formula is used (Nargundkar, 2003)

$$N = p(1-p)\ (Z/e)\ ^\wedge 2$$

$$N = 0.50\ (1-0.50)\ (1.96/0.05)\ ^\wedge 2$$

$$N = 385$$

Where,

N = Sample Size

Z = Value of Z is 1.96 at the confidence level of 95% which is assumed.

P = The Probability is 0.50 which represents the frequency with which something occurs.

E = This is the tolerance error that the researcher determined. The tolerance error for this study is 0.05.

3.8 Measurement of Variables:

The research based on the primary data collection through 'Online Questionnaire' which contains two section which are given below

- Section I - Demographic
- Section II - Items

Section - I is based on 5 subgroups. The responses of the respondents were kept confidential. The Demographic variables included are Age, Gender, Qualifications, Investment Experience in Stock Exchange, Monthly Income.

Section – II is based on the "6-point Likert Scales" which were "1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Slightly Agree, 5 = Agree, 6 = Strongly Agree.

3.8.1 Investment Decision Making:

The dependent variable which is measured by the 6 dimensions point Likert Scale selected from Khan, 2017

Variable	Code	Item Statement	References
Investment Decision Making	IDM1	I know about the Interest rates, Finance charges and Credit terms.	Khan (2017)
	IDM2	Money is most important goal of my Life.	
	IDM3	I know how to manage the finances.	
	IDM4	I know how to invest my money.	
	IDM5	It is more satisfying to save than invest money.	
	IDM6	I would invest a large sum of money in the stocks.	
	IDM7	The uncertainty of whether the market will rise or fall keeps me from buying stocks.	
	IDM8	I budget my money very well	

3.8.2 Availability Bias:

The first independent variable which is known as Availability bias measured by the 6 dimensions point Likert Scale selected from Parkar and Decotiis (1983)

Variable	Code	Item Statement	References
Availability Bias	AB1	I prefer to invest in the stock which has been evaluated by well-known expert.	Parkar and Decotiis (1983)
	AB2	Money is most important goal of my Life.	
	AB3	I know how to manage the finances.	
	AB4	I know how to invest my money.	
	AB5	It is more satisfying to save than invest money.	

3.8.3 Representativeness Bias:

The second independent variable which is known as Availability bias measured by the 6 dimensions point Likert Scale selected from Sahar Mohammad Abu Nada (2013)

Variable	Code	Item Statement	References
Representativeness Bias	RB1	I tried to avoid investment in companies with a history of poor earnings.	Sahar Mohammad Abu Nada (2013)
	RB2	I rely on past performance to buy stocks because I believe that good performance will continue	
	RB3	Good stocks are firm with past consistent earnings growth.	
	RB4	I buy hot stocks and avoid stocks that performed poorly in the near past.	

3.8.4 Overconfidence Bias:

The third independent variable which is known as Availability bias measured by the 6 dimensions point Likert Scale selected from Metawa, 2019

Variable	Code	Item Statement	References
Overconfidence Bias	OB1	I am Aware of everything in the stock market.	Metawa (2019)
	OB2	I have the needed expertise and skills to invest in the stock market.	
	OB3	I trust my data source.	
	OB4	I have the ability to analyze the new information in the market.	
	OB5	I do trade by myself.	
	OB6	I am sufficiently aware of electronics trading.	
	OB7	I keep the best stocks in my portfolio.	
	OB8	My Opinion comes first when making the decision.	

CHAPTER NO 04: RESULTS AND FINDINGS:

4.1 Introduction:

his chapter provide the detail of the analysis of this research which were collected from the investors of the stock exchange market. This chapter is based on measurement model, reliability and validity of the data which is based on the structural model. This chapter is also based on the collinearity, hypothesis testing and it also measure the effect size of the independent variables

4.2 Frequency Table and Demographics

Demographic Variables	Types	Frequency	Percentage
Gender	Male	109	57%
	Female	98	43%
Age	Less than 25	37	17.9%
	26-30	58	28.0%
	31-35	31	15.0%
	36-40	18	8.7%
	41-45	30	14.5%
	46-50	9	4.3%
	51 or above	24	11.6%
Qualifications	PhD	50	24.2%
	MS/M.Phil	43	20.8%
	Masters	88	42.5%
	Bachelors	17	8.2%
	Doctoral	9	4.3%
Investment Experience	00 to 05 Years	142	68.6%
	06 to 10 Years	22	10.6%
	11 to 15 Years	19	9.2%
	16 to 20 Years	4	1.9%
	21 to 25 Years	7	3.4%
	26 Years or Above	13	6.3%
	Rs.30,001 to Rs.40,000	35	16.9%

Monthly Income	Rs.40,001 to Rs.50,000	47	22.7%
	Rs.50,001 to Rs.60,000	10	4.8%
	Rs.60,001 to Rs.70,000	4	1.9%
	Rs.70,001 or above	111	53.6%

The demographic profiles of the sample shows that there are more male investors in stock market of Islamabad than female investors as the ratio is 57:43. Most investors are among the age group of 25 and 30 implying that young investors are higher in numbers.

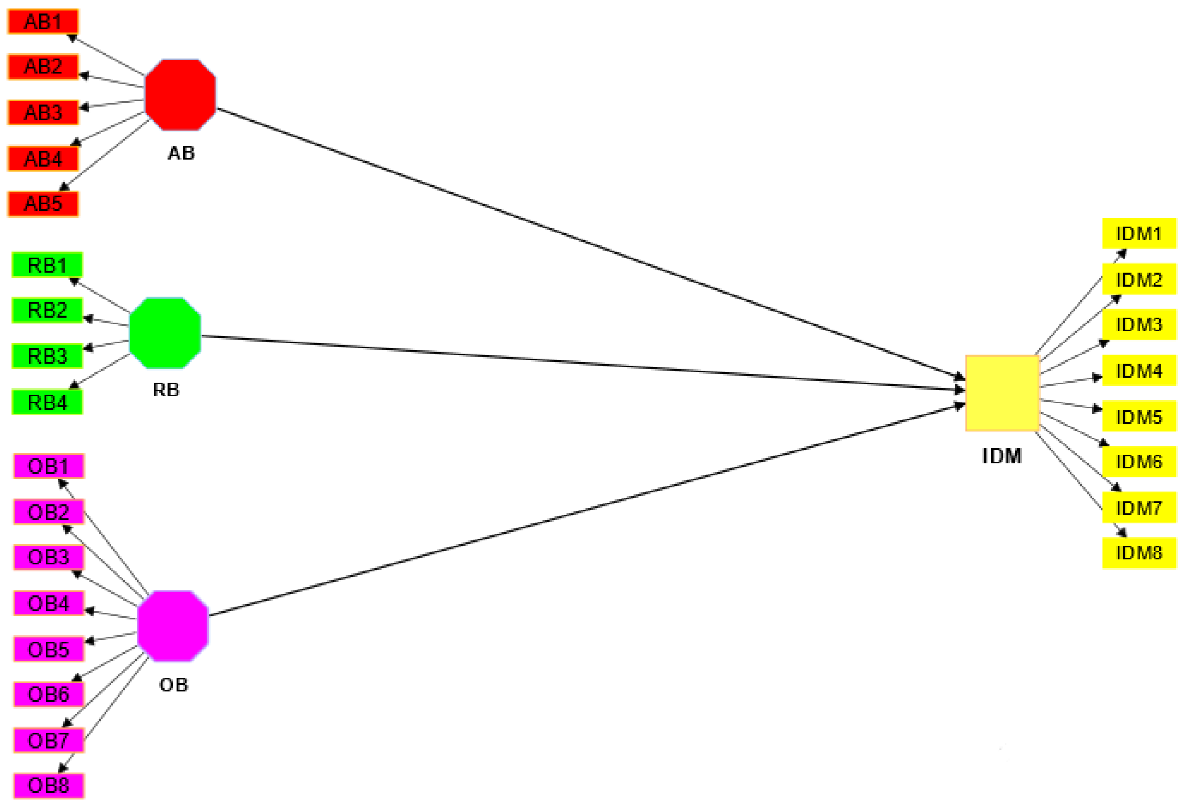
The highest respondents belong to the category of master's qualification, i.e. 42%, signifying higher level of knowledge of the investors. The investors however in the respondents are mainly experienced within the range of 5 years, implying lower experience. The respondents mainly belong to income range of 70k or above signifying a high level of income.

4.3. Data Analysis Using Smart PLS:

The study aims to test the impact of three biases namely overconfidence bias, representation bias, and availability bias on the dependent variable namely, investment decision making. For the purpose of testing and analyzing the hypotheses and theoretical design of the study, smart PLS version 4 software was used. The software analyzes the data in different ways. It tests the validity, reliability, and consistency of the constructs of the study. Further, it analyzes the collinearity, the discriminant validity, and other factors like correlation and causal effects. The software analyzes the data in two steps. The first step is known as measurement model which mainly focus on the consistency and reliability of the constructs used in the study. Whereas the structural model focuses on the causal relations and collinearity among the variables.

4.4. Measurement Model

For testing the validity and consistency of the constructs, measurement model is used. For this purpose, PLS algorithm was run on the software.



4.5. Internal Consistency and Convergent Validity

The PLS algorithm was used to analyze the consistently. Initially the outer loadings are checked to see if there are any questions with unacceptable values. For outer loading the values of each item should be above 0.5. Values which are above 0.7 are considered excellent, and values above 0.5 are acceptable. (Memon & Rahman, 2014)

Variables	Item Code	Outer Loading
Investment Decision Making	**IDM1**	**0.721**
	IDM2	**0.718**
	IDM5	**0.824**
	IDM6	**0.863**
	IDM7	**0.852**
	IDM8	**0.804**
Availability Bias	**AB1**	**0.836**
	AB2	**0.830**
	AB4	**0.852**
	AB5	**0.633**
Representativeness Bias	**RB1**	**0.865**
	RB2	**0.900**
	RB3	**0.857**
	RB4	**0.839**
Overconfidence Bias	**OB1**	**0.692**
	OB2	**0.705**
	OB3	**0.905**
	OB4	**0.636**
	OB5	**0.842**
	OB6	**0.699**
	OB7	**0.739**
	OB8	**0.883**

The table shows the values of outer loading of each construct. The values of all items of each construct comes under the desirable range of values 0.7 and above.

4.6. Construct Reliability and Convergent Validity

The convergent validity is analyzed through chronbach, average variance extracted, and composite reliability. The values are given below. The values of average variance extracted must be above 0.5, however, above 0.7 is considered excellent. For composite reliability, the values above 0.7 are considered desirable, however values above 0.95 are not considered good as they signify redundancy. For chronbach's alpha, the values above 0.7 are considered ideal. (Dilekli & Tezci, 2019). In this study, the values for CR, AVE, and chronbach's alpha are under the ideal range. The values are given in the table below:

Variables	Chronbach Alpha	Composite Reliability	Average Variance Extracted
Availability Bias	**0.797**	**0.870**	**0.629**
Investment Decision making	**0.893**	**0.919**	**0.654**
Representativeness Bias	**0.734**	**0.832**	**0.553**
Overconfidence Bias	**0.815**	**0.866**	**0.521**

4.7. Discriminant Validity

To determine whether the constructs are similar to each other or different, discriminant validity is calculated. Discriminant validity can be analyzed through three ways. One is cross loading, another is Fornell and Lacker, and the third is HTMT (hetrotrait-monotrait). The most reliable and common one is the third one which is HTMT. For this study HTMT criteria is considered to test discriminant validity.

The value of discriminant validity must not exceed the limit of 0.85-0.90 otherwise the constructs would be considered similar to each other, and the study will not be satisfactory. The values of studied constructs are given below in the table. The values ranges from 0.401 to 0.813 which is under the acceptable range. Hence the variables of the study are different from one another.

Discriminant Validity with Heterotrait-Monotrait ratio

	Availability Bias (AB)	Investment Decision Making (IC)	Overconfidence Bias (OB)	Representativeness Bias (RB)
Availability Bias	1			
Investment Decision Making	**0.810**	**1**		
Overconfidence Bias	**0.738**	**0.653**	**1**	
Representativeness Bias	**0.813**	**0.662**	**0.806**	**1**

4.8. Assessment of Structural Model

The next step of analysis through PLS is assessment of structural model or inner path model. In this step, the path co-efficient, the value of R2, the collinearity assessment is analyzed. Hence this step completes the requirement of the study regarding study the correlational and causal associations between the constructs.

4.9. Collinearity Assessment

For the purpose of analysis of collinearity and checking the similarity among variables collinearity assessment is done. Multi-collinearity could exist between two variables which could impact the study. In order to make sure it is not there, this analysis is made. In this given study inner VIF values are considered to check the collinearity. The safe range of collinearity is within 3.3. The values given the table shows that all values are under the safe range, as they exist within 1.864-2.370.

Collinearity Analysis table

	Investment Decision Making (IDM)
AB	1.864
OB	2.370
RB	1.970

4.10. Path Co-efficient Analysis

To assess the hypothesis of the study, path co-efficient analysis is taken into consideration. The bootstrapping technique is used to achieve the results. For the current study, all three hypotheses which were tested and the results were significant. However, the direction of the third hypothesis is opposite showing a negative relation between representativeness bias and investment decision making. As the p-values are under the range of 0.05, all results are significant.

Path Co-efficient

Hypothesis	β	t-value	Significance P-values	Decision
OB→IDM	0.499	5.788	**0.000**	**Supported**
RB→IDM	0.147	2.031	**0.011**	**Supported**
AB→IDM	0.157	1.999	**0.021**	**Supported**

4.11. Explanatory Power of the Model

The value of R2 of the dependent variable shows the predictive relation between all the independent variables and the dependent variable. It signifies that how much impact the independent variables is creating on the dependent variables. The value of R2 is 0.508 in this study which shows that 50.8% of the dependent variable is predicted by the independent variables of Availability and Overconfidence bias. The value shows medium level of predictive accuracy.

Dependent Variable	R2
Investment Decision Making	**0.508**

4.12. The F-square and effect size

The effect of independent variables on dependent variable can be seen through f-square values. The PLS algorithm generate these values. A value of 0.02 shows a small effect on dependent variable, 0.15 shows medium affect and 0.35 shows a great effect on the dependent variable (Cohen et al., 1998). In the given research the effect of Availability bias on investment decision making is 0.275 which is considered as Medium effect. The effect of Overconfidence bias is 0.023 which is small effect, and the effect of Representativeness bias on investment decision making is low as the value is 0.022.

Variable	Effect on Independent variable (IDM)
AB	0.275(Medium effect)
OB	0.023 (Small effect)
RB	0.022 (Small effect)

CHAPTER 5: DISCUSSION & CONCLUSION:

5.1 Discussion of the Findings:

Investment decision making is a very important factor while considering to trade and invest in any market. Investors while making a decision to invest in stock, need to consider the necessary information and possibilities in order to make an informed and rational decision. The research aims to analyze the impact of heuristics and biases on the decision making of investors. The study attempts to examine the impact of three behavioral biases namely overconfidence bias, representativeness bias, and availability bias on investment decision making in the setting of Islamabad stock exchange. The results have proven the significant impact of the considered biases on the dependent variable of investment decision making. Hence the hypothesis of this study which is known as the null hypothesis of this study has been accepted.

The first hypothesis which is the positive impact of overconfidence bias on investment decision making has been proved. It implies that investors when rely on their own abilities to make their investment decisions and overestimate their abilities based on their experience, their decisions get affected. They make more irrational decisions based on their beliefs. They consider that they know more about the stock market (than they actually do) and that their knowledge and experience give them an edge to make better decisions. This belief actually do impact their decisions and they overreact and may invest a lot or invest on some stocks believing that what they know about them is absolutely right. However it does help them as well in some cases, as investors being humans cannot gain all the information. Hence they use the information at their disposal and overconfidence encourages them to invest and take a risk but it can also lead to errors. The findings imply that it has a positive impact on decision making which align with the study of Ullah et al. (2016).

The second hypothesis of the study which claims that representativeness bias has a positive impact on decision making has been proved. This signifies that investors choose to rely on information of some recent incident or on the history of the stock performance and make a decision merely based on this information, predicting the future performance on this basis. Hence it is proved that investors rely on the representativeness bias for decision making . The investor rely on this information and take decision may help them in some cases but it can lead to poor outcomes as well. The findings of the study are similar to Jan et al. (2018) which also implied significant impact of representativeness bias on decision making of the investor. He suggests that it actually depends on context and situation whether representativeness bias negatively or positively impact the irrational decision making.

Based on the generated results, it can be said that the availability bias has a positive and significant impact on investment decision making. As per the results, when investors consider the information available to them and rely on it to make their decisions, their decision making is affected. The investor make their based on the information available to them and ignore the path of thorough analysis of all the choices available for investment. Hence it positively impacts their decision making and increase the chances and predicts irrational decision making. This result are similar to the results of Shah et al. (2018).

5.2 Conclusion of the Study:

The main objective of the research was to analyze the impact of heuristics and biases on investor's decision making related to investment. The study provides important insights on how can biases like overconfidence, information availability, and representativeness can affect the decision making of investors. In stock market, with high uncertainty and unstable political situations, investors find it difficult to make a totally rational decision. Hence they tend to rely on biases and heuristics to make their decisions about investing in stocks which results in irrational decision making most of the times. However, the results also suggests that in some cases these biases can be helpful to the investors as they have limited information and limited cognitive abilities. Investors can sometimes make better decisions relying on these biases. The study generate significant results which could be beneficial for investors in making better and more effective decisions.

5.3 Practical Implications

The findings of the given study can assist the Pakistan stock exchange investors in making more rational or rather effective decisions. The study can provide awareness and beneficial knowledge about the biases to the investors which can influence their financial decisions. It can help them the investors in finding the errors they are making, the biases they are relying on and take corrective actions accordingly. It can also make them understand the role of behavioral and psychological factors in decision making related to financial investment. The investors can use these biases to an optimal extent which could help them make better decisions rather than purely irrational ones.

5.4 Limitations of the Study

The study was conducted within a short time period within the scope of Islamabad stock exchange. Different regions have investors with different views. Due to shortage of time and limitation of other resources, the sample size taken was small. Moreover, the research does not include all the heuristics. It does not include heuristics such as herding, anchoring bias, conservatism, fear of loss, and risk perception.

5.5 Future Recommendations

For future research, a larger sample size can be taken to study the factors and their impact on decision making of investor. The stock market of different cities can be included to conduct a more generalized study. Furthermore, different factors and biases can be included such as herding, anchoring bias, conservatism, fear of loss, and risk perception. The study can be extended to other industries and markets as well such as real-estate.

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APPENDIX:

I am a Student of Bahria University Islamabad. I am conducting a survey that investigate that the Influence of Behavioural Biases on the decision of Investors, Empirical Investigation from Pakistan Stock Exchange. Kindly spare a few minutes to complete the following table. It will be great help for my study, and I will really appreciate your efforts.

Regards,

Usman Mukhtar

Section-I Demographics:

Personal Information	
Age	○ Less Than 25 ○ 26-30 ○ 31- 35 ○ 36-40 ○ 41-45 ○ 46-50 ○ 50 Or above
Gender	○ Male ○ Female ○ Transgender
Qualification	○ PhD ○ MS/M.Phil ○ Masters ○ Doctoral
Investment Experience	○ 00 to 05 Years ○ 06 to 10 Years ○ 11 to 15 Years ○ 16 to 20 Years ○ 21 to 25 Years ○ 26 Years or Above
Monthly Income	○ 30001 to 40000 ○ 40001 to 50000 ○ 50000 to 60000 ○ 60001 to 70000 ○ 70001 or above

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Section Questionnaire:

Direction: Please check (✓) and rate yourself honestly based on what you actually believe given in the given statements using the following scales:

Responses to each item are measured on a 5-point scale with scale point anchors labelled: (1) Strongly disagree: (2) disagree; (3) Slightly Disagree: (4) Slightly Agree: (5) Agreed (6) Strongly Agreed

		Strongly Disagree (1)	**Disagree (2)**	**Slightly Disagree (3)**	**Slightly Agree (4)**	**Agree (5)**	**Strongly Agree (6)**
	A. Investment Decision Making	**1**	**2**	**3**	**4**	**5**	**6**
1.	I know about interest rates, Finance charges, And credit terms.						
2.	Money is most important goal of my life.						
3.	I know how to manage the finances.						
4.	I know how to invest my money.						
5.	It is more satisfying to save than invest money.						
6.	I would invest a large sum of money in stock.						
7.	The uncertainty of whether the market will rise or fall keeps me from buying Stocks.						
8.	I budget my money very well.						
	B. Availability Bias:	**1**	**2**	**3**	**4**	**5**	**6**
1.	I prefer to invest in stock which has been evaluated by well-known expert.						
2.	My investment decision depends on new and favorable (positive) information released regarding the stock.						
3.	If someone had told me that financial						

	crisis is about to happen in a years' time. I would be Convince						
4.	I prefer to buy stocks on the days when the value of Index increases.						
5.	I prefer to sell stocks on the days when the value of the Index decreases.						
	C. Representative Bias:	**1**	**2**	**3**	**4**	**5**	**6**
1	I tried to avoid investment in companies with a history of poor earnings.						
2	I rely on past performance to buy stocks because I believe that good performance will continue.						
3	Good stocks are firms with past consistent earnings growth.						
4	I buy hot stocks and avoid stocks that performed poorly in the near past.						
	D. Overconfident Bias	**1**	**2**	**3**	**4**	**5**	**6**
1.	I am aware of everything in the stock market.						
2.	I have the needed expertise and skills to invest in stock market.						
3.	I trust my data sources						
4.	I have the ability to analyze the new information in the market						
5.	I do trade by myself.						
6.	I am sufficiently aware of electronic trading.						
7.	I keep the best stocks in my portfolio						
8.	My opinion comes first when making the decision.						

PLAGIARISM REPORT:

Usman Mukhtar Plagiarism Report

ORIGINALITY REPORT

7%	4%	4%	4%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to Higher Education Commission Pakistan Student Paper	2%
2	www.i-scholar.in Internet Source	1%
3	Inju Gyanwali, Geeta Neupane. "Individual Investors Psychology and Investment Decision in NEPSE", The Lumbini Journal of Business and Economics, 2021 Publication	1%
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5	Syed Zulfiqar Ali Shah, Maqsood Ahmad, Faisal Mahmood. "Heuristic biases in investment decision-making and perceived market efficiency", Qualitative Research in Financial Markets, 2018 Publication	1%
6	Fendy Cuandra, Helen Tan. "ANALYSIS OF FACTORS THAT ARE CONSIDERED BY INVESTORS IN STOCKS INVESTMENT	<1%