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**THE IMPACT OF BEHAVIORAL BIASES ON INVESTMENT DECISION
MAKING: EVIDENCE FROM PAKISTAN STOCK MARKET**



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Abstract

The review targets distinguishing the behavioral elements that clarify the course of investment decision-making by Pakistan Stock Exchange financial backers in an arising economy. This review depends on the behavioral portfolio hypothesis (Shefrin and Statman, 2010). The motivation of this research is to ascertain the linkage between behavioral biases and investment decision making. This study elaborated the overall impact of behavioral biases on investment decisions of investors in Pakistan Stock Exchange. Positivist view was adopted through engaging a quantitative statistical method instead of a qualitative approach. The sample of the study comprises of 266 individual investors. Primary data was collected through Questionnaire. To check reliability of the scale we have used Cronbach's alpha in this study a value of greater than 0.70 is considered good. The results indicate that Availability Bias results in higher investment decision making. This review contributes by disclosing factors that lead to irrational decisions by financial backers. Realizing these elements can help in controlling them to make the monetary business sectors effective in a dubious world. This review might help the financial backers and controllers to improve knowledge of market abnormalities for making ideal investment decisions. The result is statistically significant at the 5% level. More specifically, an increase of one percent in Availability Bias results in an increase of 20% in investment decision making. The results further show that Herding bias positively affects investment decision making and the result is statistically significant as it is less than 0.05. More specifically, one percent increase in herding bias results in an increase of 18% in investment decision making. Moreover, Overconfidence bias positively affects investment decision making and the result is statistically significant as p-value is less than 0.05. More specifically, one percent increase in Overconfidence bias results in an increase of 50% in investment decision making.

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DEDICATION

This research is devoted to my mother and my father who are my moral support and source of joy and happiness, the one who has always sacrificed for me, to see my success. To my brothers, sisters, and family whom I love and for whom, I wish success in their life. I additionally devote this research to my supervisor **Dr.SHAHAB AZIZ** who has been guiding me throughout this study. Last but not the least I will dedicate this work to my fellows for their suggestion and help.

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CHAPTER 1

INTRODUCTION

1.1 Background of the study

The concern of this research is to ascertain the nexus between behavioral biases and investment decision making of individual nature investors in Pakistan. For a long time, market participants followed the perception that markets are efficient and investors have rational behaviors (Awais & Estes, 2019). However, the idea of fully rational investors has been superseding over the period of time. Modern researches exposed that investment process is more human than logical. Investors have to manage their money and take investment decisions. These individual investors neither have same attitude towards money nor have same financial preferences. This concept negated the idea of rationality and gave rise to new theories of behavioral finance (Bekiros, Jlassi, Lucey, Naoui, & Uddin, 2017). Investor Behavior is affected by Behavioral Biases which play a critical role in this process. Behavioral biases can make people behave irrationally and as a result, can make investment mistakes (Mahapatra & Mishra, 2020). Investment decision making is a marvelous cycle which consolidates assessment of Investment decision making is a marvelous cycle which consolidates assessment of numerous components that should be considered and it follows many advances. Decision making process is in a general sense isolated in four phases. Beginning, an individual sees the current situation or state where he will make the choice. Besides, all of the open decisions are evaluated similar to how much honor or discipline each decision would give. In the third stage, the decision is surveyed similar to near and dear need. In the end, the picked decision is reevaluated similar to the outcome (Doya, 2018). These four phases may not for the most part be followed at this point these are important for examination and the models in which these methods are followed

acknowledge that all outcomes are known at this point. Most of the hypotheses of standard cash expect that every investor gathers generally uninhibitedly available information and a while later takes a sensible decision. In any case, issue arises when individuals are uncertain with respect to the consequence of decisions and have defective data about the choices and they need to make the choice in a questionable environment. The reality of the situation is that people constantly act strangely. With a clear delineation of lottery ticket, it would be obvious that numerous people buy lottery tickets fully expecting hitting the colossal treasure trove.

Late examination discovers that there are a few biases that impact investor decisions. From that point forward, huge quantities of biases discover like loss aversion, overconfidence, representative and cognitive bias (Koichi and Toshihiko, 2013; Barno and Tuwei, 2020). Investors who make judgment under vulnerability is re-examined with the consolidated impact of a few different biases. Investors demeanor towards gain and loss because of static contrasts across investors (Ahmed, Noreen, Ramakrishnan, and Abdullah, 2020) and Investors mind strongly affects the decision making of investment in stock related markets while formulating a capital-based investment for that reason they act nonsensically (Awais and Estes, 2019), feelings and mind are main considerations. Various Research articles are distributed to study, investigate, and enlighten investors that this is the way that impacts your decision (Barno and Tuwei, 2020).

Decision-making can be impacted by a wide range of biases. Furthermore, decision-making might have a plenty of suggestions related with variables, for example, cash and investment in light of the fact that behavioral biases are off base and possibly hurtful to investors conduct because of mistaken decisions (Bhatia et al., 2020). Albeit huge consideration has been committed to the

assessment of investment properties, until this point in time, scholastic writing on behavioral drivers stays less created (Gurdgiev & O'Loughlin, 2020).

The Pakistan Stock Exchange is Asia's emerging market and hence can serve as an incubator for studying behavioral biases in investment decisions. In terms of market capitalization, significant is witnessed in PSX during last two decades. It gives an investment stage where large number of little investors can procure fortunes however it isn't consistently a consistent ride. The small bunch of enormous investors can impact market feelings freely; thus, the market slumps more often than expected. In this unique circumstance, it is fundamental to concentrate on how investor conducts in the midst of an absence of specialized ability, HE, and shallow pockets influence investment results in PSX.

This is a novel commitment and an amazing chance to research the behavioral biases in Investment Decision Making. All the more explicitly, we investigated to ascertain if behavioral biases are available in PSX. Moreover, what are the effects of investors' behavioral biases on the investment decision-making of the Pakistan Stock Exchange (PSX)?

1.2 Objectives of the Study

Following are the objectives to achieve the main theme of this research:

1. To examine the impact of availability bias on investment decision making;
2. To examine the impact of herding bias on investment decision making;
3. To examine the impact of overconfidence bias on investment decision making;

1.3 Research Questions

1. Does availability bias affect investment decision making?
2. Does herding bias affect investment decision making?
3. Does overconfidence bias affect investment decision making?

1.4 Problem and Research Gap

Without behavioral biases, it is not readily possible to make decisions about complex investment avenues and it is extremely difficult to balance out the behavioral biases faced by investors (Salman, Khan, Khan, & Khan, 2020). According to author knowledge, this is the first study that examines the impact of behavioral biases i.e. heuristic, overconfidence and availability bias on investment decision making in Pakistan. Rashid et al. (2021) studied behavioral errors and stock market investment decisions. However, they used behavioral factors such as rational expectation, pessimism, optimism and confidence. Mumtaz, Mehboob and Abdin (2021) examine the impact of behavioral factors i.e. herding, market and prospect factors on investment performance. Asad, Khan and Faiz (2018) investigate the impact of behavioral factors i.e. psychological, demographic, economic and social factors on investor's behaviour.

Significance of the Study

In order to ascertain the true relationship between behavioral biases and investment decision making of individual investors, this Research study targets to make part towards the importance of behavioral biases and depicts the empirical evidence on this relationship in the context of a developing country i.e. Pakistan. Although behavioral biases are an increasingly important topic, academic work based on Pakistan data is limited (Ahmed, Noreen, Ramakrishnan, & Abdullah, 2020). We thus aim to investigate the association between behavioral biases and

investment decision making, which may trigger irrationality during the financial decision-making process. This study will highlight the overall impact of behavioral biases on investment decisions of investors in Pakistan Stock Exchange.

Findings of this study will help market participants in understanding the role of emotions in influencing investment related decisions and especially individual investors can learn about behavioral biases that generally occurred relating to different money attitudes in investment decision making process. Findings of this study will not only be significant for the academicians but also for the psychologists, policy makers, sociologists and management scholars.

1.5 Organization and Structure of the Thesis

There are a total of 5 chapters in this thesis. Background and introduction are provided in chapter 1. Furthermore, the research questions and objectives are also presented in this chapter.

The literature review is provided in Chapter 2. Furthermore, the hypotheses are also presented in this chapter. Data and methodology are provided in chapter 3. In addition, this chapter shows variables measurement, sample, study period, and model specification.

Correlation analysis and descriptive stats are presented in Chapter 4. Moreover, results and their interpretation are also provided in this chapter. The conclusion of the thesis is given in Chapter 5.

CHAPTER 2

LITERATURE REVIEW

2.1 Theoretical Literature Review

Investment related decisions are the method involved with picking investment from different options that are usually impacted by the past investment's profits and the normal returns later on (Subash, 2012). There are two types of investors in settling on decisions related to investment, irrational and rational investors (Gavrilakis and Floros, 2021). Investors who are rational settle on a decision only in view of coherent reasoning and data about the prospect of investment. While mental angle is utilized as a premise by irrational investors which makes investment decisions biases.

2.1.1 Prospect Theory

The theory of Prospect is proposed by Kahneman and Tversky (1979). As a widespread rule, it clarifies how investors settle on decisions under specific dangers. As per them, people survey their misfortune and gain points of view unevenly. Hence, in opposition to the expected utility theory (which models the decision that completely rational specialists would make), the Theory of Prospect intends to depict the real conduct of individuals (Holden and Tilahun, 2021). They observed that misfortunes hurt with regards to two times however much acquire cause us to feel better. That is individuals feel the aggravation of misfortune two times as emphatically as they feel joy at an equivalent addition. The prospect that the aggravation of losing is mentally about two times as strong as the joy of acquiring is known as misfortune revolution (Lad, and Tailor, 2017). The other ramifications of Theory of Prospect are individuals will quite often face bigger challenges to keep away from misfortunes, as opposed to facing challenges to procure benefits. To put it another way, investors will be leaned to be hazard

opposed, when going over benefits and change to be daring people while seeing misfortunes. This tracking down appears differently in relation to the theory of expected utility from Markowitz (1952) who expressed that a rational investor will show steady conduct, regardless of whether he/she is a danger unwilling or a daring individual under any conditions.

2.1.2 Heuristic Theory

The terminology heuristic was presented by Tversky and Kahneman (1974) who portrayed that the decisions made in the midst of intricacies and states of vulnerability are generally founded on the convictions concerning the probability of questionable occasions. Vulnerability on occasions is vulnerability in regards to either the event of an occasion (Mahapatra and Mishra, 2020). These convictions then, at that point, structure a heuristic perspective, by which individuals will quite often utilize dependable guidelines to improve on the decision-production processes. This observation was cemented by De Bondt et al. (2008) that people (investors) have a bias in their convictions that will influence how they think and decide. Fromlet (2001) characterized heuristics as "the utilization of involvement and useful endeavors" which is a work to decipher data rapidly by depending on encounters joined by instinct. It clarifies how people or gatherings settle on decisions relates to states of vulnerability. Investors as often as possible settle on botches in decision-production since they use general guidelines as a premise in handling the data (Barno and Tuwei, 2020; Ahmed, Noreen, Ramakrishnan, and Abdullah, 2020; Awais and Estes, 2019). From one viewpoint, a heuristic methodology can work with quicker decision-production. This approach might bring about biases or mistakes that happen deliberately.

2.1.3 Framing Theory

The ensuing conversation of mental bias after heuristics managing is framing. As per Frensidy (2016), conventional money accepts that framing is straightforward. In the interim, behaviorists consider it in an unexpected way, many casings are not straightforward and investors experience issues seeing it obviously. Thusly, the decisions caused will to be profoundly subject to how the data is outlined or introduced (Charles and Kasilingam, 2018; De Miguel Guzman, et al., 2018). In light of the past trial, Frensidy (2016) depicted somebody (assume called Budi), in an alternate way by utilizing similar data on two separate gatherings, bunch An and B. In bunch A, Budi is supposed to be a savvy, persistent, rash, basic, obstinate, and desirous individual, while, in bunch B, Budi is depicted as an envious, difficult, basic, incautious, tireless, and shrewd individual. Similar qualities about Budi however introduced backward request go out to essentially impact the gatherings' evaluation results. The trial results uncover that the qualities referenced before have more impact than those referenced later (Gavrilakis and Floros, 2021; Holden and Tilahun, 2021; Lad, and Tailor, 2017). Bunch A fundamentally asses Budi better than bunch B do. He contended that there are two of the major reasons which clarify such peculiarities. In the first place, one's focus level might diminish with the expanding measure of data to be consumed, so the data put behind stands out enough to be noticed. Second, initial feelings as a rule in order to get more weight than the data that comes later. These two things then, at that point, lead to securing bias to happen (Mahapatra and Mishra, 2020; Pertiwi, Yuniningsih, and Anwar, 2019).

Conventional finance supports market participant being rational enough which holds untrue as their behaviors are affected by their emotions, moods, believes, education, family background, and social considerations (Kahneman, 1973), thus limit their behavior to irrationality

some times. Conventional finance theories revealing a deceptive and incomplete description of financial behavior have led to the advent of a new finance – Behavioral Finance founded by Thomas Kuhn in 1970 (Rai, Dua, & Yadav, 2019; Salman, Khan, Khan, & Khan, 2020; Zahera & Bansal, 2018).

Behavioral finance is a field in which effect of psychological and emotional aspects on financial market are considered (Mahapatra & Mishra, 2020). It is important to study behavioral finance because of the fact that people could not behave rationally all the time and individual behavioral presumptions may affect their investment decisions. There are different ways and techniques that are used for investment decision making (Barno & Tuwei, 2020; Ahmed, Noreen, Ramakrishnan, & Abdullah, 2020; Awais & Estes, 2019). These can be technical analysis, fundamental analysis and market sentiments and investors do not rely on a single technique to reach an investment decision rather their decision making is influenced by all these three dimensions (Awan, Bukhari, & Ghufan, 2006; Ahmed, Noreen, Ramakrishnan, & Abdullah, 2020).

Psychology researchers have recognized different behavioral biases that can affect decision making particularly related to money and investment. Shefrin (2000) mentioned that these biases are linked with individuals' preferences. Trivers (1991) stated that overconfident bias occurs when people perceive themselves better than what they actually are. Overconfident individuals think that they are better and know more than their actual level of knowledge and abilities (Ahmed, Noreen, Ramakrishnan, & Abdullah, 2020). Due to this perception, such investors generally behave overconfidently while choosing stocks and the time to enter or exit in a position. Decisions of

investors that are subjected to other investors' decisions are affected by herding behavior (Hott, 2009). Generally, one cause of this behavior is investor's perception that large group of people could not be wrong (Awais & Estes, 2019). Optimistic behavior relates to the overestimation of favorable outcomes in contrast of unfavorable ones (Shefrin, 2007).

Singh (2012) observed that anchoring theory works when investors give importance to latest information than historical data of companies. It's a behavioral abnormality where individuals make decisions while depending on specific information (like an anchor) in excess. Prefer Stories to Analysis is a behavior in which individuals create stories by looking backward to create patterns that fit recent events and describe what happened along with the reason of it (Charles & Kasilingam, 2018; De Miguel Guzman, et al., 2018). Representativeness bias is basically a cognitive shortcut that enumerates excessive dependence on stereotypes (Bekiros, Jlassi, Lucey, Naoui, & Uddin, 2017).

Investors having such behavioral bias are narrow minded and they usually buy such stocks that have increased prices in recent times. Individuals with Loss aversion behavior get depressed and sad because of losses. Sahi, Arora, and Dhameja (2013) found that some individuals are more concerned about loss while making an investment decision. Risk tolerance behavior is basically the will of individuals to bear risk in such situation where the outcome of any decision is not certain or chances of harmful results exist (Charles & Kasilingam, 2018). This behavioral bias is more dependent on the good or bad mood of individuals (Gavrilakis & Floros, 2021; Holden & Tilahun, 2021; Lad, & Tailor, 2017).

Gavrilakis and Floros (2021) have described different situations that may cause regret feeling. Some individuals are disappointed with their past investment experiences and avoid that option again. Some individuals feel regret that they have missed a good investment opportunity. Therefore, they prefer tested and attempted investment options to avoid this regret feeling. Panic attitude is a strong negative emotion resulted due to such events that suggest the existing beliefs of control are illusory. Individuals get panic upon realizing that they cannot predict and control all financial events and so motivate to take protective actions (Bracha & Weber, 2012).

There are number of behavioral biases that may persuade investors to make cognitive errors in decision making process. Many investors perceive themselves as better than others (Shiller, 1980) being above average resulting in overconfidence and excessive trading (Barber & Odean, 1999, 2000; Odean, 1999). Many others exert herding behavior that may result in bubbles and crashes (Topol, 1991) in the market owing to their tendency to confirm - conformity bias to behavior and judgment of others while making an decision related to investment (Asch, 1956). Stock market also bears impact from investors' behavior directed by social interactions and recommendations (Mahapatra & Mishra, 2020; Pertiwi, Yuniningsih, & Anwar, 2019). There are many studies on presence of a behavioral bias called as loss aversion which affect investor behavior (Kahneman, Knetsch, & Thaler, 1990). Many investors act as risk averse in a winning situation but react as risk seeker in case of Situation lost and commit mistake in their financial decisions (Tversky & Kahneman, 2000); leading to a behavioral bias of decision under uncertainty.

According to Hassan, Mehmood and Mushtaq (2016) theoretically two schools of thought exist i.e. Efficient Market Hypothesis, where investors are considered to be rational in their

investment decisions and Behavioral Finance, where behavioral presumption may affect their investment decisions. Investors are prone to different behavioral biases due to which they can make cognitive errors (Rai, Dua, & Yadav, 2019; Salman, Khan, Khan, & Khan, 2020; Zahera & Bansal, 2018). Therefore, effects of behavioral biases should be recognized where decision making of individuals is not followed by rational thinking. They analyze the effect of behavioral biases on individuals' investment decisions followed by their money attitudes. For the said purpose, data is gathered through structured questionnaires, designed on 5-point Likert scale. Firstly, investors are segmented on the basis of their money attitude which is the main contribution of this study. Then the Impact of behavioral biases is analyzed using ordinal regression. Overall findings suggest that attitudes guide investors about their actions and so their decisions are affected by behavioral. Effect of behavioral biases is not same for each segment of investors on the basis of their money attitude.

2.2 Empirical Literature and Hypothesis Development

2.2.1 Herding Biases and Investment Decision Making

Garg et al. (2013) analyzed herding conduct in Indian securities exchange for a period 2000 to 2013 and closed shortfall of herding in Indian Stock Market and additionally clarified that herding isn't connected with exchanging volume. Poshakwale (2014) investigated that herding is more pervasive during the negative monetary market. And herding by and large increments with the expectation of monetary emergency and limits not long before the real event of the emergency. Filip et al. (2015) inferred that the investors' conduct in CEE securities exchanges and clarified that the majority of investors follow decisions of different members and observed that group conduct is available in both vertical and descending development. Choi (2016) inspected more grounded herding conduct among disconnected investors contrasting with online investors. By and

large advanced age disconnected investors have more trust in data given by their loved ones since they are not having quick and simple access to data. Ripoldi (2016) dissected confirmations of the herding bias among investors in both Shanghai and Shenzhen markets.

Satish et al. (2018) analyzed that Herding conduct was absent among investors during the pre-monetary emergency time frame, emergency period, and post-monetary emergency period. Dewan (2019) clarified herding as how people follow each other altogether and the dot-com bubble was a consequence of herding bias and even the same thing is occurring in digital money. Chauhan et al. (2019) inspected that herding bias is an estimated hazard factor in huge cap stocks, however, it isn't found in little cap stocks due to bringing down exchanging volume. Dewan et al. (2019) clarified that Herding implies how individuals take decisions altogether. Due to herding resource costs can be created some distance from their essential worth. Indārs (2019) broke down that by and large individual investors don't display herding conduct on the Moscow Exchange. In any case, they discovered some proof of herding being driven by non-major variables in times of the negative market.

Herding exemplifies the close affinity of monetary benefactors to follow what others are overseeing without looking at going on themselves. As portrayed by Hott (2016) "Expecting that the decisions of a player are firmly impacted by the decisions of various players and this impact is stronger than the impact from her own signs, we call this herding behavior". For the most part, Herding Behavior cannot be considered irrational like someone is prepared for making incredible examination, it may demonstrate extraordinary to follow him rather than relying upon one's own judgment (Garber, 2010)

Banerjee (1992) and Hirshleifer and Teoh (2003) clarified herding conduct as group conduct that will, in general, follow the activities of others rather than following their claimed convictions or possessed data in the settling on a decision. This conduct is viewed as irrational conduct as investors choose in light of others' decisions in the market (Altman, 2012). Herding conduct is regularly found among investors in developing markets and for the most part happened during market pressure circumstances (Rahayu et al., 2020). As indicated by Humra (2014), herding conduct happens when a gathering of investors settle on investment decisions in view of aggregate data from a gathering of investors and disregard other data. Subsequently, when the gathering greater part settles on an off-base decision, it will go to huge market value deviations.

The finding of Chang et al. (2000) showed that herding rehearses are more common in emerging nations, which then, at that point, is upheld by Chiang and Zheng (2010) and Zheng et al. (2017) concerning the herding rehearses in Asian stock trades (China, South Korea, Singapore, Malaysia, and Indonesia). Group attitude bias alludes to investors' propensity to follow and duplicate what different investors are doing. They are generally affected by feeling and nature, rather than by their own autonomous examination. In Indonesia, the examination discoveries connected with herding conduct are as yet contradictive, despite the fact that they are tried by similar strategies. Sari (2012), and Purba and Faradynawati (2012) uncovered there had been herding rehearses in Indonesia, though Narasanto (2012) didn't find herding rehearses. Besides, Bowe and Domuta (2004), utilizing the Lakonishok et al. (1992) technique, observed that herding conduct in the Indonesian Stock Exchange was for the most part overwhelmed by unfamiliar investors.

2.2.2 Availability Bias and Investment Decision Making

In Availability Bias based decision producer depends in information that is promptly accessible other than other options and strategies (Folks, 1988). Decision creators in securities exchange would likewise affect from the data they get during choice and ID of stock (Haley and Stumpf, 1989). The greater part of investors changes their decision by remembering their expense related to capital (Modigliani and Miller, 1958). Investor inclinations change as indicated by accessible data (Harris and Raviv, 2005) and accordingly in a specific driving example and at some point, even unimportant data likewise impact decision related to investment (Krichler, Maciejovsky, and Weber, 2010). Here these superfluity data impact decisions related to investment making contrarily, on the premise accessible data hazard taking conduct of investor about specific security change the decision (Grable, Lytton, and O'Neill, 2010). A few past investigations say that investors feel good in settling on the decision in light of assuming they have unrivaled data (Barno and Tuwei, 2020; Ahmed, Noreen, Ramakrishnan, and Abdullah, 2020; Awais and Estes, 2019; Gavrilakis and Floros, 2021; Holden and Tilahun, 2021; Lad, and Tailor, 2017). At the point when a firm in the monetary market uncovers offense, the investor of that specific company's stock gets a negative sign rapidly and hops on the end (Paruchuri and Misangyi, 2012).

Availability botch drives the investors to hold improvement stock and avoid regard stocks (Shefrin, 2011; Kahneman and Tversky, 2019). According to the chance hypothesis, some psychological factors are related with investment decision-making. Due to these components, investors wander off from making objective decisions. Exactly when investors face questionable conditions, they make different choices and their attitude towards the conditions remembering gains is extraordinary for connection to their disposition towards conditions including setbacks.

The decision-making process relies upon four essential parts, specifically reference dependence, hardship detestation, diminishing affectability and probability weighting (Kahneman and Tversky, 2012; 2019). Different components have been perceived by the examiners following behavioral cash perspective that cause anomalies during the time spent investment decision-making.

Availability is described as a situation when a particular ponders his skill, data just as ability to be more noticeable than the genuine presentation. This is one of the ordinary biases. People become pompous and contribute dismissing the perils related. This effect the prudent decision making (Odean, 2019; Barber and Odean, 2010; Barber and Odean, 2011; Statman, Thorley, and Vorkink, 2016; Weber and Camerer, 2018; Moore, and Healy, 2018). It has been seen that the investors are reluctant to sell assets when their expenses are low, however more assets are sold when their expenses are high. This effect is called mentality sway

2.2.3 Over Confidence bias and Investment Decision Making

Overconfidence is a mental heuristic bias, that can be characterized as outlandish confidence in individual's instinctive thinking, judgment, mental capacities (Pompain, 2006). At the point when individuals overvalue their insight abilities, it is an impression of overconfidence (De Bondt and Thaler, 1995; Hvide, 2002). Therapists established that overconfidence makes individuals over value their insight and expertise. As indicated by Chernoff (2010), "an excessive number of individuals monetary education overvalue what they are not and underestimate what they are"; such individuals experience the ill effects of overconfidence bias. As per Simon et al. (2000), overconfidence might exist since individual investors don't adequately reconsider their underlying evaluations subsequent to getting new data; in this way, they don't understand how

mistaken their appraisals might be. They have a thought that their judgment is excessively sure, that is the justification behind overconfidence.

Aspara and Tikkanen (2011) studied whether company motivate investors to invest in stock beyond its risk and return. They used a survey method and collect data from four hundred individual. The findings indicate that the investor has extra motivation to invest in stock beyond the risk and returns of the stock. Parrino et al. (2012) studied the investment distortions when risk-averse managers decide whether to undertake risky projects, by getting data from the public companies. They studied the magnitude of distortion level in the investment decision. The results indicate that when the investors are risk averse, then they distort their investment and get money from the equity holder instead of the debt opportunity

Abbes et al. (2009) contend convincingly, overconfident investors overestimate the exactness of their own valuation capacities; therefore, they settle on decisions related to Investment by depending on their own private signs while they overlook public signs. As indicated by Moore and Healy (2008), three credits rely in the character of people experiencing overconfidence bias: overestimation, over-arrangement, and over-accuracy. In over-estimation, people center just around their own abilities, and the creator's convictions decision about their nature of execution count for more than their genuine execution (Statman et al., 2006). It very well may be estimated through over-execution, control level, the likelihood of coming out on top, and overestimating one's real capacities; these qualities are known as over-estimation (Duttle, 2015). Over-position implies individuals see themselves as better than others (Larrick et al., 2007). Over-accuracy

implies investors are excessively sure of their judgment, overlooking the dangerous factors that are related to the investment decisions (Odean, 1999).

Odean (1998) clarified that overconfident merchants don't oversee and control hazards appropriately and they for the most part take data from different avenues and they considerably perform continuous exchanges market. Scheinkman (2003) et al. determined a straightforward model to dissect rises in monetary market and exchanging volume. And examined high exchanging volume happens on account of theoretical exchanging within specialists with heterogeneous convictions. Heterogeneous convictions emerge from the occurrence of overconfident specialists. Nevins (2004) characterized Overconfidence as an overestimation of their ability by investors to conjecture market occasions, and eventual outcome investors routinely put it all out there without getting comparable returns. Statman et al. (2006) examined t a few investors have an overconfident outlook on the worth of dynamic exchanging after they get good returns on Portfolio, and feel below overconfident after they get portfolio based on negative assertions.

Glaser et al. (2007) dissected that overconfidence, as estimated by alignment questions, isn't connected with exchanging volume. Fagerström (2008) played out a review to dissect overconfidence in monetary markets and factors that influence individuals in decision making with regards to investment in monetary markets. This exploration reasoned that experts of the S&P 500 were affected with overconfidence bias and over hopeful biases. Deaves et al. (2008) broke down that a higher level of overconfidence prompts an expansion in exchanging action. This is valid both at the individual and market level and likewise reasoned that there is no critical contrasts

between sexual orientations in exchanging movement. Graham et al. (2009) dissected those investors who feel overwhelm certain exchange habitually and have greater investment openness in global resources. Puetz et al. (2011) inspected that reserve supervisor for the most part exchange more after great past execution of shared assets.

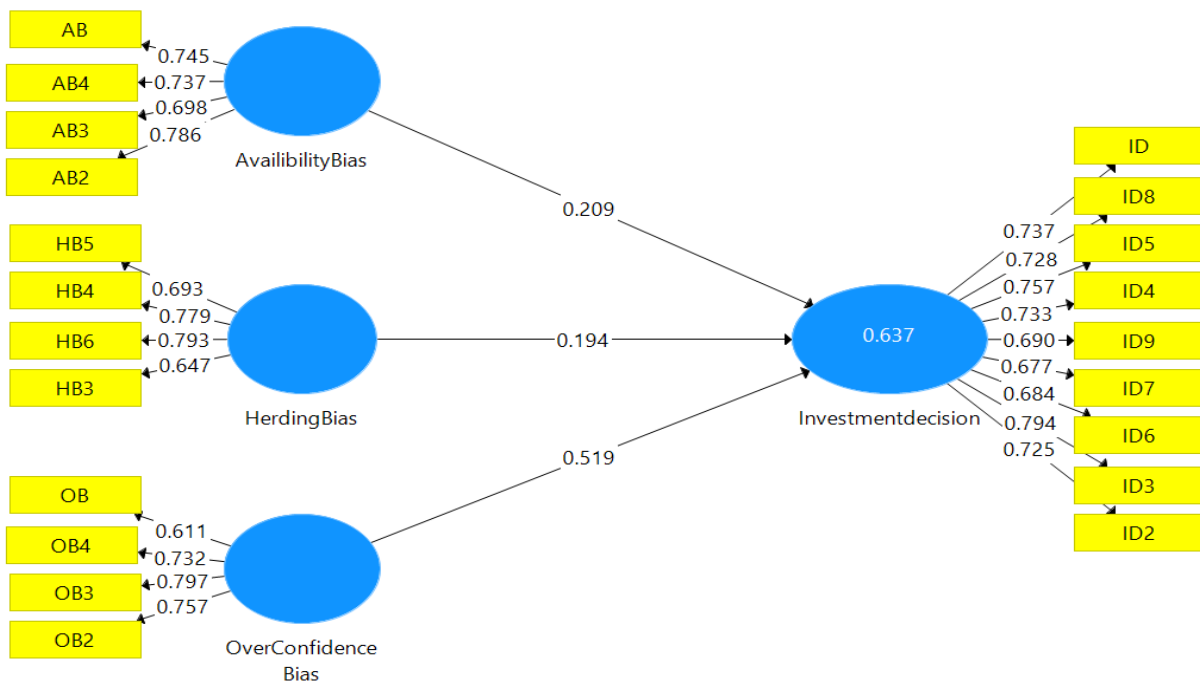
Menkhoff et al. (2013) analyzed that there is a huge contrast in overconfidence between gatherings; it has been observed that institutional based investors were least overconfident and investment guides generally were overconfident. Jaya (2014) dissected that men are more overconfident. And if there should be an occurrence of the intraday merchants; brokers with high practice and investors of most recent organizations are impacted by overconfidence bias. Prosad et al. (2015) inspected that men are more overconfident than ladies regarding their insight into the Indian securities exchange.

2.3 Research Hypothesis

H₁: Availability bias and investment decision making has significant association.

H₂: Herding bias and investment decision making has significant association.

H₃: Overconfidence bias and investment decision making has significant association.



Independent Variable One: - Availability Bias

Independent Variable Two: - Herding Bias

Independent Variable Three: - Over Confidence Bias

Dependent Variable: - Investment Decision

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

The research methodology is the process of step by step working on the research that can guide in collection of data according to subject matter of study and arriving at the results according to the study. In this chapter, an attempt has been made to describe the research methodology followed for conducting the study. The chapter includes the research study data collection methods along with the population, sample size, sampling technique, data analysis software's and techniques used for the study. There are 10 sections in this chapter. The chapter introduction is presented at the start followed by study research design. Section 3.2 briefly explain the research design, section 3.2.1 is related to research paradigm/philosophy and section 3.2.2 provides research approach of the study. Section 3.3 discussed questionnaire construction for the study. The study population and sampling is discussed in section 3.4. The population of the study is presented in section 3.4.1 while section 3.4.2 is related to sampling technique. Sampling unit and sample of the study is provided in section 3.4.3 and 3.4.3 respectively. In section 3.5 data collection is presented whereas data analysis techniques are provided in section 3.6. Section 3.7 discussed the pretest and pilot testing procedure. Finally, the validity and reliability of the instrument is provided in section 3.8 and 3.9 respectively.

3.2 Research Design

3.2.1 Research Paradigm/Philosophy

This study had adopted a positivist view by engaging a quantitative statistical method instead of a qualitative approach. The formation of these ideologies necessitates specific assumptions about knowledge sources. Sociological and scientific aspects define these assumptions. Positivism describes the validity of knowledge based on external reality for which universal rules exist to create theoretical models to see whether there is a cause-and-effect link established to predict specific results. This research study adheres to the positivist research philosophy since it is based on a theory that is a quantitative hypothesis that must be evaluated. The epistemological approach asserts that events in the social world emerge from the experiences and expectations of people or groups. As a result, interpretations will differ depending on the circumstances and education level. The researchers feel that numerous interpretations might be part of the scientific information that is being used.

3.2.2 Research Approach

Furthermore, two research approaches exist i.e. a deduction approach and an induction approach. In the deductive research approach, hypotheses are derived from a theory. The deductive method allows researchers to design and develop an idea from data analysis. In contrast, the inductive approach enables researchers to devise a strategy and build data analysis ideas. It is essential to parallel these research approaches as a deduction to positivism and induction to interpretation to make the research philosophy (Vlastelica, et al., 2018). Nonetheless, there will be little actual use and may mislead the researchers. Therefore, the connections between research and

theory and deduction and induction choices are important considerations. The present study is based on a deductive research approach.

3.3 Data and Questionnaire

The data used in this study is primary collected through questionnaire. The survey instrument is divided among individual investors. A Multi-Stage sampling technique is employed in this study. First, the capital market is divided into various groups for example public accounting firms, investment banks, institutions, and corporations, called strata. Secondly, from each group investors will be randomly selected and the instruments will be distributed equally. There are 2 sections in the survey instrument hence first part 1 is related to demographical information such as education, experience, profession etc while second part is related to items relevant to herding, over confidence, availability biases and investment decision making.

Section A is related to questions associated with availability bias, herding bias and overconfidence bias. The items related to availability bias are, “While keeping in front the track record of an investment, “I regard the recent records of a security before investing”, I ignore the past records of an investment before trading”, Advertisements are the main root of information for my investment decisions”, I put more weight on its recent performance”, “The information that is collected from my relatives and close friends is a reliable reference for my investment decisions”.

The items related to herding bias are, “I change my mind regarding investment in a security after hearing disputing views from analysts”, “I prefer to invest in the assets that other investors are buying”, “I tend to follow social blogs/forums before purchasing/selling a security”, “I follow social blogs/forums before purchasing/selling a security”, “I feel less upset if other investors also

experienced the same loss”, “When I lose money on an investment”, “I follow others in all my investment decisions”.

The items related to overconfidence bias are, “I cannot predict future prices of my investments better than others”, “I am confident of my ability to make investment decisions better than others”, “I always feel optimistic about the future returns of my investments”, “I have complete knowledge of various types of investments”.

The dependent variable of the study is decision making. The items related to decision making are, “Your rate of return is recently equal to or higher than the average return rate of the market”, “Market information is important for your stock investment”, “You put the past trends of stocks under your consideration for your investment”, “You are normally able to anticipate the end of good or poor”, “You forecast the changes in stock prices in the future based on the recent stock prices”, “The return rate of your recent stock investment meets your expectation”, “You believe that your skills and knowledge of stock market can help you to outperform the market”, “You consider carefully the price changes of stocks that you intend to invest in”, “You feel satisfied with your investment decisions in the last year”.

3.4 Population and Sampling

3.4.1 Population of the Study

This study’s population comprise of investors from institutions, corporations, investment banks and public based accounting firms etc.

3.4.2 Sampling Technique

According to Daermark et al. (2002) there are two types of sampling techniques i.e. probability and non-probability sampling. Non-probability sampling didn't rely upon possibility, in any case, rather is a method by which tests are gathered in a manner that doesn't give everybody people in a population an equivalent shot at being picked. This kind of sampling technique isn't typically illustrative of the objective population. The typical convenience procedure albeit not extremely upheld as it is inadmissible (Patton, 2002; Blaikie, 2000), is point of fact important in conditions where the chance to inspect cases is uncommon (Weiss, 1994).

Purposive based sampling is for the most part utilized for the little example sizes of subjective investigations. This sampling method or methodology incorporates picking subjects considering an explanation, where the example relies upon who the scientist thinks would be appropriate for the examination. It keeps in track the cases which give inside and out data about the exploration region being inspected, which isn't viably accomplished through other examination decisions (Pauwels and Matthyssens, 2004). According to Liamputtong and Ezzy (2005), purposive sampling's motivation is to pick data rich contextual analyses to research inside and out the implications, clarifications, method, and hypothesis. Keeping in view the assessment structure, the reviewing system that is used for this investigation is convenience and deliberate sampling. These procedures are utilized on the grounds that for information collection it is vital to get accessibility and readiness of respondents and second in light of the fact that these strategies are time and cost-powerful. Just those singular investors/agents are chosen for the review who contributes for them and others.

3.4.3 Sampling Unit

Ensuring the inclusion of right respondents is perhaps one of the most important steps in the data collection process. 266 investors from corporations, institutions, investment banks and public accounting firms etc have been identified as respondents. Thus, they are labeled as units of analysis in the study.

3.4.4 Sample of the Study

Ascertaining appropriate sample size is of paramount importance for obtaining reliable estimates from the study. The population of this study comprise of individual investors from corporations, institutions, investment banks and public accounting firms etc in PSX. Following, Singh and Jain (2021) Krejcie and Morgan formula is used and 385 sample is selected. However, out of 385 only 266 responded. The sample of the study comprises of 266 investors from corporations, institutions, investment banks and public accounting firms etc.

3.5 Data Collection

The data used in this study is primary collected through questionnaire and the study design is Cross sectional in nature. Prior literature is used for adopting the questionnaire. Hence, the numbers of items adopted in each variable category are 29 in total. The scale items were measured on a Likert's five-point scale. Part 1 consists of questions related to respondent's personal information such as: gender, education, experience, age, marital status, etc. Part 2 is related to items about independent and dependent variables.

3.6 Data Analysis

Result estimation and hypothesis testing is done through Smart Pls. To estimate the results various tests such as reliability, validity, R square, F square, and collinearity statistics etc are used. Collinearity statistics is employed to check multicollinearity in the data. Cronbach alpha is used to check reliability of the scale.

3.7 Pre-test and Pilot Study

To pre-test the review instrument, 10 questionnaire respondents were chosen from the objective gathering to fill the instrument. Pre-testing helped in distinguishing the vague assertions in the instrument by completely inspecting the respondent's translation of the instrument (Converse and Presser, 1986). Criticism given by the respective respondents worked with the alteration of the exploration scale. Pre-testing of the instrument uncovered that the extensiveness of the instrument impacted the reaction rate. The progressions were incorporated in the last instrument. It guaranteed that the future respondents would not confront any trouble in understanding and noting the instrument.

For getting a handle on genuine and exact outcomes the scientist conducted a pilot study. An aggregate of 10 respondents were haphazardly chosen and were given to complete the instrument. During the piloting, there were an aggregate of 36 things. Besides, preceding piloting the overview apparatus, the analyst explained the reason for the review to the respondents. Moreover, it was affirmed to the respondents that the findings of the study could never be utilized for some other reason aside from the generally clarified reason.

At long last, the pilot study carried the accompanying considerations into the notification of the scientist and their useful applications were completed.

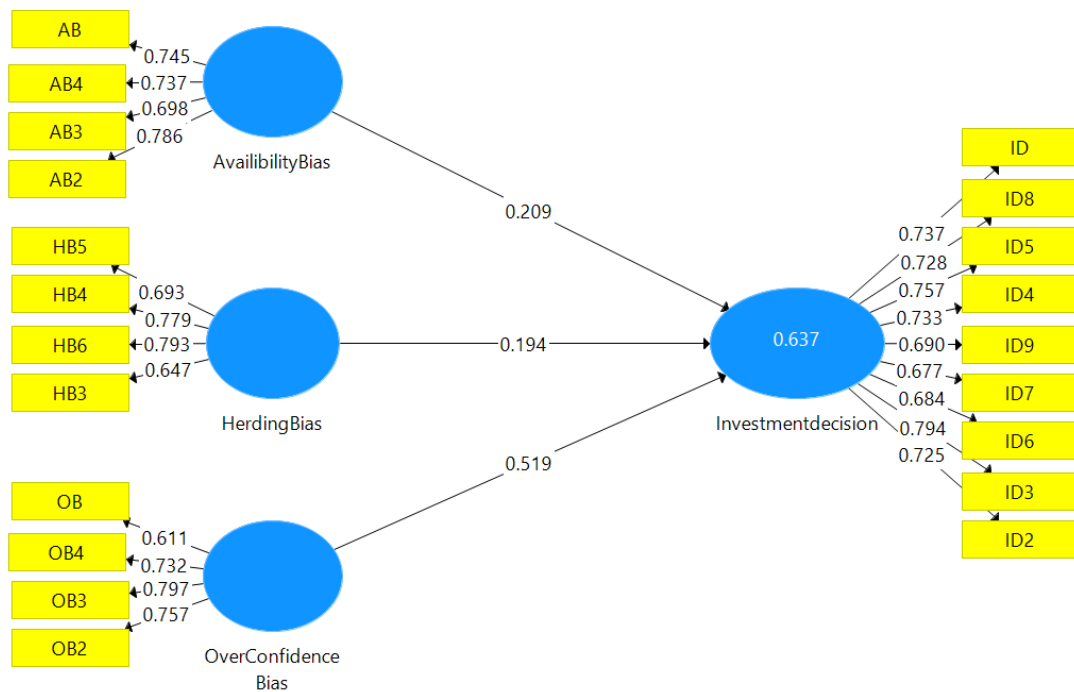
1. The time frame limit was expanded from 15 to 20 minutes.
2. The questionnaire respondents were educated preceding the overview.
3. Some of the questionnaire respondents feel it difficult to see a few inquiries; in this way, those questions were reworded and made more friendly for readers.
4. The last study things were restricted to 24 and it required 20 minutes to complete.

3.8 Validity

Validity is the strength of the reasonability of scale that precisely gauges that the scientist accepts to quantify. As in nature, the flow research is co-relational; in this manner, it faces the issues of validity for example inward validity is the danger to having a confused view about a connection between behavioral biases and decision making. While then again dangers to outer validity confused our view about the speculation of results to different examinations (Johnson and Christensen, 2007). As in the current review, there are no circumstances and logical results circumstance, and the variable isn't impacted hence, the dangers to inner validity are limited. The impact of mindfulness on the review scale is likewise considered a danger to overcome the issues the scientist took on and the study scale was imparted to the gathering of experts in addition to formal pilot testing was utilized to limit the dangers of inner validity. A few different elements that influence interior validity are instrumentation, trying, and choice of subjects. Another threat is the population sample because the sample of this study is limited to 266, hence future research needs to use large sample in order to avoid this threat.

3.9 Reliability

As the term, reliable meanings consistent give the likely same analysis when the researcher goes for the second times with the same instruments. The current study uses descriptive and inferential statistics to fully grasp the perception of students and their relationship with their school academic achievements.



CHAPTER 4

RESULTS AND DISCUSSION

4.1 Introduction

Discussion of the results is presented in this chapter. This chapter has 6 sections. Introduction of the chapter is given in section 4.1. Descriptive analysis is shown in section 4.2. Section 4.3 shows the demographic analysis. Correlation analysis is given in section 4.4 and Analysis of Reliability in section 4.5. Discriminant Validity is described in section 4.6. Hypothesis testing in 4.7. Regression analysis is finally commenced under section 4.8

4.2 Descriptive Analysis

The descriptive statistics of demographics are shown in Table 01. The mean value of Gender is 1.33 with standard deviation of 0.504. The min and max values of gender are 1 and 3 respectively. Marital Status has a mean value of 1.79 and Monthly Income has a mean value of 1.795. The minimum and maximum values of Marital Status are 1 and 3 respectively. The min and max values of Monthly Income are 1 and 7 respectively. Experience of Investing in Stock and Level of Education has a mean value of 1.49 and 2.38 respectively. The min and max values of Experience of Investing in Stock are 1 and 5 respectively. The min and max values of Level of Education are 1 and 5 respectively.

| Table 1: Descriptive Statistics of Demographics | | | | | |
|--|----------|----------------|----------------|-------------|-----------------------|
| | N | Minimum | Maximum | Mean | Std. Deviation |
| Gender | 266 | 1 | 3 | 1.33 | .504 |
| Marital Status | 266 | 1 | 3 | 1.79 | .438 |
| Monthly Income | 266 | 1 | 7 | 2.60 | 1.795 |
| Experience of Investing in Stock | 266 | 1 | 5 | 1.49 | 1.058 |
| Level of Education | 266 | 1 | 5 | 2.38 | 1.208 |
| Valid N (listwise) | 266 | | | | |

The descriptive statistics of explanatory variables are shown in Table 02. The mean value of Availability Bias is 3.259398 with standard deviation of .7630661. The min and max values of Availability Bias are 1 and 5 respectively. Herding bias has a mean value of 3.241228 and Overconfidence bias has a mean value of 3.3778. The min and max values of Herding bias are 1 and 5 respectively. The min and max values of Overconfidence bias are 1 and 5 respectively. Investment Decision Making has a mean value of 3.439014.

| Table 02: Descriptive Statistics of Variables | | | | | |
|--|----------|----------------|----------------|-------------|-----------------------|
| | N | Minimum | Maximum | Mean | Std. Deviation |
| Availability Bias | 266 | 1.0000 | 5.0000 | 3.259398 | .7630661 |
| Herding bias | 266 | 1.0000 | 5.0000 | 3.241228 | .7401175 |
| Overconfidence bias | 266 | 1.00 | 5.00 | 3.3778 | .79302 |
| Investment Decision Making | 266 | 1.0000 | 5.0000 | 3.439014 | .7806286 |
| Valid N (listwise) | 266 | | | | |

4.3 Demographic Analysis

This section shows the demographic analysis. Table 3 shows that there are 181 male respondents and 81 female respondents. The percentage of male respondents is 68 and for female respondents the percentage is 30.5.

| Table 3: Gender | | | | | |
|------------------------|--------|------------------|----------------|----------------------|---------------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Male | 181 | 68.0 | 68.0 | 68.0 |
| | Female | 81 | 30.5 | 30.5 | 98.5 |
| | Other | 4 | 1.5 | 1.5 | 100.0 |
| | Total | 266 | 100.0 | 100.0 | |

Table 4 indicates that married respondents are 60 whereas unmarried respondents are 203. Hence, married respondents are 22.6 percent whereas unmarried respondents are 76.3 percent.

| Table 4: Marital Status | | | | | |
|--------------------------------|-----------|------------------|----------------|----------------------|---------------------------|
| | | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | Married | 60 | 22.6 | 22.6 | 22.6 |
| | Unmarried | 203 | 76.3 | 76.3 | 98.9 |
| | Divorce | 3 | 1.1 | 1.1 | 100.0 |
| | Total | 266 | 100.0 | 100.0 | |

Table 5 shows that 107 respondents earns less than 10,000, 41 respondents earns 11-20 thousand, 50 respondents earns 21-40 thousand, 29 respondents earns 41-60 thousand, 13 respondents earns 61-80 thousand, 10 respondents earns 81-100 thousand and 16 respondents earns above 101 thousand.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|---------------|-----------|---------|---------------|--------------------|
| Valid | Under 10k PKR | 107 | 40.2 | 40.2 | 40.2 |
| | 11-20 PKR | 41 | 15.4 | 15.4 | 55.6 |
| | 21-40 PKR | 50 | 18.8 | 18.8 | 74.4 |
| | 41-60 PKR | 29 | 10.9 | 10.9 | 85.3 |
| | 61-80 PKR | 13 | 4.9 | 4.9 | 90.2 |
| | 81-100 PKR | 10 | 3.8 | 3.8 | 94.0 |
| | Above 101 PKR | 16 | 6.0 | 6.0 | 100.0 |
| | Total | 266 | 100.0 | 100.0 | |

Table 6 shows that 207 questionnaire respondents have experience of Under 5 years, 22 respondents have experience of 6-10 Years, and 13 respondents have experience of 11-15 Years, 14 respondents have experience of 16-20 Years, and 10 respondents have experience of Above 20 years.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|----------------|-----------|---------|---------------|--------------------|
| Valid | Under 5 years | 207 | 77.8 | 77.8 | 77.8 |
| | 6-10 Years | 22 | 8.3 | 8.3 | 86.1 |
| | 11-15 Years | 13 | 4.9 | 4.9 | 91.0 |
| | 16-20 Years | 14 | 5.3 | 5.3 | 96.2 |
| | Above 20 years | 10 | 3.8 | 3.8 | 100.0 |
| | Total | 266 | 100.0 | 100.0 | |

Table 7 shows that 69 respondents have education of below bachelor's degree, 92 respondents have education of bachelor's degree, 66 respondents have education of master degree, and 12 respondents have education of PhD degree.

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-------------------------|------------------|----------------|----------------------|---------------------------|
| Valid | Below Bachelor's Degree | 69 | 25.9 | 25.9 | 25.9 |
| | Bachelor's Degree | 92 | 34.6 | 34.6 | 60.5 |
| | Master's Degree | 66 | 24.8 | 24.8 | 85.3 |
| | PHD Degree | 12 | 4.5 | 4.5 | 89.8 |
| | Other | 27 | 10.2 | 10.2 | 100.0 |
| | Total | 266 | 100.0 | 100.0 | |

Table 08 shows that 42 male respondents are married and 136 are unmarried whereas 17 female respondents are married and 64 are unmarried.

| | | Your Marital Status? | | | Total |
|----------------|--------|-----------------------------|------------------|----------------|--------------|
| | | Married | Unmarried | Divorce | |
| You're Gender? | Male | 42 | 136 | 3 | 181 |
| | Female | 17 | 64 | 0 | 81 |
| | Other | 1 | 3 | 0 | 4 |
| Total | | 60 | 203 | 3 | 266 |

Table 09 shows that 75 male and 31 female respondents earns under 10k PKR, 26 male and 13 female respondents earns 11-20 PKR, 30 male and 19 female respondents earns 21-40 PKR, 22 male and 7 female respondents earns 41-60 PKR, 7 male and 6 female respondents earns 61-80 PKR, 9 male and 1 female respondent earns 81-100 PKR, 12 male and 4 female respondents earns Above 101 PKR.

Table 09: Gender and Monthly Income Cross Tabulation

| | | Your Monthly Income? | | | | | | | Total |
|----------------|--------|----------------------|-----------|-----------|-----------|-----------|------------|---------------|-------|
| | | Under 10k PKR | 11-20 PKR | 21-40 PKR | 41-60 PKR | 61-80 PKR | 81-100 PKR | Above 101 PKR | |
| You're Gender? | Male | 75 | 26 | 30 | 22 | 7 | 9 | 12 | 181 |
| | Female | 31 | 13 | 19 | 7 | 6 | 1 | 4 | 81 |
| | Other | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 4 |
| Total | | 107 | 41 | 50 | 29 | 13 | 10 | 16 | 266 |

Table 10 shows that 138 male and 65 female respondents have experience of less than 5 years, 13 male and 9 female respondents have experience of 6-10 Years, 9 male and 4 female respondents have experience of 11-15 Years, 12 male and 2 female respondents have experience of 16-20 Years, 9 male and 1 female respondents have experience of above 20 years.

| Table 10: Gender and Experience of Investing in Stock Cross Tabulation | | | | | | | |
|---|--------|---|-------------------|--------------------|--------------------|-----------------------|--------------|
| | | You're Experience of Investing in Stock? | | | | | Total |
| | | Under 5 years | 6-10 Years | 11-15 Years | 16-20 Years | Above 20 years | |
| You're Gender? | Male | 138 | 13 | 9 | 12 | 9 | 181 |
| | Female | 65 | 9 | 4 | 2 | 1 | 81 |
| | Other | 4 | 0 | 0 | 0 | 0 | 4 |
| Total | | 207 | 22 | 13 | 14 | 10 | 266 |

Table 11 shows that 52 male and 17 female respondents have qualification of below Bachelor's, 65 male and 26 female respondents have qualification of Bachelor's level, 35 male and 30 female respondents have qualification of Master's level, 10 male and 2 female respondents have qualification of PhD level.

| Table 11: Gender and Level of Education Cross Tabulation | | | | | | | |
|---|--------|-----------------------------------|--------------------------|------------------------|-------------------|--------------|--------------|
| | | You're Level of Education? | | | | | Total |
| | | Below Bachelor's Degree | Bachelor's Degree | Master's Degree | PHD Degree | Other | |
| You're Gender? | Male | 52 | 65 | 35 | 10 | 19 | 181 |
| | Female | 17 | 26 | 30 | 2 | 6 | 81 |
| | Other | 0 | 1 | 1 | 0 | 2 | 4 |
| Total | | 69 | 92 | 66 | 12 | 27 | 266 |

Table 12 shows that 13 married and 94 unmarried respondents earns under 10k PKR, 8 married and 33 unmarried respondents earns 11-20 PKR, 15 married and 34 unmarried respondents earns 21-40 PKR, 13 married and 15 unmarried respondents earns 41-60 PKR, 2 married and 10 unmarried respondents earns 61-80 PKR, 3 married and 7 unmarried respondents earns 81-100 PKR, 6 married and 10 unmarried respondents earns above 101 PKR.

| Table 12: Marital Status and Monthly Income Cross tabulation | | | | | | | | | |
|---|-----------|-----------------------------|------------------|------------------|------------------|------------------|-------------------|----------------------|--------------|
| | | Your Monthly Income? | | | | | | | Total |
| | | Under 10k PKR | 11-20 PKR | 21-40 PKR | 41-60 PKR | 61-80 PKR | 81-100 PKR | Above 101 PKR | |
| Your Marital Status? | Married | 13 | 8 | 15 | 13 | 2 | 3 | 6 | 60 |
| | Unmarried | 94 | 33 | 34 | 15 | 10 | 7 | 10 | 203 |
| | Divorce | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 3 |
| Total | | 107 | 41 | 50 | 29 | 13 | 10 | 16 | 266 |
| | | | | | | | | | |

Table 13 shows that 41 married and 166 unmarried respondents have experience of less than 5 years, 7 married and 15 unmarried respondents have experience of 6-10 Years, 6 married and 6 unmarried respondents have experience of 11-15 Years, 4 married and 8 unmarried respondents have experience of 16-20 Years, 2 married and 8 unmarried respondents have experience of above 20 years.

Table 13: Marital Status and Experience of Investing in Stock Cross tabulation

| | | You're Experience of Investing in Stock? | | | | | Total |
|----------------------|-----------|--|------------|-------------|-------------|----------------|-------|
| | | Under 5 years | 6-10 Years | 11-15 Years | 16-20 Years | Above 20 years | |
| Your Marital Status? | Married | 41 | 7 | 6 | 4 | 2 | 60 |
| | Unmarried | 166 | 15 | 6 | 8 | 8 | 203 |
| | Divorce | 0 | 0 | 1 | 2 | 0 | 3 |
| Total | | 207 | 22 | 13 | 14 | 10 | 266 |

Table 14 shows that 10 married and 57 unmarried respondents have qualification of below Bachelor's level, 12 married and 80 unmarried respondents have qualification of Bachelor's level, 25 married and 40 unmarried respondents have qualification of Master's level, 6 married and 6 unmarried respondents have qualification of PHD level.

| | | You're Level of Education? | | | | | Total |
|----------------------|-----------|----------------------------|-------------------|-----------------|------------|-------|-------|
| | | Below Bachelor's Degree | Bachelor's Degree | Master's Degree | PHD Degree | Other | |
| Your Marital Status? | Married | 10 | 12 | 25 | 6 | 7 | 60 |
| | Unmarried | 57 | 80 | 40 | 6 | 20 | 203 |
| | Divorce | 2 | 0 | 1 | 0 | 0 | 3 |
| Total | | 69 | 92 | 66 | 12 | 27 | 266 |

| | | You're Experience of Investing in Stock? | | | | | Total |
|----------------------|---------------|--|------------|-------------|-------------|----------------|-------|
| | | Under 5 years | 6-10 Years | 11-15 Years | 16-20 Years | Above 20 years | |
| Your Monthly Income? | Under 10k PKR | 96 | 1 | 3 | 5 | 2 | 107 |
| | 11-20 PKR | 29 | 6 | 2 | 2 | 2 | 41 |
| | 21-40 PKR | 36 | 10 | 3 | 0 | 1 | 50 |

| | | | | | | | |
|--------------|------------------|-----|----|----|----|----|-----|
| | 41-60 PKR | 20 | 4 | 2 | 2 | 1 | 29 |
| | 61-80 PKR | 8 | 0 | 2 | 2 | 1 | 13 |
| | 81-100 PKR | 6 | 1 | 0 | 3 | 0 | 10 |
| | Above 101 PKR | 12 | 0 | 1 | 0 | 3 | 16 |
| Total | | 207 | 22 | 13 | 14 | 10 | 266 |

Table 16: Monthly Income and Level of Education Cross tabulation

| | | You're Level of Education? | | | | | Total |
|----------------------------|---------------------|-------------------------------|----------------------|--------------------|---------------|-------|-------|
| | | Below Bachelor's Degree | Bachelor's Degree | Master's Degree | PHD Degree | Other | |
| Your Monthly Income? | Under 10k PKR | 37 | 42 | 13 | 2 | 13 | 107 |
| | 11-20 PKR | 11 | 14 | 8 | 2 | 6 | 41 |
| | 21-40 PKR | 8 | 15 | 21 | 3 | 3 | 50 |
| | 41-60 PKR | 7 | 8 | 12 | 1 | 1 | 29 |
| | 61-80 PKR | 1 | 2 | 7 | 1 | 2 | 13 |
| | 81- 100 PKR | 4 | 3 | 3 | 0 | 0 | 10 |
| | Above 101 PKR | 1 | 8 | 2 | 3 | 2 | 16 |
| Total | | 69 | 92 | 66 | 12 | 27 | 266 |

Table 17: Experience of Investing in Stock and Level of Education Cross tabulation

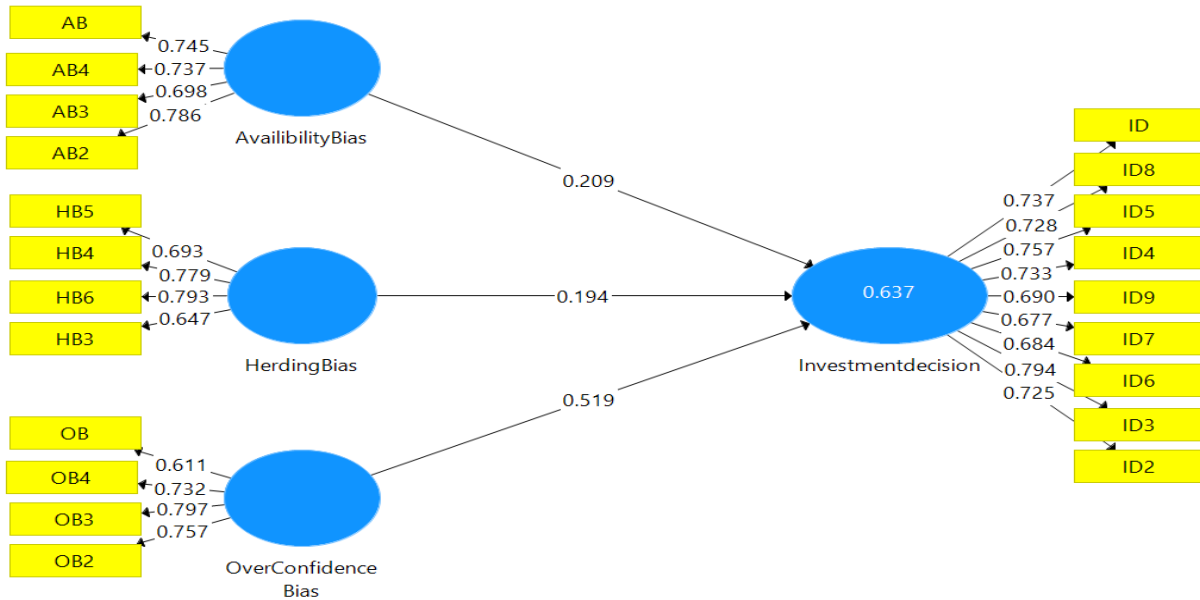
| | | You're Level of Education? | | | | | Total |
|--|----------------|----------------------------|-------------------|-----------------|------------|-------|-------|
| | | Below Bachelor's Degree | Bachelor's Degree | Master's Degree | PHD Degree | Other | |
| You're Experience of Investing in Stock? | Under 5 years | 58 | 77 | 46 | 7 | 19 | 207 |
| | 6-10 Years | 4 | 5 | 10 | 1 | 2 | 22 |
| | 11-15 Years | 3 | 2 | 5 | 1 | 2 | 13 |
| | 16-20 Years | 4 | 4 | 4 | 2 | 0 | 14 |
| | Above 20 years | 0 | 4 | 1 | 1 | 4 | 10 |
| Total | | 69 | 92 | 66 | 12 | 27 | 266 |

4.5 Correlation Analysis

Correlation analysis is shown in Table 18. Availability Bias and Herding bias are positively associated. Similarly, Availability Bias is positively linked with Overconfidence bias, and Investment Decision Making. Herding bias has significant positive association with Overconfidence bias and Investment Decision Making. Finally, Overconfidence bias and Investment Decision Making have significant positive correlation.

| Table 18: Latent Variable Correlations | | | | |
|---|--------------------------|---------------------|----------------------------|----------------------------|
| | Availability Bias | Herding Bias | Investment decision | Overconfidence Bias |
| Availability Bias | 1.000 | 0.572 | 0.591 | 0.521 |
| Herding Bias | 0.572 | 1.000 | 0.642 | 0.633 |
| Investment Decision | 0.591 | 0.642 | 1.000 | 0.751 |
| Overconfidence Bias | 0.521 | 0.633 | 0.751 | 1.000 |

4.5 Analysis of Reliability



To ascertain reliability of the scale we have used Cronbach's alpha in this study a value of greater than 0.70 is considered good. Therefore, we use this method to see whether the instrument is reliable or not. The findings show that Average Variance Extracted (AVE) values are greater than 0.50 hence which is in line with the recommended value. The finding further shows that the Cronbach alpha value for independent as well as dependent variable is greater than 0.70 which suggest that the instrument is reliable. Hence, the particular items represent the underline construct very well. Table 2 shows the mean and standard deviation values of each instrument item. Total numbers of respondents are 266. Table 3 shows the summary statistics of overall items i.e. Mean Minimum Maximum and Variance.

Table 1: Construct Reliability and Validity

| | Cronbach's Alpha | rho_A | Composite Reliability | Average Variance Extracted (AVE) |
|----------------------|-------------------------|--------------|------------------------------|---|
| Availability Bias | 0.727 | 0.729 | 0.830 | 0.550 |
| Herding Bias | 0.711 | 0.735 | 0.820 | 0.534 |
| Investment decision | 0.887 | 0.889 | 0.909 | 0.527 |
| Over Confidence Bias | 0.703 | 0.721 | 0.817 | 0.529 |

Table 2: Item Statistics

| | Mean | Std. Deviation | N |
|------|-------------|-----------------------|----------|
| IDM1 | 3.42 | 1.059 | 266 |
| IDM2 | 3.33 | 1.022 | 266 |
| IDM3 | 3.38 | 1.048 | 266 |
| IDM4 | 3.43 | 1.056 | 266 |
| IDM5 | 3.42 | 1.058 | 266 |
| IDM6 | 3.44 | 1.091 | 266 |
| IDM7 | 3.47 | 1.123 | 266 |
| IDM8 | 3.62 | 1.144 | 266 |
| IDM9 | 3.43 | 1.080 | 266 |
| OCB1 | 3.34 | 1.046 | 266 |
| OCB2 | 3.54 | 1.075 | 266 |
| OCB3 | 3.43 | 1.087 | 266 |
| OCB4 | 3.20 | 1.157 | 266 |
| HB1 | 3.29 | 1.086 | 266 |
| HB2 | 3.23 | 1.125 | 266 |
| HB3 | 3.27 | 1.051 | 266 |
| HB4 | 3.13 | 1.113 | 266 |
| HB5 | 3.14 | 1.151 | 266 |
| HB6 | 3.39 | 1.049 | 266 |
| AB1 | 2.89 | 1.178 | 266 |
| AB2 | 3.47 | 1.140 | 266 |
| AB3 | 3.41 | 1.106 | 266 |
| AB4 | 3.26 | 1.062 | 266 |
| AB5 | 3.28 | 1.031 | 266 |

Table 3: Summary Item Statistics

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance | N of Items |
|------------|-------------|----------------|----------------|--------------|----------------------------------|-----------------|-----------------------|
| Item Means | 3.342 | 2.891 | 3.620 | .729 | 1.252 | .024 | 24 |

Table 4: Item-Total Statistics

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation | Cronbach's Alpha if Item Deleted |
|------|---|---|---|---|---|
| IDM1 | 76.78 | 230.896 | .597 | .543 | .921 |
| IDM2 | 76.88 | 230.740 | .626 | .553 | .921 |
| IDM3 | 76.82 | 232.312 | .557 | .514 | .922 |
| IDM4 | 76.77 | 231.504 | .579 | .543 | .922 |
| IDM5 | 76.79 | 229.029 | .658 | .572 | .920 |
| IDM6 | 76.77 | 228.494 | .653 | .563 | .920 |
| IDM7 | 76.73 | 227.117 | .675 | .629 | .920 |
| IDM8 | 76.59 | 229.157 | .599 | .563 | .921 |
| IDM9 | 76.77 | 229.149 | .639 | .605 | .921 |
| OCB1 | 76.86 | 232.155 | .564 | .465 | .922 |
| OCB2 | 76.67 | 230.366 | .604 | .532 | .921 |
| OCB3 | 76.78 | 230.241 | .600 | .458 | .921 |
| OCB4 | 77.00 | 232.321 | .497 | .401 | .923 |
| HB1 | 76.92 | 228.639 | .652 | .531 | .921 |
| HB2 | 76.97 | 233.165 | .488 | .366 | .923 |
| HB3 | 76.94 | 231.728 | .575 | .469 | .922 |
| HB4 | 77.08 | 234.047 | .468 | .353 | .924 |
| HB5 | 77.07 | 235.878 | .396 | .294 | .925 |
| HB6 | 76.82 | 231.879 | .571 | .488 | .922 |
| AB1 | 77.32 | 234.783 | .417 | .308 | .925 |
| AB2 | 76.74 | 232.706 | .495 | .426 | .923 |
| AB3 | 76.80 | 232.983 | .504 | .340 | .923 |
| AB4 | 76.95 | 232.183 | .553 | .397 | .922 |
| AB5 | 76.93 | 233.735 | .521 | .389 | .923 |

4.6 Discriminant Validity

Table shows the discriminant validity. The findings shows that the square root of AVE i.e. 0.74 is greater than the correlation of all constructs hence discriminant validity holds.

| | Availability Bias | Herding Bias | Investment Decision | Overconfidence Bias |
|---------------------|--------------------------|---------------------|----------------------------|----------------------------|
| Availability Bias | 0.742 | | | |
| Herding Bias | 0.572 | 0.731 | | |
| Investment Decision | 0.591 | 0.642 | 0.726 | |
| Overconfidence Bias | 0.521 | 0.633 | 0.751 | 0.728 |

The VIF results are shown in Table 18. From the results it can be seen that the highest VIF is 2.33. Hence, the results show that there is no multicollinearity in the data.

Table 18: Collinearity Statistics (VIF)

| | VIF |
|-----|-------|
| AB | 1.423 |
| AB2 | 1.503 |
| AB3 | 1.279 |
| AB4 | 1.372 |
| HB3 | 1.317 |
| HB4 | 1.506 |
| HB5 | 1.287 |
| HB6 | 1.384 |
| ID | 2.224 |
| ID2 | 2.064 |
| ID3 | 2.334 |
| ID4 | 1.955 |
| ID5 | 1.969 |
| ID6 | 1.791 |
| ID7 | 1.834 |
| ID8 | 2.012 |
| ID9 | 1.883 |
| OB | 1.228 |
| OB2 | 1.406 |
| OB3 | 1.495 |
| OB4 | 1.342 |

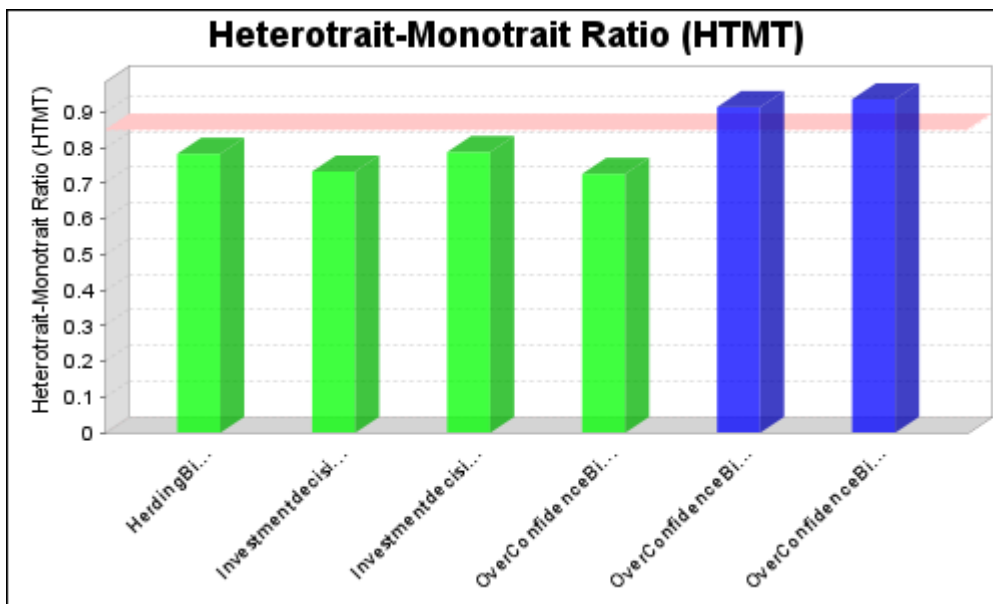
Table 19 shows the model fit. The value of SRMR is less than 0.08; hence it is a good fit.

Table 19: MODEL FIT

| | Saturated Model | Estimated Model |
|------------|------------------------|------------------------|
| SRMR | 0.073 | 0.073 |
| d_ ULS | 1.242 | 1.242 |
| d_ G | 0.473 | 0.473 |
| Chi-Square | 681.108 | 681.108 |
| NFI | 0.730 | 0.730 |

HTMT

HTMT Graph shows that the value for over-confidence bias is above than the threshold of 0.8 in this case



4.7 Hypothesis Testing

Table 20 shows the R square value. The result indicates that the independent variables Availability Bias, Herding Bias and Overconfidence Bias explain 63% variation in investment decision.

Table 21 : R Square

| | R Square | R Square Adjusted |
|---------------------|-----------------|--------------------------|
| Investment Decision | 0.637 | 0.633 |

Table 22 shows the F square value. F Square effect size is greater than 0.02 in case of availability and herding bias which means that it has a small effect. Therefore, removing these exogenous variables will have a very smaller effect on the R Square value for the endogenous variable. However, in case of over confidence bias the effect size is 0.417 which is greater than 0.35 indicating that it has a large effect.

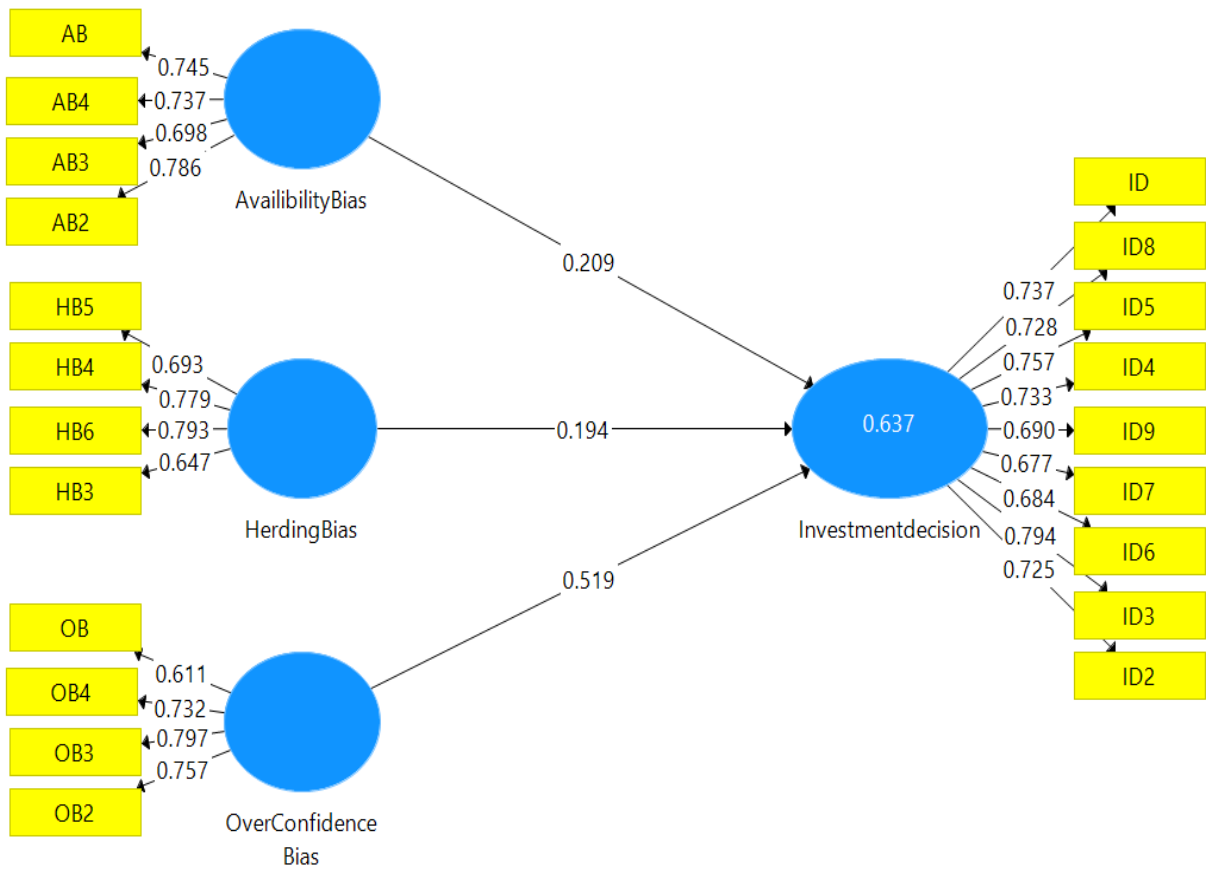
Table 22: F Square

| | Availability Bias | Herding Bias | Investment decision | Over Confidence Bias |
|---------------------|--------------------------|---------------------|----------------------------|-----------------------------|
| Availability Bias | | | 0.076 | |
| Herding Bias | | | 0.054 | |
| Investment Decision | | | | |
| Overconfidence Bias | | | 0.417 | |

4.8 Regression Analysis

As mentioned previously in this study investment decision making is the dependent variable while availability bias, herding bias and overconfidence bias are the independent variables. The regression results between these variables are shown below. Figure 1 provides the coefficients to predict investment decision making from the independent variables.

The results indicate that Availability Bias results in higher investment decision making. The result is statistically significant at the 5% level. More specifically, an increment of one percent in Availability Bias results in an increase of 20% in investment decision making. The results further show that Herding bias positively affects investment decision making and the result is statistically significant as p-value is less than 0.05. More specifically, one percent increase in herding bias results in an increase of 19% in investment decision making. Moreover, Overconfidence bias positively affects investment decision making and the result is statistically significant as p-value is less than 0.05. More specifically, one percent increase in Overconfidence bias results in an increase of 51% in investment decision making.



As shown in the model above. There are three independent variables which are Availability Bias, Herding Bias and Availability Bias.

Factors Loading

| | Availability Bias | Herding Bias | Investment decision | Over Confidence Bias |
|------------|--------------------------|---------------------|----------------------------|-----------------------------|
| AB | 0.745 | | | |
| AB2 | 0.786 | | | |
| AB3 | 0.698 | | | |
| AB4 | 0.737 | | | |
| HB3 | | 0.647 | | |
| HB4 | | 0.779 | | |
| HB5 | | 0.693 | | |
| HB6 | | 0.793 | | |
| ID | | | 0.737 | |
| ID2 | | | 0.725 | |
| ID3 | | | 0.794 | |
| ID4 | | | 0.733 | |
| ID5 | | | 0.757 | |
| ID6 | | | 0.684 | |
| ID7 | | | 0.677 | |
| ID8 | | | 0.728 | |
| ID9 | | | 0.690 | |
| OB | | | | 0.611 |
| OB2 | | | | 0.757 |
| OB3 | | | | 0.797 |
| OB4 | | | | 0.732 |

To assess the reliability of the items it was worth noted that measures of out loadings were to be analyzed. The outer loadings had to exceed 0.70 (Hair et al.,2010). The result from the calculations showed that majority of the items resulted into more than 0.70 except for some of the benchmark which couldn't be passed. It included an item from Availability Biases, Two of the items from Herding biases, Three items from investment decision and an item from Over-Confidence Biases.

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

For a long time, market participants followed the perception that markets are efficient and investors have rational behaviors. However, the idea of fully rational investors has been superseding over the period of time. Modern researches exposed that investment process is more human than logical. Investors have to manage their money and take investment decisions. These individual investors neither have same attitude towards money nor have same financial preferences. This concept negated the idea of rationality and gave rise to new theories of behavioral finance. The purpose of this research is to determine the nexus between behavioral biases and investment decision making. This study will highlight the overall impact of behavioral biases on investment decisions of investors in Pakistan Stock Exchange.

Without behavioral biases, it is not possible to make decisions about complex investment avenues and it is really hard to balance the behavioral biases faced by investors. In order, to find the true relationship between behavioral biases and investment decision making of individual investors, this study aims to contribute towards the importance of behavioral biases and shows the empirical evidence on this relationship in the context of a developing country i.e. Pakistan. Although behavioral biases are an increasingly important topic, academic work based on Pakistan data is limited. We thus focus to investigate the association between behavioral biases and

investment decision making, which may trigger irrationality during the financial decision-making process.

Findings of this study will help market participants in understanding the role of emotions in influencing investment related decisions and especially individual investors can learn about behavioral biases that generally occurred relating to different money attitudes in investment decision making process. Findings of this study will not only be significant for the academicians but also for the psychologists, policy makers, sociologists and management scholars.

There are number of behavioral biases that may persuade investors to make cognitive errors in decision making process. Many investors perceive themselves as better than others are above average resulting in overconfidence and excessive trading. Many others exert herding behavior that may result in bubbles and crashes in the market owing to their tendency to confirm - conformity bias to behavior and judgment of others while making an investment decision. Stock market also bears impact from investors' behavior directed by social interactions and recommendations. There are many studies on presence of a behavioral bias called as loss aversion which affect investor behavior. Many investors act as risk averse in a winning situation but react as risk seeker in case of losing situation and commit mistake in their financial decisions; leading to a behavioral bias of decision under uncertainty.

This study had adopted a positivist view by engaging a quantitative statistical method instead of a qualitative approach. The formation of these ideologies necessitates specific assumptions about knowledge sources. Sociological and scientific aspects define these assumptions. Positivism describes the validity of knowledge based on external reality for which universal rules exist to create theoretical models to see whether there is a cause-and-effect link established to predict specific results. This research study adheres to the positivist research philosophy since it is based on a theory that is a quantitative hypothesis that must be evaluated.

The epistemological approach asserts that events in the social world emerge from the experiences and expectations of people or groups. As a result, interpretations will differ depending on the circumstances and education level. The researchers feel that numerous interpretations might be part of the scientific information that is being used.

Furthermore, two research approaches exist i.e. a deduction approach and an induction approach. In the deductive research approach, hypotheses are derived from a theory. The deductive method allows researchers to design and develop an idea from data analysis. In contrast, the inductive approach enables researchers to devise a strategy and build data analysis ideas. It is essential to parallel these research approaches as a deduction to positivism and induction to interpretation to make the research philosophy. Nonetheless, there will be little actual use and may mislead the researchers. Therefore, the connections between research and theory and deduction and induction choices are important considerations. The present study is based on a deductive research approach.

The sample of the study comprises of 266 investors. To check reliability of the scale we have used Cronbach's alpha in this study a value of greater than 0.70 is considered good. Therefore, we use this method to see whether the instrument is reliable or not. From table 1 it can be seen that the value is 0.925 indicating that the scale is reliable. Total numbers of respondents are 266. The results show that there are 181 male respondents and 81 female respondents. The percentage of male respondents is 68 and for female respondents the percentage is 30.5. The results indicate that married respondents are 60 whereas unmarried respondents are 203. Hence, married respondents are 22.6 percent whereas unmarried respondents are 76.3 percent.

Further, 107 respondents earns less than 10,000, 41 respondents earns 11-20 thousand, 50 respondents earns 21-40 thousand, 29 respondents earns 41-60 thousand, 13 respondents earns 61-80 thousand, 10 respondents earns 81-100 thousand and 16 respondents earns above 101 thousand.

The results show that 207 respondents have experience of Under 5 years, 22 respondents have experience of 6-10 Years, and 13 respondents have experience of 11-15 Years, 14 respondents have experience of 16-20 Years, and 10 respondents have experience of Above 20 years. The results show that 69 respondents have education of below bachelor's degree, 92 respondents have education of bachelor's degree, 66 respondents have education of master degree, and 12 respondents have education of PhD degree.

The results show that 42 male respondents are married and 136 are unmarried whereas 17 female respondents are married and 64 are unmarried. Moreover that 75 male and 31 female respondents earns under 10k PKR, 26 male and 13 female respondents earns 11-20 PKR, 30 male and 19 female respondents earns 21-40 PKR, 22 male and 7 female respondents earns 41-60 PKR, 7 male and 6 female respondents earns 61-80 PKR, 9 male and 1 female respondents earns 81-100 PKR, 12 male and 4 female respondents earns Above 101 PKR.

The results shows that 138 male and 65 female respondents have experience of less than 5 years, 13 male and 9 female respondents have experience of 6-10 Years, 9 male and 4 female respondents have experience of 11-15 Years, 12 male and 2 female respondents have experience of 16-20 Years, 9 male and 1 female respondents have experience of above 20 years. Furthermore, 52 male and 17 female respondents have qualification of below Bachelor's, 65 male and 26 female respondents have qualification of Bachelor's level, 35 male and 30 female respondents have qualification of Master's level, 10 male and 2 female respondents have qualification of PhD level.

The results show that 13 married and 94 unmarried respondents earns under 10k PKR, 8 married and 33 unmarried respondents earns 11-20 PKR, 15 married and 34 unmarried respondents earns 21-40 PKR, 13 married and 15 unmarried respondents earns 41-60 PKR, 2 married and 10 unmarried respondents earns 61-80 PKR, 3 married and 7 unmarried respondents earns 81-100 PKR, 6 married and 10 unmarried respondents earns above 101 PKR.

Moreover, 41 married and 166 unmarried respondents have experience of less than 5 years, 7 married and 15 unmarried respondents have experience of 6-10 Years, 6 married and 6 unmarried respondents have experience of 11-15 Years, 4 married and 8 unmarried respondents have experience of 16-20 Years, 2 married and 8 unmarried respondents have experience of above 20 years. The results show that 10 married and 57 unmarried respondents have qualification of below Bachelor's level, 12 married and 80 unmarried respondents have qualification of Bachelor's level, 25 married and 40 unmarried respondents have qualification of Master's level, 6 married and 6 unmarried respondents have qualification of PHD level.

The descriptive statistics show that mean value of Gender is 1.33 with SD of 0.504. The minimum and maximum values of gender are 1 and 3 respectively. Marital Status has a mean value of 1.79 and Monthly Income has a mean value of 1.795. The minimum and maximum values of Marital Status are 1 and 3 respectively. The min and max values of Monthly Income are 1 and 7 respectively. Experience of Investing in Stock and Level of Education has a mean value of 1.49 and 2.38 respectively. The min and max values of Experience of Investing in Stock are 1 and 5 respectively. The min and max values of Level of Education are 1 and 5 respectively.

The mean value of Availability Bias is 3.259398 with standard deviation of .7630661. The min and max values of Availability Bias are 1 and 5 respectively. Herding bias has a mean value of 3.241228 and Overconfidence bias has a mean value of 3.3778. The min and max values of Herding bias are 1 and 5 respectively. Minimum and Maximum values of Overconfidence bias are 1 and 5 respectively. Investment Decision Making has a mean value of 3.439014.

Correlation analysis shows that Availability Bias and Herding bias are positively associated. Similarly, Availability Bias is positively linked with Overconfidence bias, and Investment Decision Making. Herding bias has significant positive association with

Overconfidence bias and Investment Decision Making. Finally, Overconfidence bias and Investment Decision Making have significant positive correlation.

The findings further show that the R-square value is 0.606, suggesting that availability bias; herding bias and overconfidence bias explain 60% variation in decision making related to investment. The results indicate that Availability Bias results in higher investment decision making. The result is statistically significant at the 5% level. More specifically, an increase of one percent in Availability Bias results in an aggravation of 20% in investment decision making. The results further show that Herding bias positively affects investment decision making and the result is statistically significant as p-value is less than 0.05. More specifically, one percent increase in herding bias results in an increase of 18% in investment related decision making. Moreover, Overconfidence bias positively affects investment decision making and the result is statistically quite significant as p-value is less than 0.05. More specifically, one percent increase in Over confidence bias results in hike of 50% in investment related decision making.

5.2 Limitations and Future Research Directions

This study has the following limitations:

- The sample of the study is limited to only 266 respondents therefore in the future it is recommended to increase the sample of the study;
- This study used only three behavioral biases therefore future research needs to include some other biases;
- Future research needs to include financial literacy as moderator variable.

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Survey Questionnaire

Greetings,

This questionnaire aims to determine the nexus between behavioral biases and investment decision making of individual investors in Pakistan.

It will take 15-20 minutes to complete this questionnaire. You will be asked to respond to statements related to factors associated with behavioral biases and investment decision and your demographic profile. Your answers to the questionnaire are confidential and only will be used for this study purpose.

Your cooperation is very much appreciated. Thank you.

Please indicate the degree of your agreement by choosing the appropriate answer. Choose only one answer that best reflects yourself for each statement.

SECTION A:

| Availability bias | Strongly Disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly Agree (5) |
|---|----------------------------------|-------------------------|------------------------|-----------------------|-------------------------------|
| The information from my close friends and relatives is a reliable reference for my investment decisions | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| While considering the track record of an investment, I put more weight on its recent performance | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Advertisements are the main source of information for my investment decisions | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I consider the recent records of a security before investing | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I ignore the past records of an investment before trading | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| Herding bias | Strongly Disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly Agree (5) |
|--|----------------------------------|-------------------------|------------------------|-----------------------|-------------------------------|
| I follow social blogs/forums before purchasing/selling a security | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I follow others in all my investment decisions | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| When I lose money on an investment, I feel less disappointed if other investors also experienced the same loss | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I prefer to invest in the assets that other investors are buying | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I change my opinion regarding investment in a security after hearing conflicting views from analysts | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I follow social blogs/forums before purchasing/selling a security | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| Overconfidence bias | Strongly Disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly Agree (5) |
|--|----------------------------------|-------------------------|------------------------|-----------------------|-------------------------------|
| I cannot predict future prices of my investments better than others. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I always feel optimistic about the future returns of my investments | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am confident of my ability to make investment decisions better than others | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

| | | | | | |
|--|------------------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| I have complete knowledge of various types of investments | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Investment Decision Making | Strongly Disagree (1) | Disagree (2) | Neutral (3) | Agree (4) | Strongly Agree (5) |
| You consider carefully the price changes of stocks that you intend to invest in | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Market information is important for your stock Investment | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| You believe that your skills and knowledge of stock market can help you to outperform the market | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| You forecast the changes in stock prices in the future based on the recent stock prices | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| You are normally able to anticipate the end of good or poor | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| You put the past trends of stocks under your consideration for your investment | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The return rate of your recent stock investment meets your expectation | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Your rate of return is recently equal to or higher than the average return rate of the market | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| You feel satisfied with your investment decisions in the last year | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please tick relevant answers.

SECTION B: Demographic Profile

1 Your gender?

- Male 1
- Female 2
- Other 3

2 Your marital status?

- Married 1
- Unmarried 2
- Divorce 3

3 Your Experience?

- 5 or under 1
- 6 - 10yrs 2

| | | |
|------------|--------------------------|---|
| 11 - 15yrs | <input type="checkbox"/> | 3 |
| 16-20yrs | <input type="checkbox"/> | 4 |
| Above 20 | <input type="checkbox"/> | 5 |

4 Level of education?

| | | |
|-------------------------|--------------------------|---|
| Below Bachelor's Degree | <input type="checkbox"/> | 1 |
| Bachelor's Degree | <input type="checkbox"/> | 2 |
| Master's Degree | <input type="checkbox"/> | 3 |
| PHD Degree | <input type="checkbox"/> | 4 |

6 Monthly Income?

| | | |
|---------------|--------------------------|---|
| Under 10k PKR | <input type="checkbox"/> | 1 |
| 11-20 PKR | <input type="checkbox"/> | 2 |
| 21-40 PKR | <input type="checkbox"/> | 3 |
| 41-60 PKR | <input type="checkbox"/> | 4 |
| 81-100 PKR | <input type="checkbox"/> | 5 |
| Above 101 PKR | <input type="checkbox"/> | 6 |



1st Half Semester Progress Report

| | |
|----------------------|---|
| Name of Student(s) | Usama Qayyum |
| Enrollment No. | 01-220182-033 |
| Thesis/Project Title | The Impact of Behavioral Biases on Investment Decision making: Evidence from Pakistan stock market. |

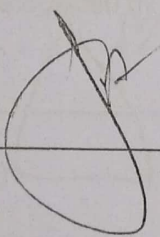
Supervisor Student Meeting Record

| No. | Date | Place of Meeting | Topic Discussed | Signature of Student |
|-----|----------|----------------------|--|----------------------|
| 1 | 21/10/21 | Supervisor's office. | Various Topics discussed and finalized. | Usama |
| 2 | 10/11/21 | Online through Call. | Discussion regarding amendment in literature. | Usama |
| 3 | 22/12/21 | Supervisor office | Proposal Submission Hypothesis development | Usama |
| 4 | 20/1/22 | Supervisor office | Discussion related to data collection techniques | Usama |

Progress Satisfactory

Progress Unsatisfactory

Remarks: _____

Signature of Supervisor:  Date: 27/1/2022
Name: Dr. Shahob Aziz

Note: Students attach 1st & 2nd half progress report at the end of spiral copy.



MBA/BBA

2nd Half Semester Progress Report & Thesis Approval Statement

| | |
|----------------------|---|
| Name of Student(s) | Usoma Juyym |
| Enrollment No. | 01-220182-033 |
| Thesis/Project Title | The impact of Behavioral Biases on Investment Decision making: Evidence from Pakistan stock market. |

Supervisor Student Meeting Record

| No. | Date | Place of Meeting | Topic Discussed | Signature of Student |
|-----|----------|---------------------|---|----------------------|
| 5 | 26/12/21 | | Data collection not started in the format | Usomas |
| 6 | 16/1/22 | Supervisor's office | PLS/SPSS Results shown | Usomas |
| 7 | 27/1/22 | Supervisor's office | Final amendments in structure before submission | Usomas |

APPROVAL FOR EXAMINATION

Candidates' Name: Usoma Juyym Enrollment No: 01-220182-033

Project/Thesis Title: The Impact of behavioral biases on Investment decision making: Evidence from Pakistan stock market

I hereby certify that the above candidates' thesis/project has been completed to my satisfaction and, to my belief, its standard appropriate for submission for examination. I have also conducted plagiarism test of this thesis using HEC prescribed software and found similarity index at _____ that is within the permissible limit set by the HEC for thesis/ project MBA/BBA. I have also found the thesis/project in a format recognized by the department of Business Studies.

Signature of Supervisor: _____ Date: 27/1/2022

Name: Dr. Shahob Aziz

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