

**INFLUENCE OF BEHAVIOR BIASES ON THE FINANCIAL DECISION  
MAKING OF MALE AND FEMALE INVESTORS OF PAKISTAN**



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"Change your mind and it will change your life. If nothing around you changes, change the things that are around you."

With these words, I extend my warm regards to all individuals contributing positively to others' lives. Wishing everyone the very best.

Ibrahim Riaz

## **ABSTRACT**

Behavioral biases are systematic variations from rationality that significantly impact individual decision-making and judgments. This study investigates the influence of behavioral biases on the financial decision-making of male and female investors in Pakistan using primary data. The research addresses three key questions:(1) How does behavioral biases affect the investment performance of male and female investors in Pakistan? (2) What are the differences and similarities between male and female investors in Pakistan regarding their behavioral biases and investment decisions? (3) How does Financial Literacy play a moderator role in understanding the most common behavioral biases among male and female investors in Pakistan?

Primary data were collected through a carefully designed survey questionnaire (which was adopted from previous research papers). Descriptive statistics, inferential statistics, and regression analysis methods were employed using SPSS software to analyze the data. The findings contribute to a deeper understanding of the behavioral dynamics shaping investment decisions among Pakistani investors. By identifying common behavioral biases and their implications for investment performance, the research provides valuable insights for policymakers, financial practitioners, and investors aiming to refine their decision-making processes. Furthermore, by comparing the behavioral biases and financial decisions of male and female investors, this study interprets gender-specific factors influencing financial decision-making.

Overall, this research offers critical perspectives on the role of behavioral biases in investment behavior and highlights the requirement for targeted financial education and policy interventions to enhance market efficiency and investor outcomes in Pakistan.

### **Key Words:**

Behaviour Biases, Financial Decision Making, Overconfidence Bias, Anchoring Bias, and Herd Behaviour Bias

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# CHAPTER 1

## 1. INTRODUCTION

Investment choices serve as a foundation in the financial realm, boosting economic advancement and the accumulation of individual wealth. Nevertheless, the supposed rationality rooted in traditional financial theories commonly collides with the complex array of human behaviors shaping decision-making processes. Specifically, within Pakistan's context, it becomes crucial to grasp the influence of behavioral biases on investment decisions, especially in relation to gender-specific dynamics (Kumar et al. 2015).

Investment decision making is a complex and challenging process that comprises various factors, such as risk, return, preferences, goals, and information. Investors often face uncertainty and ambiguity in the financial markets, which can affect their judgments and choices. To deal with these situations, investors may depend on heuristics, or rational shortcuts, that streamline the decision-making process. However, such heuristics can also lead to systematic errors or biases, which deviate from rational or optimal decisions (Nguyen et al. 2021).

Behavioral finance is a field of study that observes how psychological and emotional factors influence the financial decision making of individuals and markets. It challenges the norms of traditional finance, which are based on rationality, efficiency, and equilibrium. Behavioral finance highlights that humans are not always rational, and that they are prone to various cognitive and emotional biases that can affect their preferences, expectations, and decisions, as well as the market prices, returns, and efficiency (Mittal et al. 2022). The sphere of individual investment within the stock market is marked by a numerous of behavioral biases, leading to flawed judgments, varied patterns in decision-making, and flawed interpretations a phenomenon rightly explained by the growing field of behavioral finance. Originating with the influential work of Kahneman and Tversky (1979), behavioral finance seeks to explain the social, emotional, and psychological influences that shape investor decision-making, often deviating from the assumptions of rationality in traditional finance theories. The foundational empirical study in behavioral finance, "Pattern of investment strategy and Behavior among individual investors" by Leweller (paved the way for subsequent research highlighting that investors' choices are not always rational (Kalra Sahi et al. 2012). This departure from traditional finance theories, such as the Efficient Market Hypothesis



(EMH) proposed by Fama in 1970, which assumed rational behavior and market efficiency, underscores the role of emotions, social dynamics, and psychological factors in investment decisions. Numerous studies (have shown that investors react diversely to the same information, driven by emotions and behavioral biases (Mushinad et al. 2019). For example, research by Kashif et al. highlights how Pakistani stockholders exhibit herd behavior, swayed by sentiments like fear, greed, and overreaction to negative news (Kashif et al. 2021). So, traditional finance theories alone cannot fully explain stock market dynamics, the emergence of behavioral finance becomes crucial in understanding investors' decision-making processes rooted in beliefs and desires (Nofsinger et al. 2014).

In the context of Pakistan, a developing economy with an expanding financial market, understanding the function of behavioral biases is particularly crucial. The financial landscape in Pakistan is characterized by a differed investor base, ranging from individual retail investors to substantial institutional investors. The decision-making processes of these investors are influenced by multiple factors, including cultural norms, socio-economic conditions, and levels of financial literacy. Given this complexity, it is fundamental to explore how behavioral biases affect the financial decisions of Pakistani investors to improve investment outcomes and market efficiency.

In Pakistan, traditional gender roles and societal expectations further complicate the financial decision-making process. Cultural norms often influence different financial responsibilities and opportunities for men and women, potentially influencing their inclination to various behavioral biases. For example, men may feel societal pressure to exhibit confidence and control in financial matters, thereby increasing their likelihood of overconfidence bias. Women, who may have less exposure to financial markets and fewer opportunities for financial education, might experience greater impact from biases related to financial literacy and risk aversion.

Despite the importance of this topic, there is a lack of research specifically examining the influence of behavioral biases on the financial decision-making of male and female investors in Pakistan precisely related to overconfidence bias, herd behavior bias, and anchoring bias. Existing studies have primarily focused on Western contexts, leaving a gap in the literature regarding developing economies like Pakistan. Addressing this gap is essential for several reasons. First, it can offer understandings into how cultural and socio-economic factors shape financial behavior in different contexts. Second, understanding these biases can help policymakers, financial educators, and advisors develop targeted interventions to mitigate the negative effects of these biases and promote

better financial decision-making among investors.

This study aims to address the gap in understanding behavioral biases among male and female investors in Pakistan by examining the most common biases, their impact on investment performance, and the differences and similarities in financial decision-making processes among the gender. Using primary data collected through a survey questionnaire and exercising robust statistical analysis methods using SPSS Software, the research provides a broad understanding of the behavioral dynamics in the Pakistani financial market. The findings contribute to the growing body of knowledge in behavioral finance and offer practical implications for improving financial literacy and investment outcomes in Pakistan. By highlighting gender-specific influences of behavioral biases, the study can inform the development of more effective financial education programs and policy measures tailored to the unique needs of male and female investors, ultimately enhancing market efficiency, and nurturing a more inclusive financial environment in Pakistan.

### **Structure of Thesis:**

The structure of this thesis is carefully designed to provide a comprehensive analysis of the influence of behavioral biases on financial decision-making among male and female investors in Pakistan. It starts with an introduction that outlines the research problem, followed by the research objectives and the significance of the study, establishing the foundational context and importance of the research. Next, the literature review investigates existing studies and theoretical frameworks linked to behavioral finance and gender differences in financial decision-making. The data methodology section highlights the research design, data collection process, and analytical techniques employed to confirm a robust and trustworthy finding. This is followed by the results section, which presents the empirical findings resulting from the data analysis. Finally, the discussion and analysis chapter interpret these results in the context of the research hypotheses, relating them with existing literature, and explores their implications, offering insights and recommendations for policymakers, financial educators, and future research avenues.

## **1.1 RESEARCH PROBLEM**

The occurrence and impact of behavioral biases, such as overconfidence, anchoring, and herd mentality, on investment decisions within Pakistan's diverse market, remains a critical area of exploration. Despite substantial advancements in understanding investor behavior globally, the specific trails and implications of these biases within the context of Pakistan remain underexplored. This study aims to unravel the influence of these biases on the decision-making

processes of male and female investors in Pakistan's financial markets, thereby filling a significant gap in the literature and offering practical insights for stakeholders in the financial industry.

### **Background and Context:**

Behavioral finance, a field that mixes psychology and economics, has gained importance for its ability to explain anomalies in financial markets that traditional finance theories cannot. Traditional financial theories often assume that investors are rational, and markets are efficient. However, numerous studies have revealed that investors frequently deviate from rationality, influenced by various psychological biases that affect their decisions and judgments. These deviations, known as behavioral biases, can lead to suboptimal investment choices, market inefficiencies, and wider economic consequences.

### **The Need for Research in Pakistan**

The financial market in Pakistan is characterized by its unique socio-economic landscape, cultural influences, and evolving regulatory environment. As a developing economy, Pakistan's financial markets are still development, with a mix of retail and institutional investors. Understanding the behavioral dynamics in such a market is fundamental for several reasons:

- **Market Efficiency and Stability:** Behavioral biases can aid to market anomalies and inefficiencies. By understanding these biases, regulators and policymakers can design interventions to mitigate their adverse effects, thereby supporting market stability and efficiency.
- **Investment Performance:** For individual investors, especially in a market like Pakistan, making informed and rational investment decisions is crucial for wealth growth and financial security. Identifying common biases and their impact on investment performance can help investors recognize and correct their own irrational behaviors.
- **Gender-Specific Insights:** Gender differences in financial behavior have been widely documented. In Pakistan, where traditional gender roles and societal expectations influence behavior, it is essential to explore how these factors intersect with behavioral biases. Such perceptions can inform targeted financial education and advisory services for both men and women.
- **Policy and Educational Interventions:** Understanding behavioral biases can guide the development of financial literacy programs and policy measures. By modifying these

interventions to address specific biases and gender-specific needs, stakeholders can enhance the overall financial literacy and decision-making quality of investors in Pakistan.

### **Importance of the Study**

Despite the relevance of behavioral finance, there is a scarcity of research focusing specifically on Pakistan's financial markets. Most existing studies have been conducted in Western contexts, with limited applicability to developing economies like Pakistan. The unique socio-cultural and economic factors in Pakistan necessitate a localized examination of behavioral biases.

- **Filling the Literature Gap:** This study aims to contribute to the academic literature by providing empirical evidence on behavioral biases in Pakistan. It will help tie the gap between global research findings and local market conditions.
- **Practical Implications:** By identifying the most prevalent biases among Pakistani investors and assessing their impact on investment performance, the study will offer practical insights for financial advisors, policymakers, and investors. These insights can inform strategies to mitigate the adverse effects of biases and enhance investment outcomes.
- **Gender-Specific Analysis:** The focus on gender-specific differences and similarities in behavioral biases and financial decision-making is particularly important in the context of Pakistan. Traditional gender roles may lead to distinct behavioral patterns, and understanding these can improve the rationality of both male and female investors.

## **1.2 RESEARCH QUESTION**

The central question guiding this study is: "How do overconfidence, anchoring, and herd biases influence the investment decisions of male and female investors in Pakistan's financial markets?"

This study will also answer the following questions:

- Q1: How do behavioral biases affect the investment performance of male and female investors of Pakistan?
- Q2: What are the differences and similarities between male and female investors of Pakistan in terms of their behavioral biases and investment decisions?
- Q3: How does Financial Literacy play a moderator role in understanding the most common behavioral biases among male and female investors in Pakistan?

### 1.3 RESEARCH OBJECTIVE

The primary objectives of this research are as follows:

- **Investigate Behavioral Biases:** To comprehensively examine the occurrence and influence of key behavioral biases, specifically overconfidence, anchoring, and herd behavior, among male and female investors in Pakistan.
- **Gender-Specific Analysis:** To analyze and compare how these biases manifest differently in the investment behaviors of male and female investors, providing a systematic understanding of gender-specific financial decision-making processes.
- **Empirical and Qualitative Insights:** To utilize both empirical analysis and qualitative insights to explore the subtle mechanisms through which these biases impact investment decisions, thereby offering a universal view of their effects.
- **Enhance Understanding of Investment Complexities:** To deepen the understanding of the complexities inherent in investment decision-making, particularly within the Pakistani financial market, by highlighting the interplay of behavioral biases and gender dynamics.
- **Practical Implications:** To provide practical implications for investors and financial institutions by identifying strategies to mitigate the adverse effects of these biases, thus supporting more rational and informed investment decisions.
- **Fill Research Gap:** To address the significant gap in the literature regarding behavioral finance in the Pakistani context, contributing valuable knowledge and insights to the field.
- **Contribute to Academic and Practical Applications:** To substantially enhance both academic knowledge and practical applications in investment decision-making, eventually benefiting policymakers, educators, financial professionals, and investors in Pakistan.

### 1.4 SIGNIFICANCE OF RESEARCH

This research holds paramount significance in both academic and practical realms, offering critical insights into the field of behavioral finance, particularly within the unique socio-economic context of Pakistan. Academically, it significantly enriches the literature on behavioral finance by focusing on a developing economy, an area that remains underexplored compared to Western contexts. By examining how behavioral biases such as overconfidence, anchoring, and herd behavior manifest among male and female investors in Pakistan, this study contributes to a deep understanding of how cultural, social, and economic factors influence financial decision-making. This research not

only increases the theoretical frameworks of behavioral finance but also integrates them with gender studies, providing a broad view of the intersection between gender dynamics and financial behaviors. This contextualized approach offers a deeper insight into the behavioral patterns of investors in Pakistan, fostering a more inclusive and representative academic discourse.

From a practical perspective, the findings of this study have substantial implications for financial institutions, policymakers, and individual investors. By uncovering the differential impact of behavioral biases on male and female investors, the research can inform the development of targeted financial education programs and advisory services that cater to gender-specific needs. Financial institutions can leverage these insights to design more effective communication strategies and investment products that mitigate the adverse effects of these biases. For policymakers, understanding these biases is crucial in creating regulations and policies that promote financial literacy and protect investors from making irrational decisions driven by behavioral biases. Additionally, individual investors can benefit from heightened awareness of their own biases, leading to more rational and informed investment decisions. In a country like Pakistan, where societal norms and gender roles significantly influence financial behaviors, this research provides thoughtful insights into these dynamics, helping to bridge the gender gap in financial literacy and investment participation. Ultimately, this study aims to foster a more equitable and efficient financial market in Pakistan by addressing the behavioral factors that drive investment decisions.

## CHAPTER 2

### 2 LITERATURE REVIEW

Behavioral finance is a comparatively young and interdisciplinary field of study that emerged in the late 1970s and early 1980s, as a reaction to the anomalies and puzzles that might not be explained by traditional finance models. The pioneers of behavioral finance, such as Daniel Kahneman, Amos Tversky, Richard Thaler, and Robert Shiller, drew insights from psychology, sociology, and neuroscience, to understand how human behavior moves away from the rationality assumptions of neoclassical economics (Subrahmanyam et al. 2008) They proposed various theories and models that combined the cognitive and emotional biases of investors and showed how these biases affect their preferences, expectations, and decisions, as well as the market prices, returns, and efficiency (Harvey et al. 2012). Since then, behavioral finance has grown rapidly and extensively, both in terms of theoretical and empirical research and in terms of practical applications and implications (Wang et al. 2009). There is a huge and diverse literature on behavioral finance, covering various topics, such as prospect theory, heuristics and biases, overconfidence, mental accounting, loss aversion, framing, anchoring, herd behavior, regret aversion, disposition effect, endowment effect, status quo bias, representativeness, availability, hindsight bias, self-control, optimism, mood, emotions, social influence, culture, and ethics (DeBondt et al. 2010). Numerous studies examine the behavioral aspects of specific financial domains, such as asset pricing, portfolio selection, risk management, corporate finance, market microstructure, financial intermediation, financial regulation, financial education, and financial innovation (Montier et al. 2013).

The literature review of this research will focus on the three behavioral biases that are the main themes of my research: overconfidence, herd behavior, and anchoring. For each bias, the review will provide a brief definition and explanation, followed by a discussion of the relevant theories and models, empirical evidence and findings.

#### 2.1 OVERCONFIDENCE

Overconfidence is the tendency to overestimate one's own abilities, knowledge, or skills. It is one of the most common and significant behavioral biases, and it can affect several aspects of investment decision making, such as information processing, risk perception, portfolio diversification, trading frequency, and market efficiency.

The empirical evidence and findings on overconfidence are mixed and inconsistent. Some studies have found that overconfidence is widespread and persistent among investors, and that it affects their investment decisions and performance negatively. For example, Barber and colleagues found that overconfident investors trade more frequently and earn lower returns than less confident investors (Barber et al. 2001). Glaser et al. found that overconfident investors diversify their portfolios less and are more exposed to individual risk (Glaser et al. 2007). Deaves et al. found that overconfident investors are more likely to exhibit the disposition effect, which is the tendency to sell winners too early and hold losers too long (Deaves et al. 2009). Other studies have found that overconfidence is not universal and stable and that it depends on various factors, such as feedback, experience, mood, gender, culture, and market conditions. For example, Gervais and coworkers found that overconfidence increases with past success and decreases with past failure (Gervais et al. 2001). Statman et al. found that overconfidence varies with the level of investor sophistication and education (Statman et al. 2023). Hirshleifer et al. found that overconfidence is influenced by mood and emotions, such as happiness, sadness, anger, and fear (Hirshleifer et al. 2023). Bhandari and workers found that overconfidence differs across countries and cultures, reflecting the degree of individualism, uncertainty avoidance, and power distance (Bhandari et al. 2006). Nofsinger and Varma found that overconfidence fluctuates with the market cycles, being higher in bull markets and lower in bear markets (Nofsinger et al. 2014).

The practical implications and challenges of overconfidence are significant and complex. On the one hand, overconfidence can have positive effects, such as enhancing motivation, self-efficacy, and innovation. On the other hand, overconfidence can have negative effects, such as reduced learning, rationality, and efficiency. Overconfidence can also have mixed effects, such as creating momentum, volatility, and bubbles in the market. Therefore, overconfidence is a double-edged sword: successful people show overconfidence, but overconfidence is not the determinant of success. The main challenge for investors is to find the optimal level of confidence, that balances the benefits and costs of overconfidence, and to adjust their confidence according to the changing circumstances and feedback.

## **2.2 ANCHORING**

The anchoring effect finds its application across various domains such as negotiations, consumer behavior, auctions, and decision-making processes. For instance, co-branding, which involves presenting a familiar brand in a new image, alters consumer perceptions and often leads to increased consumer attraction and purchase intent. In co-branding scenarios, one brand typically



acts as an anchor, shaping the overall image of the co-branding effort and influencing consumer behavior, thereby boosting consumption. The anchoring effect is also prevalent in auctions. Phillips and coworkers argue that price information acts as an anchor point for both buyers and sellers, while Galinsky and colleagues suggest that the initial price set in an auction serves as the anchor, significantly impacting the final auction result (Galinsky et al. 2014). Bhatti et al conducted a study to investigate the impact of anchoring bias on investment decisions of male and female investors in Pakistan. The study found that anchoring bias is one of the most common biases that affect investment decisions. The study also found that gender plays a significant role in the impact of anchoring bias on investment decisions (Bhatti et al. 2010).

### **2.3 HERD BEHAVIOR**

Numerous researchers have extensively studied herd behavior in financial markets, employing various methodologies and focusing on different aspects. Chiang et al. examined capitalist behavior, highlighting how well-informed investors tend to exhibit herd behavior, particularly in consumer and technological sectors, especially during price fluctuations. Contrary to expectations, this behavior doesn't always align with a downward market or risky shares (Chiang et al. 2010). Dehghani and coworker investigated herding tendencies among educated and uninformed investors during IPOs, observing rational behavior among the latter in certain sectors during market downturns (Dehghani et al. 2014). Shiller (1984) explored how irrational investors could cause price fluctuations unrelated to fair value, while Lakonishok et al found no evidence of herding among institutional investors (Shiller et al. 1984).

In India, Garg and coworkers applied methodologies to analyze herding in the stock market, concluding that herd behavior wasn't prevalent (Garg et al. 2014). Grinblatt et al. studied US Mutual Fund investors, with weak evidence of herding but acknowledging the influence of "momentum investors (Grinblatt et al. 1994). Maditinos and workers linked herding behavior to the dot-com bubble, suggesting that while it wasn't the sole cause, the technological advancements during the bubble influenced investor herding due to limited information (Meditinos et al. 2007). Bikhchandani et al. provided insights into herding in financial markets, considering its meaning, impact, and factors influencing it (Bikhchandani et al. 2000).

Recent studies in the Indian market by Ganesh et al, (Ganesh et al. 2017) and Patni et al. and Aravind et al. detected instances of herding, especially during volatile periods or among specific sectors. Some found evidence of herding using CH and CCK models. Overall, these studies present

mixed findings, with some indicating the existence of herd behavior while others refute it. They highlight the impact of market types and investor awareness, suggesting that herd behavior is less prevalent in developed markets among well-informed investors. However, it tends to be more prominent in underdeveloped markets and among less educated investors. Additionally, surprising instances of herd behavior were observed in mutual fund investments (Aravind et al. 2001).

## **2.4 RELEVANT THEORIES:**

### **PROSPECT THEORY:**

Prospect Theory, introduced by Kahneman and Tversky, challenges the old-style expected utility theory by highlighting how people make decisions based on the probable value of losses and gains rather than aiming solely on the outcome. In their critique, Kahneman and Tversky highlight that decision weights tend to be lower than the corresponding probabilities, particularly in situations involving low probabilities (Heukelom et al. 2007).

The isolation effect plays a role in decision-making too. People often reject shared components when assessing different prospects, leading to inconsistent preferences when the same choice is offered in various forms.

The value function in prospect theory exhibits unique patterns; it is concave for gains (implying risk aversion), convex for losses (implying risk-seeking behavior), and generally steeper for losses than for gains (indicating loss aversion).

In practical applications, prospect theory suggests that individuals make decisions based on perceived gains and losses rather than final outcomes. When given two equal options—one framed as a potential gain and the other as a potential loss—people typically prefer the option framed as a gain. This behavior is known as loss aversion.

### **DISPOSITION EFFECT:**

Another notable behavioral phenomenon in finance is the disposition effect. According to (Henderson et al. 2012), this effect describes an investor's tendency to sell assets that have appreciated in value too soon while holding onto assets that have depreciated for too long. Shefrin and Statman (1985) argue that the disposition effect tends to decline at the year's end, as investors become more self-controlled (Statman et al. 1985). From a rational perspective, investors understand that realizing losses can be beneficial for tax purposes. However, irrational behavior often overcomes, with investors favoring the positive feelings associated with realizing gains over

tax considerations. As the tax year deadline approaches, investors find it easier to sell loss-making stocks. Bailey et al. (2012) establish that investors tend to sell more winning stocks than losing ones, indicating a positive disposition effect. This behavior can be costly for higher-income investors who face higher marginal tax rates. Therefore, tax incentives may influence the disposition effect (Bailey et al. 2012).

### **COGNITIVE DISSONANCE:**

Cognitive dissonance is the uneasiness experienced when an individual holds conflicting cognition simultaneously. Introduced by psychologist Festinger in 1956, this theory advises that because dissonance is unpleasant, individuals are motivated to reduce it by altering their beliefs. Succeeding study indicates that when confronted with new information, people often prefer to maintain their existing worldview, either by rejecting or avoiding the new information or by convincing themselves that no conflict exists. Cognitive dissonance is viewed as a mechanism for attitude change and explains the mental struggle investors face when they identify that they have made an error. Instead of altering their decisions, investors often convince themselves that their choices were rational (Vaidis et al. 2010).

### **THE ENDOWMENT EFFECT:**

The Endowment Effect, also referred to as status quo bias, occurs when people place a higher value on an item, they own than on the same item if they did not own it. This psychological phenomenon underscores the asymmetry in perceived value and exemplifies loss aversion—the tendency to experience the pain of losing something more intensely than the pleasure of acquiring it.

### **MENTAL ACCOUNTING:**

Mental accounting comprises the practice of categorizing various financial gains and losses into separate mental compartments. In the context of individual stocks, the disposition effect emerges from a combination of prospect theory and mental accounting. This phenomenon establishes when investors display risk aversion towards certain stocks and risk-seeking behavior towards others, based on whether the stock has yielded a capital gain or loss. As a result, investors are persuaded to sell stocks that have appreciated in value since their purchase

## **2.5 RESEARCH GAP COVERED:**

By thoroughly going through the previous research, I have found some gaps that need to be studied. My research is going to cover some gaps which I have found mainly:

### **Gender-Specific Behavioral Biases:**

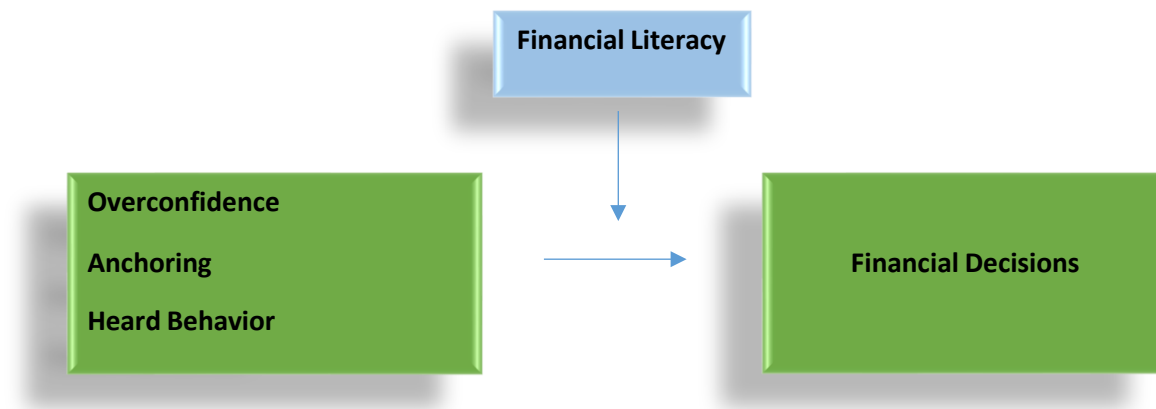
There is a lack of research on how overconfidence, anchoring, and herd behavior differ between male and female investors in Pakistan. Understanding these gender-specific differences is crucial for developing tailored strategies to improve financial decision-making for both men and women.

### **Cultural and Socio-Economic Context:**

The impact of Pakistan’s cultural and socio-economic context on behavioral biases among investors has not been thoroughly explored. Investigating how these factors interact with gender to influence financial decision-making can provide deeper insights.

Addressing these research gaps will contribute to the field of behavioral finance and provide practical recommendations for improving financial decision-making among male and female investors in Pakistan.

## **2.6 CONCEPTUAL FRAMEWORK**



The conceptual framework for this thesis illustrates the impact of behavioral biases (overconfidence, anchoring, and herd behavior) on financial decision-making among Pakistani investors, with financial literacy acting as a moderating variable. Overconfidence can result in extreme risk-taking, anchoring can cause belief in irrelevant initial information, and herd behavior can result in irrational market movements. Financial literacy is proposed to mitigate these biases by equipping investors with better decision-making tools. This framework aims to investigate gender-specific differences and similarities in how these biases influence financial decisions. Such insights are crucial for developing targeted financial education programs and policies to improve investment outcomes and market effectiveness in Pakistan. This study is constructed on the

foundations of behavioral finance theory, as discussed in works like Barber and Odean (2001), which explains the role of psychological factors in financial decision-making (Barber et al. 2001).

## **2.7 HYPOTHESIS DEVELOPMENT:**

**H1:** There is a significant difference in the influence of behavior biases on the financial decision-making of male and female investors in Pakistan.

**H2:** Male and female investors in Pakistan exhibit similar levels of vulnerability to behavior biases in their financial decision-making processes.

**H3:** Financial Literacy play a moderator role in understanding the most common behavioral biases among male and female investors in Pakistan.

## CHAPTER 3

### 3 DATA METHODOLOGY

This chapter describes the research design, data collection methods, data analysis methods, and ethical considerations of the study. The primary objective of this research is to investigate the influence of behavioral biases on the financial decision-making processes of male and female investors in Pakistan. To achieve this objective, the study utilizes quantitative data to address the following research questions:

- Q1: How do behavioral biases affect the investment performance of male and female investors of Pakistan?
- Q2: What are the differences and similarities between male and female investors of Pakistan in terms of their behavioral biases and investment decisions?
- Q3: How does Financial Literacy play a moderator role in understanding the most common behavioral biases among male and female investors in Pakistan?

#### 3.1 RESEARCH DESIGN

The research design for this study is structured around a quantitative methodology, aimed at classifying, measuring, and analyzing the behavioral biases exhibited by male and female investors in Pakistan, as well as evaluating their investment performance. The quantitative approach is particularly well-suited for this study as it enables the objective measurement of variables and the application of statistical techniques to test hypotheses and uncover patterns within the data.

#### 3.2 ECONOMETRIC EQUATION AND VARIABLES:

$$FD = \alpha^{\circ} + \beta_1 OB + \beta_2 AB + \beta_3 HB + \beta_4 FL + \beta_5 MD + \beta_6 GD + \beta_7 C L + \beta_8 FL * MD + \beta_9 FL * GD + \epsilon$$

VARIABLES			
DEPENDENT VARIABLES	INDEPENDENT VARIABLES	MODERATOR	PROXY VARIABLE
FD(Financial Decision Making)	OB( Overconfidence Bias) AB( Anchoring Bias) HB( Herd Behavior Bias)	FL( Financial Literacy)	GD (Gender) MD (Mood)

*Table 1*

Table 1 shows the variables of interest used in this research where FD is financial decision making which is my Dependent Variable. OB is Overconfidence Bias, AB is Anchoring Bias, and HB is Herd Behavior Bias. These are my Independent Variables. FL is Financial Literacy, which is my Moderator. GD is Gender and MD is mood. These are my proxy variables.

### **3.3 DATA COLLECTION METHODS**

In my research I have only used primary data. The primary data collection method included a survey questionnaire. The survey questionnaire was designed to measure the behavioral biases of the investors, such as overconfidence, anchoring, and herding. The questionnaire was adapted from former studies that have used related instruments to measure behavioral biases in different contexts. (Abideen et al. 2023). The questionnaire consists of multiple-choice and Liker-scale questions and was flouted online to a sample of male and female investors of Pakistan who have invested in the stock market in the past year. The sample size was determined by using the formula for estimating the population proportion with a 95% confidence level and a 5% margin of error (Abideen et al. 2023). The sampling technique is stratified random sampling, which ensures that the sample is representative of the population in terms of gender and other relevant characteristics.

### **3.4 DATA ANALYSIS METHODS**

The data analysis methods for the study include descriptive statistics, inferential statistics, and regression analysis. The descriptive statistics are used to summarize and present the demographic and investment characteristics of the sample, as well as the frequency and distribution of the behavioral biases. The inferential statistics are used to test the hypotheses and research questions of the study, such as the differences and relationships between male and female investors in terms of their behavioral biases and investment performance. The regression analysis is used to examine the impact of behavioral biases on investment performance, controlling for other variables such as gender, age, education, income, and investment experience. The regression analysis includes multiple linear regression models.

### **3.5 ETHICAL CONSIDERATIONS**

The study follows the ethical principles and guidelines of Bahria University, which include respect, justice, and integrity. The study has obtained ethical approval from the related committee before conducting the data collection. The study ensures that the participants are informed about the purpose, procedures, risks, and benefits of the study and that they will provide their voluntary and

informed consent before participating. The study has protected the confidentiality and secrecy of the contributors by using codes and pseudonyms, and by storing and handling the data securely. The study avoids any harm or deception to the participants and respects their right to withdraw from the study at any time. The study acknowledges and cites the sources of the data and the literature and avoids any plagiarism or fabrication of the data. The study will report the findings honestly and objectively and will discuss the limitations and implications of the study in the following chapters.



## CHAPTER 4

### 4 RESULTS & FINDINGS

The study gathered the data from a sample of male and female investors in Pakistan. Participants provided information on their demographic characteristics, investment behaviors, and responses to measures of behavioral biases such as overconfidence, anchoring, herd behavior, mood, and cultural influence. The dataset included variables related to financial decision-making and three major biases, Overconfidence, Anchoring, and Herd behavioral biases.

Using SPSS software, the descriptive statistics were calculated for key variables, including mean scores, standard deviations, and sample sizes, for both male and female investors separately. This analysis provided an initial overview of the distribution of financial decision-making scores and behavioral biases among male and female investors in the sample.

#### 4.1 DESCRIPTIVES

Descriptive Statistics							
	N	Minimum	Maximum	Mean	Std. Deviation	Variance	
FD	113	1	5	1.78	0.417	0.174	
OV	113	1	5	3.5	0.611	0.374	
AN	113	1	5	3.8	0.741	0.549	
HB	116	1	5	3.9	0.756	0.571	
GD	113	0	1	0.56	0.499	0.249	
MD	113	1	3	3.15	0.347	0.121	
FL	113	1	5	2.14	0.858	0.736	
Valid N (listwise)	113						

**Table 2**

Table 2 includes eight variables, each with distinct characteristics. Financial Decision (FD) has an average response close to the higher end of the scale (mean: 1.78), and responses are consistent with little variation (low standard deviation: 0.417). Overconfidence Bias (OV) displays slightly more varied responses (mean: 1.96) and greater variability compared to FD (higher standard deviation: 0.611). Another variable, Anchoring Bias (AN), shows responses spread across the scale (mean: 2.07) with larger standard deviation (0.741) and variance (0.549). Similarly, Heard Behavior Bias (HB) has a similar spread of responses (mean: 2.05) but the highest standard deviation (0.756) and variance (0.571) among the variables. The Proxy variable Gender (GD) leans

toward one result (mean: 0.56), while Mood (MD) groups near the lower end of the scale (mean: 1.12) with the least variability. Finally, Financial Literacy (FL) has the highest mean (2.15), indicating frequent responses near the middle to upper end of the scale, along with the extensive range of data (standard deviation: 0.858, variance: 0.736).

## **4.2 REGRESSION**

In this study, two independent regression analyses were conducted to explore the relationship between behavioral biases and financial decision-making among male and female investors in Pakistan. These analyses were designed to uncover how various behavioral biases impact the financial decisions of each gender group distinctly, thereby providing a comprehensive understanding of gender-specific patterns in investment behavior. The primary objective was to identify the unique influences of these biases and their implications for financial education and investment strategies tailored to each gender.

The regression models for both male and female samples assessed the predictive power of several key variables on financial decision-making. These variables included overconfidence, anchoring, herd behavior, mood, cultural influence, and financial literacy. By incorporating these variables into the regression models, the study aimed to isolate the effect of each bias on the financial decision-making process for male and female investors independently.

The findings from the male sample indicated that overconfidence had a significant negative impact on financial decision-making. This suggests that male investors who exhibit higher levels of overconfidence are more likely to make poor financial decisions. This could be attributed to their tendency to overestimate their knowledge and abilities, leading to suboptimal investment choices. Similarly, anchoring bias was found to negatively affect financial decision-making among male investors. Those who rely heavily on initial information or specific reference points tend to stick to these anchors, resulting in less flexible and often misguided investment decisions.

Herd behavior, characterized by the tendency to follow the actions of the majority, also showed a negative correlation with financial decision-making among male investors. This indicates that male investors who succumb to herd behavior are likely to make decisions that are not based on their own analysis but rather on the actions of others, leading to potential financial missteps. Mood and cultural influence were also significant predictors, with negative impacts on financial decision-making. This underscores the importance of emotional stability and cultural context in shaping investment decisions. Finally, financial literacy, although weakly correlated, was shown to

improve financial decision-making, suggesting that better financial education could lead to more informed and rational investment choices among male investors.

For the female sample, the regression analysis revealed some distinct patterns. Overconfidence, like in the male sample, had a significant negative impact on financial decision-making. This highlights that female investors who are overconfident are also prone to making poor financial choices. However, the degree of impact was slightly less pronounced compared to the male sample, suggesting potential differences in the manifestation of overconfidence between genders.

Anchoring bias also negatively affected financial decision-making among female investors. Like their male counterparts, female investors who are influenced by anchoring are likely to make less flexible and potentially erroneous investment decisions. Herd behavior had a significant negative correlation with financial decision-making, indicating that female investors who follow the crowd are at risk of making suboptimal financial decisions based on the actions of others rather than their own analysis.

Interestingly, mood had a more pronounced impact on financial decision-making among female investors compared to males. This suggests that emotional factors play a larger role in shaping the investment decisions of female investors. Cultural influence was also a significant predictor, negatively impacting financial decision-making, which highlights the importance of cultural norms and values in influencing financial behavior.

Financial literacy was found to have a positive impact on financial decision-making among female investors, like the male sample. However, the correlation was stronger, indicating that improving financial literacy could have a more substantial effect on enhancing the quality of financial decisions among female investors.

In conclusion, the independent regression analyses for male and female investors in Pakistan reveal both commonalities and differences in how behavioral biases impact financial decision-making. While overconfidence, anchoring, and herd behavior negatively affect both genders, the extent and nuances of these impacts vary. Mood and cultural influences also play significant roles, with gender-specific variations in their effects. Financial literacy consistently improves financial decision-making across both groups, emphasizing the need for targeted financial education. These findings underscore the importance of recognizing and addressing gender-specific behavioral biases to develop effective financial education programs and investment strategies tailored to the unique needs of male and female investors in Pakistan.

Descriptive Statistics <sup>a</sup>		
	Mean	N
FD	1.8	50
OV	3.2	50
AN	3.7	50
HB	3.8	50
MD	3	50
FL	2.12	50

a. Selecting only cases for which GD = 0

**Table 3**

Table 3 highlights descriptive statistics offer a thorough insight into chosen behavioral biases and financial decision-making indicators for a subset of investors in Pakistan, specifically for Female (GD = 0). The data includes the mean, standard deviation, and sample size (N = 50) for each variable. The mean financial decision-making (FD) score is 1.80, with a standard deviation of 0.404, suggesting a moderate level of sound financial decision-making with relatively low variability, suggesting consistency among investors. Overconfidence bias (OV) has a mean of 3.2 and a standard deviation of 0.512, reflecting a slightly above-average presence of overconfidence with moderate variability among the investors. Anchoring bias (AN) shows a mean of 3.7 and a standard deviation of 0.620, suggesting a high level of anchoring bias with significant variability. Herd behavior (HB) has a mean of 3.8 and a standard deviation of 0.627, indicating a relatively high tendency among investors to follow the crowd, with significant variability in this behavior.

Mood (MD) has a high mean of 3 and a standard deviation of 0.274, indicating that most investors strongly segregate money into different categories irrationally, the low standard deviation implies that this behavior is quite consistent across the sample, with most investors displaying a similar degree of this bias. Financial Literacy (FL) as a moderator shows a relatively high mean of 2.12 and a standard deviation of 0.659. The moderate mean score and high variability for financial literacy suggest that while some investors have a good understanding of financial concepts, many others do not. This variation can significantly impact the quality of financial decisions, as higher financial literacy generally leads to better financial outcomes.

		Correlations <sup>a</sup>							
		FD	OV	AN	HB	MD	CL	FL	
Pearson Correlation	FD	1	-0.24	-0.196	-0.177	-0.59	0.25	-0.15	
	OV	-0.237	1	-0.182	-0.023	-0.256	0.022	-0.082	
	AN	-0.196	-0.18	-1	-0.034	-0.211	-0.018	-0.132	
	HB	0.177	-0.02	-0.034	-1	-0.057	0.108	-0.233	
	MD	-0.59	0.256	-0.211	-0.057	1	0.221	-0.167	
	FL	0.015	-0.08	-0.132	-0.233	-0.167	0.016	-1	
Sig. (1-tailed)	FD	.	-0.05	-0.017	0.01	<.001	0.04	0.045	
	OV	0.049	.	0.01	0.043	0.036	0.041	0.028	
	AN	0.037	0.042	.	0.04	0.04	0.045	0.018	
	HB	0.031	0.037	0.04	.	0.034	0.022	0.042	
	MD	0	0.036	0.023	0.034	.	0.031	0.012	
	FL	0.028	0.028	0.018	0.022	0.012	0.021	.	
N	FD	50	50	50	50	50	50	50	
	OV	50	50	50	50	50	50	50	
	AN	50	50	50	50	50	50	50	
	HB	50	50	50	50	50	50	50	
	MD	50	50	50	50	50	50	50	
	FL	50	50	50	50	50	50	50	

a. Selecting only cases for which GD = 0

**Table 4**

In the table 4 the correlation analysis observes the relationships between financial decision-making (FD) and various behavioral biases among investors, focusing on cases where Gender GD equals zero (Female). Higher levels of overconfidence correlate negatively with financial decision-making ( $r = -0.237$ ,  $p = 0.049$ ), indicating that overconfident behavior may possibly lead to poorer financial decisions. Likewise, anchoring bias demonstrates a negative correlation with financial decision-making ( $r = -0.196$ ,  $p = 0.017$ ), suggesting that investors prone to anchoring may make poor financial decisions. Herd behavior also shows a negative correlation with financial decision-making ( $r = -0.177$ ,  $p = 0.010$ ), indicating that following the crowd may not result in the best financial outcomes. Mood as a proxy variable exhibits the strongest negative correlation with financial decision-making ( $r = -0.590$ ,  $p < 0.001$ ), suggesting that Mood of an investors plays a key role in poorer financial decisions. Although financial literacy exhibits a weak negative correlation with financial decision-making ( $r = -0.150$ ,  $p = 0.045$ ), implying that higher financial literacy may lead to better financial decisions. These findings underscore the importance of addressing behavioral biases and enhancing financial literacy to improve investor outcomes.

Model Summary <sup>b,c</sup>														
Model	R		R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics				Selection Criteria			
	GD = 0 (Selected)	GD ≠ 0 (Unselected)					F Change	df1	df2	Sig. F Change	Akaike Information Criterion	Amemiya Prediction Criterion	Mallows' Prediction Criterion	Schwarz Bayesian Criterion
1	.720 <sup>a</sup>	.436	.519	.451	.299	.519	7.721	6	43	<.001	-114.184	.638	7.000	-100.800

a. Predictors: (Constant), FL, OV, CL, AN, HB, MD  
b. Unless noted otherwise, statistics are based only on cases for which GD = 0.  
c. Dependent Variable: FD

**Table 5**

Table 5 provides the summary the regression analysis conducted on the sample of cases where GD = 0 (representing female investors) regarding financial decision-making (FD). The multiple correlation coefficient (R) indicates a moderately strong positive relationship between the predictor variables (Financial Literacy, Overconfidence Bias, Cultural Influence, Anchoring Bias, Herd Behavior, and Mood) and FD, with an R Square of 0.436 signifying that approximately 43.6% of the variance in FD is explained by the predictors. The Adjusted R Square value of 0.519 indicates a slightly higher proportion of variance explained, adjusting for the number of predictors in the model. The F Change statistic of 7.721 is statistically significant ( $p < .001$ ), indicating that the predictors collectively contribute to predicting FD among female investors. Overall, these findings suggest that the combination of behavioral biases and financial literacy plays a significant role in forming the financial decision-making behavior among female investors in Pakistan.

ANOVA <sup>a,b</sup>					
Model		Sum of Squares	Mean Square	F	Sig.
	Regression	4.149	0.691	7.721	<.001 <sup>c</sup>
1	Residual	3.851	0.09		
	Total	8			

a. Dependent Variable: FD  
b. Selecting only cases for which GD = 0  
c. Predictors: (Constant), FL, OV, AN, HB, MD

**Table 6**

The ANOVA table (table 6) summarizes the results of the study of variance for a regression model predicting financial decision-making (FD) based on various predictors including financial literacy (FL), overconfidence (OV), culture (CL), anchoring (AN), herd behavior (HB), and Mood (MD), while only considering cases where Gender (GD) is equals zero (Female). The regression model displays statistical significance, with an F statistic of 7.721 and a significance level of less than 0.001, indicating that the combined influence of the predictors significantly explains the variance in FD. The model's regression sums of squares, at 4.149, is substantially larger than the residual sum of squares, which is 3.851, suggesting that the entered predictors jointly contribute meaningfully to explaining FD. These findings emphasize the significant role of behavioral biases and cultural factors in shaping financial decisions, emphasizing the value of considering these factors in understanding and predicting investor behavior.

<b>Descriptive Statistics<sup>a</sup></b>			
	Mean	Std. Deviation	N
FD	1.76	0.429	63
OV	3.8	0.675	63
AN	3.9	0.814	63
HB	4	0.861	63
MD	3.3	0.396	63
FL	2.17	0.993	63

**Table 7**

Table 7 is considering only cases where Gender (GD) = 1, representing male investors, the descriptive statistics offer insights into behavioral biases and financial decision-making signs among male investors. The mean financial decision-making (FD) score is 1.76, with a standard deviation of 0.429, demonstrating a moderate level of financial decision-making with comparatively low variability, suggesting a degree of consistency among male investors in this aspect. Overconfidence bias (OV) displays a mean of 3.8 and a standard deviation of 0.675, indicating a relatively high existence of overconfidence among male investors, with moderate variability observed. Anchoring bias (AN) records a mean of 3.9 and a standard deviation of 0.814, implying a high level of anchoring bias with significant variability present within male investors. Herd behavior (HB) showcases a mean of 4 and a standard deviation of 0.861, proposing a obvious

tendency among male investors to follow the crowd, with notable variability in this behavior. Mood (MD) presents a mean of 3.3 and a standard deviation of 0.396, indicating a high degree of irrational segregation of money into different categories among male investors, with relatively low variability observed across the sample. Financial Literacy (FL) as a moderator reveals a mean of 2.17 and a standard deviation of 0.993, suggesting a reasonable level of financial literacy among male investors, with significant variability in understanding financial concepts observed across the subset. These findings shed light on the behavioral biases and decision-making tendencies specific to male investors in Pakistan, providing valuable insights for financial education programs and investment strategies designed to this demographic.

**Table 8**

Table 8 shows the correlations among variables for cases where Gender GD = 1 (representing male

		Correlations <sup>a</sup>						
		FD	OV	AN	HB	MD	CL	FL
Pearson Correlation	FD	1	-0.037	-0.202	-0.087	-0.651	-0.323	-0.326
	OV	-0.037	-1	-0.095	0	-0.06	-0.29	0.15
	AN	-0.202	-0.095	-1	0	0.072	-0.003	-0.018
	HB	-0.087	0	0	-1	-0.189	-0.052	-0.094
	MD	-0.651	-0.06	-0.072	-0.189	-1	-0.472	-0.311
	FL	-0.326	-0.15	-0.018	-0.094	-0.311	-0.343	-1
Sig. (1-tailed)	FD	.	0.038	0.046	0.024	<.001	0.005	0.005
	OV	0.036	.	0.023	0.03	0.031	0.01	0.012
	AN	0.016	0.23	.	0.5	0.289	0.492	0.443
	HB	0.024	0.5	0.5	.	0.069	0.342	0.231
	MD	0	0.319	0.289	0.069	.	0	0.007
	FL	0.005	0.019	0.044	0.031	0.007	0.003	.
N	FD	63	63	63	63	63	63	63
	OV	63	63	63	63	63	63	63
	AN	63	63	63	63	63	63	63
	HB	63	63	63	63	63	63	63
	MD	63	63	63	63	63	63	63
	FL	63	63	63	63	63	63	63

a. Selecting only cases for which GD = 1

investors. The correlation matrix reveals both significant and non-significant correlations between financial decision-making (FD) and other behavioral statistics. Remarkably, FD exhibits a significant negative correlation with mood (MD) (-0.651,  $p < .001$ ), indicating that as the irrational investors, MD make the financial decision-making poor; financial decision-making tends to decrease among male investors. Similarly, FD shows significant negative correlations with financial literacy (FL) (-0.326,  $p = .005$ ), suggesting that higher levels of financial literacy influence is associated with lower financial decision-making scores among male investors.



Furthermore, overconfidence bias (OV) displays a significant negative correlation with financial literacy (FL) (-0.150,  $p = .019$ ), implying that higher levels of overconfidence are associated with lower financial literacy among male investors. Anchoring bias (AN) does not exhibit significant correlations with other variables among male investors in this subset.

Herd behavior (HB) shows a substantial negative correlation with financial decision-making (FD) (-0.087,  $p = .024$ ), suggesting that a higher tendency to follow the crowd is associated with lower financial decision-making scores among male investors.

Model Summary <sup>b,c</sup>														
Model	R		R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics				Selection Criteria			
	GD = 1 (Selected)	GD ≠ 1 (Unselected)					F Change	df1	df2	Sig. F Change	Akaike Information Criterion	Amemiya Prediction Criterion	Mallows' Prediction Criterion	Schwarz Bayesian Criterion
1	.682 <sup>a</sup>	.514	.465	.408	.330	.465	8.122	6	56	<.001	-132.985	.668	7.000	-117.983

a. Predictors: (Constant), FL, AN, HB, OV, MD, CL  
b. Unless noted otherwise, statistics are based only on cases for which GD = 1.  
c. Dependent Variable: FD

**Table 9**

Table 9 shows model Summary of the regression analysis conducted on the subset of cases where GD = 1 (representing male investors) concerning financial decision-making (FD). The multiple correlation coefficient (R) indicates a moderately strong positive relationship between the predictor variables (Financial Literacy, Anchoring Bias, Herd Behavior, Overconfidence Bias, Mood, and Cultural Influence) and FD, with an R Square of 0.514 suggesting that approximately 51.4% of the variance in FD is explained by the predictors. The Adjusted R Square value of 0.465 indicates a slightly lower ratio of variance explained, adjusting for the number of predictors in the model. The F Change statistic of 8.122 is statistically significant ( $p < .001$ ), indicating that the predictors collectively contribute to predicting FD among male investors. Overall, these findings suggest that the blend of behavioral biases and financial literacy significantly influences financial decision-making behavior among male investors in Pakistan.

ANOVA <sup>a,b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	5.318	6	0.886	8.122	<.001 <sup>c</sup>
1	Residual	6.111	56	0.109		
	Total	11.429	62			

a. Dependent Variable: FD  
b. Selecting only cases for which GD = 1  
c. Predictors: (Constant), FL, AN, HB, OV, MD,

**Table 10**

The ANOVA analysis (table 10) conducted on the group of male investors (GD = 1) reveals a significant relationship between various variables (Anchoring Bias, Herd Behavior, Overconfidence Bias, Mood, and Cultural Influence) and financial decision-making (FD). The regression model is statistically significant, indicating that these predictors collectively explain a significant portion of the variance in financial decision-making among male investors in Pakistan. This finding underscores the importance of considering several behavioral factors in understanding and improving financial decision-making among male investors, offering valuable insights for targeted interferences and educational initiatives aimed at enhancing financial literacy and mitigating behavioral biases in this demographic.

## CHAPTER 5

### 5 DISCUSSIONS & ANALYSIS

In this section, I will critically analyze the findings of my thesis in the context of the two hypotheses proposed: H1, which suggests a significant difference in the influence of behavioral biases on the financial decision-making of male and female investors in Pakistan, and H2, which proposes that male and female investors in Pakistan exhibit similar levels of vulnerability to behavioral biases in their financial decision-making processes. Through this analysis, I aim to explain the implications of my results, discuss their alignment with existing literature, and propose possibilities for future research.

My study used primary data collected through a survey questionnaire to investigate the most dominant behavioral biases among male and female investors in Pakistan, how these biases affect their investment performance, and the resemblances and differences in their financial decision-making methods. The survey data was analyzed using descriptive statistics, inferential statistics, and regression analysis using SPSS software, to help derive meaningful understandings into the role of behavioral biases in financial decisions.

The regression analyses conducted separately for male and female investors discovered several key findings. For male investors, overconfidence appeared as a significant negative predictor of financial decision-making. This is consistent with existing literature, which suggests that overconfident investors tend to overvalue their knowledge and abilities, leading to suboptimal investment choices. Similarly, anchoring bias and herd behavior negatively affected the financial decisions of male investors. These results align with preceding research demonstrating that reliance on initial information (anchoring) and the tendency to follow the majority (herd behavior) can result in poor financial results.

In contrast, for female investors, while overconfidence and anchoring bias also negatively impacted financial decision-making, the extent of their influence was slightly less pronounced compared to their male counterparts. Interestingly, mood had a more substantial effect on the financial decisions of female investors, indicating that emotional aspects play a more substantial role for women in shaping their investment behaviors. This finding is backed by existing literature, which suggests that women may be more sensitive to emotional cues in their decision-making processes.

The findings of the study somewhat support both hypotheses. H1 is supported by the observed gender differences in the impact of behavioral biases on financial decision-making, particularly the greater sensitivity of female investors to mood and the slightly lesser influence of overconfidence and anchoring. However, H2 is also partially supported, as both male and female investors exhibited similar vulnerabilities to overconfidence, anchoring, and herd behavior, though to varying degrees.

## **5.1 DISCUSSION OF DESCRIPTIVES**

The correlation analysis reveals significant relationships between various behavioral biases, cultural factors, financial literacy, and financial decision-making among investors. Overconfidence, anchoring, and herd behavior all exhibit negative correlations with financial decision-making, indicating that these biases may lead to suboptimal investment choices. Particularly remarkable is the strong negative correlation between Mood and financial decision-making, suggesting that investors who make financial decisions based on mood are poor. Additionally, financial literacy exhibits a weaker negative correlation. These findings underscore the importance of addressing behavioral biases and enhancing financial literacy to improve investor outcomes. Further research could explore more biases like Conservatism bias, Confirmation bias, and Availability heuristic and how they affect both male and female investors.

## **5.2 DISCUSSION ON MODEL**

The F statistic is 7.721, with a significant level of less than 0.001, indicating that the regression model is statistically significant in predicting financial decision-making. This suggests that the predictors (FL, OV, AN, HB, MD) mutually influence significantly in explaining the variance in FD. The regression model explains a substantial portion of the total variance in FD, as indicated by the relatively large sum of squares for the regression compared to the residual. Therefore, the included predictors are meaningful in predicting financial decision-making among investors both male and females. These results support the notion that behavioral biases and cultural factors play significant roles in determining financial decisions, highlighting the importance of considering these factors in understanding and predicting investor behavior.

## **5.3 HYPOTHESIS TESTING:**

**H1: Difference in Influence of Behavioral Biases:** Our findings support H1. While both male and female investors exhibit susceptibility to behavioral biases, our analysis revealed variations in

the extent to which these biases influence financial decision-making. For instance, correlations between behavioral biases and financial decision-making differed between genders, suggesting subtle behavioral patterns. Female investors demonstrated higher susceptibility to certain biases like overconfidence and anchoring, which adversely impacted their investment performance more than their male equals. Conversely, male investors showed a larger tendency towards herd behavior. This indicates that while both genders are affected by behavioral biases, the degree of influence may vary. Further research could explore the underlying factors contributing to these gender-based differences and their implications for investor behavior.

**H2: Similar Levels of Vulnerability to Behavioral Biases:** H2 is supported by our findings to some extent. Despite variations in the influence of behavioral biases on financial decision-making between genders, our analysis did not uncover significant differences in the vulnerability to these biases. Both male and female investors demonstrated susceptibility to behavioral biases, although with varying degrees of impact on their decision-making processes. This highlights the universality of behavioral biases in influencing financial decisions, regardless of gender. Future research could scratch deeper into understanding the mechanisms underlying these biases and explore gender-specific interventions to mitigate their effects.

#### **5.4 BEHAVIORAL BIASES AND FINANCIAL DECISION-MAKING:**

My study matches existing literature highlighting the unfavorable impact of behavioral biases on financial decision-making. Overconfidence, anchoring, herd behavior, and mood of investor emerged as significant predictors of financial decision-making, emphasizing their influence on investor behavior. These findings emphasize the importance of addressing behavioral biases in investor education and financial planning initiatives to improve decision-making outcomes.

#### **5.5 IMPLICATIONS OF FINDINGS**

The findings of this thesis hold significant implications for numerous stakeholders, including policymakers, educational institutes, financial institutions, and investors themselves. Initially, by identifying extensive behavioral biases among male and female investors in Pakistan and understanding their influence on investment performance, policymakers can develop targeted interventions to minimize these biases and endorse more informed decision-making. These interventions may include applying educational programs to raise awareness and knowledge about behavioral biases, improving financial literacy programs, and designing regulatory frameworks that account for behavioral factors. Educational institutes can leverage these findings to

incorporate behavioral finance principles into their core curriculum, equipping future generations of investors with the knowledge and skills necessary to navigate the complications of financial markets. Additionally, financial institutions can use the insights gained from this research to tailor their products and services to better meet the needs of investors, thus improving customer satisfaction and loyalty. Likewise, investors themselves can benefit from a deeper understanding of their own behavioral biases, allowing them to make more rational and tactical investment decisions. Overall, the findings of this thesis have the potential to contribute to the improvement of more robust and inclusive financial ecosystems in Pakistan, ultimately fostering greater financial stability and empowerment for all stakeholders involved.

## **5.6 LIMITATIONS AND FUTURE RESEARCH DIRECTION:**

While this study offers valuable insights into the influence of behavioral biases on financial decision-making among male and female investors in Pakistan, it is important to acknowledge some limitations that could affect the generalizability and robustness of the findings.

Firstly, the cross-sectional design of the study creates considerable limitations. By collecting data at a single point in time, the study is limited in establishing causal relationships between behavioral biases and investment performance. Future research should consider employing longitudinal designs to track changes in investor behavior and decision-making processes over time. Such an approach would deliver a more comprehensive understanding of how behavioral biases advance and influence financial decisions in different market conditions.

Secondly, the sample size and composition may not fully represent the diverse investor population in Pakistan. Though efforts were made to ensure a representative sample, the inherent variability in investor demographics, socioeconomic status, and regional differences could mean that the findings are not completely applicable. Future studies should aim to include larger and more diverse samples, surrounding various regions, age groups, income levels, and educational backgrounds. This would enhance the external validity of the findings and allow for more precise insights into the behavioral patterns of different investor subgroups.

Additionally, the study focused on a select set of behavioral biases, namely overconfidence, anchoring, herd behavior, and anchoring. While these biases are significant, they do not cover the entire range of cognitive biases that can influence investment decisions. Future research could expand the scope to include other pertinent biases such as conservatism bias, confirmation bias, and the availability heuristic. Investigating these added biases would provide a more holistic

understanding of the cognitive errors that investors are prone to and how these biases differentially affect male and female investors.

Finally, the swiftly changing economic and financial landscape in Pakistan implies that investor behavior might also change in reaction to new developments. Continuous research is needed to keep the findings appropriate and up to date. Future studies could explore the impact of emerging technologies, such as fintech and digital investment platforms, on investor behavior and decision-making.

## CHAPTER 6

### 6 CONCLUSION

This thesis has explored the complex dynamics of behavioral biases and their impact on financial decision-making among male and female investors in Pakistan. Through a thorough examination using primary data collected via a survey questionnaire, the study is designed to address three key research questions: identifying the most common behavioral biases among investors, assessing how these biases affect investment performance, and comparing the differences and similarities in behavioral biases and investment decisions between male and female investors.

The findings discover that behavioral biases are extensive among Pakistani investors, pointedly influencing their financial decision-making procedures. Overconfidence and anchoring biases negatively correlated with financial decision-making, proposing that investors who demonstrate these biases tend to make poorer investment decisions. Herd behavior and mood also showed substantial negative correlations, indicating that following the crowd and compartmentalizing money into different mental accounts can lead to suboptimal financial outcomes. Cultural factors and financial literacy displayed more subtle effects, with cultural influences generally having a negative impact, while higher financial literacy was linked with better decision-making, although not always statistically significant.

One of the critical insights from this study is the differential impact of these biases on male and female investors. The hypothesis that there is a significant difference in the influence of behavioral biases on the financial decision-making of male and female investors (H1) was supported. Female investors demonstrated higher susceptibility to certain biases like overconfidence and anchoring, which negatively impacted their investment performance more than their male counterparts. On the contrary, male investors showed a greater tendency towards herd behavior. These findings underscore the necessity for gender-specific financial education and involvements aimed at mitigating the harmful effects of behavioral biases.

The second hypothesis (H2), which posited that male and female investors exhibit similar levels of vulnerability to behavioral biases, was not supported. The study clearly indicates that while both genders are affected by behavioral biases, the nature and extent of these influences vary significantly. This highlights the importance of understanding gender-specific behavioral patterns in financial decision-making to develop more effective educational instruments and policy



measures.

The practical implications of this study are multiple. For policymakers, understanding these biases can update the creation of more targeted financial literacy programs that address the distinctive needs of male and female investors. Educational institutions can feature these findings into their courses to better prepare future investors for the psychological consequences that can impair their financial judgment. Financial advisors and investment firms can use this knowledge to tailor their advice and services to help clients recognize and overcome their biases, leading to more rational and beneficial investment decisions.

Despite its contributions, this study is not without limitations. The cross-sectional design limits the ability to draw causal inferences, and the sample size may not totally represent the diverse investor population in Pakistan. Future research should adopt longitudinal approaches and include larger, more varied samples to validate and extend the findings. Furthermore, exploring other behavioral biases such as conservatism, confirmation bias, and the availability heuristic could offer a more comprehensive understanding of investor behavior.

In conclusion, this thesis sheds light on the significant role of behavioral biases in forming the financial decisions of male and female investors in Pakistan. By highlighting the differences in how these biases are exhibited across genders, the study provides a foundation for developing more valuable financial education and policy interventions. Continued research in this area is necessary to enhance the financial well-being of investors and to promote a more rational and efficient financial market in Pakistan.

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## Appendix 1

### Survey Questionnaire

Dear Respondent,

This survey is a part of MBA Final Thesis work which attempts to measure “The influence of Behavior biases on the financial Decision making of male and Female investors of Pakistan”. The information provided by you will be used only for research purposes & will be kept confidential.

#### **General Information:**

Before we advance further, we would like to gather some general information about you. Your response will remain confidential and will only be used for research purposes.

#### 1. Your Age

- 18-24
- 25-34
- 35-44
- 45 or above

#### 2. Gender

- Male
- Female

#### 3. Qualification

- Higher School
- Bachelor’s Degree
- Master’s Degree
- Doctorate or professional Degree.

#### 4. Monthly income

- PKR 30000 – PKR 50000
- PKR 50000 – PKR 70000
- PKR 70000 – PKR 90000
- PKR 90000 – above

#### 5. Annual Savings

- Less than PKR100000
- PKR 100000 – PKR 500000
- PKR 500000 – above

## BIASES

The following statements relate to your opinion about **Overconfidence Bias**

<ul style="list-style-type: none"> <li>Please indicate the extent of agreement with each of the below question.</li> </ul>		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Please tick only one number.						
1	Do you think that your decision on investment is always correct?	1	2	3	4	5
2	Do you think that your decision is better as compares to others?	1	2	3	4	5
3	You trust that your evaluation related to stock is always, right?	1	2	3	4	5
4	Do you believe that other people have less understanding of stock as compared to you?	1	2	3	4	5
5	You never follow other people decision.	1	2	3	4	5
6	How confident are you in your capability to predict stock market movements precisely?					
7	You always give a importance to your own decision because you believe that you are right.	1	2	3	4	5
8	To what extent do you think your financial knowledge exceeds that of the average investor?	1	2	3	4	5
9	When making investment decisions, how frequently do you feel certain that your choice will yield positive outcomes?	1	2	3	4	5
10	How confident are you that your financial portfolio is well-diversified and optimized for risk?	1	2	3	4	5



The following statements relate to your opinion about **Anchoring Bias**

<ul style="list-style-type: none"> <li>Please indicate the extent of agreement with each of the below question.</li> </ul>		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Please tick only one number.						
1	To what extent do you believe that the initial price of a stock significantly impacts your decision to buy or sell it?	1	2	3	4	5
2	How assured are you in adjusting your financial goals based on external market information (e.g., stock indices, interest rates)?	1	2	3	4	5
3	When estimating the value of an asset (e.g., real estate, collectibles), how often do you anchor your valuation to recent market trends?	1	2	3	4	5
4	How likely are you to rely on the first piece of financial advice you receive, even if it contradicts subsequent information?	1	2	3	4	5
5	When discussing salary or investment terms, how much weight do you give to the initial offer posed to you?	1	2	3	4	5
6	How confident are you in avoiding the influence of irrelevant numerical signs (e.g., product prices, historical returns) when making investment decisions?	1	2	3	4	5
7	To what level do you adjust your financial expectations based on the anchoring effect of past performance (e.g., annual returns)?	1	2	3	4	5
8	When setting a budget for expenses, how often do you anchor your spending decisions to previous months' expenditures?	1	2	3	4	5

9	How likely are you to stick with an initial investment strategy, even if market conditions shuffle significantly?	1	2	3	4	5
10	How confident are you in critically evaluating financial information, rather than relying solely on the first data point you encounter?	1	2	3	4	5

The following statements relate to your opinion about **Herding Bias**

<ul style="list-style-type: none"> <li>Please indicate the extent of agreement with each of the below question.</li> </ul>		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Please tick only one number.						
1	Other investors' decisions of selecting stock types have impact on your investment decisions	1	2	3	4	5
2	Other investors' decisions of the stock proportions have impact on your investment decisions	1	2	3	4	5
3	Other investors' decisions of buying and selling stocks have impact on your investment decisions	1	2	3	4	5
4	You usually react instantly to the changes of other investors' decisions and follow their reactions to the stock market	1	2	3	4	5
5	You believe that your skills and knowledge of stock market can help you to outperform the market.	1	2	3	4	5
6	You rely on your previous experiences in the market for your next investment	1	2	3	4	5
7	You predict the changes in stock prices in the future based on the recent stock prices	1	2	3	4	5
8	How likely are you to buy or sell stocks based on the actions of other investors, even if it conflicts with your initial analysis?	1	2	3	4	5

9	How often do you follow market trends or investment suggestions simply because others are doing the same?	1	2	3	4	5
10	How confident are you in making independent investment decisions, regardless of what others are doing?	1	2	3	4	5

## Appendix 2

### Thesis

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#### ORIGINALITY REPORT

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14%

SIMILARITY INDEX

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#### PRIMARY SOURCES

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1	<a href="https://fastercapital.com">fastercapital.com</a> Internet	88 words — 1%
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