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Risk Preferences for Investment Decisions: Do Emotional and Cognitive Biases Matter?

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ABSTRACT

The purpose of this research study is to identify the impact of certain behavioral factors such as fear, herding, financial anxiety, loss aversion, and stress along with the mediating role of risk preference on retail investors' investment decisions in the context of Pakistan. The sample size of the study is 218 retail investors whereas the convenience sampling technique has been employed. Using a deductive approach data through a questionnaire survey and analyzed through PLS-SEM. The findings suggest the significant impact of fear, financial anxiety, herding, loss aversion, and stress on investment decisions whereas risk preference is found to have a significant mediating impact in terms of loss aversion, stress, financial anxiety, and herding on investment decisions Behavioral finance theories indicate that investors do not consistently exhibit rationality. Investors are advised to refrain from making judgements based on the perceived reliability of information derived from their social connections. Moreover, they should avoid swarming by relying on their expertise and intuition while making investing decisions.

Keywords: Behavioral factors, Risk Preferences. PLS-SEM, Retail Investors, Investment decision, Prospect Theory, Resilience Theory

1. Introduction

Using the prospect theory put forth by Kahneman and Tversky, we look at how behavioral financiers make decisions when faced with risk and uncertainty. (Kahneman & Tversky, 2013). Classical economic theories were based on the premise of perfect rationality; this theory challenges that assumption by highlighting the role of decision-makers' emotional and cognitive constraints. (Ricciardi, 2005). This theory states that people are risk-averse when it comes to making money, but when it comes to losing money, they are risk-takers. They factor in potential gains and losses when making financial decisions but don't consider the result. The potential benefits and drawbacks of financial decisions are assessed by investors using a variety of heuristics. According to research, investors' risk preferences can be influenced by various emotions, including anger, worry, and others. (Campos-Vazquez & Cuilty, 2014). Investors make all investment decisions logically after considering all the available information, according to standard finance. (Kumar & Goyal, 2015). Additionally, it presupposes that investors' risk preferences conform to the standards outlined by expected utility theory and mean-variance analysis. It provides more evidence that investors' risk perceptions are accurate and that their risk preference is unaffected by behavioral biases and heuristics. In contrast to their more conventional counterparts, behavioral finance scholars take a more holistic view of risk-taking. Decisions made by humans in the face of risk or uncertainty are often influenced by heuristics, as demonstrated repeatedly by behavioral finance advocates. (Antony, 2020).

Despite traditional finance theories suggesting that investors make decisions rationally based on available information and a clear understanding of risk, empirical evidence from behavioral finance indicates that emotional and cognitive biases significantly influence investor

behavior. Notably, emotions such as anger and worry may alter investment decisions, leading to decisions that deviate from those predicted by classical economic theories. During the dot-com bubble, excessive optimism and overconfidence led investors to pour vast sums of money into internet companies without solid business models or profitability the market eventually crashed, wiping out significant amounts of wealth. If emotional biases such as overconfidence and herd behavior had not been identified as contributing factors, similar speculative bubbles could emerge more frequently, leading to increased market volatility and financial crises. Similarly, the 2008 financial crises and flash crashes (Rapid selling triggered by algorithmic trading) led to bubbles, crashes, and inefficient markets. Therefore, this study contributes to the broader understanding of investors' decision-making and fills the gap in the existing literature on behavioral finance.

1.1 Research objective

- To identify and analyze the impact of emotional and cognitive biases on investor behavior, specifically how these biases affect risk preferences and decision-making in financial markets.
- The study aims to provide a deeper understanding of the deviations from rational decision-making as predicted by traditional financial theories, by investigating the influence of emotions such as anger and worry on investment decisions.
- Additionally, the objective is to contribute to the decision-making of investors in behavioral finance, thereby addressing a significant gap in the existing literature and offering insights that could help refine theoretical models and improve practical approaches to managing investor psychology and financial market stability.

2. LITERATURE REVIEW

A multi-pronged approach including psychological, social, and economic aspects is necessary to understand the details of investment decision-making. This research investigates the complex relationship between investors' risk preferences and several psychological theories. Using well-known theories like resilience theory and prospect theory, we investigate how variables like stress, anxiety, loss aversion, herding, and financial anxiety impact people's investment choices in their daily life experiences. Prospect theory, pioneered by Kahneman and Tversky (1979), describes why people go through loss aversion because they have an irregular perception of the benefits and costs of possible outcomes. As Masten (2001) explains, resilience theory is concerned with how people deal with stress and how they make decisions when faced with difficulties. We intend to discover how investors' perceptions of risk influence their decisions by increasing upon these theoretical groundworks. Stress, anxiety, herding, loss aversion, and financial anxiety all hurt investment decision-making, as we have shown in our wide-ranging literature review. In addition, this study examines the relationship between risk preference and these psychological elements to better recognize how they impact the investment results of an investor. This study focuses on behavioral finance and provides useful understandings

for policymakers, financial practitioners, and investors by expanding our information on the mental processes that drive investment decision-making.

2.2 Supported theories:

The first theory that supports our variables which are investment decision, risk preference, loss aversion, fear, stress, and herding, is prospect theory, and secondly, resilience theory supports our independent variable financial anxiety. In the scenery of psychological and behavioral economics, two key theories Prospect Theory and Resilience Theory provide substantial insights into how people make decisions under risk and difficulty. Prospect theory was Introduced by Daniel Kahneman and Amos Tversky in 1979, which challenges the classical economic assumption that individuals act exclusively to maximize effectiveness. It rather speculates that people's decisions are heavily influenced by their perceptions of gains and losses, formed by inherent biases such as loss aversion. Meanwhile, Resilience Theory, proposed by Dr. Norman Garmezy in the 20th century, shifts the focus from the nature of adversity to the response to it, highlighting the role of cognitive and emotional adaptation in killing challenges. These theories minimize the complexity of cognitive biases, emotional regulation, and decision-making processes, offering a wealthier understanding of human behavior in economic and personal contexts. This introduction sets the stage to investigate deeper into each theory, exploring its origins, mechanisms, and practical implications for navigating life's doubts about financial decisions.

2.2.1 Prospect theory was put forward by Amos Tversky and Daniel Kahneman in 1979. The idea posits that losses and gains are evaluated differently, leading people to make choices based on perceived benefits rather than perceived detriments. Consequently, it is referred to as the "loss-aversion" hypothesis; the prevailing belief is that when presented with two equivalent choices—one devoid of prospective rewards and the other associated with probable losses—the person would choose the former alternative**.** By understanding these biases people can better direct investment choices and reduce their impact on financial outcomes. Mainly the reason to suggest this theory was to provide a more accurate description of decision-making behaviors under risk and uncertainty. Kahneman and Tversky distinguished that people do not evaluate outcomes in blankness but rather in terms of gains and losses as compared to a specific reference point. This observation focused on developing a model that could reason for observed irregularities in decision behavior that EUT could not explain. By clarifying these biases, with the help of this theory, one could explain why individuals frequently make decisions that deviate from expected utility maximization, stressing the roles of cognitive and emotional factors in economic behavior.

2.2.2 Resilience Theory was proposed by Dr. Norman Garmezy in the 1900s. This view posits that the significance lies not in the nature of hardship, but in our response to it. Resilience enables us to recover from hardship, tragedy, or frustration. Although it aids in our survival, recovery, and even flourishing in the presence and aftermath of adversity, it encompasses more than just that. This impacts cognitive and emotional biases by encouraging adaptive thinking and emotional guidelines, which are necessarily needed to effectively navigate adversity. Resilient individuals typically show a more well-adjusted approach to processing information, and reducing the impact of cognitive biases like confirmation bias, where people favor data that settles their existing theories. They are also better at managing emotional biases, such as negativity bias, by maintaining a positive outlook and emotional stability even in challenging situations. This adaptability allows them to perceive and evaluate information more objectively, enhancing decision-making processes and outcomes. Resilience encourages a reframing of adverse events, promoting a broader perspective that can mitigate the distortions caused by cognitive and emotional biases, leading to healthier psychological outcomes and more effective problem-solving

2.3 Variable

2.3.1 Stress and Investment Decision

Stress alters people's emotional reactions, cognitive processes, and risk perception, stress affects people's investment decisions. Anxieties, poor decision-making, and less-than-ideal investment decisions are all symptoms of chronic high stress. On the flip side, people who aren't stressed out may be more willing to take financial risks and make more calculated decisions.

It has long been known that stress plays a major role in how people make decisions about their money. Making a decision when there are other options is very tactical. It is common knowledge that investors tend to pick stocks they normally wouldn't when they're under pressure. This indicates that individuals are unable to use their intelligence to its fullest potential, resulting in unfavorable consequences. (Davidson et al., 2000). When faced with a limited set of options, human stress can have a detrimental impact. (Norris & Wollert, 2011). Determine the impact of stress on decision-making, and demonstrate that under pressure decisions result in subpar performance, and, most often, lead to investments fraught with danger. (Starcke & Brand, 2012). Successive research has validated their results, it would appear that there is an inverse relationship between stress and investment decisions. (Fallon et al., 2014).

H1: Stress has a positive significant impact on investment decisions.

2.3.2 Herding and Investment Decision

The term "herding effect" describes how people act when led by others. Academics and professionals in the financial industry will never stop studying the possibility of herding. Herding occurs when investors believe that other investors must be "right" for them to make a profit. When individual investors follow the crowd in making stock market decisions, this kind of behavior happens. (Bikhchandani et al.). There are a lot of factors that can lead investors to herd, such as relying on the information of other investors or believing that other investors have better information. (Scharfstein & Stein, 1990). "Herding" hurts individual investors' perception and decision-making, according to the literature. Rather than making a logical decision, investors stop depending on their data and perspective. (Devenow & Welch, 1996). Argue that herd mentality contributes to speculative bubbles. If the herding factor could aggregate beneficial information, it could lead to better decision-making. (Caparrelli et al., 2004). It is common practice for investors in developing nations to follow the herd mentality. (Kumari & Sar, 2017). The same holds for younger investors: they are more prone to herding bias than their more seasoned counterparts. (Hassan et al., 2013). Investors' decision-making processes are influenced by herd behavior. (Qasim et al., 2019).

H2: Herding has a positive significant impact on investment decisions.

2.3.3 Fear and Investment Decision

Anxieties and fears are known to cause people to be pessimistic and avoid taking risks. (Tiedens & Linton, 2001), This paper posits that fear may also motivate risk-taking instead of risk-averse behavior, which is the inverse of what one might expect. Additionally, situations involving investment decisions may be more prone to this phenomenon. When we perceive danger or other forms of environmental uncertainty, we experience the negative and intense emotion known as fear. Having said that there are positive emotions that can accompany uncertainty (Smith & Ellsworth, 1985). This research asserts that anxiety in financial choices positively influences results. Fearful persons provide uncertain conclusions about future occurrences. (Lerner & Keltner, 2001). Fearful investors, rationally trying to avoid uncertainty, grow more self-aware and nervous about the situation, and they avoid investing in risky and unfamiliar stocks. (Tiedens & Linton, 2001). The unpleasant emotion of loss makes investors think twice or stay away from risky situations. Investors might also benefit from fear since it makes them hesitant to make decisions, which helps them avoid losses. (Cao et al., 2011). Market participants are influenced by fear and uncertainty through the loss aversion (behavioral economics models) and risk aversion (rational economics models) channels. As defined, these channels pertain to the hedging and have characteristics of the underlying risky assets in an investment context. (Ciner et al., 2013). When investment options are

available and depositors are fearful about unaware companies to invest, they use change to avoid risk and loss. (Nuñez et al., 2015). Investors are frequently influenced by cognitive biases when making investment decisions, including the propensity to rely on limited or attention-grabbing information. Investors have exerted an impact on sentiments including greed, and fear, and Their enjoyment may influence their investment choices. (Sutejo et al., 2024). The fact that investors may be more likely to diversify their holdings as a result of fear is another significant advantage.

H3: Fear has a negative significant impact on investment decisions.

2.3.4 Loss Aversion and Investment Decision

Traditional financial theory holds that investors ideally act rationally when making financial decisions; however, investors' emotions and psyches can occasionally cloud their judgment, leading them to act irrationally. This phenomenon is explained by behavioral finance. The mental and cognitive process that leads to the selection of one action from among multiple alternatives is known as decision-making. Traditional financial thinking presumes that individuals always make logical decisions, even though everyone is susceptible to emotional and cognitive weaknesses and biases. (Statman, 1995). One example of a bias in behavior that can have an impact on one's disposition is loss aversion bias (Prospect theory), the paradox of risk and reward (Fiegenbaum& Thomas, 1988). In 1979, psychologists Daniel Kahneman and Amos Tversky initially discussed the concept of loss aversion. As satisfying as gains are, they found that losses inflict twice the amount of pain (prospect theory). Those who are loss-averse are less concerned with the expansion of their investments and more concerned with preventing a decline in capital. Those who are more affected by a decrease in their capital than an increase in it are said to exhibit loss aversion (prospect theory). A person with loss aversion is extremely risk-averse because he or she is afraid of losing.

Another antisocial behavior is loss aversion, which stems from an unhealthy obsession with avoiding potential danger. Loss aversion variables are measured by looking at investments that have a good performance history, investments that are cautious about losses, and investments with definite losses. (Khan, 2017). Focusing on the influence of emotional and cognitive biases, this study aims to experimentally determine the effect of behavioral factors on investment decisions. These factors include cognitive dissonance, loss aversion, regret avoidance, and mental accounting biases. (Aigbovo & Ilaboya, 2019). To explain, it is steady with the idea that people with less quality knowledge are more likely to construct preferences, therefore increasing loss aversion, that people who have more know-how about one car attribute (e.g., fuel economy) seemed to be less loss averse for that attribute between car buyers. However, this was not the case for other attributes (e.g., comfort) (Mrkva et al., 2020). People make decisions based on their estimates of the likelihood of various possibilities, which are often skewed or inaccurate. They go on to say that people making financial decisions also take into account psychological factors, some of which can be irrational and

based on intuition. As a result, it might not adhere to the rationality assumption. (Kartini & NAHDA, 2021). Investors often engage in loss aversion bias when they believe that the emotional cost of a loss will outweigh any potential financial benefit. Investors' irrational behavior can be partially explained by prospect theory.

While the majority of their work focuses on potentially harmful financial decisions, many of their studies apply to a wider range of potentially harmful options. Instead of looking at the net worth level, people here often consider how far things are from the reference point when evaluating the results. An important variable that has a greater impact on losses than on equal profits is the identification of these reference points. Second, there are two ways in which people handle profits and losses: first, they tend to be cautious when it comes to profits, and second, they are more willing to take risks when it comes to losses. In the end, profit is considered differently from loss, even though in this instance, the loss appears to outweigh the gain. (Turangan & Kim, 2022). There is uncertainty and risk in making investment decisions because they concern the future. However, there are psychological aspects that investors might consider. According to the speaker, several factors can lead to irrational decision-making and inaccurate estimations. As a result, the factors that impact investment decisions are the subject of this study's attention: mental accounting, loss aversion bias, and risk tolerance. (Dita et al., 2023).

H4: Loss aversion has a positive significant impact on investment decisions.

2.3.5 Financial Anxiety and Investment Decision

According to studies, people, their families, and communities can all feel the effects of financial anxiety. Several individual and societal outcomes, including physical and mental health, are negatively impacted by financial anxiety, according to research (Belle & Doucet, 2003; Sturgeon et al., 2016), and the health of friends and relatives. Notably, prior studies have shown that when it comes to investing, it's more beneficial to examine particular personality traits like trait anxiety rather than studying personality traits at their most general level of abstraction. (Arshad et al., 2019). Together with the well-being of those we're close to. Importantly, previous research has demonstrated that particular personality traits, such as trait anxiety, are more useful to study in the context of investing than abstract personality traits in general Gambetti E, Giusberti F (2019). In contrast, those who lean toward dependent decision-making are more likely to invest wisely, likely by the recommendations of their bank consultants. (Gambetti et al., 2022).

H5: Financial anxiety has a positive significant impact on investment decisions.

2.3.6. Mediating Relation between Loss Aversion, Stress, Fear, Herding, And Financial Anxiety and Risk Preference.

Investors' propensity to herd, loss aversion, stress, anxiety over money, and other potential negative emotions are viewed as potential positive ones in our study. A mediating variable is considered to be one's perception of risk. Stock market investors' rational decision-making patterns

are impacted by numerous human and social factors, according to the literature. It also shows that various investors are affected by various factors. Also, the findings regarding inter-variable correlations show that the same variable might generate various associations depending on the context. Because investors' subjective actions are influenced by a variety of social and psychological factors, including their level of social interaction and herding behavior, as well as by psychological ones like loss aversion, fear, financial anxiety, and stress, we employ risk perception as a mediator variable.

Emotional biases, specifically "loss aversion bias," impact investors' decision-making, according to the results of the present study. The results highlight the significance of loss aversion bias as a predictor of risk preferences. The outcome is similar to "prospect theory," a seminal theory in behavioral finance. (Duxbury & Summers, 2004; Kahneman & Tversky, 1979; Sitkin & Pablo, 1992). The results show that fear of loss is the most important factor influencing individual investors' risk preferences. If they can help it, individual investors would rather not take chances, even when there's a good chance, they could make a profit. Consequently, investors can turn their inherent psychological biases into tangible financial benefits by gaining a comprehension of personal investment behavior. Along with additional psychological and social factors, the investor's perception of risk plays a substantial role in the investment procedure. According to Literate, investors' risk perception is impacted by psychological factors. (Slovic et al., 2004). According to Lubis, Kumar, Ikbar, and Muneer (2015), certain personality traits and psychological factors impact investment choices. When making investment decisions, investors sometimes act irrationally because they trust their gut feelings more than they do in the data they have access to. Also, investors claim that losing money is due to emotional decisions and psychological biases (Shah, Ahmad, & Mahmood, 2017).

H6A: Risk preferences have a positive significant impact as a mediator between loss aversion and investment decision-making.

H6B: Risk preferences have a negative significant impact as a mediator between stress and investment decision-making.

H6C: Risk preferences have a negative significant impact as a mediator between fear and investment decision-making.

H6D: Risk preferences have a positive significant impact as a mediator between herding and investment decision-making.

H6E: Risk preferences have a positive significant impact as a mediator between financial anxiety and investment decision-making.

2.4 Theoretical Framework

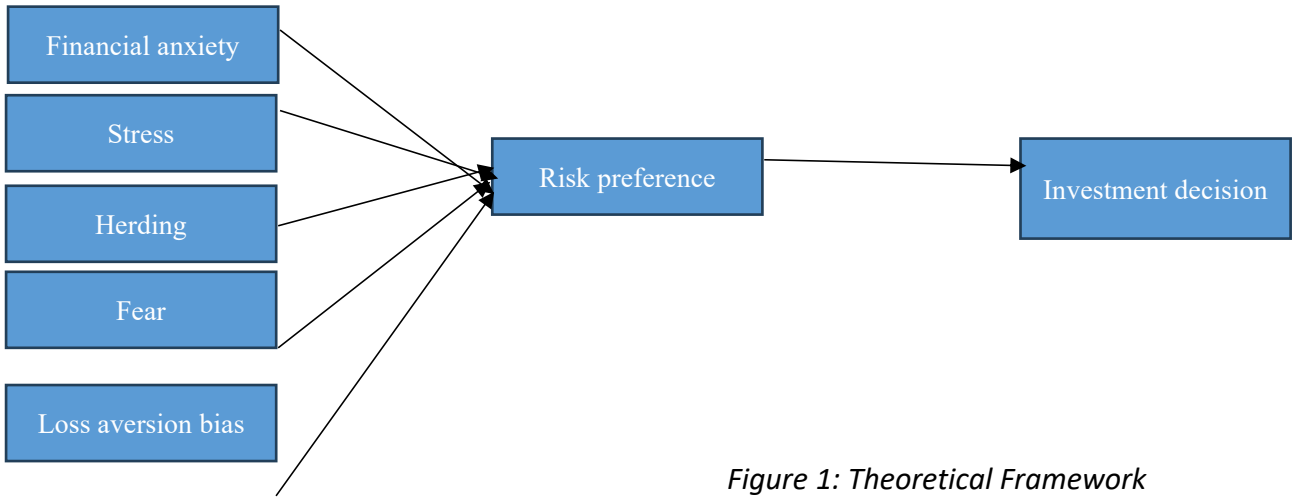

Figure 1: Theoretical Framework

3. METHODOLOGY

3.1 Data description

This research study investigates the unique influence of behavioral and cognitive biases on an investor's decision-making process while picking investments in the financial market. Consequently, all investors in Pakistan are regarded as a population for this study. The population examined in this research included individuals from several professions, including banking, business, entrepreneurship, and investment. This study encompasses individuals from both the corporate and public sectors. The study population is established by extensive data analysis, from which the sample is extracted, representing a subset of the whole population

.3.2 Research instrument

The survey questionnaire was pretested by our supervisor to ensure that the dimensions are accurately phrased and intelligible. The proposed modifications were included into the survey questionnaire prior to the final data compilation. The concluding questionnaire had two segments.

Demographic information was evaluated in section I, including gender and age. Section II consisted of items of different variables. The independent variables of financial anxiety consist of 3 items, loss aversion bias consists of 4 items, fear consists of 4 items, stress consists of 4 items, and herding consists of 5 items. Risk preferences have been considered as a mediator consisting of 3 items. The dependent variable is investment decision including 4 items to measure it. These are the statements drawn from relevant literature for measuring behavioral, and cognitive biases and investment decision-making.

3.3 Statistical technique

Partial least-squares equation modeling (PLS-SEM) was utilized to analyze the data in this study with the help of the statistical program Smart PLS (3). The characteristics of the data and the sample, as well as the results of a moderation and mediation study, led to the selection of this method of analysis. This strategy is appropriate because It establishes a connection between variables and predicts a set of equations all at once for the specified research model. Second, we have employed structural equation modeling (SEM), which includes both inner and outer modeling analyses to look at the connections among latent ideas and their observable points and independent and dependent factors. Smart PLS can be used to do PLS's variance analysis. As a result, we'll be using this method in this investigation.

3.4. Sampling Technique

A sample of 218 respondents investors from Pakistan were employed in this study. A convenience sampling technique was employed. The quantitative research design has been implemented. The variables of loss aversion bias and risk preferences are adapted from (Kishor, 2022). Further variables of investment decision, herding, stress, and fear are taken from (Moueed & Hunjra, 2020), lastly, financial anxiety is taken from (Ianole-Calin et al., 2021). All these variables are restrained on a 5-point agreement Likert scale. The values were extended from disagreement to agreement where 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree.

4. RESULTS AND DISCUSSION

TABLE 1

Demographic Details of Respondents

Descriptive	*Frequency*	Percentage
Gender		
Male	*139*	63.9%
Female	79	36.1%
Age		
18-22	31	13.9%
23-35	98	45.4%
36-45	50	23.1%
45-above	39	17.6%

The demographic factors include the percentages of frequency for gender and age. According to the data, there are more male respondents than female respondents, with about 63.9% of respondents being male and the remaining 36.1% being female. In terms of age, the largest group includes individuals aged 23-35, comprising 45.4% of the total sample.

TABLE-2

Reliability and validity

Construct	*Cronbach's alpha*	*Composite reliability (rho_a)*	*Composite reliability (rho_c)*	*Average variance extracted (AVE)*
Fear	0.787	0.831	0.860	0.608
Financial anxiety	0.757	0.862	0.858	0.670
Herding	0.825	0.914	0.864	0.564

Investment decision	0.772	0.809	0.855	0.600
Loss aversion bias	0.804	0.805	0.869	0.869
Risk preferences	0.783	0.810	0.875	0.701
Stress	0.724	0.758	0.827	0.546

TABLE 3

Factor loading

Constructs	Fear	Financial anxiety	herding	Investment decision	Loss aversion bias	Risk preferences	Stress
F1	0.733						
F2	0.802						
F3	0.713						
F4	0.863						
FA1		0.821					
FA2		0.914					
FA3		0.708					
H1			0.714				
H2			0.813				
H3			0.623				
H4			0.658				
H5			0.911				
ID1				0.924			
ID2				0.697			

ID3		0.739				
ID4		0.716				
LAB1			0.803			
LAB2			0.848			
LAB3			0.677			
LAB4			0.826			
RP1				0.934		
RP2				0.813		
RP3				0.755		
S1					0.665	
S2					0.837	
S3					0.724	
S4					0.718	

To begin, a diagnostic test was performed to assess the appropriateness of our measurement model through the examination of criteria related to reliability and convergent/discriminant validity. In assessing the hypothesis, seven variables were utilized. All the variables (investment decision, risk preferences, stress, herding, fear, loss aversion bias, and financial anxiety) had Cronbach's alpha values above 0.70, indicating that all the variables in the study are reliable. The average variance extracted (AVE) for each construct is shown to exceed 0.50 as per the requirement, Furthermore, all the composite dependability (CR) values are greater than 0.70, showing strong instrument reliability. The factor loading for each item is also found to be 0.60 or above. To determine Discriminatory Validity, the values in the Heterotrait-Monotrait Ratio (HTMT) can be up to 0.9. Lastly to address multicollinearity VIF values shall be less than 5.

TABLE 4
HTMT ratio

Construct	Fear	Financial	herding	Investment	Loss	Risk preferences	Stress

		anxiety		decision	aversion bias		
Fear							
Financial anxiety	0.816						
Herding	0.827	0.519					
Investment decision	0.760	0.690	0.662				
Loss aversion bias	0.503	0.720	0.820	0.733			
Risk preferences	0.240	0.552	0.780	1.215	0.801		
Stress	0.225	0.941	0.687	0.983	0.908	0.882	

TABLE 5
Fornell-Larcker Criterion

Constructs	Fear	Financial anxiety	Herding	Investment decision	Loss aversion bias	Risk preferences	Stress
Fear	0.780						
Financial anxiety	0.849	0.819					
Herding	0.782	0.472	0.751				
Investment decision	0.890	0.877	0.622	0.775			
Loss aversion bias	0.817	0.647	0.772	0.797	0.791		
Risk preferences	0.910	0.869	0.701	0.957	0.844	0.837	
Stress	0.790	0.755	0.547	0.778	0.715	0.853	0.739

An analysis of the established model-based hypotheses was conducted by employing structural equation modeling. To obtain the necessary statistical data for hypothesis evaluation and other critical results, the study employed the bootstrapping method of the Smart PLS hypothesis

and the PLS-SEM algorithm method for validity and reliability analysis, respectively. Bootstrapping generates subsamples (with replacement) at random from the original dataset. Each bootstrap subsample comprises the same number of observations as the original sample. A substantial quantity of subsamples is necessary to guarantee the consistency of findings.

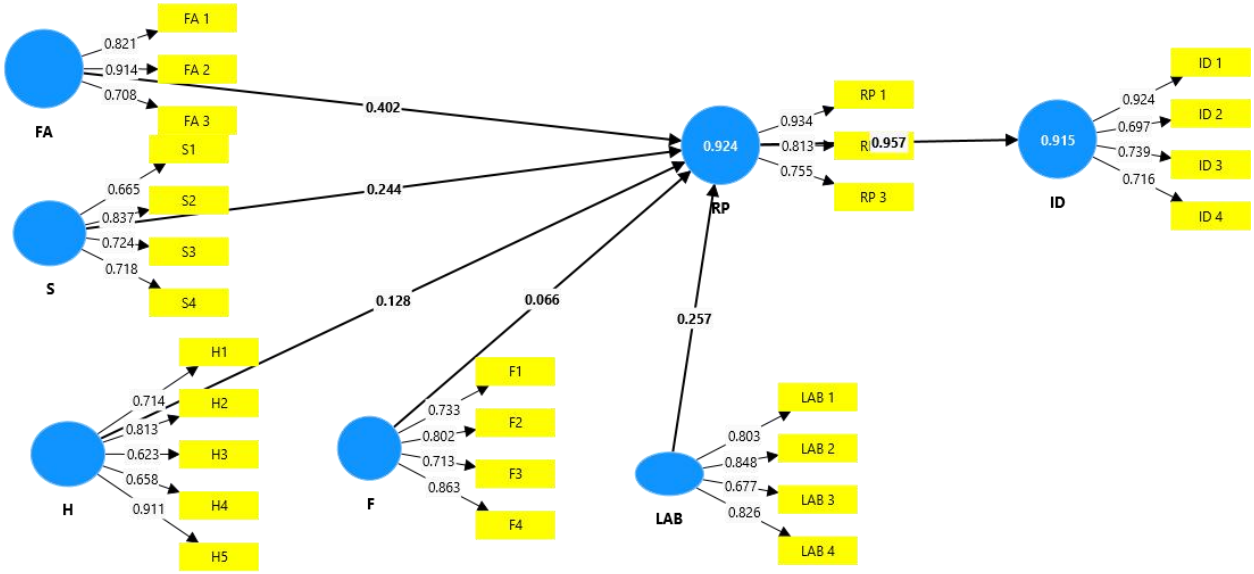

Figure 2: PLS-SEM algorithm

TABLE 6

PATH ANALYSIS

Constructs	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Fear -> investment decision	0.063	0.057	0.071	0.887	0.375
Fear -> risk preferences	0.066	0.060	0.074	0.889	0.374

Financial anxiety -> investment decision	0.385	0.390	0.041	9.378	0.000
Financial anxiety -> risk preferences	0.402	0.407	0.044	9.230	0.000
Herding -> investment decision	0.122	0.126	0.046	2.670	0.008
Herding -> risk preferences	0.128	0.132	0.048	2.659	0.008
Loss aversion bias-> investment decision	0.246	0.245	0.038	6.398	0.000
Loss aversion bias -> risk preferences	0.257	0.256	0.040	6.404	0.000
Risk preference -> investment decision	0.957	0.957	0.005	186.837	0.000
Stress -> investment decision	0.234	0.232	0.040	5.808	0.000
Stress -> risk preferences	0.244	0.243	0.042	5.770	0.000

Table 6 elaborates the hypothesis testing from bootstrapping which indicates that out of 11 hypotheses, 9 are accepted and 2 are rejected. (H3) Financial anxiety has a significant impact on investment decisions with a p-value (0.000 <0.05). (H4) Financial anxiety has a significant impact on risk preferences with a p-value (0.000<0.05). (H5) Herding has a significant impact on investment decisions with a p-value (0.008<0.05). (H6) Herding has a significant impact on risk preference with a p-value (0.008<0.05). (H7) Loss aversion bias has a significant impact on investment decisions with a p-value (0.000<0.05). (H8) Loss aversion bias has a significant impact on risk preferences with a p-value (0.000<0.05). (H9) Risk preference has a significant impact on investment decisions with a p-value (0.000<0.05). (H10) stress has a significant impact on investment decisions with a p-value (0.000<0.05). (H11) stress has a significant impact on risk preferences with a p-value (0.000<0.05). These 11 hypotheses are accepted because all of these values are less than 0.05. two variables out of which (H1) fear has no significant impact on investment decisions with p values (0.375>0.05) because the rejected hypothesis would suggest that investors' choices are not influenced by fear-related emotions. This means that regardless of market volatility, economic downturns, or geopolitical uncertainties, investors will make decisions based solely on rational analysis and objective financial criteria. Secondly, our second hypothesis (H2) is that fear has no significant impact on risk preferences with a p-value (0.374>0.05) because this hypothesis suggests that the common belief is that fear reduces people's willingness to take risks. And that a person's preference for risk remains the same, even when they are afraid.

TABLE 7

SPECIFIC INDIRECT EFFECTS

Constructs	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Loss aversion bias-> risk preferences -> investment decision	0.246	0.245	0.038	6.398	0.000
Stress -> risk preference -> investment decision	0.234	0.232	0.040	5.808	0.000
Fear -> risk preference -> investment decision	0.063	0.057	0.071	0.887	0.375
Financial anxiety -> risk preference -> investment decision	0.385	0.390	0.041	9.378	0.000
Herding -> risk preference -> investment decision	0.122	0.126	0.046	2.670	0.008

As presented in Table 8 it elaborates the first hypothesis (Loss aversion bias-> risk preferences -> investment decision) is validated. As the p-value is less than 05., it's confirmed that risk preferences mediate the positive relationship between loss aversion bias and investment decisions. The second hypothesis elaborates that (Stress -> risk preference -> investment decision) is validated. As the p-value is less than 0.05 it's confirmed that risk preferences mediate the positive relationship between stress and investment decision. Thirdly The data does not support (Fear -> risk preference -> investment decision) and indicates that there is no relationship at all between fear and investment decision. The findings contradict this since there is no mediation relationship between fear and investment decisions utilizing risk preferences. (Financial anxiety -> risk preference -> investment decision) is found to be significant thus findings show that risk preference integration mediates a positive relationship between financial anxiety and investment decisions. Lastly (Herding -> risk preference -> investment decision) is validated. As the p-value is less than 0.05 it's confirmed that risk preferences mediate the positive relationship between herding and investment decision.

5 CONCLUSION

Our study identifies the psychological and social aspects influencing individual investors' investing decision-making processes. Data about investors was obtained from PSX. Our study investigates the interrelationships among several natural elements via the use of a survey

questionnaire. The function of risk preferences as an intermediary between the dependent variable (investment choice) and the independent factors (loss aversion bias, fear, financial anxiety, stress, and herding) is recognized. The results indicate that investors agree that psychological and social factors, along with risk preferences, significantly influence investing choices. Behavioral finance theories indicate that investors do not consistently exhibit rationality. Investors are advised to refrain from making judgements based on information seen as more dependable due to social interactions. Moreover, they need to avoid swarming by depending on their expertise and intuition while making investing decisions.

Investors must acknowledge and be equipped to manage elements such as wrath, fear, mood, and stress. Our results indicate that anger, fear, and a happy mood favorably influence investors' decision-making by heightening awareness of worrisome events and promoting deliberate decision-making, but stress, social contact, and herding impact investors' choices negatively.-making adversely impacts decision-making by fostering irrational choices based on the actions of others or by comparing my investment results to those of peers, frequently resulting in adverse evaluations of investments.in investment decision-making Investors must recognize the significance of social aspects that may profoundly impact their stock market choices, particularly those arising from social contacts and the propensity for herding behavior. It is recommended that investors consider psychological and social factors when doing the decision-making investment choices. In our research investors would come to know that not only cognitive ability will ensure success, but emotional ability is also important along with it.

5.1 Theoretical Implications

The implications of this study are supported by two theories. First Porter's theory supports our variables of loss aversion bias, stress, herding, investment decision, fear, and risk preferences. Secondly, resilience theory supports our variable financial anxiety. In addition to this study, we have examined how our independent variables stress, herding, fear, financial anxiety, and loss aversion bias mediating through risk preferences affect our newly added variable investment decision in both behavioral and added study cognitive biases. The potential ramifications of our study are expected to influence particular individuals, institutional investors, and mutual fund managers in their investing choices. The findings of this research are pertinent to shareholders, securities traders, financial consultants, and advisers who are keen to invest in various equities when making investment selections. This study suggests that investors should leverage aspects that positively affect decision-making while avoiding those that have a detrimental effect. We examined six elements that influence the investor's decision-making process.

5.2. Managerial Implications

This research presents managerial implications through the integration of investment decisions, which can have a direct impact on institutional

investors, day traders, value investors, momentum traders, income investors, growth investors, value investors, and dividend investors. Investors can increase their investing capabilities, minimize risk, and avoid uncertain decision-making by working on these cognitive and emotional biases mentioned in this paper. By understanding the limitations of investment decisions, the investors would be able to develop better choices as compared to the preferences framed by keeping in mind the assumptions of behavioral and cognitive biases.

5.3. Limitations of the Study

However, there are various potential limitations of this study. Only the most relevant biases related to investment decisions were taken for the study. The other emotional biases that can have an impact can also be tested in future studies to gain a better understanding. Although this study used investors residing in Pakistan as the respondent base, the results of this study can also be tested in various geographies as a theoretical model.

This analysis might be extended by using investment success as a dependent variable after an examination of the influence of psychological and social elements on decision-making. Furthermore, additional external social elements that seem to affect investors' decision-making processes should be examined, such as the effect of social and electronic media on investment decisions.

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