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Prospect theory and investment decision biases: the mediating role of risk perception: case study of Pakistan stock exchange.

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Abstract

The emerging field of behavioral finance contends that investors may not always act rationally, challenging established financial theories. Individual investors mostly identify and develop stock market trends. Psychological and cognitive biases have an impact on investor decision-making. Investors' investment decisions are influenced by their propensity for taking risks and the information asymmetry; risk perception only partially mediates this connection. This study's objective is to assess how psychological and social factors impact investors' choices when those choices are influenced by risk perception. The surveys were individually given out to PSX investors that trade on the Pakistan Stock Exchange (PSE).The intended respondents each received one of 218 surveys. Target respondents who were willing to complete the questionnaire were given the questionnaire. Existing theories of behavioral finance and conventional finance are incorporated into the study to explore new hypotheses. Data has been gathered for all the study variables (behavioral factors) and coded into numbers. The presented hypotheses have been tested using structural equation modeling (SEM).The findings of this study showed that the hypothesis that there is a statistically significant mediating effect of risk perception on the relationship between the prospect theory variables and investment decision making is also supported. The study's main conclusions about how psychological variables affect investing choices showed that these elements have a big impact on investors' choices. The study's future focus will be on institutional investors' heuristic biases and behaviors.

Keywords: *Prospect Theory, behavioral factors, psychological biases, SEM, Investment Decision Making, Risk Perception*

Introduction

The study of human behavior is a crucial area for academic inquiry, and its applications help managers in the corporate sector deal with particular problems. The study of psychological influences and how they affect financial decisions is known as behavioral finance. The development of classical economics began in the middle of the 18th century. The concept of utility was created at this period, and it was based on how content a person was using other people's goods and services (Pompian, 2011; Keller, 2015). John Stuart put out the concept of "homo economics," or the rational man, in 1844. In order to maximize advantages and well-being with limited resources, a person is said to be reasonable. Three presumptions underlie the idea of rationality: complete rationality, self-interest, and perfect information. The conventional financial framework is the foundation for these three presumptions (Baker & Ricciardi, 2014; Kodres & Pritsker, 2002). Under this paradigm, everyone acts in a similar manner in an effort to maximize their rewards.

Human wants, goals, and reasons are based on human psychology (Abul, 2019). The idea of constrained rationality was first understood in this context by an economist who won the Nobel Prize. Simon (1955) proposes that human rationality is limited, and they cannot make rational decisions at all the time. After the seminal work of bounded rationality, Kahneman & Tversky (1979) propose ‘prospect theory’ that claims that investors use heuristics to assess risks and psychological aspects to evaluate the risky substitutes.

Furthermore, there are some biases based on psychological factors that lead to less rational investment behavior (Kahneman & Tversky, 1979). They conducted inspiring work on the misunderstandings about risks involved and decision making under a dynamic environment. The results of these studies show variances in investment decisions of (rational) investors, as traditional finance theories argued (Kahneman & Tversky, 1984). The assumptions of traditional economic theories, which hold that individuals behave entirely rationally and capital markets are efficient, served as the foundation for the development of behavioral finance (Fama, 1970). In 1994, the behavioral asset pricing model (BAPM) theory was put up as a challenger to the established theory, the CAPM. The theory comes to the conclusion that in addition to making rational investments, investors also make non-rational investment decisions. Economists always consider emotions in describing the trends in financial markets, and they always believe that emotions have a critical role in causing superfluous and unwanted price movements (Shefrin & Statman, 1994). After that, few researchers, with the help of many experiments, indicate the differences between rational and not fully rational

investors' behaviors inspired by behavioral biases (Shiv et al., 2005). The goal of behavioral finance is to establish a justification for why individuals don't always act rationally by fusing traditional/conventional finance theories with behavioral and psychological notions and theories (Phung, 2010).

Behavioral finance helps the investors understand and deal with personal feelings and behavioral biases, which compel them to influence shares' prices by providing some appealing descriptions in the market. These biases have substantial effects on individual investors' judgments and decision making processes. Moreover, these biases are also having the capability of influencing the decision-makers of institutional investors and portfolio managers (Shefrin, 2008; Shefrin & Statman, 1994). Institutional investors play a vital role in the proper functioning of stock markets and reduce the equity imbalance in Malaysia (Wahab, How & Verhoeven, 2008). De Bondt et al. (2008) claim that these behavioral studies can help the investors to beat the market, and practical investors are using behavioral aspects to make profitable investment decisions.

Background of the Study

The consequences of investors' financial activities have an influence on their future and general quality of life. According to De Bondt, Muradoglu, Shefrin, and Staikouras (2008), everyone must learn to handle their finances at some point in their lives. Since investors and financial specialists must cope with risks, other possibilities, uncertainty, and a changing environment, financial decision-making becomes more difficult (Lucey & Dowling, 2005). A study was conducted by Alquraan, Alqisie, & Shorafa, (2016), in which it was argued that the role of behavioral finance in decision-making is expanding Early research did not take behavioral elements into account while making investment decisions (Shefrin, 2008). According to Baker & Wurgler (2007) and Bhavani & Shetty (2017), an investment choice is based on the investor's historical performance, forecasting market trends, and technical analysis of financial assets.

Investor's behavior is vital for future investment decisions (Suresh, 2013). Past literature demonstrates planned behavior theory and links it to an individual's beliefs and behaviors (Ajzen, 1991). Investors use their beliefs to predict the expected outcomes of investment decisions, and many investors are reactive to negative market signals, and some investors are interested in positive market signaling (Bansal, 2015). Investors make proficient investment decisions after recognizing the psychological biases and their influence in choosing

investment alternatives in the stock market (Chira, Adams, & Thornton, 2008; Chandra & Thenmozhi, 2017).

Statement of the Problem

In any corporate context, decisions play a key role. The best decision leads to organization's growth at the right moment. The risky investment choices are affected by various prejudices, while risk perception is the mediator of risky investment decisions and behavioral biases(Ahmad, 2021). The focus of the study, which is based on the heuristics theory and prospect theory and takes risk perception into account as a mediating factor that influences the relationship between behavioral finance factors and investors' decision-making, will be on specific behavioral considerations that influence investor judgment(Ayaa et al., 2022). Investors' opinions are influenced by how risk is perceived, regardless of how they evaluate the relationship between risk and investment (Slovic, 1987).

In Pakistan, there is less research on this topic. Moreover, the profit maximization may be extremely unpredictable and uncertain if investment decision-making is focused on investor compliance. There is therefore a need to address this issue, in order to understand the investor's behavior in relation to investment decisions in Pakistan Stock Exchange.

Significance of the study

The primary objective of the study is to gain understanding about psychological and social factors and their influence on investors' decision-making in the setting of the Pakistan stock market. In general, this study will assist individual investors, institutional investors, stock market brokers, financial analysts, securities advisers, and managers of mutual funds in making better informed investment decisions by assisting them in using such criteria. The Pakistan Stock Exchange (PSX)'s individual investors will find value for the study's findings in particular.The significance of this study encompasses as follows:

- Individual stock market investors should pay attention to this study. The research on behavioral aspects and investors' perceptions of risk while making investment decisions is expanded by this study in terms of its application in real-world situations.
- The purpose of this study is to examine how behavioral characteristics and investor psychology affect decision-making, as well as how much of a role risk perception plays in that process.
- Prejudice based on behavioral and cognitive bias is particularly blind to the impact on risky decision making.

Objectives of the study

The research focuses in the clearer statement on the achievement of the following objectives:

- Determine how investor behavior influences investment choices and performance at the Pakistan Stock Exchange.
- Behavioral finding is used to identify potential behavioral elements that influence investor investment choices at the Pakistan Stock Exchange.
- Organize the groundwork for more behavioral finance research in Pakistan.
- To advise private investors to alter their conduct in order to make profitable investments.

Research Gap

Investment decision-making is a complex mechanism when an investor invests not just his capital but time. Risk is often combined with the need to address all the variables associated with this in any respect. As with Pakistan, where there is no strong economy and political volatility, investors will risk and spend riskily in the precautionary region. In the previous studies, Pakistan has not been a focus; most scholars covered only other Asian countries such as China, and have investigated several materialistic and behavioral causes. The focus of this study will be on behavioral elements that are based on the heuristic theory and prospect theory, and it will also assess the role that risk perception plays as a mediator between behavioral finance and the process of making investment decisions (Ayaa et al., 2022). This study, which incorporates risk and other factors that affect how investors in Pakistan make decisions, will be a breakthrough for aspiring scholars.

Literature Review

Traditional finance theory versus behavioral finance

Market efficiency and rationality are the cornerstones of conventional financial theory. These theories were created to provide mathematic solutions to challenges encountered in daily life (Tekin, 2016). Some of these ideas include the principles of arbitrage developed by Modigliani and Miller in 1958, the principles of the portfolio developed by Markowitz in 1952, the capital asset pricing model developed by Sharpe and Lintner in 1964, and the option pricing theory developed by Merton in 1973. According to these views, individuals are rational and have access to all the knowledge they need to make judgments. Oprean (2014) discussed the efficiency of the financial markets as well as the sanity of investors. He said that several classical finance theories and models are utilized to analyses financial

markets and investors (Zhu & Niu, 2016). The Efficient Market Hypothesis (EMH) is the idea that has received the most attention and criticism out of all of these theories and models. This theory is based on the ideas of efficient markets and rational investor behavior (Kristoufek & Vosvrda, 2014).

The concept of efficient markets and rational individuals came into doubt as traditional financial theories failed to account for these psychological components and oddities present in the stock markets (De Bondt et al., 2015; Statman, 2014). Anomalies that challenged the concept of rationality included herd behavior, dotcom bubbles, and real estate bubbles (Khan et al., 2017). A bubble develops when market participants drive up prices above a security's fundamental worth. There is a difference between the market price and the genuine price of the securities, claim Galariotis, Rong, and Spyrou (2015). Shah, Ahmad, and Mahmood (2018) contend that individuals bought pricey assets, defying the efficient market hypothesis. According to them, prices would rise excessively in the future (Rasool & Ullah, 2020; Asekome & Agbonkhese, 2015). Such abnormalities and irrational conduct put the efficient market theory and the idea of rationality into doubt (Thakor, 2015).

Therefore, it is necessary for behaviorists to devise such models that emphasize predicting the influence (impact of behavioral factors) rather than just explaining the previous trends (Bansal, 2015). The big lesson to learn is that behavioral theories don’t guide people on making profitable investment decisions; instead, it only explains that psychological aspects cause market prices to deviate for a long time (Humra, 2016; Nouri et al., 2017). Introductory literature discusses the emergence of behavioral finance and its role in financial decision-making; this part is organized as it covers the seminal work on behavioral finance by Simon (1955).

Behavioral finance in Asia

Behavioral finance theories claim that all individuals are not always rational while making a complex decision under uncertainty. The theory of bounded rationality expresses that investors make wrong choices because their rationality is bounded by limited knowledge and scarce resources under the presence of psychological factors (Hoffrage & Reimer, 2004). Nowadays, behavioral finance is considering a valuable area of research for scholars while studying stock market functioning. Stock markets and share prices are influenced by the behavioral factors of investors, along with technical errors(Ahmad, 2021). Pakistan is a developing nation, and markets are not strongly efficient (Najaf, Najaf & Yousaf, 2016).

Investors make such decisions that are not entirely rational, influenced by psychological and social factors (Rana, Murtaza, Noor & Rehman, 2011).

Researchers from Pakistan describes the rational and irrational decision making amongst Pakistan investors while investment is made. The findings depict that investors are not always rational; they behave irrationally as they make a decision under psychological factors (Hassan & Bashir, 2014; Riaz & Hunjra, 2015). Moreover, people show stronger emotions and heuristic bias in their investment behavior, leading to less proficient investment decisions (Shah, Ahmad & Mahmood, 2017; Ainia & Lutfi, 2019). A study by Lan, Xiong, He, & Ma (2018) also claiming that individual personal and demographic characteristics are useful in predicting investor behavior.

Behavioral finance

The theory of Behavioral Finance works with psychologists to find out how feelings and cognitive mistakes influence the actions of investors (Kengatharan & Kengatharan, 2014). According to a behavioral financial analysis, a variety of viewpoints, expectations, and preferences can influence an investor's choice of investments (Smart, Gitman, & Joehnk, 2016). To understand that the belief, interpretation, and partiality are the reasons why investors overreact to some financial information and decision-making phenomena that could lead to irrational decision-making and risk-taking (Bakar & Yi, 2016). This theory is used in dynamic and unpredictable situations where it is difficult and necessary to take decisions (Shefrin, 2001).

Behavioral biases are also used to find the best answer. The availability bias was discovered to have been developed by Kahneman and Tversky in 1974 (Kengatharan & Kengatharan, 2014; Kahneman & Tversky, 1979). Overconfidence was included into a heuristic in a study. Similar to this, a number of other factors also have an impact on investment decision-making; some of them are discussed in the study's following parts (Waweru, Munyoki, & Uliana, 2008). Behavioral finance was defined by Olsen (1998) as a method for comprehending the psychology and effects of financial markets. It is a systematic instrument for predicting the results of decisions. An examination of the psychological and cognitive components of financial markets may be found in Belsky's (2010) book Behavioral Finance.

Prospect Theory

Decision-making should be approached using both prospect theory and expected utility theory (EUT). While EUT is founded on investors' reasonable expectations, prospect theory emphasizes how decisions are impacted by subjective value systems (Failback, Hatfield, &

Horvath, 2005). According to their perception of their benefits or losses, people often compare potential outcomes to predetermined ones and respond to comparable situations in various ways (Kahneman & Tversky, 1979). According to Waweru et al. (2003), the prospect theory identifies a number of mindsets that affect a person's ability to make decisions, including as regrets, loss aversion, and mental accounting.

Loss Aversion

The loss-aversion bias is another interesting prejudice that is commonly studied in various contexts. This distortion causes investors to make unreasonable decisions (Kahneman & Tversky, 1979). In this way, investors are so afraid of failure that they avoid investing in portfolios that they might profit. Here, loss suffering is far worse than investment gains. Investors are highly vulnerable to losses they will always prevent, thereby influencing their decision (Amonlirdviman & Carvalho, 2010). Loss aversion is linked to feelings of guilt, anxiety; fear (Godoi, Marcon, & Silva, 2005). During the study, we also found that the losses of women are more negative than those of men (Hassan, Khalid, & Habib, 2014; Blavatskyy & Pogrebna, 2008).

Regret Aversion

Sad theory also posits that the investor's risk assessment and decision-making conduct often takes risk and sometimes avoids investment, as per the theory. Investment and risk are both related. Two kinds of investors are available, i.e. risk taking and averse risk. Some investors believe they will regret their decision if they invest and if the portfolio value or the value of investment decreases. Other people or investors invest because they regret the decision if specific value of investment rises (Loomes & Sugden, 1982).

Mental Accounting

Mental accounting, as defined by Barberis and Huang (2001), is "the method of people thinking and evaluating their financial transactions". Investors can divide their portfolio into several accounts by employing mental accounting (Barberis & Thaler, 2003; Ritter, 2003). Mental accounts are a term which shows that investors arrange their portfolios into individual accounts for individual handling (Barberis & Thaler, 2003; Ritter, 2003).

Investment Decision Making

Investments are when people put money into a certain project, stock, or other asset with the hopes of making a profit or maximizing their profit. For best success, the investment needs a clear vision and precise assessment. Maximizing profit is the aim of an investor. The dependent variable of rational decision-making is knowledge, which is an independent

variable. As a result, psychological and behavioral factors can affect how we make decisions (Merton, 1987).

Conceptual Understanding of Risk Perception

While investing in stock markets, two factors gain all the attention, i.e., risk and return on investment. Expected returns and risk of loss have to calculate for proficient investment. How beneficent is your investment? Is the question that is difficult to answer (Slovic, Fischhoff, & Lichtenstein, 1982)?. Every person experiences danger differently, either simultaneously or at various times, depending on the situational or personal factors (Slovic, 1971).

According to Slovic, Finucane, Peters, and MacGregor (2004) and Cohen et al. (2008), personal mood and lack of experience have a big influence on risk perception. For a company they are familiar with, investors are less worried about risk (Singh & Bhowal, 2010). Participants who are male and adults exhibit increased optimism and willingness to take risks (Rhodes & Pivik, 2011). Riaz & Hunjra (2015) examined the mediating function of risk perception using psychological components as the independent variable. Numerous factors, including ignorance, anxiety, and a lack of confidence, might influence this viewpoint (Deb & Singh, 2018). Additionally, even when they perceive risk as being low, investors are always forced to think about taking on potential hazards (Nguyen et al., 2019).

Research Model & Hypotheses Development

Prospect Theory (Behavioral aspects) has an influence on how investors make decisions.

Since investors have always found it difficult to evaluate the elements that make a good judgment, experts in finance have long examined the phenomenon of investment decision-making (Saleem, Usman, Haq, & Ahmed, 2018). Decisions and behavior are common results of the decision-making process.

Academics and professionals have long relied on finance theories built on the current portfolio theory (Markowitz, 1952). The classic theories are based on the idea that while making an investment choice, investors act in a "rational" manner and consider all information that is readily available to the public, demonstrating that all information is equally accessible to investors. Markets are referred to as efficient since securities prices represent all available information (Fama, 1970). The link between likely returns/gains and systematic risk is defined and explained by the "capital asset pricing model" hypothesis (Sharpe, 1964). The opposite is also true: according to behavioral finance, investors don't always make totally logical judgments or choices because of their emotions and psychology (Slovic, 1971; Kahneman & Tversky, 1979).

Two schools of thought—descriptive and normative—are used to guide investment decisions. While the regulatory theory examines how investors can select from a variety of possibilities, the theory of description describes how investors select an investment. However, when human action is involved, rational decision-making is impossible (Kengatharan & Kengatharan, 2014). It discusses the psychological factors that impact individuals' irrational investment decisions (Thakur, 2017).

Figure 1

Relationship between Prospect Theory and Investors decisions of investors. Source: Author

Hypotheses on Direct relationships amongst independent and dependent variables:

H_1: There is significant impact of Loss aversion on Investor's decisions.

H_2: There is significant impact of Regret Aversion on Investor's decisions.

H_3: There is significant impact of Mental Accounting on Investor's decisions.

Investment decision-making and perception of risk

Risk perception influences the opinion of the investor when evaluating past experience, or how investment risk is correlated (Daskalaki & Skiadopoulos, 2016). The principle of uncertainty and risk is related to one another and determines how the investor perceives the severity of the risk. Without insecurity, the risk cannot occur (Daskalaki, Kostakis, & Skiadopoulos, 2014). Insecurity can be drastically distinguished, but it has never been isolated properly, from the familiar idea of risks. Risk is valued more highly in literature than uncertainty (De Bondt, Mayoral, & Vallelado, 2013). The outcomes of portfolios, where investors wish to invest to save their capital because they fear loss, may be used to determine how investors see themselves.

Figure 2

Impact of Risk Perception on Investors decisions of investors. Source: Author

Hypothesis on Direct relation between mediating variable and dependent variable:

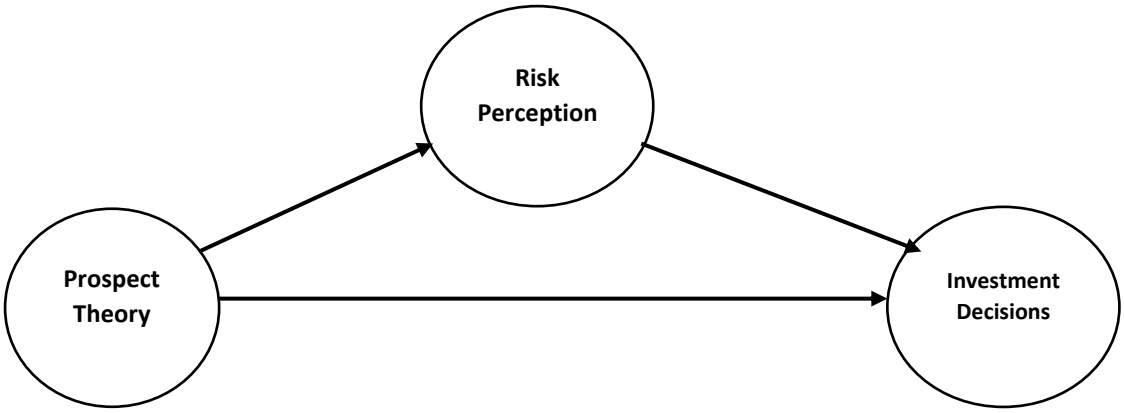
H_4: There is significant impact of Risk Perception on Investor's decisions.

Investment choices and behavioral biases can be mediated by risk perception.

In their study of the mediating role of risk perception, Riaz and Hunjra (2015) found that risk propensity and information asymmetry are the factors that affect investors' investment decisions and that risk perception only partially mediates the relationship. As a mediating element between behavioral aspects and investors' decisions, risk aversion is also being discussed(Ahmed & Noreen, 2021). Investors are influenced favorably by the mediating factors of risk aversion and risk perception (Deb & Singh, 2016; Hunjra & Rehman, 2016). Lack of understanding, fear, and a lack of confidence are a few aspects that are constantly involved in changing this attitude (Deb & Singh, 2018). Aeknarajindawat (2020) also examined the effects of risk tolerance and risk perception on investing choices and discovered a constructive link between the two.

Figure 3

Mediating impact of Risk Perception on Relationship between Prospect Theory and Investors decisions of investors. Source: Author



Hypotheses on Impact of Risk perception as mediator on the relationship between independent and dependent variables:

H_5: Risk perception is mediator between Loss aversion and Investor's decisions.

H_6: Risk perception is mediator between Regret Aversion and Investor's decisions.

H_7: Risk perception is mediator between Mental Accounting and Investor's decisions.

Research Methodology

Research design

The tests applied to the gathered data guide the research to certain patterns which help to generate a novel theory (Saunders et al., 2016). In this research, a conceptual model is formulated through a deductive approach. Data is gathered for all the study variables (behavioral factors) and coded into numbers. The presented hypotheses have been tested using structural equation modeling (SEM). The process of gathering the essential data and turning it into usable knowledge is a crucial part of doing research. The type of data needed for the underlying research relies on the study's objectives (Bryman & Bell, 2009).

Research Sampling Techniques

According to Gill & Johnson (2002), the two sampling methods utilized in business research are probability sampling and non-probability sampling. In probability sampling, there is an equal chance of selecting respondents at random; in non-probability sampling, there is not an equal chance of selection. According to Zikmund et al. (2010), non-probability sampling comprises judgmental/purposive/Purposive and convenient sampling, whereas probability sampling covers multi-stage, random, stratified, and random sampling. In order to get the sample for the present study, Purposive sampling is performed. Purposive sampling is a valid method for selecting the sample since the target population of the current study is the individual investors of the Pakistan Stock Exchange, who are spread throughout several stock exchange brokerage businesses.

Study Sample and Data Collection Method

The study's sample is the population that is being studied, and its findings are generalizable to the entire population. The population as a whole is affected by the conclusions. The nonprobability convenience sampling technique was used to collect the data. One of the aspects that contributed to the choice of this approach was its capacity to save both time and money (Bryman & Bell, 2015). Investment Decision Making (IDM) is the only (01) dependent variable in this study. Loss Aversion (LA), Regret Aversion (RA), and Mental Accounting (MA) are the only (03) independent factors. Risk Perception (RP) is the only (01)

mediating variable.

The questionnaires were individually given out to PSX investors that trade on the Pakistan Stock Exchange (PSE). The intended respondents each received one of 218 questionnaires. Target respondents who were willing to complete the survey received the questionnaire. Some respondents complete the questionnaire on the same day, but the majority of investors made a commitment for the following day, therefore the questions were filled out by the respondents the following day. Using a Likert scale, score the respondent's response. The Likert scales go from 1 (Strongly Disagree) to 5 (Strongly Agree), with 1 being the most strongly opposed position.

Techniques for Data Analysis

The analysis was initially conducted using validity and reliability tests, and a structural equation model (SEM) with underlying ideas and concepts was employed as the analytical model. These procedures, recommended by Markus (2012) and Nachtigall, Kroehne, Funke, & Steyer (2003) to analyze the data, are best suitable for investigations of a similar nature.

Discussion and Analysis

Measurement Model Analysis

A model with convergent validity, discriminant validity, and composite reliability that describes the relationships between each block of indicators and their latent variables used after then to evaluate the accuracy of tools and the validity of conceptions.

Table 1
Construct Reliability and Validity

Construct	*Item*	*Convergent Validity*	*Internal Consistency Reliability*		*Discriminant Validity*	
		AVE	Cronbach Alpha	Composite Reliability	HTMT	VIF
		>0.50	0.60-0.90	0.60-0.90	Confidence Internal Does Not Include 1	<5.00
Loss Aversion (LA)	6	0.630	0.880	0.883	Yes	2.391
Regret Aversion (RA)	6	0.636	0.904	0.906	Yes	2.292
Mental Accounting (MA)	6	0.592	0.885	0.885	Yes	2.092
Risk Perception (RP)	7	0.590	0.884	0.884	Yes	2.101
Investment Decision	8	0.631	0.916	0.917	Yes	2.338

Making(IDM)	

Table adapted from Hair et al. 2017
**AVE: Average Variance Extracted; HTMT: Heterotrai- Monotrait Ratio; VIF: Collinearity Statistic*

Convergent Validity

The idea that structural indicators and load factor indicators in PLS should be strongly correlated is related to validity testing. The AVE value is greater than 0.5, Cronbach's Alpha is greater than 0.50, and Composite Reliability is greater than 0.70, as shown in Table 1. The criteria of Construct Reliability and Validity also demonstrate valid and dependable.

Figure 4: Outer Loading

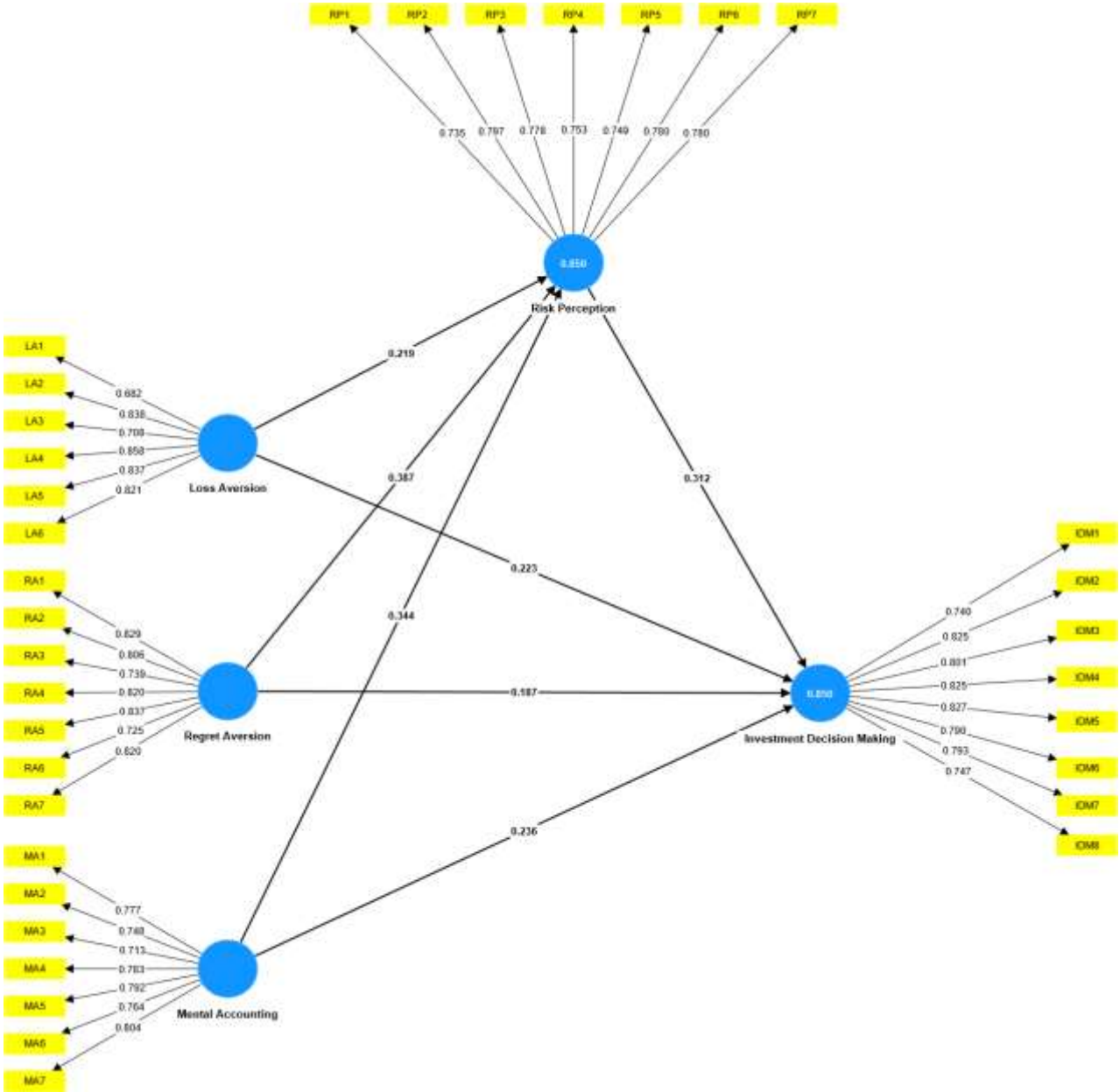


Figure 4 displays Outer loading results show that every indication has a value greater than 0.7, indicating that every indicator is valid. The higher the value of the factor loading, the more important a role does it play in describing the factor matrix. The loading factor value must be more than 0.7 and the AVE value must be greater than 0.5. The following is the SmartPLS Outer loading's output: *Figure 4.*

Discriminant Validity

The three constructs are all valid measures of their respective individual constructs, according to the suggested model measurement analysis findings, which may be summarized based on their factor estimates and statistical significance. In order to be employed in the actual data collecting stage, the measurement model developed acceptable reliability and validity standards.

Table 2
Heterotrait-Monotrait Ratio HTMT

Variables	LA	RA	MA	RP	IDM
Loss Aversion (LA)	0.872				
Regret Aversion (RA)	0.571	0.858			
Mental Accounting (MA)	0.498	0.538	0.858		
Risk Perception (RP)	0.552	0.651	0.531	0.911	
Investment Decision Making(IDM)	0.610	0.522	0.612	0.601	0.829

This is accomplished by verifying that the items across the construct measure various constructs in the model by looking at the HTMT criteria value. It may be determined if the value of the HTMT statistic is less than 0.90 by examining the fact that the confidence interval value of the statistic must not include the value of 1 for the complete combination of the construct. According to Table 2, the whole construct's HTMT value is less than 0.90, which denotes the model's lowest discriminant validity.

Structural Model

To assess the relationship between the constructs in the structural model, R^2 is used to compare the dependent construct, the value of the path coefficient, or the t-value for each path. R^2 is a metric that expresses the degree to which the free variable deviates from the bound variable; the greater the value of R^2, the more accurate the production model.

R-Square

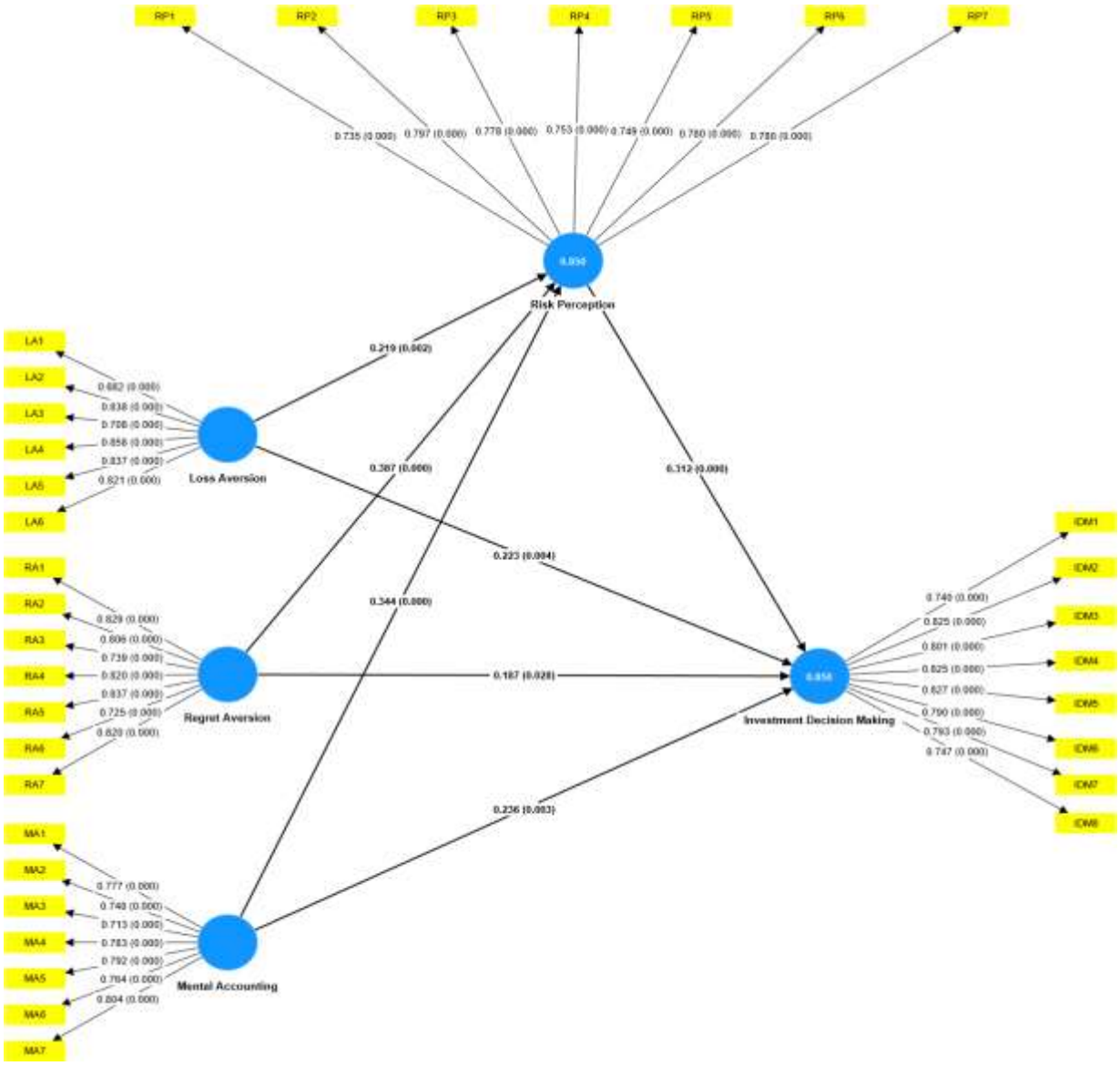
Table 3

R-Square

Variables	R-square	R-square adjusted
Investment Decision Making	0.85	0.848
Risk Perception	0.85	0.848

The value R^2 acquired by Investment Decision Making (IDM) and Risk Perception (RP) was identified in the findings. While R^2 obtained by RP shows that all the Independent factors of prospect theory impact RP by 85%, all the Independent variables of prospect theory affect IDM by 85%.

Figure 5
Structural Model



Testing Hypothesis

The path coefficient indicates the link between the underlying concept and the guiding process or its amount of impact. This method seeks to ascertain whether exogenous variables affect endogenous variables by comparing statistical values of t with values of t-tables. Table 4 of Direct Effect shows that the above all the relationship between variables of Prospect Theory (i.e. LA, RA and MA) on IDM. as well as on Risk Perception have positive effect. Further risk perception itself has significant position effect on IDM.

Table 4
Direct Effect

Relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Decision
Loss Aversion -> Investment Decision Making	0.292	0.292	0.076	3.842	0.000	Supported
Loss Aversion -> Risk Perception	0.219	0.216	0.071	3.070	0.002	Supported
Mental Accounting -> Investment Decision Making	0.344	0.347	0.078	4.423	0.000	Supported
Mental Accounting -> Risk Perception	0.334	0.345	0.092	3.726	0.000	Supported
Regret Aversion -> Investment Decision Making	0.308	0.305	0.082	3.775	0.000	Supported
Regret Aversion -> Risk Perception	0.387	0.390	0.091	4.274	0.000	Supported
Risk Perception -> Investment Decision Making	0.312	0.313	0.076	4.126	0.000	Supported

The Table 5 which shows the Indirect Effect, revealed that the risk perception has mediating effect on investment decision making. Because all of the p-values are below the significance level of 0.05, the hypothesis that there is a mediating effect on the relationship between the prospect theory variables (i.e., LA, RA, and MA) and investment decision making is supported.

Additionally, the hypothesis that there is a statistically significant mediating effect of risk perception on the relationship between the prospect theory variables and investment decision making is also supported(Cao, Nguyen, & Tran, 2021; Ahmad, 2021;&Ayaa et al., 2022).

Table 5
Indirect Effect

Relationship	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values	Decision
Regret Aversion -> Risk Perception -> Investment Decision Making	0.121	0.123	0.045	2.716	0.007	Supported
Loss Aversion -> Risk Perception -> Investment Decision Making	0.068	0.067	0.027	2.490	0.013	Supported
Mental Accounting -> Risk Perception -> Investment Decision Making	0.107	0.107	0.037	2.873	0.004	Supported

Conclusion and Recommendation

The goal of the study was to investigate how psychological and social variables affected investors' investing decisions and how risk perception acted as a mediating element. The study's main findings addressing the influence of psychological elements on investing decisions show that these aspects have a big impact on how investors make judgments(Ayaa et al., 2022;&Abul, 2019). Results are supported by prior research and behavioral finance theories, such as Kahneman and Tversky's (1979) prospect theory. The current study elaborates the results of direct as well as indirect impacts of psychological and social elements on investment choice supported by Slovic (1987) by using risk perception as a mediator. According to earlier research by Akhtar & Batool (2012) and Lu et al. (2013), risk perception plays a significant impact in the decision-making process for investments. According to Fischhoff (1995), the communication theory examines how information about risk occurrences is disseminated. If risk perception is regarded as a subjective matter, investors are affected by psychological and cultural factors when making judgements or investments (Slovic et al., 1982; Slovic, 1987). Risk perception has been demonstrated to be significantly influenced by behavioral characteristics (Hallahan et al., 2004).

Recommendation

On the basis of the findings, suggestions are made to investors to help them make better decisions when buying PSX. Investors are advised to take psychological as well as societal considerations into account when choosing an investment. Investors frequently prioritize gains rather than taking into account the likelihood of losses because behavioral finance theories contend that investors are not always rational. The findings of this study are especially helpful to individual investors, financial advisers, and fund managers in Pakistan

and other developing nations where investors are less aware of behavioral biases and where markets are not entirely efficient.

The study's findings advise investors to use behavioral aspects that have a favorable influence on decision-making to their advantage while avoiding those that have a negative impact. This study has some limitation which may be overcome in future research studies along with new dimensions. As the scope of behavioral finance extended to the concept of neuro finance, future research may be extended to use variables, related to investors' minds involvement in risky decisions along with psychological factors. Additionally, additional social aspects like social media and electronic media that can affect investors' decision-making might be considered in the research. In the future, behavioral finance may potentially be expanded via experimental techniques and neuro finance. To broaden the use of behavioral finance, future studies may also utilize institutional investors as the target population to examine herd behavior and other crucial determinants of decision-making processes.

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