



RESEARCH PAPER

**The Influence of Behavioral Biases on Investment Decisions;
Moderating Role of Emotional Stability**

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ABSTRACT

This study examines how six behavioral biases (availability bias, self-control bias, overconfidence bias, prejudice an illusion of control, and representative prejudice) affect investing decisions moderated by emotional Stability. The study employs a theoretical model based on behavioral finance theories and a hypothetic-deductive methodology. Demographic information of 237 active traders on the stock exchange has been examined through quantitative research utilizing SmartPLS 4. The findings construct validity as all items have a loading value >0.60. The proposed model was tested in the study using a two-step process. First, reflective measurement models were used to test the measurement model, and Partial Least Squares (PLS) were employed to analyze the data. The structural relationships between the variables were then examined using structural equation modeling (SEM). The findings revealed that all variables explained 37.53% of the overall variance, indicating no significant issues with friction from the usual technique. The study's findings suggest that behavioral biases considerably influence investment choices and that emotional Stability moderates this relationship.

KEYWORDS Behavioral Biases, Behavioral Finance, Emotional Stability, Investing Decisions

Introduction

Behavioral biases impact investment decision-making and can result in irrational choices that cause investors to lose money. The most prevalent behavioral biases influencing Investing Decisions (ID) are Representational Bias (RB), Availability Bias (AB), self-control bias, Overconfidence Bias (OB), prejudice, Anchoring Bias (AB), and the illusion of control. It is hypothesized that Emotional Stability (ES), a personality quality, can reduce the influence of these biases on investment choices. Making investment decisions is a difficult process that involves weighing several variables, including corporate performance, market trends, financial indicators, and individual preferences. On the other hand, behavioral biases frequently impact investing choices, producing less-than-ideal results. The most prevalent psychological flaws that influence investment choices include availability bias, self-control bias, overconfidence bias, prejudice and the illusion of control, and representational bias (Barber & Odean, 2001; Statman, 2017). These biases can cause people to make illogical decisions, which can cause investors to lose a lot of money. It is suggested that ES, a personality quality, can lessen the influence of these biases on investment choices. ES is an individual's capacity to control emotions, deal with stress, and have a positive attitude amid trying circumstances. (Costa & McCrae, 1992).

Investors tend to choose profitable investments in the financial world. Their decisions are based on their comprehension of the investment and how they judge the risk and reward involved. Because investors are given complete market knowledge and are expected to be rational, traditional finance fundamentals predict that they will make wise investment choices. In uncertain times, investors want to maximize their gain or profit by

selecting the option that provides the best returns (Kumar & Goyal, 2015). One of the cornerstones of traditional finance, the Efficient Market Hypothesis, asserts that the stock market is consistently flawless and effective and that stock prices effectively reflect all available information (Fama, 1970). The emerging field of behavioral finance challenges this notion and questions the unproven reality of investors' rational investment decision-making contrary to this premise. The area of behavioral finance, which has several facets, focuses on all the behavioral elements of irrational decision-making and the variables that influence these decisions (Semenov, 2009). As they are thought to affect investment decision-making directly and significantly, behavioral biases are essential topics in behavioral finance.

Behavioral finance is an essential topic of study that identifies the biases that investors are likely to have and the irrationality in their investing decisions. Due to investors' inability to forecast and even follow market events, cognitive biases are present. That pushes investors to make biased decisions (Stanovich & West, 2008). March and Simon (1958) coined the idea of bounded rationality. He posited that rationality is bounded among humans as they exercise mental accounting and rely on heuristics or shortcuts in their decision-making. That can result in suboptimal judgments formulated based on irrationality. Similarly, Simon (1979) asserted that a person's ability to comprehend all information is limited. Therefore, their decisions are often based on illogical thoughts, incomplete knowledge, and subjectivity (Simon, 1979).

Investors depict irrational behavior for many reasons: different circumstances, wrong judgments, perception distortion, and biases (Sanfey et al., 2003). Recent events in the Pakistani stock market have seen unusual highs and lows, and many investors feel that huge investors frequently manipulate market movements by making substantial amounts of money. (Pompian, 2008). Therefore, it has become necessary to examine the investment decisions of investors and what key factors impact these decisions to ensure that the market is not manipulated; instead, all decisions are made rationally and objectively (Jiang & Yan, 2016). A complete and comprehensive profile of investors can provide a reflective view of how investors perceive any prospective investment and what different biases and dispositions contribute to the decision outcome (Summers & Duxbury, 2012). Most investors in the Pakistani market have little to no technical knowledge regarding investment; they make decisions guided by their biases and subjective opinions. This study aims to inspect the role played by behavior biases in influencing investment decisions and unravel the moderating role of FL and ES. It is pertinent to gain high returns to eliminate investor biases and encourage investors to make rational and objective decisions (Rydman & Rangel, 2014).

The existing literature focuses on the effect of these behavioral biases on ID in Western countries. However, the effect varies considerably in developing economies like Pakistan due to prevailing uncertainty and vast asymmetry in knowledge and information regarding investment decisions. The models examined in the previous studies are restricted to studying the direct impact of behavioral biases, and no effect of moderating variables is researched (Abdin et al., 2022). Exploring various factors that affect an individual's investment decision and, subsequently, the performance of their investments is a huge area of interest in behavioral finance research (Cheng et al., 2018). The current study intends to examine FL's moderating effect and how it influences the link between behavioral biases and investing decisions. The present study complements the existing literature and builds upon the structure by providing new evidence from the developing economy of Pakistan. The financial landscape of the Pakistani stock market has evolved considerably over the years. In light of modern behavioral finance theories and identified biases, the vital role of FL can be studied in moderating the relationship between behavioral preferences and ID.

This study will act as an instruction manual for all investors who actively participate in trading but fail to dismiss the impact of biases from their investment decisions. This study

will educate investors about acquiring technical skills and encourage them to become financially literate to make more rational investment decisions. The findings of this study can be generalized to essentially all investors engaged in trading, especially in emerging economies. The present study identifies the differential effect of multiple biases on investment decisions and assesses how the moderation of an investor's ES is a significant factor. This study argues that every individual investor exudes a different appetite for risk and has a certain tolerance for risk. That proves that biases are present in investment decisions since chances, in combination with FL and ES, control how much of impact behavioral biases have. This study intends to explore how behavioral biases affect investing choices and how emotional Stability acts as a moderator in this relationship.

Literature Review

When investors depend on quickly available information rather than carefully examining all relevant facts, this is known as availability bias. As a result, recent news or events may be overemphasized, which may obscure the genuine nature of the investment (Tversky & Kahneman, 1973). Self-control bias describes people's propensity to give in to instant gratification, which results in rash investment decisions (Loewenstein, 1996). Investors that suffer from the overconfidence bias tend to overestimate their skills and underestimate the dangers involved in making investments (Lichtenstein & Fischhoff, 1977). Investors' propensity to hang on to investments, although poor results or their delusion that they have more control over outcomes than they do are referred to as prejudice and illusion of control bias, respectively (Moore & Healy, 2008). The propensity to base judgments on generalizations and stereotypes rather than information is representative of prejudice (Tversky & Kahneman, 1974). In several areas, including financial decision-making, it has been discovered that EB is a strong predictor of rational decision-making (Kim & Lee, 2018; Kohler et al., 2019). By undervaluing emotions and emphasizing factual facts more, it is believed that ES will lessen the impact of behavioral biases on investment decisions (Kohler et al., 2019).

Investment Decision

Efficient markets are trading areas where average returns cannot exceed warranted returns promised after considering the risks related to the specific return (Barberis & Thaler, 2003). By combining psychology and finance, behavioral finance examines how investors' behaviors and innate qualities are crucial in deciding investing decisions. Investment decisions can be understood and improved when investor psychology is better understood. Behavioral finance questions the notion that investors have full knowledge of the investment and is based on conventional financial theory (Shefrin & Statman, 2000). Investment decisions can be understood and improved when investor psychology is better understood.

The decision-making process is an amalgamation of sub-processes that contribute to the outcome. It begins with the definition of objective, which refers to deciding on desired return and exploring available alternatives. The investor then performs a cost-benefit analysis and eventually selects the option with the lowest cost (Shefrin, 2002). Modern economists advocate two well-known rational approaches: investors base their decisions on the anticipated utility theory or create accurate future projections. An eminent economist named Milton Friedman asserted that introducing humans into the financial markets would define them. He emphasized the notion that logical judgment is not permitted in the markets. As a result, decision-making changed from a conventional idea to a modern paradigm considering human behavior's significance. That demonstrates how significantly investors rely on their judgments and how little education and evidence they believe (Harikanth & Pragathi, 2012).

An AB is one of the psychological biases that has received much attention and significantly impacts an investor's decision-making. It is characterized as a cognitive bias that explains why people frequently depend heavily on the first piece of information (Shin & Park, 2018). Instead of observing it objectively, anchors often base their stock purchases on its most recent high price and use it as a benchmark. This bias causes investors to make decisions based on current price changes and levels (Singh, 2016). A prime example of this effect is when you go shopping and check the price of a handbag you like, you set it as the reference point or an anchor view of all the other handbags. If the first handbag cost \$1000, and the second one was worth \$800, you will view the second one as cheap.

When subjected to this bias, the investor relies upon the knowledge that is readily available and omits the examination of alternative sources of information and procedures. The information decision-makers receive, and the sources from which it is derived significantly impact them (Barber & Odean, 2001). Most investors vacillate between options as they weigh each investment's risk and capital cost. Investors' preferences keep on changing based on the information that they receive. Therefore, when a pattern is established, even if the information is unreliable or inaccurate, investors tend to incorporate it into their decision-making process (Adetiloye, 2012). Similarly, when a firm in the economic market reveals wrongdoing, the investors tend to get apprehensive and judge conclusions without considering all the factors (Chen & Tsai, 2010).

SCB is an emotional, behavioral tendency that makes people lack self-control when pursuing their ambitions. People sacrifice their long-term goals to consume today (Pompian, 2006). This bias is explored regarding money and how investors overspend without saving or viewing investments as prudent. They look for quick gains at the expense of future savings. Because of this, investors suffer from short retirements and have very few savings left in the bank (Riaz & Iqbal, 2015).

Overconfidence bias is one of the primary measures of risk as it reflects people's regard to consider themselves superior and better in relevance to others. They believe they have all the investment knowledge and are making the correct decision (Larrick et al., 2007). In investment finance, people frequently undervalue and exaggerate their capacity for logical decision-making. Investors often overestimate their ability to grasp the control of events and their competence in finance concepts and skills (Khurshid, 2012). Those extremely overconfident tend to make excessive market investments without sufficient market knowledge. Due to incorrect pricing and severe instability, this overconfidence bias makes markets less efficient (Fuertes et al., 2014). Such investors' portfolios are consistently less diversified. Overconfident people tend to think that their knowledge base is adequate, which is a well-known fallacy. They get excessively hopeful and disregard the investment's risks (Zaidi & Tauni, 2012).

The false appearance of CB is a type of inconsistent behavior since it refers to a tendency for people to think they can affect or even control outcomes when, in fact, they cannot. Various forces and circumstances determine the value of each traded investment in the very unpredictable stock market (Budescu & Bruderman, 1995). Investors prone to the illusion of control bias believe they have more power to influence outside elements to influence the result and returns. Due to this, investors trade more frequently than is wise or profitable, limiting their portfolio to one undiversified sector. They have a false sense of control and do not use various approaches to choose their assets. This bias encourages investor overconfidence (Pompian, 2012).

The representative heuristic is a mental shortcut or the propensity for people to depend on stereotypes to make illogical snap decisions. Investors frequently make quick decisions and don't spend enough time processing all the information available to them to make informed decisions (Chun & Ming, 2008). Investors' decisions can be impacted by representative bias in two different ways. First, investors may perceive patterns in identical

information. In doing so, they overreact when forecasting the firm's future success, giving recent information and news about the company more importance and weight. Second, investors can anticipate a reversion if they obtain several similar pieces of information, even if they are insufficient to make the legislation applicable (K & J, 2011). Investors disregard probability theory because of this bias, which causes them to believe that the sample accurately represents the entire population (Irshad et al., 2016).

The tendency for a person to feel unfavorable feelings like anxiety, tension, and despair is referred to as ES, a personality attribute (Costa & McCrae, 1992). Compared to people with low ES, those with solid ES are typically more robust and adept at handling stress. Better decision-making in various circumstances, including financial issues, has been linked to this personality trait (Miyake et al., 2012). When we talk about the ES moderating function, we talk about how it can change how other aspects affect decisions. In the context of investment decisions, ES moderates the relationship between behavioral biases and investment judgments (Miyake et al., 2012; Kong et al., 2018). Behavioral biases are intentional mistakes in decision-making that might result in less-than-ideal decisions (Barberis & Thaler, 2003). As an illustration, Miyake et al. (2012) discovered that ES modulated the association between overconfidence bias and investment choices. Overconfidence bias is the tendency for someone to overestimate their abilities and the accuracy of their predictions. According to the study, ES lessened the influence of overconfidence bias on financial decisions. With high ES, people made more logical investing decisions and were less susceptible to overconfidence bias. Similar findings were made by Kong et al. (2018), who discovered that ES mediated the link between loss aversion and investment choices. Loss aversion is the tendency to feel more sorrow at losses than happiness at gains. The study found that those with high ES made more rational investment decisions and were less vulnerable to lose aversion. In conclusion, ES moderating effect shows that it can lessen the influence of behavioral biases on investment choices. Building ES can help people and businesses make better decisions and reduce behavioral biases' impact.

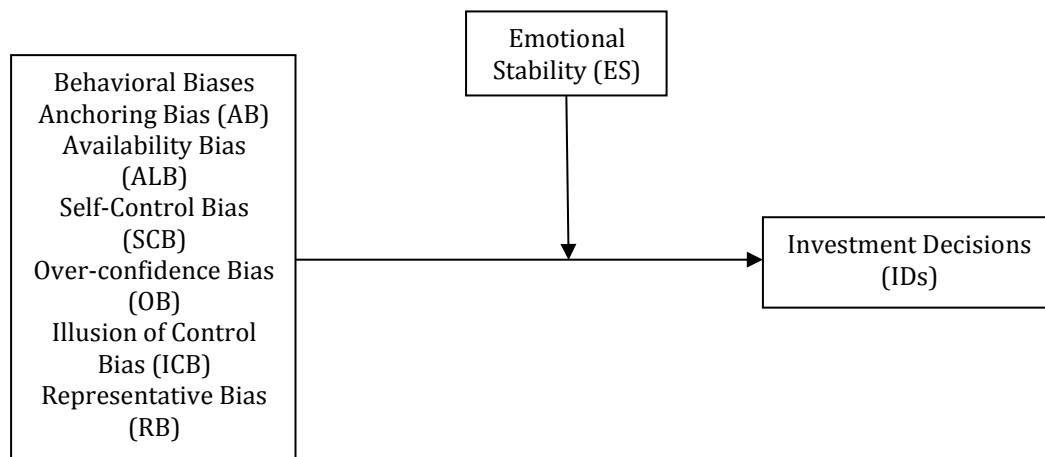


Figure 1. Research model

Hypotheses

H1: Anchoring bias is negatively linked with Investment decisions (IDs).

H2: Availability bias is negatively linked with IDs.

H3: Self-Control bias is negatively linked with IDs.

- H4: Over-confidence bias is negatively linked with IDs.
- H5: Illusion of control bias is negatively linked with IDs.
- H6: Representative bias is negatively linked with IDs.
- H7: Emotional Stability will moderate the connection between anchoring bias and IDs. When ES is high, the negative relationship between anchoring bias and IDs is weakened.
- H8: Emotional Stability will moderate the connection between availability bias and IDs; when ES is high, the negative relationship between availability bias and IDs will be weakened.
- H9: Emotional Stability will moderate the connection between self-control bias and IDs; when ES is high, the negative relationship between self-control bias and IDs would be weakened.
- H10: Emotional Stability will moderate the connection between overconfidence bias and IDs; when ES is high, the negative relationship between overconfidence bias and IDs will be weakened.
- H11: Emotional Stability will moderate the connection between ILC bias and IDs; when ES is high, the negative relationship between ILC bias and IDs will be weakened.
- H12: Emotional Stability will moderate the connection between representative bias and IDs; when ES is high, the negative relationship between expected bias and IDs would be weakened.

Material and Methods

The moderating effects of FL and ES in facilitating the link are concurrently observed and taken into consideration in this study to explore the impact of behavioral biases on investing decisions. The hypothetic-deductive approach is employed to conduct this research, stipulating that a scientific theory can be constructed based on direct experimentation and observation results. These results can be validated and verified later through empirical evidence. In this approach, the problem identified is inspected in the background setting of the population, and the research gaps are determined to streamline the research and make a worthwhile contribution to the discipline. After that, an extensive review of the existing literature merged with findings is meticulously analyzed and evaluated to formulate hypotheses. These hypotheses are developed to build a theoretical model assessment structured on existing behavioral finance theories. This research conducted quantitative research to acquire desired outcomes, and empirical evidence will be gathered, processed, and analyzed in light of existing literature and theoretical models. Hence, this research gravitates around the hypothetic-deductive approach to obtain the results.

This research studies the ID made by investors investing in the Pakistani capital market. Primary data was collected through survey circulation among the target population. This approach is highly convenient and effective as it will receive first-hand information from the investors and obtain accurate results in identifying biases and their impact. Purposive or subjective sampling was used to choose the sample for this study. This study's non-probability sampling strategy was ideal because the research design necessitates responses from investors trading on PSX. That helped gather more accurate and valuable responses, leading to better insights and precise findings. Respondents were approached through professional channels and personal contacts.

The five-point Likert Scale (LS), where a rating of 1 indicates "strongly disagree" and a rating of 5 indicates "strongly agree," served as the foundation for the questionnaire's construction. This scale assists in quantifying the sample's responses and opinions. This tool could estimate the parameters and gather the right replies for further analysis.

Using SmartPLS (v.4.0), the data were examined. Various statistical techniques were used to measure the biases' influence on investment decisions and investigate how financial literacy acts as a moderator. Numerous models were created, and numerous studies, including confirmatory factor analysis, sample characteristics, descriptive statistics, reliability analysis, correlation analysis, and regression analysis, were performed to produce more convincing and accurate results. That made it easier to have a broad perspective on the relationship and check the effects of the variables more precisely. The moderating effect was also investigated using Hayes' process model.

Results and Discussion

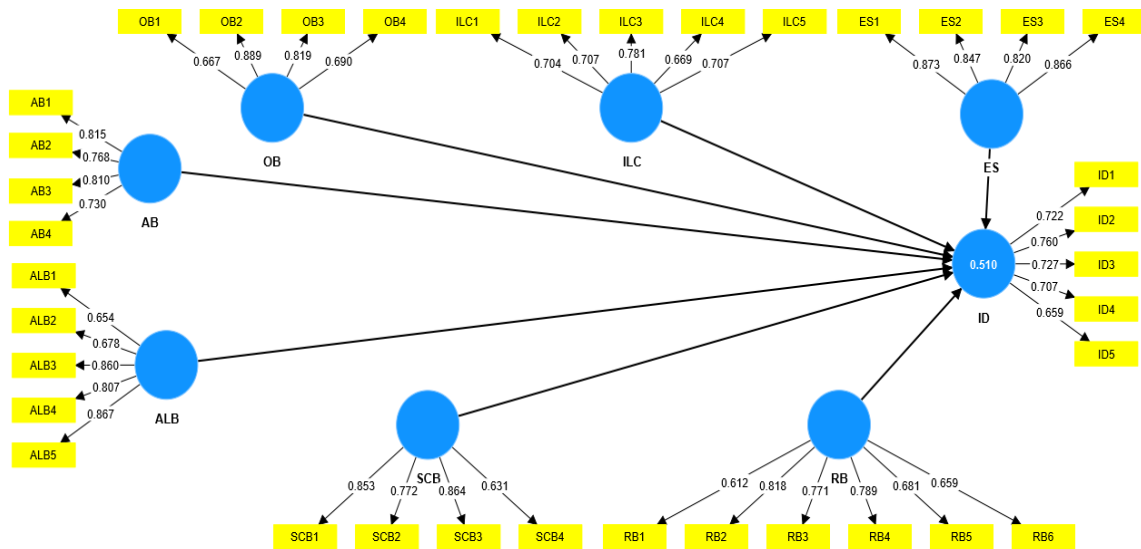
Table 1
Profile of Respondents

Variable		Frequency	Percent
Gender	Male	207	87.3
	Female	30	12.7
Age	21-30	43	18.4
	31-40	80	33.7
	41-50	75	31.6
	51 and above	39	16.4
Qualification	Bachelor	17	7.2
	Master	118	49.8
	MS/MPhil	79	33.3
	PhD	23	9.7
Experience	1-5 years	22	9.3
	6-10 years	63	26.6
	11-15 years	107	45.1
	15-20 years	45	19.0

The above table shows the demographic profile of respondents (investors) of the current study who are active traders at the Pakistan Stock Exchange. The results show that the majority of the investors are male (87.3%), 31-40 years of age (33.7%), with master qualification (33.7%), and 11-15 years (45.1%) of trading experience.

Measurement Model

The PLS approach to assessing the validity of the measurement model computes the composite reliability, significant loading factor levels, average extracted variance (AVE), square root of AVE, and significant levels of AVE for each construct. Before deciding on a structural analysis of the model, it is recommended that the measurement model be validated (Anderson & Gerbing, 1988). There may be a relationship between latent variables only if construct validity is shown (Peter & Churchill, 1986). The following behavioral biases are tested as independent variables in the current study: Anchoring Bias (AB), Availability Bias (ALB), Self-Control Bias (SCB), Overconfidence Bias (OB), Illusion of Control Bias (ICB), and Representative Bias (RB), with Emotional Stability (ES) acting as a moderator between behavioral biases and Investment Decision. (ID). All variables are evaluated on a Likert scale of 1 to 5, with one strongly disagreeing.



The below table shows the loading of each item; the results show that all things have a loading value >0.60 which is recommended for further processing.

Table 2
Outer Loading of Each Item

Items	AB	ALB	ES	ID	ILC	OB	RB	SCB
AB1	0.815							
AB2	0.768							
AB3	0.810							
AB4	0.730							
ALB1		0.654						
ALB2		0.678						
ALB3		0.860						
ALB4		0.807						
ALB5		0.867						
ES1			0.873					
ES2			0.847					
ES3			0.820					
ES4			0.866					
ID1				0.722				
ID2				0.760				
ID3				0.727				
ID4				0.707				
ID5				0.659				
ILC1					0.704			
ILC2					0.707			
ILC3					0.781			
ILC4					0.669			
ILC5					0.707			
OB1						0.667		
OB2						0.889		
OB3						0.819		
OB4						0.690		
RB1							0.612	

RB2	0.818
RB3	0.771
RB4	0.789
RB5	0.681
RB6	0.659
SCB1	0.853
SCB2	0.772
SCB3	0.864
SCB4	0.631

Table 3 shows Cronbach's Alpha, Composite Reliability, and AVE of all variables; as per the benchmark, the value of Cronbach's Alpha and Composite Reliability should be >0.70 and AVE >0.50 (Hair et al., 2013). The variables' results are above the test benchmark, so we are considering all items and variables for further analysis.

Table 3
Construct reliability and validity

Variables	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	The average variance extracted (AVE)
AB	0.788	0.796	0.862	0.611
ALB	0.836	0.869	0.884	0.606
ES	0.874	0.874	0.913	0.725
ID	0.762	0.762	0.840	0.512
ILC	0.759	0.762	0.839	0.511
OB	0.773	0.834	0.853	0.596
RB	0.818	0.834	0.868	0.526
SCB	0.790	0.818	0.864	0.617

Discriminant validity

Following the assessment of construct validity, Fornell-Larcker (1981) criteria were used to determine the discriminant validity. The different nature of all construct items is explained by discriminant validity (Hair et al., 2013). To evaluate discriminant validity, we employ the HTMT ratio. Ratios below 0.85 indicate that discriminant validity is appropriate (Henseler et al., 2015; Teo et al., 2008; Gold et al., 2001). All HTMT readings are below the 0.85 thresholds, as shown in Table 4. That implies that higher discriminant validity positively correlates with lower HTMT ratios, albeit not always true.

Table 4
HTMT

Variables	AB	ALB	ES	ID	ILC	OB	RB
AB							
ALB	0.463						
ES	0.566	0.236					
ID	0.458	0.408	0.386				
ILC	0.625	0.397	0.245	0.292			
OB	0.648	0.382	0.447	0.390	0.480		
RB	0.797	0.251	0.571	0.321	0.313	0.381	
SCB	0.305	0.219	0.643	0.264	0.468	0.102	0.214

Analysis of Structural Model

The PLS Structural model evaluation includes determining the path coefficient for hypothesis testing, doing an R-square analysis to assess the effect size, and determining the Goodness of Fit. A bootstrapped approach with 500 subsamples and a 0.05 significance level was used to determine the path coefficient. The Path Coefficient is used to determine the significance of a hypothesis. Every single original pathway has route coefficient values, T-values more than 1.96, and P-values below 0.05, as shown in Table 5 (Hair et al., 2013).

The R-Square value was calculated using the PLS-Algorithm. For further information, a model's R2 value must be greater than 0.25 to be regarded as predictively applicable (Falk & Miller, 1992). The result indicates that Investment Decision has $R^2 = 0.510$ and Adjusted $R^2 = 0.503$.

Table 5
Structural Analysis of Model

Relationships	Beta	T Values	P values	Decision
Anchoring Bias -> Investment Decisions	-0.428	-11.242	0.000	Supported
Availability Bias -> Investment Decisions	-0.343	-9.812	0.000	Supported
Self-Control Bias -> Investment Decisions	-0.419	-10.593	0.000	Supported
Over-Confidence Bias -> Investment Decisions	0.194	4.553	0.000	Supported
Illusion Of Control Bias -> Investment Decisions	-0.245	-6.218	0.000	Supported
Representative Bias -> Investment Decisions	-0.334	-8.741	0.000	Supported
Emotional Stability -> Investment Decisions	0.233	5.504	0.000	Supported
Emotional Stability x Anchoring Bias -> Investment Decisions	0.144	3.465	0.000	Supported
Emotional Stability x Availability Bias -> Investment Decisions	0.225	5.026	0.000	Supported
Emotional Stability x Self-Control Bias -> Investment Decisions	0.195	4.776	0.000	Supported
Emotional Stability x Over-Confidence Bias -> Investment Decisions	0.354	10.522	0.000	Supported
Emotional Stability x Illusion of Control Bias -> Investment Decisions	0.297	7.446	0.000	Supported
Emotional Stability x Representative Bias -> Investment Decisions	0.068	1.773	0.83	Not Supported

The result in the above table shows that anchoring bias has a negative and insignificant impact on investment decisions (beta = -0.428, t = -11.242, p = 0.000). Other biases like availability bias, self-control, the illusion of control, and representative bias negatively impact investment decisions. Out of selected behavioral biases, only over-confidence positively and significantly affects investment decisions (beta = 0.194, t = 4.553, p = 0.000). The moderating variable, emotional Stability, also has a positive and significant effect on investment decisions (beta = 0.233, t = 5.504, p = 0.000). The results show that all moderating relationships significantly impact investment decisions except representative bias.

The current study investigated the influence of six behavioral biases, namely AB, ALB, SCB, OB, ICB, and RB, on investment decisions. The association between the biases above and investment decisions was studied, with the moderating effect of emotional Stability (ES). The study used a two-step approach to test its model. We use the HTMT ratio to assess the discriminant validity of our model. When the ratio is less than 0.85, discriminant validity is applicable (Henseler et al., 2015; Teo et al., 2008; Gold et al., 2001). As seen in Table 4, all HTMT levels are below the 0.85 cutoffs. That suggests that, although this is not always the case, more substantial discriminant validity is positively connected with lower HTMT ratios. Before analyzing the data, the study screened for normality,

outliers, and missing values. The study also used Harmon's one-factor approach to examine the Common Method Variance (CMV). The results indicated that all variables explained 37.53% of the total variance, which was less than the acceptable threshold of 50%, suggesting no apparent problems associated with CMV.

According to the demographics of the respondents, the majority of investors (87.3%) were male, between the ages of 31 and 40 (33.7%), possessed a master's degree (49.8%), and had 11 to 15 years of trading experience (45.1%). The study assessed the measurement model's dependability by calculating the significant loading factor levels, composite reliability, and average extracted variance (AVE and AVE squared for each construct using PLS). The loading results of each item showed that all things had a loading value of >0.60 , which is recommended for further processing. The study also computed Cronbach's Alpha, Composite Reliability, and AVE for all variables. The results showed that all variables had values above the acceptable benchmark. Thus, all items and variables were considered for further analysis. Overall, the study sheds light on how behavioral biases affect financial decisions and how emotional Stability is a moderator. Investors and financial advisors may find the study's findings helpful in developing measures to lessen the influence of behavioral biases on investing choices. Using SmartPLS 4, the study validated the measurement model before testing the structural model. Significant at $p < 0.05$. As shown in Table 4, ES and three behavioral biases (ALB, OB, and RB) were discovered to have a considerably favorable impact on ID. On the other hand, SCB was found to have a significant adverse effect on ID. AB and Illusion of Control Bias (ICB) were not found to have a substantial ID. The researcher also investigated the moderating role of ES in the link between behavioral biases and ID. Table 5 lists the conclusions. Significant when $p < 0.05$. According to Table 5, ES had a substantial negative moderating effect on the connection between self-control bias and investment decisions. However, ES did not significantly affect the associations between other behavioral preferences and ID.

Prior studies found different positive and negative results regarding these behavioral biases. The study by Chen (2019) found that investors with higher anchoring bias were more likely to rely on past prices as a reference point for future investment decisions, leading to suboptimal investment outcomes. However, the study also found that investors who were aware of their anchoring bias were better able to mitigate its negative effects and make more rational investment decisions. Li and Wee (2017) found that anchoring bias can positively and negatively affect investment decisions, depending on the specific context. Investors who engaged in reflective reasoning or actively considered alternative perspectives and information were better able to mitigate the negative effects of availability bias and make more rational investment decisions (Egan et al., 2016). Another study found that availability bias hurts investment performance, as investors more susceptible to this bias tend to have lower returns and higher risk-adjusted performance (Li & Liang, 2013). Investors who exhibit higher levels of self-control bias tend to have better investment outcomes, as they are more likely to follow the advice of their financial advisor and stick to their investment plan (Glaser et al., 2013). Overconfident mutual fund managers tend to trade more frequently, which leads to higher transaction costs and lower returns (Glaser & Weber, 2007). Individual investors trade more frequently and make smaller gains due to the delusion of control bias (Barber & Odean, 2000). In a study by Zhao and Zhou (2021), ES influenced the relationship between biases and investment decisions favorably.

Overall, this study's findings indicate that emotional Stability is essential for reducing the detrimental impacts of behavioral biases on investing choices. The study offers crucial information for financial advisors and investors to understand the effects of behavioral biases on investment decisions and how to deal with these biases to make more informed investment decisions.

Conclusion

The study's findings show that behavioral biases greatly influence investment choices. Behavioral biases and investing choices are associated, although ES modifies this relationship. In the first step of the study's two-stage data analysis approach, a measurement model was evaluated, and in the second stage, structural equation modeling (SEM) was used. The data was analyzed using SmartPLS 4, and demographic analysis was conducted on the sample of 237 active Investors at the PSX. The results of the study showed that all six behavioral biases had a significant influence on investment decisions. Moreover, Emotional Stability was found to moderate this relationship, implying that individuals with higher Emotional Stability are less prone to the impacts of behavioral biases on ID. Investors, financial advisors, and policymakers can use the study's findings to develop better investment strategies and policies. The study also validated the measurement model by computing loading factors, composite reliability, average extracted variance (AVE), and the square root of AVE for each construct using the PLS technique. The reliability and validity tests showed that all constructs had good reliability and validity, indicating that the data was reliable and suitable for further analysis. Overall, the research adds to the body of knowledge by emphasizing the role of emotional Stability as a moderating element in the link between behavioral biases and investment choices. The study presents practical implications for investors, financial advisors, and legislators in addition to contributing to the body of knowledge on behavioral finance.

The findings of this study support the existing literature that suggests that investors are not always rational and often rely on heuristics or biases in their investment decisions. Specifically, investors tend to anchor their decisions based on a reference point, rely on readily available information, exhibit overconfidence in their abilities, and perceive themselves to have more control over outcomes than they do. Additionally, investors may base their decisions on the perceived similarity of investments to previous success. The study also highlights the importance of emotional Stability as a moderator in the association between behavioral biases and ID. Emotional Stability is a person's ability to handle stress and remain calm under pressure, which can mitigate the negative impact of behavioral biases on investment decisions. Investors with high levels of emotional Stability may be better able to recognize and control their biases, resulting in more rational investment decisions.

Overall, the study helps us understand how behavioral biases affect how we make investment decisions and how crucial emotional Stability is as a moderator. The study's conclusions have real-world applications for investors, financial advisors, and legislators. Investors can gain by being emotionally stable and conscious of their biases, and financial advisors can assist clients in becoming aware of and controlling their inclinations. Policymakers can use the study's conclusions to create plans for reducing the detrimental consequences of biases on investment choices.

Although the study has a sample size of 237, it would be beneficial to expand the sample size to ensure the generalizability of the findings. A larger sample size would increase the power of the statistical tests, improve the estimates' precision and increase the results' reliability. The current study used a single construct to measure emotional Stability. It would be helpful for future studies to use multiple measures to capture the different dimensions of emotional Stability. For example, a wide scale like the Big Five Personality Traits would provide a more robust estimate of Emotional Stability. While the study focused on six behavioral biases, other biases could impact investment decisions. Future studies could explore the impact of other biases on investment decisions, such as confirmation bias, framing bias, and sunk cost bias. While the current study used PLS, other structural equation modeling techniques, such as confirmatory factor analysis (CFA) or partial least squares path modeling (PLSPM), can be employed to analyze the data. It would be helpful to compare the results of different statistical models to ensure the robustness of the findings.

The study's sample of Pakistani investors may limit how broadly the results may be applied to other situations or populations. Because it uses self-reported data, the study may be subject to social desirability bias. It may be challenging to accurately measure some of the constructs, such as emotional Stability, which may be subjective and difficult to self-assess. The study only examines six behavioral biases, and other biases that may affect investment decisions, such as confirmation bias or framing bias, are not included in the model.

The study may be repeated in different settings or populations to evaluate the findings' generalizability. A future study might employ experimental methods to get around some of the drawbacks of self-reported data and better manage external variables that can influence investing choices. To gain a deeper understanding of the variables influencing investment decisions, additional behavioral biases and moderators that were excluded from the current study could be created.

References

- Alrabadi, D. W., AL-Gharaibeh, M. A., & Ziad, M. Z. (2011). What Makes Investors Overconfident? Evidence from Amman Stock Exchange. *European Journal of Economics, Finance, and Administrative Science*, 43(1), 28-34.
- Babajide, A. A., & Adetiloye, K. A. (2012). Investors' behavioural biases and the security market: An empirical study of the Nigerian security market. *Accounting and Finance Research*, 1(1), 219-229.
- Barber, B. M., & Odean, T. (2001). Boys Will Be Boys: Gender, Overconfidence, And Common Stock Investment. *Quarterly Journal of Economics*, 116(1), 261-292.
- Barberis, N., & Thaler, R. (2003). A survey of behavioral finance. *Handbook of the Economics of Finance*, 1, 1053-1128.
- Budescu, D. V., & Bruderman, M. (1995). The relationship between the illusion of control and the desirability bias. *Journal of Behavioral Decision Making*, 8(2), 109-125.
- Chen, S., & Tsai, C. (2010). Investment Preference, Risk Perception, and Portfolio Choices under Different Socio-Economic Status. *Department of Finance, Nan Hua University, Chiayi, Taiwan*.
- Chen, T. T. (2019). The impact of anchoring bias on investors' decision-making: evidence from a survey. *Journal of Behavioral Finance*, 20(1), 1-12.
- Cheng, Y. F., Mutuc, E. B., Tsai, F. S., Lu, K. H., & Lin, C. H. (2018). Social capital and stock market participation via technologies: the role of households' risk attitude and cognitive ability. *Sustainability*, 10(6), 1904.
- Chun, W. W., & Ming, L. M. (2009). Investor behavior and decision-making style: a Malaysian perspective. *Banker's Journal Malaysia*, 133, 3-13.
- Costa, P. T., Jr., & McCrae, R. R. (1992). Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual. *Odessa, FL: Psychological Assessment Resources*.
- Egan, M., Matvos, G., & Seru, A. (2016). The impact of availability bias and reflective reasoning on investor behavior. *Journal of Financial Economics*, 121(3), 533-558.
- Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *The Journal of Finance*, 25(2), 383-417.
- Fuertes, A.-M., Muradoglu, G., & Ozturkkal, B. (2014). A behavioral analysis of investor diversification. *The European Journal of Finance*, 20(6):499-523.
- Giesler, M., & Veresiu, E. (2014). Creating the responsible consumer: Moralistic governance regimes and consumer subjectivity. *Journal of Consumer Research*, 41(3):840-857.
- Glaser, M., Weber, M., & Ruenzi, A. (2013). Self-control and the customer-advisor interaction. *Journal of Financial Economics*, 109(1), 139-162.
- Glaser, M., & Weber, M. (2007). Overconfidence, Risk Perception and the Risk-taking Behavior of Finance Professionals. *European Finance Review*, 11(2), 145-167.

- Harikanth, D., & Pragathi, B. (2012). Role of behavioral finance in investment decision making—a study on select districts of Andhra Pradesh, India. *International Journal in Multidisciplinary and Academic Research (SSIJMAR)*, 1(4):1–15.
- Irshad, S., Badshah, W., & Hakam, U. (2016). Effect of representativeness bias on investment decision making. *Management and Administrative Sciences Review*, 5(1), 26-30.
- Jiang, W., & Yan, H. (2016). Financial innovation, investor behavior and arbitrage: evidence from the ETF Market. *Yale ICF*.
- Kim, H., & Lee, S. Y. (2018). Are we rational when it comes to investing? An empirical study on the relationship between emotional intelligence and investment decision-making. *Journal of Behavioral and Experimental Finance*, 17, 105-112.
- Kohler, R. M., Renn, R. W., & Bridge, K. A. (2019). Emotional Stability and investment risk-taking: The role of risk attitudes and risk perceptions. *Journal of Behavioral Finance*, 20(1), 46-59.
- Kong, A., Thorleifsson, G., Frigge, M. L., Vilhjalmsson, B. J., Young, A. I., Thorgeirsson, T. E., ... & Stefansson, K. (2018). The nature of nurture: Effects of parental genotypes. *Science*, 359(6374), 424-428.
- Kumar, S., & Goyal, N. (2015). Behavioural biases in investment decision-making—A systematic literature review. *Qualitative Research in Financial Markets*, 7(1), 88– 108.
- Larrick, R. P., Burson, K. A., & Soll, J. B. (2007). Social comparison and confidence: When thinking you're better than average predicts overconfidence (and when it does not). *Organizational Behavior and Human Decision Processes*, 102(1):76–94.
- Lichtenstein, S., & Fischhoff, B. (1977). Do those who know more also know more about how much they know? *Organizational behavior and human performance*, 20(2), 159-183.
- Li, S. X., & Wee, S. L. (2017). Anchoring and Adjustment in the Formation of Price Forecasts: Evidence from Experimental Auctions. *Journal of Behavioral and Experimental Finance*, 15, 22-33.
- Li, J., & Liang, B. (2013). The effects of availability bias on investment behavior and performance. *Journal of Banking and Finance*, 37(5), 1659-1672.
- Loewenstein, G. (1996). Out of control: Visceral influences on behavior. *Organizational behavior and human decision processes*, 65(3), 272-292.
- Moore, D. A., & Healy, P. J. (2008). The trouble with overconfidence. *Psychological review*, 115(2), 502.
- Miyake, A., & Friedman, N. P. (2012). The nature and organization of individual differences in executive functions: Four general conclusions. *Current directions in psychological science*, 21(1), 8-14.
- Pompian, M. (2006). *Behavioral Finance and Wealth Management*. London: Wiley and Sons.
- Pompian, M. M. (2011). *Behavioral finance and wealth management: how to build investment strategies that account for investor biases*. John Wiley & Sons.
- Pompian, M. M. (2008). Using behavioral investor types to build better relationships with your clients. *Journal of Financial Planning*, 21(10), 64-76.

- Rasheed, M. H., Rafique, A., Zahid, T., & Akhtar, M. W. (2018). Factors influencing investor's decision making in Pakistan: Moderating the role of locus of control. *Review of Behavioral Finance*, 10(1), 70-87.
- Riaz, T., & Iqbal, H. (2015). Impact of overconfidence, illusion of control, self control and optimism bias on investors decision making; evidence from developing markets. *Research Journal of Finance and Accounting*, 6(11), 110-116.
- Frydman, C., & Rangel, A. (2014). Debiasing the disposition effect by reducing the saliency of information about a stock's purchase price. *Journal of economic behavior & organization*, 107, 541-552.
- Sanfey, A., Rilling, J., Aronson, J., Nystrom, L., & Cohen, J. (2003). The Neural Basis of Economic Decision-Making in the Ultimatum. *New Series*, 1755-1758.
- Semenov, A. (2009). Departures from rational expectations and asset pricing anomalies. *Journal of Behavioural Finance*, 10(4), 234-241.
- Seo, M., & Barrett, L. (2007). Being Emotional during decision making-Good or Bad? An Empirical Investigation. *Academy of Management Journal*, 50(4), 923-940.
- Shefrin, H. (2002). Beyond greed and fear: Understanding behavioral finance and the psychology of investing. *Oxford University Press on Demand*.
- Shefrin, H., & Statman, M. (2000). Behavioral portfolio theory. *Journal of financial and quantitative analysis*, 35(2):127-151.
- Shin, H., & Park, S. (2018). Do foreign investors mitigate anchoring bias in stock market? Evidence based on post-earnings announcement drift. *Pacific Basin Finance Journal*, 48, 224-240. .
- Sikarwara, D. T., Guptab, D. M., & Kaushalc, A. (2018). Determinants of Emotional Stability and Psychological Well-Being in Investors During Stock Market Fluctuations. *Proceedings of 10th International Conference on Digital Strategies for Organizational Success*.
- Simon, H. A. (1979). Rational decision making in business organizations. *Am. Econ. Rev*, 493-513.
- Singh, S. (2016). The role of behavioral finance in modern age investment. *Pacific Business Review International*, 1(1), 234-240.
- Stanovich, K. E., & West, R. F. (2008). On the relative independence of thinking biases and cognitive ability. *Journal of Personality and Social Psychology*, 94(4), 672-695.
- Statman, M., Thorley, S., and Vorkink, K. (2006). Investor overconfidence and trading volume. *Review of Financial Studies*, 19(4), 1531-1565.
- Summers, B., & Duxbury, D. (2012). Decision-dependent emotions and behavioral anomalies. *Organizational Behavior and Human Decision Processes*, 118(2), 226-238.
- Tversky, A., & Kahneman, D. (1973). Availability: A heuristic for judging frequency and probability. *Cognitive psychology*, 5(2), 207-232.
- ul Abidin, S. Z., Qureshi, F., Iqbal, J., & Sultana, S. (2022). Overconfidence bias and investment performance: A mediating effect of risk propensity. *Borsa Istanbul Review*, 22(4), 780-793.

- Zaidi, F. B., & Tauni, M. Z. (2012). Influence of investors' personality traits and demographics on overconfidence bias. *Institute of Interdisciplinary Business Research*, 4(6):730–746.
- Zhao, N., & Zhou, G. (2021). COVID-19 stress and addictive social media use (SMU): Mediating role of active use and social media flow. *Frontiers in Psychiatry*, 12, 635546.