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Research Article

Behavioral Factors Influencing Investment Decision-Making Mistakes: The Roles of Overconfidence, Representativeness, Loss Aversion, and Mental Accounting

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Abstract

Purpose - This paper explores how four major behavioral biases, namely Overconfidence Bias (OB), Representativeness Bias (RB), Loss Aversion (LA), and Mental Accounting (MA), affect Mistakes in Investment Decision-Making (MIDM) in the Bangladesh stock market.

Methodology - The research design was quantitative. Utilizing primary data from 301 active investors, the study employs linear regression analysis to explore the relationship between these biases and MIDM. The results reveal that OB, LA, and MA significantly influence MIDM, while RB has an insignificant impact. MIDM accounts for 63.7% of the variation in OB, RB, LA, and MA: $MIDM = \alpha + \beta_1 OB + \beta_2 RB + \beta_3 LA + \beta_4 MA + e$.

Findings - As the results demonstrate, the effect of OB, LA, and MA on MIDM is statistically significant and positive, whereas the effect of RB is insignificant ($T = 0.282$, $p = 0.778$). In particular, the predictive power of MA was the highest ($T = 5.420$, $p < 0.001$), then the predictive power of LA ($T = 3.318$, $p < 0.001$) and OB ($T = 2.075$, $p = 0.038$). The model attained an adjusted R^2 of 0.637, thus showing that the four biases together account for about 64 percent of the variance in errors when making investment decisions. Correlation analysis further proved high positive links between MIDM and LA ($r = 0.740$), MA ($r = 0.769$), and OB ($r = 0.684$), and all VIF values were within the acceptable limit (1-5), which indicated that the model was stable and there was no multicollinearity.

Implications and Value - The results challenge the rationality principle of classical finance theory (EMH and EUT) and emphasize the prevailing role of cognitive and emotional biases in investor behavior. In practice, the research shows that investor education programs, financial literacy projects, and policy interventions to minimize the effects of overconfidence, loss aversion, and mental accounting among market participants are urgently required. Regulators, educational institutions, and financial advisors must focus on educating investors to develop critical thinking and analytical skills, thereby reducing systematic decision-making errors and creating more efficient capital markets.

Keywords – behavioral biases, investor mistakes, overconfidence, representativeness, loss aversion, and mental accounting.

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1. Introduction

Behavioral finance is a scientific field that combines psychological theory with cognitive biases in studying the process of making financial decisions. It breaks the assumption of rationality in traditional finance by analyzing the impact of psychological factors on investor behavior and market efficiency (Madaan & Singh, 2019). This new science investigates the systematic aberrations in rational judgments because people tend to make irrational judgments based on behavioral biases (Chira et al., 2008). According to behavioral finance (BF), overconfidence, representativeness, loss aversion, and mental accounting are some of the biases that have a substantial effect on the investment decision-making process, which tends to lead to errors (Niehaus & Shrider, 2014).

Overconfidence bias is the bias that investors have when they overestimate their skills or knowledge and therefore overtrade and make bad decisions. It may also lead to biased decisions and make it difficult to assess a situation objectively, and some researchers claim that it makes markets less efficient or improves information flow (Gill et al., 2018). Representativeness bias is the habit of basing decisions on historical experiences or trends to forecast future events and may result in the wrong conclusions regarding market behavior (Aigbovo & Ilaboya, 2019). According to Kahneman and Tversky (1972), the representativeness heuristic could result in biased conclusions when comparing events to prototypes or previous experiences (Jahanzeb, 2012).

Loss aversion is a phenomenon that refers to the tendency to experience fear of losses more than equal gains, which results in risk-averse behavior and irrational decision-making (Dhungana, 2022). Investors who are guilty of this bias may not invest in the opportunities that have high expected returns because of overemphasis on the losses. Mental accounting is the psychological operation of dividing financial resources into individual accounts, which can lead to irrational expenditure and saving patterns (Aigbovo & Ilaboya, 2019). As an example, people can have different attitudes towards money depending on the source of the money or the purpose of using it, e.g., save normal income and spend lavishly on a tax refund.

The focus of behavioral finance on the effects of cognitive and emotional biases on investment decisions is a stark contrast to classical financial theories, which assume rational behavior. Several studies have shown that overconfidence and loss aversion are biases that can be influential factors in market choices. The studies in Ghana, in particular, focus on the importance of raising awareness of such biases, which influence the behavior of investors and market performance (Nkukpornu et al., 2020).

Although both Modern Portfolio Theory (MPT) and the Capital Asset Pricing Model (CAPM) assume rationality among investors and market efficiency, behavioral finance will recognize that both emotions and cognitive bias lead to inefficiencies in the market. The interconnection of heuristics, prospect theory, and investment choices shows that it is vital to understand these biases. The regulatory interventions aimed at reducing their effects may have the potential to increase market efficiency (Ogunlusi & Obademi, 2021).

A review of the Pakistan Stock Exchange shows that behavioral aspects such as overconfidence, market information, and loss aversion have a significant effect on investment decisions, with market factors and prospect theory having the most effect. The paper will propose further studies on other behavioral determinants and institutional investor actions, thus contributing to the knowledge on behavioral finance in diverse market environments (Javed & Marghoob, 2017).

2. Literature Review

2.1 Theoretical Foundations

Besides the four major biases addressed in this research report, Overconfidence Bias (OB), Representativeness Bias (RB), Loss Aversion (LA), and Mental Accounting (MA), the report will also discuss how the biases lead to poor investment decision-making. This research is supported by data from about 20 academic publications and incorporates primary data collection in order to understand whether these biases play an important role in the behavior of investors. There is a strong consensus among scholars that the behavioral aspect is critical in decision-making, particularly biases, and this report is aimed at validating a questionnaire to measure important elements like perceived risk, information asymmetry, risk propensity, and problem framing (Hunjra et al., 2016).

One of the studies describes the way various personalities have different responses to investment situations, which are usually influenced by situational behavior as opposed to pure reason. The results highlight that heuristic behavior has a bigger role in financial decision-making than what the traditional prospect theory would have suggested (Sattar, M. A., Toseef, M., and Sattar, M. F., 2020). Another study emphasizes the different types of biases investors have and how they impact them, and argues that combating them requires first recognizing these biases and formulating ways to reduce them (Verma, 2016).

There is also a cognitive psychology view of heuristics and biases, and the research has found that these patterns result in systematic errors in judgment. This applies especially in the case of students in financial courses, where one can even infer that these biases can be developed prior to the students commencing active investing (Chira, I., Adams, M., and Thornton, B., 2008). Conventional finance assumes that investors make rational decisions, but behavioral finance proves that emotional and cognitive biases can have a strong effect on decision-making (Aigbovo & Ilaboya, 2019).

Behavioral finance is a development of classical theories of finance that incorporates psychological knowledge to explain the causes of market anomalies due to irrational investor behavior. It underlines that the process of decision-making is complicated and influenced by emotional and cognitive bias (Jahanzeb, 2012). It is essential to learn these biases to make better judgments and financial results. 2021).

Overconfidence bias is one of the most thoroughly researched biases. Research comparing investors in Lahore and Faisalabad Stock Exchanges demonstrates that overconfidence plays an important role in investment decision-making and, although economic expectations appear to play a significant role at first, their impact reduces when information search is considered, which indicates complete mediation (Gill et al., 2018). Moreover, financial literacy has been found to act as a counterpoint to the impact of behavioral biases such as framing effects, the influence of herd behavior, and the influence of the herd behavior (Suresh, 2024).

On the same note, studies based on the Analytical Hierarchy Process (AHP) indicate that overconfidence is most influential in investment decisions, which further supports its contribution to irrational financial behavior (Antony, A., and Joseph, A. I., 2017). The literature on the National Stock Exchange of India also concludes that overconfidence and herd mentality are strong factors impacting the decision of investors, proving that most of the psychological factors dominate the logical reasoning (Madaan & Singh, 2019).

Behavioral finance has developed since the 1980s as a result of displeasure with the premises of classical finance theories of rationality and market efficiency. Thaler, Kahneman, DeBondt, and others have demonstrated that psychological and not analytical processes often determine

the type of decisions made by people when it comes to real-world investment decisions (Dhungana, 2022). Behavioral biases, including anchoring, risk aversion, overconfidence, representativeness, and regret aversion, have been found to have a significant role in influencing investor decision-making in the context of the Pakistan Stock Exchange, but behavioral biases like mental accounting and availability bias do not (Rehan & Umer, 2017).

The overall findings of these studies are in opposition to the assumptions of rational behavior of investors that classical theories suggest. Hindsight and other related biases demonstrate a potent grip on investment decision-making even on repeat studies (Aigbovo & Ilaboya, 2019). Two key factors in individual factors in poor investment decisions and market failures include overconfidence and loss aversion (Thagaram et al., 2023). Key drivers of market volatility have been found to be fear, greed, and groupthink, which are supported by behavioral finance but not by classical theories (Chaudhary, 2013).

A case study of investors in Ahmedabad highlights the extent to which concepts of behavioral finance, like overconfidence, aversion to regret, anchoring, and mental accounting, affect investment decisions. It finds that the average investor is far from rational, and biases such as mental accounting often play a crucial role in the final decision-making process (Upadhyay & Shah, 2019).

The conventional belief that investors always act rationally is contested by behavioral finance. Rather, it implies that financial decision-making is heavily influenced by psychological and cognitive biases. People perceive profits and losses differently, leading to irrational decision-making patterns, according to Kahneman and Tversky (1979). According to Prospect Theory, investors exhibit risk-averse behavior when facing gains and risk-seeking behavior when trying to avoid losses, because they are more sensitive to losses than to gains. This idea is closely related to loss aversion, the tendency of investors to avoid losses even when doing so may make financial sense. Similarly, Heuristics Theory suggests that investors often resort to mental shortcuts in making judgments in uncertain situations. Even though these shortcuts can be used to make complex decisions, it can be said that they can lead to systematic biases. Tversky and Kahneman (1974) state that representativeness is a well-liked heuristic, where individuals determine the probability of occurrence through patterns or similarities instead of on the basis of objective statistics. Representativeness bias can lead investors to think that the past market trends will continue into the future.

Overconfidence bias is another notion of behavioral finance that influences investment behavior. According to a study by Barber and Odean (2001), overconfident investors are more likely to engage in more trading since they overrate their knowledge and ability to predict market trends. The effect of overconfidence on investment performance may be negative because overtrading tends to translate into poor returns and increases transaction costs. Thaler (1985) has introduced the understanding of mental accounting, where individuals categorize and evaluate the monetary results in discrete mental accounts instead of referring to their financial general state of affairs. Such behavior may cause investors to make similar financial choices differently in different situations, which can cause irrational distribution of the portfolio and suboptimal investment choices. Empirical studies also evidenced the effect of behavioral biases on the decision-making process of investors. Pompion (2012) reveals that representativeness, loss aversion, and overconfidence are some of the biggest behavioral biases that influence portfolio management and financial decision-making. When an investor is subjective when basing their judgment on a subjective evaluation other than objective financial research, there is a higher likelihood of errors in investment. Moreover, Shefrin (2007) argues that behavioral finance provides an in-depth explanation of why investors do

not make rational decisions based on rational decision-making models. Psychological factors, which play an important role in financial behavior, are emotions, cognitive limits, and biases. These behavioral tendencies can often lead to market oddities and poor investment decision-making.

The traditional financial theories, e.g., the Expected Benefit Theory (EUT) and the Efficient Market Hypothesis (EMH), are based on the premise that all investors are rational, and they would maximize their benefit by using all the available information. Nonetheless, behavioral finance studies also suggest that investors often make irrational choices under the influence of psychological biases. By exploring the bias in behavior (Overconfidence Bias, Representativeness Bias, Loss Aversion, and Mental Accounting), the current study thus offers a valuable insight into understanding how the biases lead to errors when making investment decisions. The Efficient Market Hypothesis by Fama (1970) suggests that financial markets are efficient and that stock prices are the best possible representation of all the information. According to EMH, rational investors ensure that securities are properly priced by processing information fast and making the best investment decisions. Since the market prices already indicate relevant information, it is difficult to have constant levels of extraordinary returns among investors within this system. Nonetheless, behavioral finance researchers argue that psychological biases may distort the judgment of investors and cause irrational behavior, which may give rise to pricing abnormalities and inefficient market performance (Shiller, 2003). The biases that can discredit the assumptions of the Efficient Market Hypothesis (EMH) include overconfidence and representativeness, and can cause investors to misinterpret information or overreact to market signals.

Similarly, individuals also make decisions under uncertainty by making the decision that yields the best expected utility, as postulated by the Expected Utility Theory, initially by von Neumann and Morgenstern in 1944. This concept holds that investors make rational decisions by considering all the possible results before making investment decisions. But in practice, investor behavior often does not conform to the expectations of the expected utility theory, as empirical literature shows. The behavioral finance concept of loss aversion, for example, demonstrates that investors are more concerned about possible losses than the equivalent gains, which is the opposite of the assumption of EUT of rational decision-making (Kahneman & Tversky, 1979). Such flaws of the traditional theories of finance led to the emergence of behavioral finance. Despite providing valuable constructs enabling rational decision-making, EUT and EMH do not provide enough information about the reasons as to why investors tend to make systematic errors. Psychological heuristics can be used by investors to make financial decisions as opposed to objective analysis, as seen in biases like mental accounting and overconfidence (Thaler, 1985). Excessive trading, inadequate portfolio diversification, and inaccurate risk assessments might result from these behavioral tendencies.

The behavioral biases examined in this paper (overconfidence, representativeness, loss aversion, and mental accounting) demonstrate the gap between the traditional hypotheses of theoretical assumptions and actual stock market investor behavior. The article contributes to the growing literature that integrates behavioral insights in financial theory by exploring the implications of these biases for errors in investing decision-making. This approach can be used to understand why investors sometimes fail to be rational and why market results are not always consistent with utility theory and the expectations of the EMH.

Previous studies have argued that behavioral biases are a major factor in the behavior of investors, and in most cases, they cause investment mistakes. Some of the biases include overconfidence, representativeness, loss aversion, and mental accounting, which affect the

way investors assess risk, interpret information, and make financial decisions, culminating in the abandonment of logical financial models. These findings highlight the importance of investor education, psychological awareness, and financial literacy in reducing irrational investment behavior. Based on this evidence, the present study examines how these biases result in errors in investment decision-making using primary data with the intention of providing insights to improve the quality of investment decisions.

2.2 Hypothesis Development

H1: Overconfidence Bias and MIDM have a strong positive correlation.
H2: MIDM has a strong positive correlation with Representativeness Bias.
H3: MIDM and Loss Aversion have a positive and significant association.
H4: The correlation between Mental Accounting and MIDM is notably positive.

Overconfidence Bias: Individuals who overestimate their abilities or expertise are likely to commit overconfidence bias, which may lead to overly confident actions and ineffective decisions. This is a thinking trap that can lead an individual to underestimate the risks and ignore negative criticism. It often creates clouded judgment and prevents fair judgment. (Gill, S., Khurshid, M. K., Mahmood, S., & Ali, A., 2018). The phenomenon of overconfidence bias can severely affect the errors in decisions made by the investors. The hypothesis of this study was:

H1: Overconfidence Bias and MIDM have a strong positive correlation.

Representativeness Bias: Representativeness prejudice is a form of belief perseverance bias whereby people classify and label new information based on similar aspects and previous experiences. They attach an imbalanced weight to their categorization since they believe that they are right. (Aigbovo & Ilaboya, 2019). Representativeness bias is a powerful factor in the mistakes of decision-making by investors. Thus, the hypothesis is the following:

H2: MIDM has a strong positive correlation with Representativeness Bias.

Loss Aversion: An individual with loss aversion bias is prone to over-weighing possible losses relative to rewards because they would rather avoid losses than experience comparable gains. Usually, this leads to illogical decision-making and risk-averse conduct. To protect themselves from a potential loss, they might, for example, refuse a wager with a positive expected value. (Dhungana, A.2022). Loss aversion positively impacts investors' decision-making errors. The following hypothesis is proposed:

H3: MIDM and Loss Aversion have a positive and significant association.

Mental Accounting: Mental accounting is the cognitive process by which individuals divide up their assets into discrete, non-transferable groups, which in turn affects the decisions they make about investments and expenditures. This concept clarifies the reasons behind how people view and distribute their assets when making financial decisions. Mental accounting and investors' decision-making are closely related. (Nkukpornu et al., 2020). From the above, the following hypothesis is proposed:

H4: The correlation between Mental Accounting and MIDM is significantly positive.

2.3 Conceptual Framework

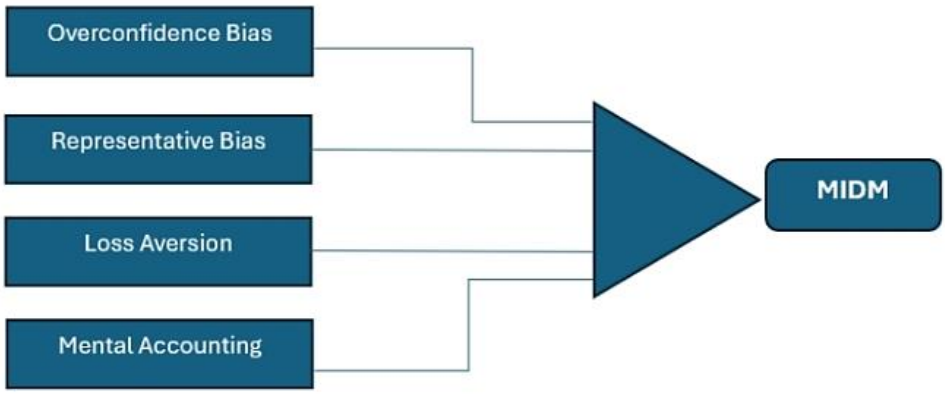

Figure 1: Mistakes of Investment Decision Making (MIDM) process.
Source: Made by authors.

Figure 02: Mistakes of Investment Decision-making (MIDM)
Source: Made by authors.

3. Methodology

3.1 Research Population and Sampling Data Collection Process

In this study, four independent variables were used: overconfidence bias, representation bias, loss aversion, and mental accounting. And dependent variable is "Mistakes of Investment Decision Making (MIDM). The research will comprehensively discuss how these biases affect an investor's decision-making and provide a thorough examination of how they can contribute to or influence incorrect decisions. The research paper will be developed from Bangladesh's perspective. To conduct this research, primary data will be used. A questionnaire has been developed for this purpose, consisting of 29 questions and research

papers, based on responses from 301 active investors. Responses from investors will be collected using a 5-point scale ranging from 1 to 5. The scale points are: Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree (represented as SA, A, N, D, SD). The rate of mistakes in investment decision-making will be determined from the responses received.

3.2 Data Analysis Technique

Some of the statistical tests employed to test the collected data included reliability statistics, descriptive statistics, correlation analysis, ANOVA, multiple regression analysis, path coefficient analysis, and collinearity diagnostics based on the Variance Inflation Factor (VIF). Descriptive statistics involved measures like frequencies, percentages, averages, and standard deviations to summarize the information. These statistics create a general picture of respondents about behavioral biases and mistakes in making investment decisions (Field, 2018).

The internal consistency of the questionnaire items was assessed using reliability analysis. The constructs include overconfidence bias, representativeness bias, loss aversion, mental accounting, and mistakes in making investment decisions, which can be measured consistently on a scale of reliable measurement among respondents (Hair et al., 2019). Correlation analysis was also used to determine the strength and direction of the correlations between the research variables.

Multiple regression analysis was the main statistical tool applied in order to evaluate the role of behavioral biases in investment decision-making errors. Regression analysis is appropriate when the researcher wants to examine the relationship between one dependent variable and several independent variables and determine the extent to which each of the predictors explains the variations in the dependent variable (Gujarati & Porter, 2009). Multiple regression is used in this study to measure the impact of overconfidence bias, representativeness bias, loss aversion, and mental accounting on investors' errors in investing decision-making.

The regression model used in this study is expressed as follows:

$$MIDM = \alpha + \beta_1 OB + \beta_2 RB + \beta_3 LA + \beta_4 MA + e$$

Where:

MIDM = Mistakes in Investment Decision Making (dependent variable)

OB = Overconfidence Bias

RB = Representativeness Bias

LA = Loss Aversion

MA = Mental Accounting

β = Regression coefficients

α = Constant term

e = Error term

In order to make sure that the regression results are not biased by multicollinearity among the independent variables, collinearity diagnostics, including the Variance Inflation Factor (VIF), were also performed. Hair et al. (2019) state that the value of VIF below established standards indicates that the predictors are independent enough and suitable to be regressed.

It was decided that multiple regression analysis would be more appropriate for this study, but more complex methods like Structural Equation Modeling (SEM) would also be used to measure the relationships between variables. SEM is typically used in studies where there are multiple concurrent relationships among variables and measurement models, as well as complex latent constructs (Kline, 2016). Conversely, the present study makes use of observed

questionnaire responses to explore the direct influence of four independent variables on one dependent variable. As a result, multiple regression offers a more straightforward and appropriate technique for determining the importance and strength of these associations while yet yielding accurate and comprehensible results (Field, 2018).

4. Results and Discussion

The correlation coefficient will be used to test relationships among variables, including investment decision-making and behavioral biases. Finally, a linear regression analysis was conducted to assess the impact of the variables.

Table 1: Reliability Statistics

Statistics	
Cronbach's Alpha	N of Items
0.908	5

Source: The author owns the processing using SPSS

Table 2: Descriptive Statistics

Indices	**Constructs**				
Variables	OB	RB	LA	MA	MIDM
Observations	301	301	301	301	301
Missing	0	0	0	0	0
Mean	25.6678	29.9900	26.0731	21.1794	22.0266
Std. Error of Mean	0.19520	0.24110	0.22030	0.23598	0.21581
Median	26.0000	31.0000	27.0000	23.0000	23.0000
Mode	26.00	35.00	30.00	25.00	25.00
Std. Deviation	3.38663	4.18289	3.82204	4.09403	3.74423
Variance	11.469	17.497	14.608	16.761	14.019
Skewness	-0.979	-1.027	-1.101	-.962	-1.623
St. Error of Skewness	0.140	0.140	0.140	0.140	0.140
Kurtosis	1.680	1.438	1.314	0.481	2.820
Std. Error of Kurtosis	0.280	0.280	0.280	0.280	0.280
Range	20.00	24.00	20.00	20.00	20.00
Sum	7726.00	9027.00	7848.00	6375.00	6630.00

Source: The author owns the processing using SPSS.

This table summarizes the descriptive statistics for this study. It shows the positive mean values of all independent variables. On average, the highest mean value of RB is 29.9900, followed by 26.0731,25.6678, 21.1794, and 22.0266 of LA, OB, MA, and MIDM, respectively. Besides, the highest median value of RB is 31.0000, then 27.0000 & 26.0000 of LA & OB. Lastly, MA & MIDM are the same, and the value is 23. 000. The modes of OB, RB, LA, MA, and MIDM are 26.00,35.00,30.00,25.00,25.00 respectively, and the highest mode is 35.00, which represents the RB. In addition, the standard deviation indicates the variability of the values. The standard deviation is 4.18289 in RB, indicating higher variability. The lower variability is 3.38663 of OB. MIDM is 3.74423, LA is 3.82204, and MA is 4. 09403. The highest variance for RB is 17.497 & lowest for OB is 11.469. MIDM is 14.019, LA is 14.608, and MA is 16.761, respectively. The skewness values for OB, RB, LA, MA, and MIDM indicate that they are symmetric around the mean, while the others have slightly right- and left-tailed distributions. All variables are negative. A probability distribution's degree of asymmetry is gauged by its skewness. When skewness is negative, the variable's distribution is left-skewed, with the left tail longer or more pronounced than the right. When extremely low values, or outliers, are more prevalent than extremely high values in a data set, negative skewness can be seen. Std. The skewness error

for OB, RB, LA, MA, and MIDM is the same: 0.140. In Kurtosis, compared to a normal distribution, OB, RB, LA, MA, and MIDM are, respectively, 1.680, 1.438, 1.314, 0.481, and 2.820. These values are in the range of -3 to +3. That means it is a normal distribution. The error in the Kurtosis of OB, RB, LA, MA, and MIDM is the same: 0.280. Range values are - OB = 20.00, is.24.00, LA=20.00, MA=20.00, and MIDM = 20.00

Table 03: Correlation Matrix

	Constructs				
	LA	MA	MIDM	OB	RB
LA	1.000	0.702	0.740	0.782	0.795
MA	0.702	1.000	0.769	0.631	0.676
MIDM	0.740	0.769	1.000	0.684	0.676
OB	0.782	0.631	0.684	1.000	0.776
RB	0.795	0.676	0.676	0.776	1.000

Source: Authors'

According to the table, all the independent variables—overconfidence bias, representativeness bias, loss aversion, and mental accounting—have a positive correlation with Mistakes in Investment Decision Making. All the variables are strongly associated with one another, according to the correlation test. At the 1% significance level, there is a positive correlation (r = 0.684) between overconfidence bias and poor investment decisions. This demonstrates that when investor overconfidence rises, so do investors' decision-making errors. The degree of correlation between representativeness bias and poor investment decision-making is 0.676, or 1% of the total. This indicates a strong positive correlation between the variables, and that representational bias increases the likelihood of making poor investment decisions. A significant positive correlation ($r = 0.740$, $p < 0.01$) exists between loss aversion and investment decision-making errors. This indicates that the likelihood of making poor investment decisions rises with loss aversion. The correlation between mental accounting and making poor investment decisions is likewise favorable, with a 0.769 degree of certainty at the 1% level. This indicates that as mental accounting increases, so do the mistakes that investors make while making financial decisions.

Table 4: Model summary of regression result

Model	R	R square	Adjusted R-squared	Std. Error of the Estimate
1	0.801	.642	.637	2.25500

a. Predictors:(constant), Overconfidence Bias, Representativeness Bias, Loss Aversion, Mental Accounting

Table 4a: ANOVA

Model		Sum of Square	Df	Mean Square	F	Sig.
1	Regression	2700.618	4	675.155	132.779	<0.001
	Residual	1505.169	296	5.085		
	Total	4205.787	300			

Source: Author's own processing using SPSS

a. Dependent Variable: MIDM

b. Predictors: (constant), overconfidence Bias, Representativeness Bias, Loss Aversion, Mental Accounting

A linear regression analysis was conducted, and the results are presented above. Investment decision-making mistakes are considered a dependent variable, and four independent variables, i.e., overconfidence bias, representativeness bias, loss aversion, and mental accounting. The figure appears in the model summary, which also indicates the model's

overall fitness. The R-squared was 0.642, and the adjusted R-squared was 0.637, suggesting that all the independent variables jointly account for 64% of the systematic variation in investment decision-making mistakes.

Table 5: Path Coefficients- T values, P values

	T Statistics	P Values	Results	Conclusion
LA- >MIDM	3.318	0.001	Significant	H 3 accepted
MA- >MIDM	5.420	0.000	Significant	H 4 accepted
OB- >MIDM	2.075	0.038	Significant	H 1 accepted
RB- >MIDM	0.282	0.778	insignificant	H 2 Rejected

Source: Authors' processing using Smart PLS

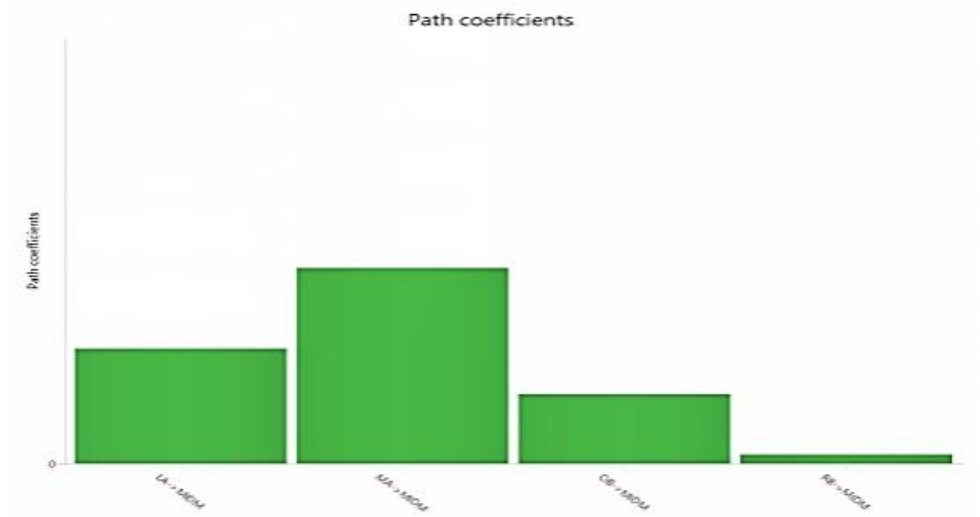

Figure 03: Path coefficients
Source: Created by Authors using SmartPLS

For P values, LA (p = 0.001): There is a statistically significant (p < 0.05) correlation between LA and MIDM. This suggests that MIDM is significantly impacted by LA. MA (p = 0.000): There is a highly statistically significant (p < 0.01) correlation between MA and MIDM. This implies that MA strongly predicts MIDM. OB (p = 0.038): There is a statistically significant (p < 0.05) correlation between OB and MIDM. In contrast to LA and MA, the p-value is closer to the threshold, indicating a weaker but still significant effect. RB (p = 0.778): There is no statistically significant correlation (p > 0.05) between RB and MIDM. This implies that in this model, RB has no discernible impact on MIDM.

For the T statistic, the value of LA (T = 3.318) is greater than 1.96. MIDM and LA are statistically significantly associated.LA has a significant impact on MIDM. Compared to 1.96, MA (T = 5.420) is significantly higher. There is an extremely substantial statistical association between MA and MIDM. MIDM can be accurately predicted by MA. The value of OB (T = 2.075): T = 2.075 is bigger than 1.96. There is a statistically significant correlation between MIDM and OB. OB makes a significant contribution to explaining MIDM, even though its effect is less pronounced than those of LA and MA. It is smaller than 1.96. RB (T = 0.282): T = 0.282MIDM and RB do not have a statistically significant association. In this model, RB probably has no significant impact on MIDM.

Table 6: Collinearity statistics (VIF) - Outer model – List

Variables	Item Code	Collinearity Statistics (VIF)
Overconfidence Bias (OB)	OB1	1.557
	OB2	1.809
	OB3	1.105
	OB4	1.252
	OB5	1.412
	OB6	1.036
Representativeness Bias (RB)	RB1	1.279
	RB2	1.953
	RB3	1.699
	RB4	1.035
	RB5	1.554
	RB6	1.761
	RB7	1.241
Loss Aversion (LA)	LA1	1.669
	LA2	1.762
	LA3	1.086
	LA4	1.841
	LA5	1.760
	LA6	1.078
Mental Accounting (MA)	MA1	1.428
	MA2	1.912
	MA3	1.350
	MA4	2.152
	MA5	1.403
Mistakes in Investment Decision Making (MIDM)	MIDM1	1.706
	MIDM2	1.652
	MIDM3	2.062
	MIDM4	1.817
	MIDM5	1.580

Source: Authors' processing using Smart PLS

For the Collinearity statistics (VIF), the results indicate that all VIF values are greater than 1 and less than 5. This shows that the model is stable and interpretable.

5. Discussion

The results of this study show that investors' mistakes in investment decision-making (MIDM) are greatly influenced by behavioral biases. The regression results indicate that the negative impact of representativeness bias (RB) on MIDM is negligible, whereas the negative impact of overconfidence bias (OB), loss aversion (LA), and mental accounting (MA) is large. With an adjusted R2 of 0.637, the model describes a significant portion of the variation in investment mistakes; the behavioral biases explain about 64 percent of the variation in the investment decision-making mistakes. Also, VIF values of 1-5 indicate no problem with multicollinearity and confirm the stability and reliability of the regression model (Hair et al., 2019). Past studies have revealed that overconfident investors slightly overestimate their knowledge and prediction skills, which in most cases translates to overtrading and poor investment returns (Barber & Odean, 2001). The results of this finding are aligned with the strong influence of the overconfidence bias on the errors made in investments. Similarly, the results of Kahneman and Tversky (1979) that investors are more responsive to potential losses than gains and

therefore maintain holding losing investments too long or make irrational risk decisions are also congruent with the positive and significant relationship between loss aversion and investment decision errors.

The results also show that mental accounting plays a crucial role in making investment decision-making errors, and this supports the theory that investors tend to place financial results into separate mental accounts instead of making a rational evaluation of their entire portfolios (Thaler, 1985). Ineffective portfolio allocation and inconsistent financial decisions can result from such behavior. Unlike other previous studies that indicate that investors often use historical trends or patterns in determining an investment opportunity, the study reports that representativeness bias is not a major factor in contributing to mistakes in making investment decisions (Tversky & Kahneman, 1974). This mismatch may be due to differences in the characteristics of investors, market forces, or the financial literacy of the sampled investors.

All in all, the results support the behavioral finance theory, which assumes that psychological biases play a significant role in the decisions of investors, and they frequently make irrational decisions in investing. The findings are in line with prior research on how cognitive biases may distort judgment and result in poor financial performance (Pompian, 2012). Thus, by improving financial literacy, educating investors, and understanding behavioral biases, it is possible to achieve fewer decision-making mistakes and promote more rational investment decisions.

6. Conclusion

This paper has analyzed the impact of behavioral biases on errors in investment decision-making (MIDM) among investors, such as overconfidence, loss aversion, mental accounting, and representativeness. The results indicate that representativeness bias did not significantly affect investment decision errors, whereas overconfidence, loss aversion, and mental accounting significantly and positively influence the errors. These findings suggest that cognitive and psychological biases are often important in investor decisions and that they cause exits of the rational decision-making presumed by standard finance theories.

The irrelevance of representativeness bias may be attributed to differences in the experience of investors, market, or financial literacy of market participants, which may reduce reliance on assessments based on heuristics. The results are mostly in line with previous research findings that have indicated that loss aversion and overconfidence have a significant influence on investor behavior and portfolio selections (Barber & Odean, 2001; Kahneman & Tversky, 1979). Also, mental accounting proved to be a strong influence, as it corroborated existing studies that money is frequently categorized by investors in different mental categories, thus affecting risk perception and investment decisions.

In general, the paper demonstrates that the effect of behavioral biases on financial decision-making errors is significant and that investors are not always fully rational. By raising financial literacy, spreading awareness of cognitive biases, and promoting critical and analytical thinking, investors will be able to make more informed and rational decisions regarding investing. The findings also suggest that the politicians, financial advisors, and educational programs should be focused on minimizing the influence of major behavioral biases in order to improve overall investing performance.

6.1. Limitations of the study

This paper has discussed how four behavioral biases influence fallacies in investment decision-making (MIDM): overconfidence, loss aversion, mental accounting, and representativeness. Other notable behavioral traits, such as regret aversion, anchoring, and availability bias, were not mentioned, yet those biases have been identified to play a significant role in investment errors.

These biases that were left out have empirical significance. Regret aversion can make investment errors worse because it causes investors to take longer to make decisions or hold onto failed investments longer to prevent the regret (Bell, 1982). Tversky and Kahneman (1974) note that anchoring bias makes investors overly dependent on initial reference points, such as historical prices or other forecasts, which may distort judgment and result in suboptimal investment decisions. The availability bias can create false perceptions about risk and returns in the financial markets, as investors will tend to focus on more recent or easy-to-recall events (Shiller, 2000).

These additional biases would enable future research to give a more detailed insight into the cognitive and psychological factors that affect MIDM. Analyzing a broader range of behavioral biases may also improve models' predictive ability in evaluating investment failures and aid in developing more effective treatments to promote investor decision-making.

Informed Consent Statement: *All subjects in the study were informed of their right to provide informed consent. Participation was voluntary, data were collected anonymously, and no personal data (identifying or sensitive) was recorded.*

Conflicts of Interest: *The authors declare no conflicts of interest.*

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