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Influence of Psychological Biases on Investing Choices among Individual Investors in Mangalore City, Karnataka

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Abstract: **-** Over the last two decades, there has been a significant uptick in the study of "behavioral finance," which focuses on the psychological effects of financial choices made by individual investors. Such decisions can significantly impact the market, the individual, and the economy. The current research delves into the various psychological elements that influence individuals while investing in the state of Karnataka, specifically in Mangalore. A quantitative study was conducted to analyse the psychology of individual investors in Mangalore City, Karnataka. The data was collected from a sample of 203 investors in Karnataka (Mangalore City) through a structured questionnaire. The study utilized multiple regression analysis using SPSS to determine the relationship between the variables. The study indicates that overconfidence, herding, and regret aversion have a positive effect on investment decisions, while representative bias has a negative effect. However, no relationship was found with mental accounting biases. There is a dearth of research on behavioural finance in the southern part of India. This paper fills the gap by analysing psychological biases in the Indian Individual investor.

Keywords*: Psychological Biases, Investing choices, Overconfidence, Representative Bias, Mental Accounting, Herding, Regret Aversion.*

1. Introduction

The last two epochs emphasize a spike in enthusiasm for behavioural finance, emphasizing the behavioural impacts of financial decisions made by investors Thaler, (2005). Such choices considerably influence the market, the person, and the economy. According to Costa et al. (2019), behavioural finance is a branch of behavioural economics that studies the impact of human psychology on financial markets. The contemporary financial market's heightened competitiveness has prompted a growing recognition of the influential role played by behavioral finance in shaping market dynamics. Individual investor behavioural biases were compiled after extensive research reviews. Nevertheless, only a minimum investigation is done on this topic in India and across the globe Bihari et al., (2022). Investors and financial experts might benefit from a deeper understanding of psychological biases and investing decisions. Investors' investment choices are influenced by psychological biases such as heuristics, self-deception, and emotional and social interaction (Tripathy, (2017), Sahi, (2023)).

Standard finance assumes rationality in the investment decisions of the investors whereas behavioural finance is irrational which investigates how an investor's personality affects their choice of investments. It is well known that the rationality assumption is a part of standard financial theories, for instance, the capital asset price model and the efficient market hypothesis. Both theories say behavior can be predicted and reasonable (Barberis & Thaler, 2003). Such conduct will eventually be insufficient to explain specific financial incidents or disturbances, referred to as "market anomalies," that arise from such broad conclusions (Zahera & Bansal, 2018).

It is also evident that the behavioral patterns during the 2008 financial crisis affected investors and companies that supported the market and regulatory organizations. For instance, there were market anomalies in the Indian market (Malepati, 2017) and investors are engage in excessive trading owing to their overconfidence. This leads to fluctuations which should be avoided because they negatively impact people's savings as well as the economy. If practitioners want to avoid such prevention and preserve the stability of financial institutions, they must increase their awareness of their own psychological and behavioural constraints. Therefore, in the present day, a deeper investigation of this topic is required. This research fills a need in the existing literature by presenting the perspective of individual Indian investors. This prompted to study how psychological biases effect on financial investing choices. Hence, this study examines the link between investors' psychological biases and investment decisions. Furthermore, when numerous biases are analysed simultaneously, there is better understanding of their interconnections. Therefore, this study would aid in clarifying the process by which consumers choose a financial offering. Thus, further study on this topic is still required and quantitative approaches are utilized to explore the investors' ingrained biases in this respect.

2. Literature Review

2.1 Psychological Biases and Investment Decisions

Most investors are prone to making errors in their investing choices to mitigate potential losses. Thus, a variety of studies were conducted globally to identify the different psychological biases impacting investment decision-making. Psychological bias has major classifications like heuristics, Self-deception, Prospect theory, Herding, Emotion, Social, and Market (Ogunlusi & Obademi (2019); Sumathy & Mohammed Nabeel, (2020)). To reduce these biases investors are required to increase their financial knowledge, which has a favourable effect on investor behaviour in financial markets (Baker et al. (2019) Hudson et al., (2020), Pradhan, (2021), Toma, 2015)). Kourtidis et al. (2011) attempted to analyse the group investors (individuals and professionals) by their psychological biases and behaviour traits. They also studied dependence of traits on investment behaviour. Overconfidence, risk tolerance, self-monitoring, and social influence impact investment behaviour. The study exploits that stock traders with higher profiles performed better. Sahi (2013) aims to demonstrate applying a post-hoc predictive segmentation approach to identify the characteristics that are the most critical determinants of investor preference for specific financial alternative investments. The findings revealed that psychographic variables were the most crucial predictors of investment products with a higher degree of risk. In contrast, demographic and socioeconomic variables were the crucial predictors of investment products with a lower degree of risk. Khan & Tan (2020) looked into the family prospects on economic success and bias among Bangladeshi trivial investors, a previously unexplored population. Financial consequences with psychological prejudices are partially explained by the spouse's qualification, total revenue, marital condition, and family size.

H1: There is a substantial relationship between psychological biases and investment decision-making.

2.2 Overconfidence and Investment Decisions

Overestimation of one's investing judgment consistently is referred to as overconfidence. According to Dittrich et al. (2005), Overconfidence develops (i) in proportion to the absolute divergence from optimum choices, (ii) in proportion to task difficulty, including the number of risky assets, and (iii) in proportion to individual perceived uncertainty. People are enthusiastic about trade results and have enough knowledge to make sound investing selections. Investors also attribute the market's success to their performance and disregard the reality that focusing too much on themselves might lead to enormous losses in the upcoming years Kumar & Goyal, (2015). Moreover, Akhtar & Das, (2020) exposed the stakeholder personality factors affect financial risk tolerance, overconfidence, apparent investment efficiency, and the success of an emergent financial market like Indian Capital Markets.

H2: Overconfidence significantly influences investment decision-making

2.3 Representative and Investment choices

A group is considered representative if its members share a specific feature or attribute. It is called representativeness (Morvan & Jenkins, (2017); Tversky & Kahneman, (1973)). Representativeness bias happens with people choices on a few observations from their surroundings and ignore other information Chen et al., (2007). Furthermore, the investor's lack of representation encompasses good stocks and companies (Kartini & Nahda, (2021); Vijaya, (2016)).

H3: Representative bias significantly influences investment decision-making

2.4 Herding and Investment Decisions

The herding effect on the financial markets was identified in much previous research because traders depend more on collective knowledge than on personal information (IMF, 2012). In the stock market, herding refers to the tendency of distinct investors to follow the choices made by other market participants Chiang et al., (2013). Herding behaviour might result in price distortions from Intrinsic values and the possibility of lower returns, particularly after the emergence of a financial crisis.

H4: Herding significantly influences investment decision-making.

2.5 Mental accounting and Investment decisions

Kahneman & Tversky, (2021) developed a new theory about people's feelings about taking risks. They called it "prospect theory," a beautiful reflection of the real-world evidence about taking risks. A focus of recent prospect theory research on investor behavior that contributes to market anomalies is mental accounting, loss aversion, regret aversion, and cognitive dissonance (Ogunlusi & Obademi, (2019); Virigineni & Bhaskara Rao, (2017)). Mental accounting is a part of prospect theory and it is proposed by Richard Thaler. This system exposes how people track their gains and losses about a reference point and assess whether they should be awarded or penalized for them Thaler, (2005). The theory also emphasizes how investors separate their money into diverse portfolios based on various mental categories. Then, they divide the investment strategies for each mental account so that each of them has a distinct goal: maximizing returns while minimizing risk (Chen et al., 2007). This might lead investors to choose unprofitable portfolios that appeal to their emotions. Most of the time, investing is considered a long-term financial strategy that needs a trade-off between present consumption and consumption in the future Novandalina et al., (2022).

H5: Mental Accounting significantly influences investment decision-making

2.6 Regret aversion and Investment decisions.

Regret appears as an essential emotion that matters when making decisions, and a sensation of regret comes after making the wrong decision Kahneman and Tversky (1979). Regret theory is predicated upon two essential assumptions. The first assumption posits that many individuals have emotional experiences often referred to as regret and Joy. The second assumption exposes the decision-making ambiguity situations, the individuals strive to anticipate and incorporate these emotional sensations into their decision-making process Gazel, (2015).

H6: Regret Aversion significantly influences investment decision-making

In summary, the much of earlier research, including those by Jain et al. (2020) Kourtidis et al., (2011), Edeh et al., (2023), Dickason–Koekemoer & Ferreira (2020), and Batra & Kumar (2018) have discovered that behavioural aspects have positive and substantial effects on investors' decision-making. Several research studies signpost that the study on psychological biases influences on investment choices among individual investors is an incessant learning process. The influence of psychological elements on investors' decision-making has not been

proven detrimental or substantial. This study sought to fill gaps in the literature by examining how five behaviour biases affect investor decision-making. The literature review yielded the conceptual framework:

Research Hypothesis from the above literature review

H1: There is a significant relationship between psychological biases and investment decision-making.

H2: Overconfidence significantly influence investment decision-making

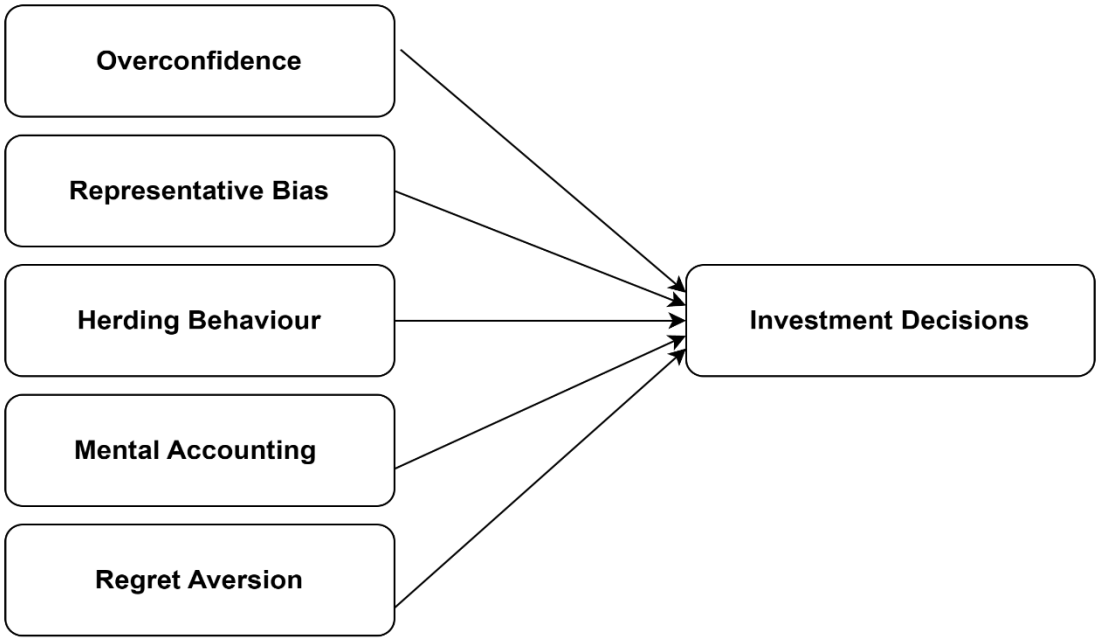

Figure 1. Conceptual Framework

H3: Representative bias significantly influences investment decision-making

H4: Herding significantly influences investment decision-making.

H5: Mental Accounting significantly influences investment decision-making.

H6: Regret Aversion significantly influence investment decision-making

3. Research Methodology

This research is an empirical study conducted in Mangalore city. (Karnataka). The structured questionnaire was distributed to working professionals who are stock market investors. Responses are gathered using a survey approach with a sample size 203 collected through Google form. Investor data is gathered using the convenience sampling approach.

The questionnaire consisted of twenty-three items in English. The items were rated by means of a five-point Likert measurement ranging from 1-Strongly disagree to agree 5-Strongly.

The linear association among the variables is found using SPSS (Statistical Package for Social Sciences). Cronbach Alpha is first used to evaluate the legitimacy of data. It is thought that the range of 0.70 to 0.90 is adequate. Second, the correlation coefficient examines the link between the variable's psychological biases and

investment decision-making. Regression analysis is then performed to govern the consequence of the various factors.

4. Results

This section exposes the data analysis and the findings. Firstly, the accuracy was measured using Cronbach's alpha test Chin, W. W. (1998). Secondly, the dependence of psychological biases as well as the choice of an investing strategy is investigated. Table 1 signposts the accuracy test results for Cronbach Alpha value 0.889. The scale is trustworthy since the Cronbach alpha value is more significant than 0.6 Chin, W. W. (1998).

Table 1 Reliability Statistics

Cronbach's Alpha	No of Items
0.889	6

4.1 Demographic Profile

Table 2 displays a demographic summary of the results, indicating a sample of 144 male investors (72.9%) and 59 female investors (27.1%). The age range of 31-40 is well signified in the sample, accounting for 44.3% of the adult group, followed by ages 21-30 (37.9%, 41-50 (13.3%), ages 51-60 (0.5%), Ages above 60 (3.9%). The sample is that 57.1% of investors (N= 116) were married, while 42.9% (N= 87) were not. Respondents were postgraduate (67.8%), followed by Graduates 18.7%, PUC/SSLC 1.4%, and the remaining came under other educational qualifications held by a tiny fraction of respondents (1.5%). Moreover, the remaining comes under others at 11.8%. The experience of the stakeholders between 6 to 10 years was 39.9% which is the highest of the whole population, respondents experience between 1-5 years is 26.6%, below 1 year and above 10 years of experience holds the same percentage of 16.7%.

Table 2 Demographic profile of the respondents (n=203)

Variable	**Items**	**Frequency**	**Percentage**
Age	21-30	77	37.9
	31-40	90	44.3
	41-50	27	13.3
	51-60	1	0.5
	Above 60	8	3.9
Gender	Male	144	70.9
	Female	59	29.1
Marital status	Marital	116	57.1
	Unmarried	87	42.9
Occupation	Private Employee	138	68.0
	Government Employee	15	7.4
	Own business	38	18.7
	Professional practice	5	2.5

	Retired	7	3.4
Education	PUC/SSLC	3	1.4
	Graduate	38	18.7
	Postgraduation	138	67.9
	Others	24	11.8
Experience	Below one year	34	16.7
	1-5 years	54	26.6
	6-10 years	81	39.9
	Above 11 years	34	16.7

Source: Survey Data

4.2 Correlation Matrix Analysis

Table 3 Results of correlations

		Investment decisions	Over Confidence	Representative Bias	Herding	Mental Accounting	Regret Aversion
Investment decisions	Pearson Correlation	1	.751**	.628**	.655**	.662**	.574**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	203	203	203	203	203	203
Over Confidence	Pearson Correlation	.751**	1	.668**	.656**	.743**	.596**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	203	203	203	203	203	203
Representative Bias	Pearson Correlation	.628**	.668**	1	.979**	.612**	.582**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	203	203	203	203	203	203
Herding	Pearson Correlation	.655**	.656**	.979**	1	.591**	.538**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	203	203	203	203	203	203
Mental Accounting	Pearson Correlation	.662**	.743**	.612**	.591**	1	.785**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	203	203	203	203	203	203
	Pearson Correlation	.574**	.596**	.582**	.538**	.785**	1

Regret Aversion	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	203	203	203	203	203	203

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3 shows that all of the factors are largely correlated with one another. Overconfidence factors and investment decision-making have a significant correlation of 0.751 at 1% degree of confidence. This demonstrates that when investor overconfidence rises, the investor's financial choices also improve. At 1% degree of confidence, the correlation between representative bias with investment decision-making is 0.628, which is crucial. This shows a strong link between the investment decision-making factor and representative bias, and investment-making choices grow as representative bias rises. For 1% degree of confidence indicates that the correlation between herding and investing decision-making is 0.655 notable. It also indicates that when herding tendency develops, investing decision-making likewise improves. At 1% degree of confidence, the level of association between mental accounting and investment decision-making is 0.662, indicating a favourable link between the two factors. If mental accounting rises, investors will regulate their investment choices appropriately. At 1% confidence level, the correlation among regret aversion and investment choices is 0.574, indicating a favourable link between the two factors. If regret aversion rises, investors will regulate their investment choices.

Table 4 Regression analysis signifying the relationship between Psychological Bias and Investment decisions

Model Summary

Model	R	R Square	Adjusted R Square	Std. The error in the Estimate
1	0.809a	0.655	0.646	1.69399

Predictors: Overconfidence, Representative Bias, Herding, Mental accounting, and Regret Aversion bias.

Table 4 explores the outcomes of linear regression of the research parameters. The investigation comprises five independent factors: Overconfidence, Representative Bias, Herding, Mental accounting, and Regret Aversion bias. The dependent factor encompasses the making of investment choices. The summary of the model evaluation findings was analyzed to determine the model's fitness. According to the model summary, R Square elucidates 0.655 variances in investment decision-making, whereas adjusted R squared is 0.646, and is near to R squared. The high value of R suggested a trustworthy model. The findings indicate a predictability level of 65.5%.

4.3 Overall and Individual Differences

Table 5 signifies the promising F-statistics satisfying the model fitness since the p-value (sig.) is less than 0.05.

Table 5 Overall Significance

F	Sig
74.728	0.000[b]

a. Dependent Variable: Investment Decision making

b. Predictors: (Constant), Overconfidence, Representative Bias, Herding, Mental accounting, and Regret Aversion bias.

Table 6 Individual significance model

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.765	0.473		1.618	0.107
Over Confidence	0.304	0.044	0.477	6.959	**0.000**
Representative Bias	-0.584	0.141	-0.902	-4.128	**0.000**
Herding	0.846	0.165	1.085	5.124	**0.000**
Mental Accounting	0.088	0.076	0.095	1.165	0.245
Regret Aversion	0.150	0.067	0.158	2.225	**0.027**

Table 6 exposes the coefficient that impacts individual behavioral finance factors on investment decisions. Table 6 signifies that an individual's significance test factors like overconfidence, Representative Bias, Herding, and Regret Aversion bias substantially impact an investor's choice of investments. The statistically significant figures show below 0.05, indicating acceptance of the alternative hypothesis. Mental Accounting has significance levels greater than 0.05 which shows no significant impact on investors' decisions suggesting the acceptance of null hypothesis.

5. Discussion

The study explains the relationship between psychological biases and investment decisions in India. India is one of the world's fastest-growing economies, and the robustness and expertise of the Indian financial markets offer investors with an alluring investment opportunity. Conversely, investors are highly inclined to show psychological biases owing to a lack of expertise in finances that causes them to deviate from rational behaviour. This is because investors have numerous possibilities for financial instruments, so their decision-making will be complex. They have plenty of questions such as how to deliberate the stock market price and whether to consider fundamental value or historical prices. Which strategy for making investments in financial products is best? How to make a quick profit? Much previous research proved that investors are influenced by irrational behaviour in their investment decision process Oprean, (2014). With the aid of 203 respondents, the present study explores psychological biases among investors. This research emphasizes that several psychological biases, such as overconfidence, representative bias, herding, mental accounting, and regret aversion, are prevalent when an investor chooses a financial investment. As a result, this investigation supports investor irrationality and explains why personal attitudes are nearly associated with investing decisions.

5.1 Overconfidence and Investment Decision

Based on the study, the overconfidence factor has a t-value more than the benchmark of 2.4 and a significance value of 0.000, which is highly significant at the 0.01 level. Its t-value is 6.829, above the benchmark. Based on the findings, the null hypothesis is disproved, and it is possible to conclude that overconfidence significantly influences investors' decision-making at the 0.01 level of significance. It implies that the majority of investors have excessive confidence in their judgments and believe they are correct. They praised their skill as

investors for the increases in their investing performance. This conclusion is consistent with the outcomes of the research by Bakar & Yi, (2016), Madaan & Singh (2019), (Kartini & Nahda, 2021), Hamurcu, (2020), and Metawa et al., (2019).

5.2 Representational bias and Investment decision

Representative bias has a substantial impact on the investment decisions of the individual investors, but it is negatively impacted (β = -4.128, p-value = 0.000). Hence it is concluded that the representative bias has a substantial impact on the investment decisions of the individual investors. This implies sometimes people tend to make predictions based on what they believe to be the most likely result, regardless of whether or not that conclusion is statistically significant or even remotely typical of the universe Tversky & Kahneman, (1973).

5.3 Herding and Investment Decision

The research analysis shows that the t-value of the herding factor has a statistically significant relationship with investment decisions. The study signifies that the significance value is less than 0.00, and the p-value is 5.124, more than the 2.4 benchmark. These prominent values emphasize the rejection of the null hypothesis. It shows that investors are more likely to rely on group information than on their personal information. Investors react impulsively to changes in the decisions of others because they prefer the investment decisions of others to their own. The result is supported by Madaan & Singh (2019), Kartini & and Nahda (2021), and Metawa et al. (2019). Hence mental accounting is also one of the critical factors impacting investment decisions.

5.4 Mental accounting and Investment decision

The study found that mental accounting does not impact investment decisions because the t-value is less than 2.4 and the p-value is 0.245. Hence it is concluded that the acceptance of the null hypothesis and the same result are supported by (Khan Khalil et al. (2017) and Novandalina et al. (2022)).

5.5 Regret aversion and Investment decision

Research analysis shows, regret aversion has a t-value more than the benchmark of 2.4 and a significance value of 0.027, which is highly significant at the 0.01 level. Its t-value is 2.225, above the benchmark. Hence null hypothesis is rejected (Antony & Joseph, (2017) (Jain et al., 2020). Regret aversion may encourage investors to be cautious about their investing options. Investors' previous losses cause them to reconsider making any risky move. Thus, regret aversion is an essential factor in making investment decision-making.

6. Conclusion

Behavioural finance studies the psychology of individual investors and their investing choices. This study emphasizes how psychological variables influence investors' choices in Karnataka (Mangalore), India. The aforementioned results indicate that psychological biases play a significant role in the decision-making of investors. This research also shows the promising influences of overconfidence bias, herding behaviour, and regret aversion on investment decisions, but representative bias has a negative relationship investment decision. Whereas mental accounting has no impact on investment decisions. The study is vital for policymakers who want to stabilize investor sentiment and reduce market volatility. This study is crucial for portfolio managers considering their investors' moods while evaluating stocks and hedging risks.

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