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Impact of behavioural biases on retail investor's decision: An empirical Study from Bengaluru

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Abstract

Biases may be thought of as representations of an investor's mind. It provides the fundamental reasoning behind irrational investment decisions. Retail investors can reduce risk if they can make their choices grounded on rational and irrational decisions. The current study aims to examine two objectives: the impact of mental accounting, availability and anchoring bias on investment decisions and second,y, to identify the most influential factor influencing investment decisions. A survey method with an adapted questionnaire measuring the factors is used to gather the data. A sample size of 210 was considered for the study through convenience sampling. The data collected is run on SPSS software to measure the correction and regression between the independent and dependent variables. The results reveal that among all the biases considered, anchoring bias influenced the decision-making of retail investors.

Keywords: Mental Accounting, Availability, Anchoring, Investment Decision.

Introduction

Behavioural finance models point out that an individual's investment decisions are not only built on the information of the market, but other elements like emotions, thoughts, and heuristic errors are reflected in their choices. Biases are thought of as a representation of investors' minds. The biases provide the ultimate reasoning ahead of irrational investment decisions (Ahmad, 2020). Retail investors can minimize their risk only if they can make choices grounded on rational and irrational decisions, Naseem et al., (2021). Financial theorist posits that investors are rational decision-makers as the capital markets are perfectly efficient, Markowitz, (1952); Modigliani and Miller, (1958); Malkiel and Fama, (1970).

Contrary to these theories, Behavioural finance, a new model, advocates that individual investment decisions are prejudiced by cognitive, emotional, environmental, and personality factors. Behavioural finance proclaims that personal choices are bounded and irrational. The model is evidenced by extensive studies on limited rationality Simon (1955); Kahneman and Tversky, (1972). Prospect theory was addressed from the expected utility theory, the theory renowned that an individual's investment decisions are affected by risk and uncertainty. Regret theory relies on two assumptions. Namely, individuals experience two kinds of regret and joy, dominating decisions (Rasheet et al., 2018; Zhuo et al., 2021; Kaur and Bharucha., 2021). Financial and academic researchers were motivated to disrupt the rationality assumption by measuring the effect of a few psychological biases on investors' investment decisions (Odean, 1998-99; Glaser,2003; Shu et al., 2005; Kumar et al., 2010).

Review of Literature

Cognitive bias is inaccuracies in judgment related to memory/information processing errors and personal/emotional bias, Kahneman and Tversky, (1972). They are interrelated to mental processes like thinking, logical ability, problem-solving and decision-making (Shefrin, 2002; Baker & Ricciardi, 2014; Singh & Bhowal, 2010). Studies in behavioural psychology provide new insights by including new concepts in finance like financial knowledge, cognitive biases and risk perception (Bazley et al., 2021). Dahiman Khan (2020) examined the influence of cognitive biases like herding, disposition and mental accounting bias on investment decisions moderated by financial literacy. Impact of cognitive biases (herding bias, disposition bias and mental accountability) on investment decisions moderated by financial literacy. Using the correlation and the regression analysis, they identified that herding, disposition, and mental accounting impacted on investment decisions of individuals. Financial literacy exhibited a positive moderating role in the disposition effect and a negative role in herding and mental accounting bias. Saif Ullah et al. (2020) explored the influence of behavioural bias on decisions relating to investment and the moderating role of investor type on behavioural bias and investment using multiple regression analysing and two-stage least square regression. The results showed that behavioural bias, disposition effect, herding and overconfidence positively impact investment decisions. The Investor type had a moderating role in herding bias and a positive role in overconfidence. Katrini et al. (2021) examined the influence of anchoring, representativeness, loss aversion, overconfidence, and optimism biases on investor decisions and

tested with a One-sample t-test and proved that all the factors have an impact on investment decisions. Etse Nkukpornu et al. (2020) observed the effect of overconfidence, regret, belief, and snakebite on investment decisions. Conducted a multiple regression test and found that all four factors strongly influence investment decisions. In the current study, three different behavioural biases have been taken as a framework to study their bearing on individual investment decision-making. This framework aims to disclose insights into behavioural bias through the behavioural finance model. The current study considers three behavioural biases: mental accounting, availability bias, and anchoring.

Anchoring bias and investment decisions

Anchoring is demarcated as a cognitive bias that explains human beings' propensity to rely immensely on the first piece of information when making decisions, Shin & Park, (2018); Maqsood Ahmed, Syed Zulfiqar Ali shah, (2018); Singh, (2016). Shiller (1999) elucidated that when people are queried to make quantitative calculations, their calculations are generally impacted by suggestions, called anchoring. Tversky et al. (1974) illuminated that anchoring bias is a concept used by individuals in the circumstances; they use some initial values to sort projections and are biased towards the original or first one as a starting point, yielding different estimates. Retail stock investors expect to anchor their purchase of stock in the current maximum value of the store. Studies have shown that anchoring bias supplements the suboptimal decisions of investors, Krause, Shiller, Shleifer, Wilcos, & Shiller, (1970). Kaustia et al. (2008), in a survey, found an anchoring effect on students' return expectation from long-term stocks, but the anchoring development impacted professionals. Also, Andersen et al. (2010) clarified anchoring as the general propensity of investors to trust any information for investment decisions in markets. Researchers have documented that anchoring bias negatively impacts investment decisions made by retail investors, Maqsood Ahmed, Syed Zulfiqar Ali Shah (2018). Thus, it is understood from the review that anchoring is one of the most explored psychological biases (Shin & Park, (2018) and influences investors' investment decisions (Wright & Anderson, (1989). Hence, the existing study considered anchoring is hypothesized and encompassed in the present study.

Mental accounting and investment decisions

Mental accounting refers to how people think of value in relative terms rather than impeccable terms. They acquire satisfaction not only from the worth of their investment. (Thaler, 1985). Barberis et al. (2003) explained that mental accounting allows investors to organize their portfolios

into separate accounts. Behavioural bias arises when people tend to segregate their money into various categories depending on multiple aspects, like where they acquired funds and for what purpose that money was intended to be used. Research has advocated that investors who invest in equity or gamble at casinos are momentously inclined towards the bias mental accounting, Rachlin et al., (2015). There have been various instances where lottery winners have lost despite several winnings and a few big casino winners who kept losing more and more money by gambling. Agnew (2006) explores how behavioural biases like mental accounting impact investors. Investors influenced by mental accounting treat every portion of their portfolio separately instead of analyzing them. Sewell M (2007) described mental accounting as a set of mental operations considered by individuals or households to organize, evaluate and monitor their financial activities. Grinblatt et al. (2005) evaluated cognitive accounting bias as a basis for the attitude that an investor sets reference points to determine gains and losses because they tend to segregate the different types of gambles into distinct accounts and then apply the prospect theory to each statement by ignoring possible interactions.

Availability Bias and investment decisions

"Availability bias" is a behavioural concept which describes how our environment can shape our perceptions. As humans, our thinking is strongly influenced by what is personally most relevant, recent or dramatic. The information available to investors is translated into their perceptions due to their personal experiences reflected in the economic picture. Javed, Bagh, and Razzaq (2017) state that an investor makes investment decisions and tries to use all available information. Murgea (2010) positions Availability as a judgmental heuristic related to the realization occurrence of cases. Folkes (1988), Availability bias grounds investment decisions to be irrational. Waweru et al. (2008) investors desire to invest in local companies that are more familiar based on the ready information available. Tversky and Kahneman (1974) conferred that availability bias occurs because the outcome easily comes to the investor's thoughts. Khan (2015) and Ikram (2016) found that availability bias positively affected investors' investment decisions

Objectives

The present study is intended to study the following objectives:

1. To analyse the impact of mental accounting, availability and anchoring bias on investment decisions
2. To identify the most influential factors that influence investment decisions

Research Hypothesis

This study addresses the moderating impact of information processing biases and investors' investment decisions. To attain the above objectives, the following hypothesis was framed and tested.

H1: Mental accounting bias has a significant impact on investor's investment decisions

H2: Anchoring bias has a significant impact on investor's investment decisions

H3: Availability bias has a significant impact on investor's investment decisions

Research Methodology

The current study is a cross-sectional and Qualitative process used for data analysis. A survey method was applied, and an adapted questionnaire was used to attain the responses. The questionnaire comprises two parts. The first part measured the demographic variables like –age, gender, income, and occupation. The second part of the questionnaire measured the independent variables mental accounting bias, availability bias, anchoring, risk perception and dependent variable investment decision. The study used a 5-point Likert scale, ranging from strongly disagree 1 to agree 5 to measure each decision strongly. A sample size of 200 was chosen through convenience sampling to collect the investors' data. The study analysed the data with inferential and descriptive statistics using the SPSS software. Firstly, the reliability of the data was checked by applying Cronbach alpha, a range from 0.70 to 0.90 is considered adequate. Secondly, the data was put to a correlation test to find the relationship among the variables, i.e., anchoring, mental accounting, availability bias, risk perception and investment decisions. Finally, a regression analysis is conducted to identify the most influential variables.

Results

This part of the study deliberates on the results and interpretation of the data. The data were tested for reliability using Cronbach alpha; the scale reliability test indicated a value of 0.73, within the

adequacy range of 0.70 to 0.90. The respondents' demographic profile was analysed and presented in table 1.

Table 1: Demographic Profile

Demographic components	Frequency	Percentage
Gender		
Male	84	40
Female	126	60
Age		
Less than 25 yrs	108	51.42
25-40yrs	28	13.35
40- 55yrs	53	25.23
Above 55	21	10
Education		
Metric	13	6.2
Inter	14	6.7
Degree	140	66.7
PG/M.Phil/Ph.D	43	20.5
Current Occupation		
Homemaker	15	7.1
Self-employed	28	13.3
Employed	160	77.2
Retired	7	3.3
Investment Experience		
Less than 5	163	77.6
5 to 10yrs	19	9
11 to 15 yrs	14	6.7
Above 15 yrs	14	6.7

Correlation analysis

Table 2: Results of Correlation

		Mental Accounting	Availability Bias	Anchoring Bias	Risky Investment
Mental Accounting	Pearson Correlation	1	.978**	.917**	.873**
	Sig. (2-tailed)		.000	.000	.000
	N	209	209	209	209

Availability Bias	Pearson Correlation	.978**	1	.904**	.891**
	Sig. (2-tailed)	.000		.000	.000
	N	209	209	209	209
Anchoring Bias	Pearson Correlation	.917**	.904**	1	.854**
	Sig. (2-tailed)	.000	.000		.000
	N	209	209	209	209
Risky Investment	Pearson Correlation	.873**	.891**	.854**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	209	209	209	209

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

Table 2 shows the relationship among the variables; it is found that all the biases considered for the study have a strong relationship with each other. Their results depict a positive relationship between mental accounting bias and investment decision, with a p-value of 0.873 at a 1% significance level. It indicates that as cognitive accounting increases, investor investment decision also increases. The degree of relationship between Availability bias and investment decision is shown with a p-value of 0.891, expressing a significant positive relationship between the availability bias and investors' investment decisions. Also, the relationship between anchoring bias and investment decision is 0.854 at a 1% significance, indicating the positive relationship among the variables; if anchoring bias increases, investor investment decision also increases.

Table 3: Regression analysis

Model	R	R Square	Adjusted R Square	Std. The error in the Estimate
1	.409[a]	.167	.155	.761

Predictors: (Constant), Anchoring Bias, Availability Bias, Mental Accounting

The regression analysis shown in table 3 confirms the results of linear regression. The regression analysis shown in table 3 demonstrates the effects of linear regression. Three independent variables Mental Accounting, Availability bias, anchoring bias, and investment decision as a dependent variable, are considered in the study. A model fit is evaluated with the results of the model summary. It indicates that the R square value has 0.167 variations in investment decision-making, and the

adjusted R square is 0.155, which is close to the R square. A reliable model is indicated because of the high value of R 0.40. The outcomes show a 16.7% of predictability level, which is low because of the non-consideration of other variables in the model.

Table 4: Overall and Individual difference

F Change	Sig. F Change
13.736	.000
a. Predictors: (Constant), Anchoring Bias, Availability Bias, Mental Accounting	
b. Dependent Variable: investment decision	

The above table reveals F –statistics (Table 4) indicating the model's overall fitness and is evaluated as a general fit model with its p-value less than 0.05.

Table 5: Individual significance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.244	.196		11.444	.000
	Mental Accounting	-.130	.291	-.146	-.446	.656
	Availability Bias	.110	.280	.120	.395	.693
	Anchoring Bias	.384	.142	.433	2.700	.008

a. Dependent Variable: investment decision

The results in table 5 exhibit an individual significance test, indicating that Anchoring bias has a significant influence on the investor's investment decision as the p-value is less than 0.05; the remaining variables, mental accounting and availability bias exhibit a higher p-value than 0.05, i.e., 0.656 and 0.693 respectively proving that they do not influence investors investment decision.

Conclusion

To understand the irrational behaviour of investors, the study aimed to analyse the impact of behavioural bias, mental accounting, Availability and anchoring on investors' investment decisions. The two objectives framed were tested using correlation and regression. The results of the hypothesis tested show that individual investors are influenced by anchoring bias compared to other preferences. The present study underwrites the existing literature by observing the state of the tendencies under investigation in general investment decisions and appeals to a conclusion for a superior understanding. Hence the present study, analysis and discussion bring forward many issues for further research. It is suggested that further investigations can be executed by including other

bias of cognitive and information processing/emotional biases. Future research can be directed to pinpoint the current state of biases under different demographics and in different and specific sectors like insurance, mutual funds, securities, gold, ETFS etc.

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