Journal of Informatics Education and Research
ISSN: 1526-4726
Vol 3 Issue 2 (2023)

Emotional Biases and Individual Investors: An Exploratory Study

Dr. Sneha Badola
Assistant Professor
IMS Unison University
Uttarakhand

Dr. Ankit Srivastava
Assistant Professor
IMS Unison University
Uttarakhand

Dr. Ratchana Rajendran
Associate Professor
International School of Management Excellence
Bengaluru
Karnataka

Dr. Sudhansu Sekhar Nanda
Associate Professor
Kirloskar Institute of Management
Karnataka

Dr. Sthitipragyan Biswal
Assistant Professor
ASTHA School of Management
Bhubaneswar
Odisha

Biren Parekh
Director
CRISIL Ltd.
Mumbai

Abstract

The current research focuses on the effect of emotional biases on the investment decision-making process among individual investors of India. This article is steered by conducting a survey on 631 individual investors of India participating in Indian stock market. Through a structured questionnaire as a research instrument, the study gauges behavioural biases of individual investors. An exploratory study by nature, the analysis of the study supports evidence establishing the adverse nature of behavioral biases affecting investment analysis and further their decision-making. The research implies a statistically significant association among behavioural biases and investment related decisions. The findings are significant for all the stakeholders of Indian stock markets, be it investors, financial advisors, industry experts and others indulged in the process of asset management or portfolio construction. This study can act as an aid towards informed investment decisions by analysing the vulnerability of investors associated with emotional biases.

Keywords: Investment, individual investor, decision-making, emotional biases, behavioral finance

Key-takeaways:

1. Emergence of behavioral finance.
2. Existence of behavioral biases among individual investors.
3. Effect of emotional biases in the investment decision making.

Introduction

In the investment world, investors are assumed to have made judicious investment decisions (Sachs et. al., 2019), and remains an extensively discussed phenomenon in traditional finance. Conventional finance emphasises on the activities of investors trying to opt for careful investment choices, trying to amplify their profits/ gains (Rahman & Gan, 2020) and selecting the best investment alternative (Kumar & Goyal, 2015). The traditional investment/ market theories anticipated that a particular investor is wise decision maker and take into account every accessible information while taking investment decision. Shareholders and financial market analyst employed several financial simulations for forecasting stock prices (Mohan et. al., 2019). For example, the CAPM (Capital Asset Pricing Model by Sharpe in 1964), and the APT (Arbitrage Pricing Theory by Ross in 1976). Nevertheless, there are sufficient evidence in past literature which discusses ineffective investment decisions taken (Chiang et al., 2008), due to the irregularities, incidences such as the inclination of investors to hold losing shares for longer time period, while disposing profitable shares promptly (Bruce, 2010). There are also incidences of over-confidence and poor divergence of portfolio (Goetzmann & Kumar, 2008). All such incidences of behavioral irregularities in the stock market could not be captured or answered by standard finance (Singh et. al., 2022). Such occurrences have drawn the attention of researchers and put forward the questions such as:

Are financial markets and their investors really efficient?

Or are the individual investors irrational, are they bout by anxiety, sentiments or desire for abnormal returns?

Does such irrationality lead to bad investment decisions?

Behavioral finance answers these questions by challenging such existence of "rational investment decisions" and emphases on the behaviour aspects of financial decision-making done by investors (Semenov, 2009). The fundamental assumption of traditional theory is that investors are rational and constantly try towards benefitting themselves by improving overall wealth (Haryanto et. al., 2020), whereas, the truth is investors make investment related decisions based on their personal experiences apart from applying the knowledge and skills of financial markets possessed by them (Akhtar et. al., 2019). Behavioral finance is a discipline of financial study which describes the irrationality of investors and related biases that are likely to affect investors (Suresh, 2021). This arena of finance links psychological, sociological, cognitive, emotional and behavioral aspects of finance to describe why investors make irrational decisions and for these admirable explanations has gained substantial acceptance in the financial world, especially in stock markets investments (Raut, 2020). Contrasting to traditional finance views, the behavioral approach understands that there are constraints to arbitrage pricing and investors cannot be completely rational (Peng & Hu, 2020). Behavioral finance concentrates on the way in which investors behave and interpret available data to take investment related decisions. It is receiving the focus of researchers and industry experts as the key component of every investment related process due to its trait of dealing with behavior and sentiments of investor, who are the nerve of financial markets (Suresh, 2021). Behavioral finance supports investors to make informed decisions and prevent errors in investment decision (Shanmuganathan, 2020). Although the study and research of finance as a discipline goes back to many centuries and decades, and theories in traditional finance considers investor being rational and taking investment decisions with availability of all necessary information (Qasim et. al., 2019), but behavioral finance theories confirm that the investor is psychologically biased and his human behavior affects his investment decision. All these developments led to behavioral finance being an innovative sector for research (Badola et. al., 2022).

Literature Review

Conventional financial concepts are constructed on the inference of rationality of participants and financial markets; they are assumed to be a part of smooth structures where only rational decisions will be made all the time. Prior studies in the domain of standard finance illustrate that investors intend to plan their investment decisions rationally (Jain et. al., 2020) and try to apply various models and concepts of standard finance to estimate risk and expected returns of their investments (Ahmad et. al., 2020). However, investors are not always rational and regularly display irrational behavior (Ahmad & Wu., 2022); they trade excessively (Pertiwi, 2019), buy stocks with no assessment of fundamental values, take their decisions based on past performance (Parveen et. al., 2020) and unnecessarily hold loss-making stocks while selling winning stocks (Shah et al., 2018). Behavioral finance scholars believe that investors do not act rationally as traditional finance believe, rather their outcomes are prompted by their own psychological feelings. Of late, significant work in behavioural finance has exhibited a number of behavioral biases in the presence of which investors complete their investment decision (Itzkowitz & Itzkowitz, 2017). According to behavioral finance scholars, inevitable behavioral biases remains with every individual and prevents them from making rational decisions, apart from creating adverse consequences on investors' performance (Ahmad & Shah, 2020) and on market efficiency (Shah et al., 2018).

Behavioral finance is developed as a distinct discipline which tries to work on the causes of stock market anomalies (Zamir & Teichman, 2018) by mitigating them and clarifying so that investors take informed investment decisions. It moreover, facilitates finding reasons which an investor uses for tailor-made investment solution depending on his age, income, education, gender, information about security and peer behavior (Badola & Joshi, 2022).

Rationality in investment decision making.

Behavioral finance as an advanced discipline of finance differs from the notion of perfect rationality (Sharma & Kumar, 2020) and observed investment decisions as a continuous process with the reflection of cognitive and emotional biases. It also seeks to explain why and how investors act beyond the boundary of perfect rationality (Leković, 2020) and why investors oppose their actions against what they were supposed to perform. Ideally, it is challenging to take a rational decision due to availability of restricted information, insufficient timelines, and human constraints. Therefore, Herbert Simon in 1956 realised and replaced the term "rationality" with the concept of "bounded rationality".

The rationality of investors also became questionable when standard finance theories were unable to deliver adequate explanation towards financial market anomalies (Hon et. al., 2021), as they adopted the assumption that investor's activities always amplify their return. Recent studies have revealed that investors are not always logical when making financial decisions (Sattar et. al., 2020), as they are inclined towards emotional factors rather than logic (Kartini & NAHDA, 2021). Furthermore, markets are not always efficient (Costa et. al., 2019). Ambiguity around an investment decision causes humans to become doubtful (Calzadilla et. al., 2021). Behavioral finance discusses the reasons beyond these irregularities and tries to answer the questions pertaining to unexpected decisions of individual investors and its impact seen on the financial markets.

Behavioral Biases

Behavioral biases are assumed to have an explicit influence on investment decisions (Baker et. al., 2019; Metawa et. al., 2019), which eventually leads to lower investment gains in the stock market. These cognitive and emotional biases are due to the lack of ability of investors to foresee market developments (Al-Dahan et. al., 2019), and presses them towards biased investment decisions (Berthet, 2021). Unnecessary information and emotional concerns play a major role among individual investor's decision (Banerjee, 2011). In fact, more often, the investor considers the rule of thumb rather than long and laborious mental calculations to make conclusions that can lead to suboptimal options and can create friction in the financial market.

Emotional Bias

Emotions affect decisions directly and indirectly (Nguyen, 2020); an emotionally biased person gives prejudiced value to alternatives based upon their unreasonable principles (Venkatraman & Wittenbraker, 2020). An emotion can be understood as an impulsive response instead of a deliberated thought process arising due to thoughtless decisions. Such biases are generally too rigid to be corrected as they stem out of intuition, so, even if an investor wishes to regulate or resist them, largely, it cannot be done (Badola & Joshi, 2022).

The detailed description of all the six emotional behavioral biases is stated here:

Endowment bias Nabi et. al. (2022) highlighted the contribution of Thaler (1980) where he examined the fact that losses are evaluated heavily and are given more emphasis over wins. When given items to exchange, individuals treasure the items in their possession more and display endowment bias (Armansyah, 2021). Existence of endowment bias leads to lower investment levels and higher inclination towards risk aversion (Iqbal et. al., 2021).

Loss aversion bias The idea of loss aversion bias was coined by Kahneman & Tversky (1979). Investors are usually found reacting differently to losses and profits (Jain et. al., 2020). Certain people over-react when they suffer losses, consequently, there focus is more on avoiding losses rather than earning gains (Ainia & Lutfi, 2019). Investors inclined towards loss aversion bias are concerned regarding the losses suffered and at times even avoid investments (Khan, 2017).

Optimism bias To be optimistic is to exaggerate the probability of better events occuring while restraining the chances of negative things occurring (Abdeldayem & Sedeek, 2018). There will likely be a large number of investors who see the current state of the financial markets with excessive optimism (Pan, 2020). Many people who put money into the stock market are unrealistically optimistic, assuming that negative investments can never take place with them (Banerji et al., 2020).

Status Quo bias There is a status quo bias while making financial decisions, as noted by Samuelson and Zeckhauser (1988). (Bergers, 2022) opines if investors suffer from this bias, they are less likely to seek better returns by diversifying their holdings (Banerji et al., 2020). In the face of uncertainty, investors put off making important financial decisions (Filiz et al., 2018). Due to their portfolios' lack of movement, many investors try to trade securities in search of higher yields but are unsuccessful (Goodell, 2022).

Self-control bias Investors' propensity to reduce their long-term savings in favour of spending in the here-and-now is a reflection of self-control bias (Kishor, 2022). With the aim of elucidating the significance of self-control, Shefrin & Thaler (1998) presented a psychologically explained pattern of household savings. Insufficient long-term saving is a common mistake among investors (Nofsinger, 2022), which can lead to more risk-taking in pursuit of larger returns on investment (Ahmad & Shah, 2020). As a result, investors may end up allocating their funds inefficiently, putting their money at risk by prioritising short-term gains above the long-term benefits of diversifying their holdings (Akinkoye & Bankole, 2020).

There is a dearth of literature when it comes to analysis of Emotional biases in reference to individual investors and their investment decision making process. This study is first of its kind which not only focuses on all six emotional biases, namely, Endowment bias, Loss Aversion Bias, Optimism bias, Regret Aversion Bias, Self-Control Bias and Status Quo Bias, but along with the individual study of these biases also study their relationship with investment decision-making process.

Statement of the Problem:

The decisions of investors on stock market play an important role in defining market trend **(**Barber & Odean, 2013) and consequently influence the economy as there is a positive correlation between stock market and economy **(**Barber et.al., 2009; Kumar et. al. 2023). Exploring various behavioral factors that affect the decisions of individual investors and finding their impact on investment performance will

provide better understanding and explanation about the notion of investors' decisions (Kumar, 2020). The investors and investment firms can further utilise this understanding of common behavior to optimize their objectives, i.e., investors can justify their reactions for better returns and security organizations to accurately forecast and give better recommendations to their customers.

Thus, stock price will reflect its true value market becomes the yardstick of the economy's wealth and helps enterprises to raise capital for production and expansion.

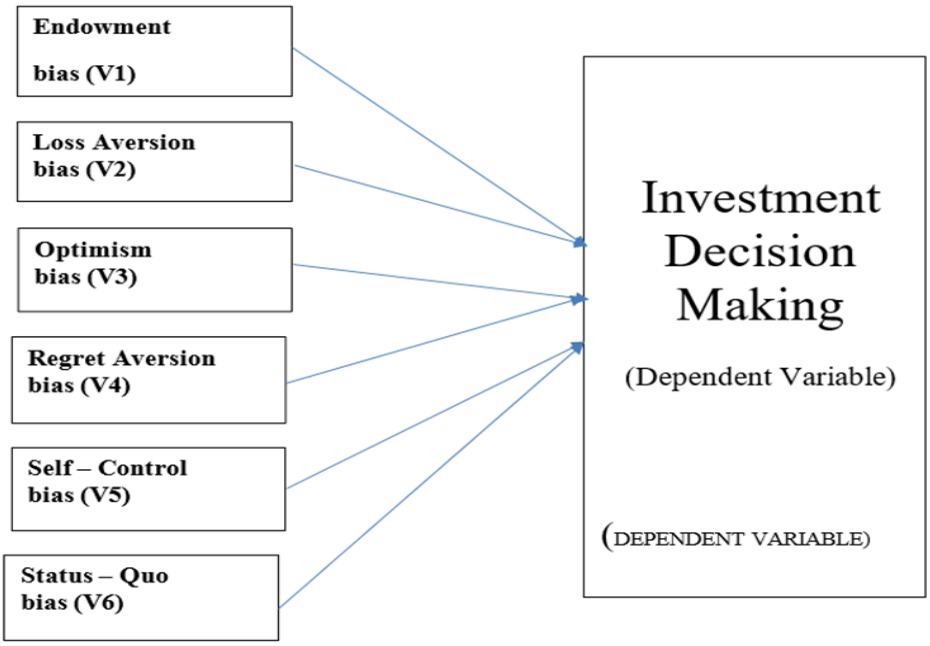
Identification of Variables

After the pretesting and exploratory analysis based upon expert views, and reliability analysis following variables have been identified and are presented in following table.

Table 1- List of constructs

	Construct	References
1	Loss Aversion Bias	**Baker et al. (2019); Jain et al., 2019; Areiqat et al., 2019; Alrabadi et al., 2018; Usman, 2018**
2	Endowment Bias	**Pompian, 2006.**
3	Regret Aversion Bias	**Akinkoye & Bankole (2020); Baker et al., 2019**
4	Self-Control Bias	**Akinkoye & Bankole (2020); Kishor, 2020.**
5	Status Quo Bias	**Akinkoye & Bankole (2020); Alrabadi et al., 2018.**
6	Optimism Bias	**Pompian 2011**
7	Investment Decision Making	**Ogunlusi & Obademi, 2019; Nyamute, 2016; Qureshi, 2012; Pasewark & Riley, 2010.**

The following conceptual framework **(Maxwell, 2013)** has been designed for the present study from literature reviews to find the impact of behavioural factors on investment decision.



***V describes Independent Variable**

Figure 1: Conceptual Framework

Research Questions:

Present research tries to answer following research questions

RQ1. Do individual investors take rational investment decisions?

RQ2. Are investment decisions of individual investors affected by behavioral biases (emotional)?

RQ3. How can we measure behavioral biases (emotional) among individual investors?

RQ4. How behavioral biases (emotional) affect investment decision of individual investors?

Objectives of the Study:

This study has been conducted with below mentioned basic objectives:

1. To explore the rationality among individual investors in investment decision making.
2. To identify the behavioral biases (emotional) existing among individual investors which affect their investment decision making.
3. To measure the behavioral biases (emotional) among individual investors.
4. To measure the effect of emotional biases on investment decision making among individual investors.

Research Hypotheses:

On the basis of the above research questions, following hypotheses have been built to empirically analyze the association between behavioral biases and investment decisions of investors in the stock markets, i.e., exploring the influence levels of the behavioral variables on the individual investors' decisions and their investment performance at Indian stock markets. (For alpha = 1%)

H1: Endowment bias has significant association with investment decision making of Individual Investor.

H2: Loss Aversion bias has significant association with investment decision making of Individual Investor.

H3: Optimism bias has significant association with investment decision making of Individual Investor.

H4: Regret Aversion bias has significant association with investment decision making of Individual Investor.

H5: Self-control bias has significant association with investment decision making of Individual Investor.

H6: Status-quo bias has significant association with investment decision making of Individual Investor.

The above hypotheses have been presented between set of demographic variables and investor's behavioural biases and individual investor's investment decision making.

Research Design and Sampling:

An empirical design was performed for pre-testing the questionnaire and establishing its reliability and validity. Referring to Malhotra (2010) for gathering structured data, formal questionnaire was formulated and questions were asked in a prearranged order.

Personal interviews were carried out in order to collect data at exploratory stage, and for pretesting, selective respondents and researchers were gathered at a single facility for discussion and other processes. The exploratory study started with pre-testing of the set of items and questions to record various variables of the study. A total of 200 responses from individual investors were taken for this stage.

The study also used descriptive research design for describing the characteristics of a particular group of stock market investors.

Population for this study consists of all the individual investors from India who have invested in Indian stock market at least once.

Looking at the broad definition of individual investors (Lawrence, 2013; Barber & Odean 2013; Seasholes & Zhu, 2010; Legum, 2006), population is considered to be infinite and to maintain randomness in sample selection, each element selected comes from the defined population and each element is selected independently of other samples (Lee & Peters, 2015).

The purposive sampling is used to select individual investors as respondents. A close ended structured questionnaire was then administered to the respondents during December 2020 and May 2022. A total of 885 respondents were contacted to fill the required questionnaire. Out of which, 715 responses were received back. The final responses taken into study were 631 (71.2%) excluding 84 responses eliminated due to non-submission of responses, missing values, or inappropriate details.

For the purpose of sample size determination, the ten times rule (Hair et al., 2016) was applied, which indicates that the sample size should be equal to the larger of ten times the largest number of formative indicators used to measure a single construct.

Reliability Analysis

The result of Cronbach's alpha for the pilot study which was performed on 200 respondents are shown in the below table:

Case Processing Summary

		N	%
Cases	Valid	200	100.0
	Excluded	0	0
	Total	200	100.0

Reliability Statistics	
Cronbach's Alpha	N of Items
0.901	26

Table 2: Reliability Statistics

The result shows a high value for reliability of the questionnaire to be acceptable for further analysis **(Hair et al, 2016).**

Data Analysis

Demographics

A detailed demographic analysis of the respondents is done, and it is found that about 84% of respondents are below the age of 30 years and only 1.58% are above 45 years of age. As far as the income of individual investors is concerned, about 67% of respondents have an annual income of less than Rs. 6.0 Lacs and only a minor percentage of respondents belong to higher bracket of income. The trading experience in stock market plays a pivotal role in investment decision making and the analysis mentions the majority to be falling into the category of 1-5 years of trading experience (36.6%), while

others have an experience of more than 5 years (30.5%) and 24.4% respondents have recently started trading in stock market. Another demographic factor that is explored in this study is the occupation of the respondents. The service class investors, both private and public, consists of about 69% respondents and remaining portion represents investors from self-employed and other occupations.

Principal Component Analysis (PCA)

Principal component analysis (PCA) is used lowering a dataset's dimensionality and to create analytical models and for exploratory data analysis. The extractions attained through SPSS are given in the table 3 explains the communality, which is the sum of the squared component loadings up to the number of components that are extracted.

Table 3: Communalities

	Initial	Extraction
EB1	1.000	.776
EB2	1.000	.794
EB3	1.000	.775
EB4	1.000	.797
SCB1	1.000	.726
SCB2	1.000	.804
SCB3	1.000	.809
SCB4	1.000	.601
SQB1	1.000	.682
SQB2	1.000	.831
SQB3	1.000	.826
LA1	1.000	.930
LA2	1.000	.957
LA3	1.000	.909
OB1	1.000	.796
OB2	1.000	.877
OB3	1.000	.871
RAB1	1.000	.895
RAB2	1.000	.934
RAB3	1.000	.886
IDM1	1.000	.717
IDM2	1.000	.716
IDM3	1.000	.727
IDM4	1.000	.701
IDM5	1.000	.733
IDM6	1.000	.757

Extraction Method: Principal Component Analysis.

Table 3 explains the communalities of the items under study and values of more than 0.6 indicate a high extent to which the variable under study is explained by the components. Majority of communalities signify a high value and provide empirical support to the variables identified from the literature review.

Table 4: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.784	37.631	37.631	9.784	37.631	37.631	4.344	16.706	16.706
2	2.508	9.645	47.276	2.508	9.645	47.276	3.153	12.127	28.833
3	1.994	7.669	54.944	1.994	7.669	54.944	2.881	11.081	39.914
4	1.843	7.09	62.035	1.843	7.09	62.035	2.785	10.71	50.624
5	1.707	6.566	68.601	1.707	6.566	68.601	2.69	10.345	60.969
6	1.525	5.867	74.468	1.525	5.867	74.468	2.57	9.886	70.855
7	1.465	5.635	80.102	1.465	5.635	80.102	2.404	9.247	80.102
8	0.589	2.267	82.369						
9	0.524	2.015	84.384						
10	0.432	1.661	86.045						
11	0.406	1.562	87.607						
12	0.371	1.426	89.033						
13	0.357	1.373	90.406						
14	0.304	1.17	91.576						
15	0.287	1.102	92.678						
16	0.254	0.977	93.655						
17	0.25	0.961	94.616						
18	0.247	0.95	95.566						
19	0.212	0.815	96.381						
20	0.21	0.807	97.187						

Extraction Method: Principal Component Analysis.

A total of seven components have been saved. These seven components explain 80.10% variance in the data.

Rotated Component Matrix

The loadings of components are presented in following table 5. The loadings show strong correlations among the components and the variables. The rotated component indicates that the component 1, which has a high degree of correlation with investment decision making factors. Similarly, other components 2, 3, 4, 5, 6, and 7, have high degree of correlation with endowment bias, self-control bias, loss aversion bias, regret aversion bias, optimism bias and status-quo bias respectively.

Exploratory Factor Analysis

After the successful performance of PCA, Exploratory Factor Analysis (EFA), which is based on the common factor model is used in the current study. In this model, evident variables are expressed as a function of common factors, unique factors, and errors of measurement. Each unique factor influences only one manifest variable and does not explain correlations between manifest variables. "Factor loadings" are measurements of the influence of a common factor on a manifest variable, and common factors have an impact on several manifest variables. EFA assumes that every measure or indication might have a relationship with any factor. Performing EFA was necessary to identify underlying factors/constructs for a set of measured variables (Hair et al., 2016; Prakash et. al. 2016).

Table 5: Rotated Component Matrix[a]							
	Component						
	1	2	3	4	5	6	7
EB1		.834					
EB2		.837					
EB3		.817					
EB4		.823					
SCB1			.787				
SCB2			.820				
SCB3			.829				
SCB4			.642				
SQB1							.757
SQB2							.862
SQB3							.863
LA1				.892			
LA2				.913			
LA3				.884			
OB1						.844	
OB2						.891	
OB3						.884	
RAB1					.875		
RAB2					.909		
RAB3					.885		
IDM1	.786						
IDM2	.774						
IDM3	.800						
IDM4	.724						
IDM5	.803						
IDM6	.800						
Total Variance explained (Cumulative %)	16.706	28.833	39.914	50.624	60.969	70.855	80.102
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.							
a. Rotation converged in 6 iterations.							

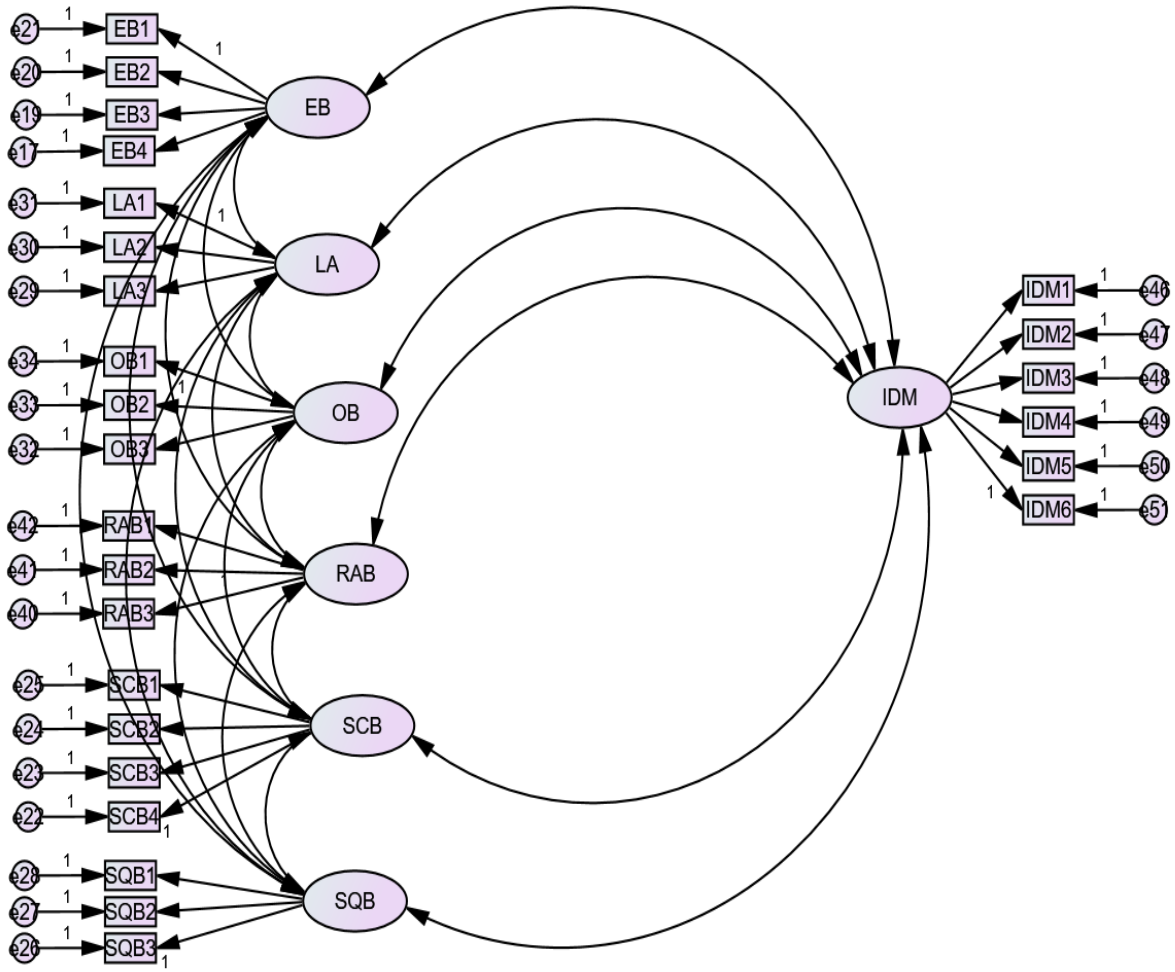


Figure 2: Exploratory Factor Analysis

EFA was performed on 26 items and 631 responses from individual investors from different parts of India were used. Based on the meaningful loadings for each item six factors were extracted. A factor loading of more than 0.40 is significant for a sample size of at least 192 (Hair et al., 2016; Prakash et. al. 2016). According to the results derived from PCA and EFA, all related presumptions are found to be true. Table 5 shows the factor loadings of the items on the retained factors for the two constructs. All the items have factor loadings over 0.5, indicating a strong association with the corresponding factors (Hair et al., 2016). From the principal component analysis, six factors have been extracted from 20 items. Four items have been grouped into Endowment bias, three items have been grouped into Loss Aversion bias, three items have been grouped into Optimism bias, three items have been grouped into Regret Aversion bias, four items have been grouped under Self-Control bias and three items have been grouped into Status Quo bias, while Investment Decision making is grouped into 6 items.

Hypothesis testing

The statistical significance of 6 null hypotheses is tested at a level of (α) 1% and is discussed here. Following table **6** presents the results of hypotheses testing procedure. All the hypotheses were tested at 1% level of significance and alternate hypothesis are accepted.

Ha1: Endowment bias has significant association with investment decision making of Individual Investor.

Ha2: Self-control bias has significant association with investment decision making of individual investor.

Ha3: Status – Quo bias has significant association with investment decision making of individual investor.

Ha4: Loss Aversion bias has significant association with investment decision making of individual investor.

Ha5: Optimism bias has significant association with investment decision making of individual investor.

Ha6: Regret Aversion bias has significant association with investment decision making of individual investor.

Table 6: Hypothesis Testing

			Estimate	S.E.	C.R.	P	Label
IDM	<---	EB	0.124	0.04	2.625	0.009	Hypothesis accepted
IDM	<---	SCB	0.264	0.054	5.186	***	Hypothesis accepted
IDM	<---	SQB	0.139	0.051	3.127	0.002	Hypothesis accepted
IDM	<---	LA	0.155	0.028	3.653	***	Hypothesis accepted
IDM	<---	OB	0.142	0.043	3.335	***	Hypothesis accepted
IDM	<---	RAB	0.15	0.043	3.574	***	Hypothesis accepted

*** represents a value of 0.000.

Findings and Discussion

The p values for null hypotheses are below 0.01 indicating that behavioral biases have an influence on investment decision making of individual investors. Endowment bias, self-control bias, status – quo bias, loss aversion bias, optimism bias, regret aversion bias are found to have a substantial influence on investment decision making of individual investor. While taking investment decisions in the presence of factors like uncertainty and risk, emotions are found to have a substantial role (Zaleskiewicz & Traczyk, 2020). Risk inclinations of the investors are influenced by several biases (Parmitasari & Syariati, 2022). It is pivotal for investors to control their emotional biases in order to maximize their returns. Finance professionals need to be informed about these biases in order to understand the investors (Kishor, 2022). The current article is expected to be valuable for policymakers and institutions who intend to encourage people to invest. They will further be able to comprehend that not just cognitive ability, but emotional capability also ensures successful decision making. The analysis of this study is expected to benefit investment consultants, individual investors, regulators, and several stakeholders who are associated with preparation of investment strategies, may be for their own purpose or for others. The consequence of emotions is vital to comprehend as it is a complicated factor to deal with. Improved identification of the client's choices and priorities in investment will prepare the advisors to take care of various irrationalities that can occur.

Limitations and Scope of the study

The sample size used in the study is comparatively higher (N = 631) and satisfy the necessities of statistical methods; however, it is recommended to have a larger sample size in future researches to reflect better on the situation of Indian stock markets. Apart from the emotional biases studied in this research, studies can also be conducted on cognitive biases among investors. The demographic variables used were analysed only for the purpose of descriptive statistics, they can further be used to find an

association with biases or can also be used as a mediation or moderation tool (Srivastava & Cheema, 2019).

References:

[1] Adil, M., Singh, Y., & Ansari, M. S. (2022). How financial literacy moderate the association between behaviour biases and investment decision?. Asian Journal of Accounting Research, 7(1), 17-30.
[2] Ahmad, M., & Shah, S. Z. A. (2020). Overconfidence heuristic-driven bias in investment decision-making and performance: mediating effects of risk perception and moderating effects of financial literacy. Journal of Economic and Administrative Sciences, 38(1), 60-90.
[3] Ahmad, M., & Shah, S. Z. A. (2020). Overconfidence heuristic-driven bias in investment decision-making and performance: mediating effects of risk perception and moderating effects of financial literacy. Journal of Economic and Administrative Sciences, 38(1), 60-90.
[4] Ahmad, M., & Shah, S. Z. A. (2020). Overconfidence heuristic-driven bias in investment decision-making and performance: mediating effects of risk perception and moderating effects of financial literacy. Journal of Economic and Administrative Sciences, 38(1), 60-90.
[5] Ahmad, M., & Wu, Q. (2022). Does herding behavior matter in investment management and perceived market efficiency? Evidence from an emerging market. Management Decision, (ahead-of-print).
[6] Ainia, N. S. N., & Lutfi, L. (2019). The influence of risk perception, risk tolerance, overconfidence, and loss aversion towards investment decision making. Journal of Economics, Business, & Accountancy Ventura, 21(3), 401-413.
[7] Akhtar, F., & Das, N. (2019). Predictors of investment intention in Indian stock markets: Extending the theory of planned behaviour. International journal of bank marketing, 37(1), 97-119.
[8] Akinkoye, E. Y., & Bankole, O. E. (2020). Effect of emotional biases on investor's decision making in Nigeria. International Journal of Business and Management Future, 4(1), 33-39.
[9] Al-Dahan, N. S. H., Hasan, M. F., & Jadah, H. M. (2019). Effect of cognitive and emotional biases on investor decisions: An analytical study of the iraq stock exchange. International Journal of Innovation, Creativity and Change, 9(10), 30-47.
[10] Ali, N. A., Zairi, M., & Mahat, F. (2006). Quality HR-TQM model in service context. Staff paper, University of Putra Malaysia.
[11] Ali, N. A., Zairi, M., & Mahat, F. (2006). Quality HR-TQM model in service context. Staff paper, University of Putra Malaysia.
[12] Armansyah, R. F. (2021). Over confidence, mental accounting, and loss aversion in investment decision. Journal of Auditing, Finance, and Forensic Accounting, 9(1), 44-53.
[13] Badola, D., Joshi, C. S., & Sneha, M. (2022). Individual Investors–Are they Emotionally Biased?. Journal of Contemporary Issues in Business and Government, 28(4), 1470-1481.
[14] Baker, H. K., Kumar, S., Goyal, N., & Gaur, V. (2019). How financial literacy and demographic variables relate to behavioral biases. Managerial Finance, 45(1), 124-146.
[15] Banerjee, A. (2011). Application of behavioural finance in investment decisions: An overview. The Management Accountant, 46(10).
[16] Banerji, J., Kundu, K., & Alam, P. A. (2020). Influence of behavioral biases on investment behavior. SCMS Journal of Indian Management, 17(1), 81-98.
[17] Barber, B. M., & Odean, T. (2013). The behavior of individual investors. In Handbook of the Economics of Finance (Vol. 2, pp. 1533-1570). Elsevier.
[18] Barber, B. M., Lee, Y. T., Liu, Y. J., & Odean, T. (2009). Just how much do individual investors lose by trading?. The Review of Financial Studies, 22(2), 609-632.
[19] Bell, E., & Bryman, A. (2007). The ethics of management research: an exploratory content analysis. British journal of management, 18(1), 63-77.
[20] Bergers, D. (2022). The status quo bias and its individual differences from a price management perspective. Journal of Retailing and Consumer Services, 64, 102793.

[21] Berthet, V. (2021). The measurement of individual differences in cognitive biases: A review and improvement. Frontiers in psychology, 12, 630177.
[22] Blumberg, B., Cooper, D., & Schindler, P. (2014). EBOOK: Business Research Methods. McGraw Hill.
[23] Bruce, B. R. (2010). *Handbook of behavioral finance*. B. R. Bruce (Ed.). Cheltenham: Edward Elgar.
[24] Byrne, R. M. (2016). Counterfactual thought. Annual review of psychology, 67(1), 135-157.
[25] Calzadilla, J. F., Bordonado-Bermejo, M. J., & González-Rodrigo, E. (2021). A systematic review of ordinary people, behavioural financial biases. Economic Research-Ekonomska Istraživanja, 34(1), 2767-2789.
[26] Costa, D. F., Carvalho, F. D. M., & Moreira, B. C. D. M. (2019). Behavioral economics and behavioral finance: a bibliometric analysis of the scientific fields. Journal of Economic Surveys, 33(1), 3-24.
[27] Filiz, I., Nahmer, T., Spiwoks, M., & Bizer, K. (2018). Portfolio diversification: the influence of herding, status-quo bias, and the gambler's fallacy. Financial Markets and Portfolio Management, 32, 167-205.
[28] Ghauri, P., Grønhaug, K., & Strange, R. (2010). Research Methods in Business Studies, 4 uppl. Harlow, Storbritannien: Pearson Education Limited.
[29] Goetzmann, W. N., & Kumar, A. (2008). Equity portfolio diversification. Review of Finance, 12(3), 433-463.
[30] Goodell, J. W., Kumar, S., Rao, P., & Verma, S. (2022). Emotions and stock market anomalies: a systematic review. Journal of Behavioral and Experimental Finance, 100722.
[31] Hair Jr, J. F., Sarstedt, M., Matthews, L. M., & Ringle, C. M. (2016). Identifying and treating unobserved heterogeneity with FIMIX-PLS: part I–method. European Business Review.
[32] Haryanto, S., Subroto, A., & Ulpah, M. (2020). Disposition effect and herding behavior in the cryptocurrency market. Journal of Industrial and Business Economics, 47, 115-132.
[33] Helms, J. E., Henze, K. T., Sass, T. L., & Mifsud, V. A. (2006). Treating Cronbach's alpha reliability coefficients as data in counseling research. The counseling psychologist, 34(5), 630-660.
[34] Hon, T. Y., Moslehpour, M., & Woo, K. Y. (2021). Review on behavioral finance with empirical evidence. Advances in Decision Sciences, 25(4), 1-30.
[35] Hooper, A. (2008). A multi-temporal InSAR method incorporating both persistent scatterer and small baseline approaches. Geophysical Research Letters, 35(16).
[36] Iqbal, K., Islam, A., List, J. A., & Nguyen, V. (2021). Myopic loss aversion and investment decisions: from the laboratory to the field (No. w28730). National Bureau of Economic Research.
[37] Iqbal, K., Islam, A., List, J. A., & Nguyen, V. (2021). Myopic loss aversion and investment decisions: from the laboratory to the field (No. w28730). National Bureau of Economic Research.
[38] Itzkowitz, J., & Itzkowitz, J. (2017). Name-based behavioral biases: are expert investors immune?. Journal of Behavioral Finance, 18(2), 180-188.
[39] Jain, J., Walia, N., & Gupta, S. (2020). Evaluation of behavioral biases affecting investment decision making of individual equity investors by fuzzy analytic hierarchy process. Review of Behavioral Finance, 12(3), 297-314.
[40] Jain, J., Walia, N., & Gupta, S. (2020). Evaluation of behavioral biases affecting investment decision making of individual equity investors by fuzzy analytic hierarchy process. Review of Behavioral Finance, 12(3), 297-314.
[41] Jain, J., Walia, N., & Gupta, S. (2020). Evaluation of behavioral biases affecting investment decision making of individual equity investors by fuzzy analytic hierarchy process. Review of Behavioral Finance, 12(3), 297-314.
[42] Joshi, C. S., Badola, S., & Chopra, G. (2022). Behavioural Bias: Does it Affect an Investor's Rationality?. SCMS Journal of Indian Management, 19(4), 128-142.
[43] Kartini, K., & NAHDA, K. (2021). Behavioral biases on investment decision: A case study in Indonesia. The Journal of Asian Finance, Economics and Business, 8(3), 1231-1240.

[44] Khan, M. Z. U. (2017). Impact of availability bias and loss aversion bias on investment decision making, moderating role of risk perception. Management & Administration (IMPACT: JMDGMA), 1(1), 17-28.
[45] Kishor, N. (2022). Risk preferences for financial decisions: Do emotional biases matter?. Journal of Public Affairs, 22(2), e2360.
[46] Kothari, C. R. (2004). Research methodology: Methods and techniques. New Age International.
[47] Kumar, K. (2020). Empowering women through microfinance: Evidence from uttar pradesh, India. Journal of Critical Reviews, 7(7), 1024-1029.
[48] Kishor, N. (2022). Risk preferences for financial decisions: Do emotional biases matter?. Journal of Public Affairs, 22(2), e2360.
[49] Kumar, R., Singh, R., Kumar, K., Khan, S., & Corvello, V. (2023). How Does Perceived Risk and Trust Affect Mobile Banking Adoption? Empirical Evidence from India. Sustainability, 15(5), 4053.
[50] Kumar, S., & Goyal, N. (2015). Behavioural biases in investment decision making–a systematic literature review. Qualitative Research in financial markets.
[51] Lawrence, A. (2013). Individual investors and financial disclosure. Journal of Accounting and Economics, 56(1), 130-147.
[52] Legum, B. (2006). Defining investment and investor: Who is entitled to claim?. Arbitration International, 22(4), 521-526.
[53] Leković, M. (2020). Cognitive biases as an integral part of behavioral finance. Economic Themes, 58(1), 75-96.
[54] Liu, Y., Wu, A. D., & Zumbo, B. D. (2010). The impact of outliers on Cronbach's coefficient alpha estimate of reliability: Ordinal/rating scale item responses. Educational and Psychological Measurement, 70(1), 5-21.
[55] Maginn, P. J. (2007). Towards more effective community participation in urban regeneration: The potential of collaborative planning and applied ethnography. Qualitative research, 7(1), 25-43.
[56] Malhotra, D. (2010). The desire to win: The effects of competitive arousal on motivation and Behaviour. Organizational Behaviour and human decision processes, 111(2), 139-146.
[57] Maxwell, J. C. (2013). The 17 indisputable laws of teamwork: Embrace them and empower your team. HarperCollins Leadership.
[58] Metawa, N., Hassan, M. K., Metawa, S., & Safa, M. F. (2019). Impact of behavioral factors on investors' financial decisions: case of the Egyptian stock market. International Journal of Islamic and Middle Eastern Finance and Management, 12(1), 30-55.
[59] Mohan, S., Mullapudi, S., Sammeta, S., Vijayvergia, P., & Anastasiu, D. C. (2019, April). Stock price prediction using news sentiment analysis. In 2019 IEEE fifth international conference on big data computing service and applications (BigDataService) (pp. 205-208). IEEE.
[60] Nabi, R. L., Walter, N., Oshidary, N., Endacott, C. G., Love-Nichols, J., Lew, Z. J., & Aune, A. (2020). Can emotions capture the elusive gain-loss framing effect? A meta-analysis. Communication Research, 47(8), 1107-1130.
[61] Nguyen, H., Calantone, R., & Krishnan, R. (2020). Influence of social media emotional word of mouth on institutional investors' decisions and firm value. Management Science, 66(2), 887-910.
[62] Nofsinger, J. R. (2022). The psychology of investing. Taylor & Francis.
[63] Pan, W. F. (2020). Does investor sentiment drive stock market bubbles? Beware of excessive optimism!. Journal of Behavioral Finance, 21(1), 27-41.
[64] Parveen, S., Satti, Z. W., Subhan, Q. A., & Jamil, S. (2020). Exploring market overreaction, investors' sentiments and investment decisions in an emerging stock market. Borsa Istanbul Review, 20(3), 224-235.
[65] Peng, Z., & Hu, C. (2020). Leveraged Trading, Irrational Sentiment and Sustainability in the Stock Market: Evidence from China. Sustainability, 12(4), 1310.
[66] Pertiwi, T., Yuniningsih, Y., & Anwar, M. (2019). The biased factors of investor's behavior in stock exchange trading. Management Science Letters, 9(6), 835-842.

[67] Peters, R., Herrera-Rivera, Z., Undas, A., van der Lee, M., Marvin, H., Bouwmeester, H., & Weigel, S. (2015). Single particle ICP-MS combined with a data evaluation tool as a routine technique for the analysis of nanoparticles in complex matrices. Journal of Analytical Atomic Spectrometry, 30(6), 1274-1285.
[68] Parmitasari, R. D. A., & Syariati, A. (2022). Chain reaction of behavioral bias and risky investment decision in Indonesian nascent investors. Risks, 10(8), 145.
[69] Pompian, M. M. (2008). Using behavioral investor types to build better relationships with your clients. Journal of Financial Planning, 21(10), 64-76.
[70] Prakash, A., Srivastava, A., & Yadav, A. (2016). Drivers Of Information And Communication Technology Usage By Management Education Faculties With Special Reference To Northern India. BVIMSR's Journal of Management Research, 8(1), 83.
[71] Qasim, M., Hussain, R., Mehboob, I., & Arshad, M. (2019). Impact of herding behavior and overconfidence bias on investors' decision-making in Pakistan. Accounting, 5(2), 81-90.
[72] Rahman, M., & Gan, S. S. (2020). Generation Y investment decision: an analysis using behavioural factors. Managerial Finance.
[73] Raut, R. K. (2020). Past behaviour, financial literacy and investment decision-making process of individual investors. International Journal of Emerging Markets.
[74] Ricciardi, V. (2005). A research starting point for the new scholar: A unique perspective of Behavioural finance. Available at SSRN 685685.
[75] Sachs, J., Meng, Y., Giarola, S., & Hawkes, A. (2019). An agent-based model for energy investment decisions in the residential sector. Energy, 172, 752-768.
[76] Sattar, M. A., Toseef, M., & Sattar, M. F. (2020). Behavioral finance biases in investment decision making. International Journal of Accounting, Finance and Risk Management, 5(2), 69.
[77] Schreiber, J. B., Nora, A., Stage, F. K., Barlow, E. A., & King, J. (2006). Reporting structural equation modeling and confirmatory factor analysis results: A review. The Journal of educational research, 99(6), 323-338.
[78] Seasholes, M. S., & Zhu, N. (2010). Individual investors and local bias. The Journal of Finance, 65(5), 1987-2010.
[79] Semenov, A. (2009). Departures from rational expectations and asset pricing anomalies. The Journal of Behavioral Finance, 10(4), 234-241.
[80] Shanmuganathan, M. (2020). Behavioural finance in an era of artificial intelligence: Longitudinal case study of robo-advisors in investment decisions. Journal of Behavioral and Experimental Finance, 27, 100297.
[81] Sharma, A., & Kumar, A. (2020). A review paper on behavioral finance: study of emerging trends. Qualitative Research in Financial Markets, 12(2), 137-157.
[82] Singh, J. E., Babshetti, V., & Shivaprasad, H. N. (2021). Efficient market hypothesis to behavioral finance: A review of rationality to irrationality. Materials Today: Proceedings.
[83] Srivastava, R., & Cheema, S. (2019). How gender integration can reduce the income-inequality gap. Australasian Accounting, Business and Finance Journal, 13(2), 32-52.
[84] Suresh, G. (2021). Impact of Financial Literacy and Behavioural Biases on Investment Decision-making. FIIB Business Review, 23197145211035481.
[85] Suresh, G. (2021). Impact of Financial Literacy and Behavioural Biases on Investment Decision-making. FIIB Business Review, 23197145211035481.
[86] Tan, L., Chiang, T. C., Mason, J. R., & Nelling, E. (2008). Herding behavior in Chinese stock markets: An examination of A and B shares. Pacific-Basin finance journal, 16(1-2), 61-77.
[87] Urbach, N., & Ahlemann, F. (2010). Structural equation modeling in information systems research using partial least squares. Journal of Information Technology Theory and Application (JITTA), 11(2), 2.
[88] Yousaf, I., Ali, S., & Shah, S. Z. A. (2018). Herding behavior in Ramadan and financial crises: the case of the Pakistani stock market. Financial Innovation, 4(1), 1-14.
[89] Zamir, E., & Teichman, D. (2018). Behavioral law and economics. Oxford University Press.
[90] Zaleskiewicz, T., & Traczyk, J. (2020). Emotions and financial decision making. Psychological perspectives on financial decision making, 107-133.