

Major Research Project on

Effects of Demographic Factors on Behaviour Bias in Investors

Submitted to
Delhi School of Management

In partial fulfillment of the requirements for the award of the degree of
Master's in Business Administration

by
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DECLARATION

I hereby declare that the work presented herein original work done by us has not been published or submitted elsewhere. Any Literature date or work done by others and cited within this thesis has been given due acknowledgement and listed in the reference section.



Praroop Kumar Rout

Place: New Delhi

Date:

CERTIFICATE

This is to certify that the Major Research Project titled “**Effects of Demographic Factors on Behaviour Bias in Investors**” is submitted by **Mr. Praroop Kumar Rout, 2K22/DMBA/91** to Delhi School of Management, Delhi Technological University, in partial fulfillment of the requirement for the award of the degree of Masters in Business Administration during the academic year 2023-2024.

Dr. Archana Singh

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EXECUTIVE SUMMARY

Abstract

The purpose of this study is to examine the influence of demographic factors such as gender, age, education, and investment experience on investor behavior bias such as overconfidence bias, disposition effects, herding bias, and mental accounting. This type of research will be done with a quantitative approach, and the data will be analyzed using correlation tests like Spearman-Rank Correlation Test. This research will be conducted by distributing questionnaires to the students of different verticals as well as working professionals from diverse backgrounds. The aim is to find if there is a significant correlation between a particular bias, education background & investment experience. The results will be provided to better understand the influence of a bias on certain investment factors.

Introduction

Investment is an activity to prepare future needs by utilizing the funds owned. An investor hopes to get a return or capital gain from the investment. In investing, an investor will recognize the risk and the expected rate of return. Many things can influence making a decision in investing, one of which is behavioral finance. There are times when investors are less rational in making investment decisions because they involve psychological aspects that result in deviations from irrational investor behavior and making decision bias.

The problem is that many investors do not refer to valid information. Investors buy shares because of rumors, sell because "people say" the shares are wrong. Recommendations from forums and the results of securities analysis do not necessarily provide valid recommendations; they can even lure investors into buying shares so that stock prices rise and those who recommend selling make profits. This can lead to biased decisions. Apart from that, demographic factors such as gender, age, education level and investment experience also influence investment decision making.

This study discusses the demographic factors that affect behavioral bias, namely Anchoring Bias, Loss Aversion Bias, Herding Bias and Confirmation Bias in making investment decisions. This study focused on investors who invest in stock market in India. This study produced findings of the influence of demographic factors on the bias of investor behavior in making investment decisions on stocks. The following are the biases that are to be tested.

Confirmation Bias:

Confirmation bias refers to the tendency of individuals to search for, interpret, favor, and recall information in a way that confirms their preexisting beliefs or hypotheses. This bias can lead people to selectively perceive information that aligns with their viewpoints, reinforcing their existing beliefs and potentially distorting their judgment. Confirmation bias is pervasive in various aspects of decision-making, from everyday life choices to complex issues like political ideologies or investment strategies. It can hinder critical thinking and rational decision-making by limiting exposure to diverse perspectives and evidence that may challenge established beliefs.

Loss Aversion Bias:

Loss aversion bias describes how individuals often prioritize avoiding losses over acquiring gains of equal value. Essentially, people tend to feel the impact of losing something more intensely than the satisfaction gained from acquiring something equivalent. In other words, people tend to feel the pain of losses more acutely than the pleasure of gains of the same magnitude. This bias is rooted in evolutionary psychology, where avoiding potential threats and preserving resources played a crucial role in survival. In the context of decision-making, loss aversion bias can lead individuals to make suboptimal choices by overestimating the potential downside risk and being overly cautious. It can manifest in various domains, including financial decision-making, where investors may hold onto losing investments longer than they should, hoping to avoid realizing a loss.

Herding Bias:

Herding bias refers to the tendency of individuals to follow the actions or behaviors of a larger group, often without independently evaluating the situation. This bias stems from social influence and the desire for conformity, where individuals may feel pressure to align their actions with those of others to avoid standing out or being perceived negatively. Herding bias can lead to groupthink and irrational decision-making, as individuals may prioritize conformity over critical analysis or dissenting opinions. In financial markets, herding behavior can contribute to market bubbles or crashes, as investors collectively react to perceived trends or sentiments without thoroughly assessing underlying fundamentals.

Anchoring Bias:

Anchoring bias occurs when individuals rely too heavily on initial information or reference points (the "anchor") when making decisions, even if that information is irrelevant or misleading. Once an anchor is established, individuals tend to adjust their subsequent judgments or estimates around that initial reference point, often resulting in systematic errors. Anchoring bias can influence various decision-making processes, from negotiation tactics to pricing judgments. In financial contexts, anchoring bias can lead investors to place undue importance on initial stock prices or other arbitrary benchmarks, affecting their perceptions of value and leading to suboptimal investment decisions.

Understanding these biases is crucial for improving decision-making processes and mitigating their potentially adverse effects. By being aware of these cognitive tendencies, individuals can employ strategies to overcome biases and make more rational and informed choices.

TABLE OF CONTENTS

1) Introduction	1
1.1) Background	1
1.1) Problem Statement	3
1.2) Objectives of the Study	3
1.3) Scope of the study	4
2) Literature Review	5
3) Research Methodology	7
3.1) Target Population	7
3.2) Research Design	7
3.3) Research Type	7
3.4) Sampling Technique	8
3.5) Sample Size	8
3.6) Data Collection	8
3.7) Hypothesis	9
4) Analysis	12
4.1) Data Analysis & Interpretation	13
4.2) Correlation Tests	17
4.3) Findings	21
4.4) Recommendations	23
4.5) Limitations of Study	24
5) Conclusion	25
6) References	27
7) Annexure	28

LIST OF TABLES

4.1) Independent & Dependent Variables	12
4.2) Age of the Respondent	13
4.3) Gender of the Respondent	14
4.4) Educational Qualification	15
4.5) Investing Experience	16
4.6) Confirmation Bias Test	17
4.7) Loss Aversion Bias Test	18
4.8) Herding Bias Test	19
4.9) Anchoring Bias Test	20

LIST OF FIGURES

4.2) Age of the Respondent	13
4.3) Gender of the Respondent	14
4.4) Educational Qualification	15
4.5) Investing Experience	16
4.6) Confirmation Bias Test Results	21
4.7) Loss Aversion Bias Test Results	22
4.8) Anchoring Bias Test Results	22

CHAPTER 1

INTRODUCTION

1.1 Background:

In recent years, there has been a significant boom in various business sectors globally, leading to an abundance of investment opportunities in the financial sector. These opportunities serve as lucrative income sources worldwide. Investors now have the liberty to invest in a diverse range of financial instruments for equity exposure, including spot trades, Futures & Options, SIP, ETFs, and Mutual funds. However, this surge in opportunities has transformed the financial markets, presenting challenges in investment due to the multitude of options and intricate regulations. Evaluating numerous investment decisions in life has become increasingly complex.

Investment is a strategic activity aimed at preparing for future needs by leveraging owned funds. Investors aspire to garner returns or capital gains from their investments, always mindful of the associated risks and expected rates of return. Behavioural finance plays a pivotal role in investment decisions, acknowledging that investors are susceptible to irrational behaviour due to psychological influences and decision biases. The study of financial behaviour delves into understanding how human psychology impacts financial decision-making processes, subsequently influencing companies and financial markets.

The history of behavioural finance dates back to 1912 when George Seldon published the book -"Psychology of the Stock Market." That became very popular only in 1979 when Daniel Kahneman and Amos Tversky stated that "investors often make decisions based on subjective reference points rather than objectively choosing the optimal option". Richard Thaler further contributed to this field by introducing the concept of "mental accounting," illustrating that perception of money is different for every investor, such as retirement or education funding. Their pioneering work laid the foundation for studying cognitive psychology and behavioural biases in finance, prominently shaping the field of behavioural finance.

1.1.1 What are behavioural biases in Finance

The study of behavioural finance sheds light on the irrational behaviours exhibited by investors. Instead of being purely rational decision-makers driven by utility maximization, “investors are human beings influenced by emotions, cognitive biases, and other psychological factors”. Behavioural finance has debunked the notion of "homo economicus," originally proposed by David Ricardo, by highlighting the importance of human psychology in financial decision-making processes.

Investors often struggle to maintain self-control and may exhibit behaviors such as overconfidence, miscalculating facts, overreacting, or blindly following the herd. The concept of regret, which involves feelings of sorrow or disappointment over actions taken or not taken, plays a significant role in investment decisions. Numerous studies in India have revealed the presence of these biases among Indian investors, emphasizing that they are not immune to the effects of their emotions and psychological processes. Value investing expert Benjamin Graham emphasized the importance of a logical framework for decision-making and the necessity to resist emotions that can undermine this framework. He argued that successful investing does not require extraordinary intelligence or insider information but rather prudent decision-making to safeguard one's financial journey and potential returns.

Behaviourism in finance was pioneered by Tversky and Kahneman in 1974 through their groundbreaking research. This challenged the dominance of financial and economic theories of the time, such as expected utility theory and efficient market hypothesis. Tversky and Kahneman's research demonstrated that individuals frequently rely on heuristics and cognitive biases in their decision-making processes, further highlighting the importance of understanding human psychology in finance.

1.1.2 Why awareness towards behaviour biases is important for Investors

When investors decide to allocate their capital, they typically seek maximum returns while minimizing risk. However, investment decisions go beyond mere theoretical analysis. Before committing funds, investors must assess a myriad of internal and external factors. While the importance of external elements is evident, experts have increasingly recognized the significance of internal factors in investment decisions over the past decade. These factors encompass behavioral and psychological variables. As a consequence of these internal factors, investors often exhibit irrational behavior, impacting their decision-making processes. Kartini and Nuris (2015) corroborated this notion, suggesting that certain biases can lead to erroneous risk assessments. Moreover, these biases can be challenging to mitigate as they are subtle and intertwined with emotional and sensory mental processes. Despite the difficulty in overcoming these biases, Olsen (1998) cautioned that the primary objective of behavioral finance is to comprehend the systematic influence of psychological elements on financial markets. This understanding is essential for individuals to make wiser investment decisions.

1.2 Problem Statement

Behavioural biases can cause a range of problems across various aspects of life, including personal decision-making, financial management, interpersonal relationships, and professional interactions. Some common problems caused by behavioural biases include Sub-optimal decision making, financial losses and inefficient risk management. The precise impact of demographic factors on these biases remains insufficiently explored.

1.3 Objectives of the study

The Objective is to Build an understanding about the extent of bias possessed by different investors. Study the Investment style preferred, and how frequently the participants are investing in various stocks available. Invest, Percentage of Salary they are Investment, and to study the impact of various demographic factors such as age, gender etc. Therefore, this study focuses on the effects of demographic variables—"gender, age, education and investment experience" on various behaviour biases exhibited by investors. By delving into these relationships, the aim to provide valuable insights into the relationship between demographics and behaviour biases in investment decision-making. Through a comprehensive analysis, this

research endeavours to enhance our understanding of how investors behave and contribute to the development of more tailored investment strategies and financial education initiatives

1.4 Scope of study

The study aims to comprehensively analyse Four Behaviour Biases namely Loss Aversion, Herding, Confirmation & Anchoring Bias. By examining their correlation with factors like age, gender, education & experience, this study seeks to provide a comprehensive understanding between these certain factors and the biases using quantitative research.

CHAPTER 2

LITERATURE REVIEW

“Baker et al. (2018) discovered that female investors tend to exhibit less confidence compared to their male counterparts, a finding supported by research from Barber and Odean (2001), Bhandari and Deaves (2006), Lin (2011), and Kumar and Goyal (2016). Studies consistently indicate that male investors tend to display greater confidence and are more willing to take risks, leading to differences in investment decision-making.”

“Herding bias, wherein investors make decisions based on following the crowd, has been observed more frequently among female investors according to research by Prosad et al. (2015) and Lin (2011). Male investors, on the other hand, tend to be more assertive in their decision-making and less prone to following others' opinions, as highlighted by Feingold (1994).”

“Research conducted by Prosad et al. (2015) suggests that investors aged 51-60 or older exhibit higher levels of confidence compared to younger age groups. This is attributed to the broader knowledge and experience in investing that comes with age.”

“Muskaan Arora and Santha Kumari (2015) investigated the impact of age and gender on investors' risk-taking ability, finding that regret and loss aversion act as intermediary variables influencing both age and gender differences in risk-taking behavior.”

“Soosunghwang and Steve E. Satchel (2010) examined the presence of loss aversion bias in the financial markets of the United States and the United Kingdom, noting that investors are heavily influenced by loss aversion, particularly during bull markets.”

“Peter Mbaluka et al. (2012) studied the impact of framing effect and loss aversion among investors in the Nairobi securities exchange, observing that investors were significantly influenced by these biases, particularly displaying sensitivity to losses over gains.”

Kiran Aziz Malik et al. (2017) investigated overconfidence and loss aversion biases among investors in the Islamabad stock exchange, finding significant influences of these biases but

no mediating effect of risk perception.

Beatrice, Vania, Murhadi, Werner Ria, and Herlambang Arif explored the influence of demographic factors on various investor behavior biases using structural equation modeling (SEM) on data from the Indonesia Stock Exchange, revealing correlations between biases such as overconfidence, disposition effects, herding, and mental accounting with factors like investment experience, age, income level, and occupation.

H. Kent Baker, Satish Kumar, Nisha Goyal, and Vidhu Gaur studied the relationship between financial literacy, demographic factors, and behavioral biases among Indian investors, identifying biases such as overconfidence, disposition effect, anchoring, mental accounting, and herding, and their associations with financial literacy and demographic variables.

CHAPTER 3

RESEARCH METHODOLOGY

The study uses information gathered from primary source only. The respondents were surveyed for the primary data. A questionnaire was been floated in various schools, institutions and colleges to collect data from the teachers. Analytical software's like SPSS and Excel was used to interpret the data as this software includes multiple sorts of analysis such as Chi-Square, Regression, correlation and etc.

3.1 Target Population

It means that the overall population targeted for data collection for the purpose of research. There is a certain population that has or share common traits. The target population is the collection of the information from the individual who share similar characteristics for the purpose of research & inference can be made i.e., a subset of the whole population chosen as the objective audience.

In this research, the target audience will be the students whose age will lies between 18 and 27 years. 100 Forms are being floated in the University to students from diverse backgrounds.

3.2 Research Design

To conduct this study, survey based descriptive and analytical research design was used. This study falls under the category of descriptive research, which is intended to characterize the current condition or the characteristics of a group, community, or product user. It is believed that the study is best suited for a descriptive research design. The primary objective of utilizing this strategy is to describe the existing situation of the investors

3.3 Research Type

Research can be classified on the basis of their purpose. Depth of scope. Nature of data used etc. There is various type of research such as exploratory. Explanatory, Experimental

descriptive. Applied and quantitative etc. The research will be adopting descriptive study that looks for relationships between one variable with another.

3.4 Sampling Technique

The technique of purposive sampling technique has been employed to gather data. “It describes a collection of non-probability sampling procedures where units are chosen because they have qualities that your sample needs.”

3.5 Sample Size

A Sample is a collection of individuals, things or things taken from a considerable portion of the population for the measurement. The Sample is the subset of population which represents the population. It is not possible to do research on total population. In the research the sample size used is around 100 samples from the population.

3.6 Data collection

The analysis is based on primary data that was gathered from questionnaire, which will largely include questions pertaining hypothetical situations without mentioning the biases that are to be tested, to collect the most accurate data entries by the participants. There is a possibility that the majority of the participants might belong to the business and engineering background, therefore the classification of the results will be based considering the proportion of people from these backgrounds.

The data collected can be broadly classified into –

Nominal Data:

Nominal data consists of categories that are used to label variables without any specific order or hierarchy. These categories represent distinct groups or classes that do not have inherent numerical or quantitative significance. Examples of nominal data include gender (male,

female), Education (Graduate, Post Graduate, Ph.D.) etc. Nominal data can be represented using numbers or labels, but the values themselves do not imply any inherent order or rank.

Ordinal Data:

Ordinal data consists of categories that have a meaningful order or ranking, but the intervals between categories may not be equal. Unlike nominal data, ordinal data categories can be ranked in a specific order, but the magnitude of differences between categories may not be uniform. Examples of ordinal data include Likert scale responses (e.g., strongly agree, agree, neutral, disagree, strongly disagree), education level (e.g., high school diploma, bachelor's degree, master's degree, Ph.D.), and income categories (e.g., low, medium, high). While ordinal data preserves the order or hierarchy of categories, it does not provide information about the exact magnitude of differences between them.

3.7 Hypothesis

Independent Variable: Age

H0: "There is no Correlation between Age & Anchoring Bias"

H1: "There is Correlation between Age & Anchoring Bias"

H0: "There is no Correlation between Age & Loss Aversion Bias"

H1: "There is Correlation between Age & Loss Aversion Bias"

H0: "There is no Correlation between Age & Confirmation Bias"

H1: "There is Correlation between Age & Confirmation Bias"

H0: "There is no Correlation between Age & Herding Bias"

H1: "There is Correlation between Age & Herding Bias"

Independent Variable: Gender

H0: “There is no Correlation between Gender & Anchoring Bias”

H1: “There is Correlation between Gender & Anchoring Bias”

H0: “There is no Correlation between Gender & Loss Aversion Bias”

H1: “There is Correlation between Gender & Loss Aversion Bias”

H0: “There is no Correlation between Gender & Confirmation Bias”

H1: “There is Correlation between Gender & Confirmation Bias”

H0: “There is no Correlation between Gender & Herding Bias”

H1: “There is Correlation between Gender & Herding Bias”

Independent Variable: Educational Background

H0: “There is no Correlation between Education Background & Anchoring Bias”

H1: “There is Correlation between Education Background & Anchoring Bias”

H0: “There is no Correlation between Education Background & Loss Aversion Bias”

H1: “There is Correlation between Education Background & Loss Aversion Bias”

H0: “There is no Correlation between Education Background & Confirmation Bias”

H1: “There is Correlation between Education Background & Confirmation Bias”

H0: “There is no Correlation between Education Background & Herding Bias”

H1: “There is Correlation between Education Background & Herding Bias”

Independent Variable: Investment Experience

H0: “There is no Correlation between Investment Experience & Anchoring Bias”

H1: “There is Correlation between Investment Experience & Anchoring Bias”

H0: “There is no Correlation between Investment Experience & Loss Aversion Bias”

H1: “There is Correlation between Investment Experience & Loss Aversion Bias”

H0: “There is no Correlation between Investment Experience & Confirmation Bias”

H1: “There is Correlation between Investment Experience & Confirmation Bias”

H0: “There is no Correlation between Investment Experience & Herding Bias”

H1: “There is Correlation between Investment Experience & Herding Bias”

CHAPTER 4

ANALYSIS

The research will be backed by information collected from participants in the form of questionnaire, and further analysis of the data is done. The data will be analysed using tests like chi-square, correlation and regression. The results will be broadly classified for two groups – Finance & Non – Finance background for accurate and correct interpretation to analyse the different biases possessed by the investors, which includes investor behaviour bias such as “overconfidence bias, disposition effects, herding bias, and mental accounting”.

Various Correlation tests can be applied to analyze the collected data, but for this study, Spearman's rank correlation test is preferred for assessing correlations with ordinal data due to its robustness, flexibility, and ease of interpretation. If the P-value is insignificant, then the null hypothesis of no correlation is accepted.

Independent Variables	Dependent variables
Age	Anchoring Bias
Gender	Loss Aversion Bias
Educational Qualification	Confirmation Bias
Investment Experience	Herding Bias

Table 4.1 Independent & Dependent Variables

4.1 Data Analysis & Interpretation

Demographic Factors:

Age of the Respondents

Age	No. of Respondents	Percentage
18-20	13	12.50%
21-23	21	20.19%
24-26	29	27.88%
27-30	11	10.57%
31-35	5	4.80%
36-40	6	5.76%
41-45	7	6.73%
46-50	7	6.73%
51-55	4	3.84%
56-60	1	0.96%
Greater than 60	0	0%

Table 4.2 Age of the Respondents

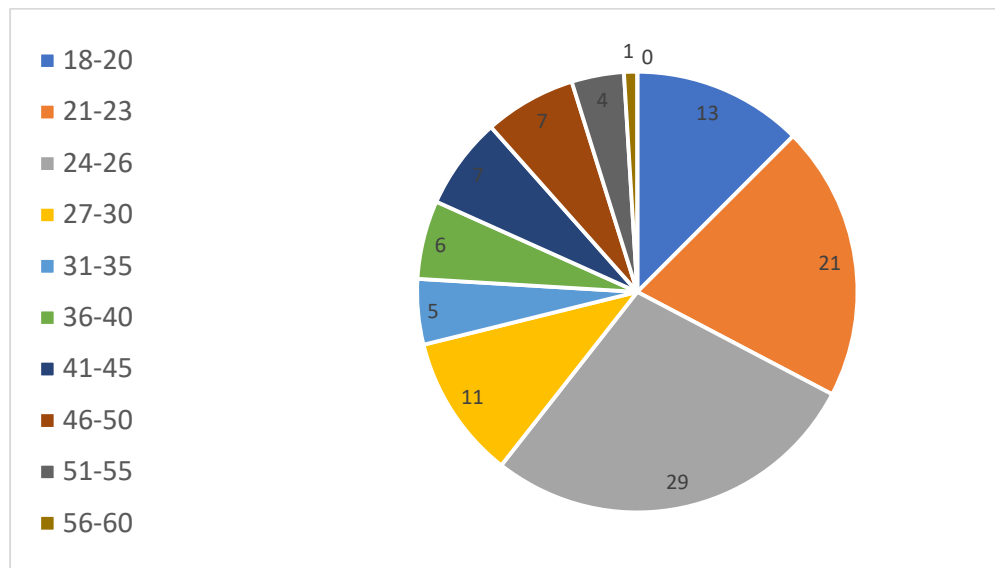


Fig. 4.2 Age of the Respondents

Gender of the Respondents

Gender	No. of Respondents		Percentage
Male	64		61.53%
Female	40		38.47%

Table 4.3 Gender of the Respondents

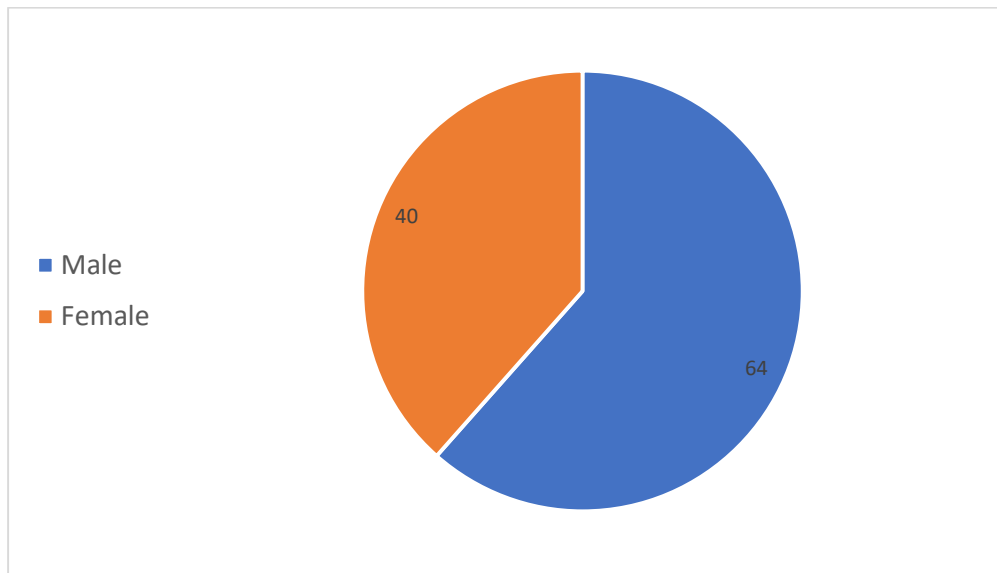


Fig. 4.3 Gender of the Respondents

Educational Qualification

Education	No. of Respondents	Percentage
Intermediate	18	17.30%
Graduate	31	29.80%
Post Graduate	26	25.00%
Ph. D	2	1.90%

Table 4.4 Educational Qualification

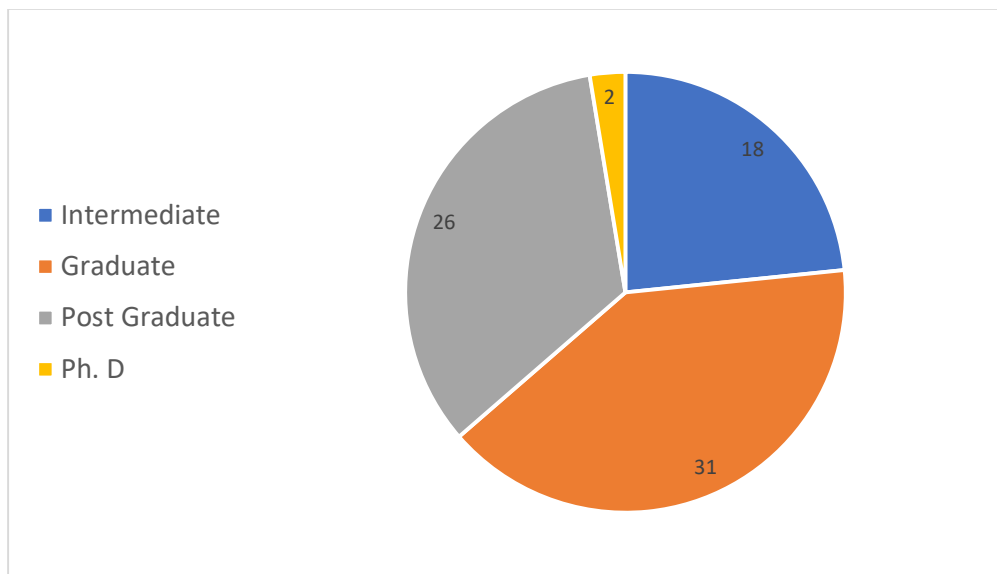


Fig. 4.4 Educational Qualification

Investing Experience

Experience	No. of Respondents	Percentage
Less than a year	32	30.76%
1-3 years	42	40.38%
4-6 years	9	8.65%
7-9 years	4	3.84%
10-15 years	10	9.61%
16-20 years	5	4.80%
21-25 years	1	0.96%
26-30 years	0	0%
Greater than 30 years	0	0%

Table 4.5 Investing Experience

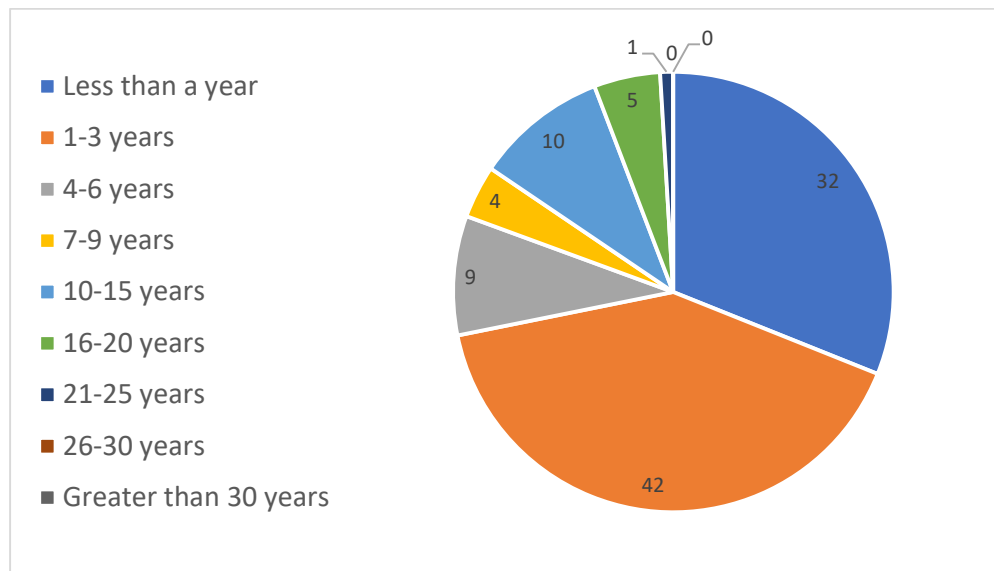


Fig. 4.5 Investing Experience

4.2 Correlation Tests

Confirmation Bias

Independent Factor	Question No.	Correlation Coefficient	No. of Observations	T-statistic	Degree of Freedom	P-value
Gender	5	0.43	104	4.811629	102	5.19E-06
	6	0.45	104	5.097718	102	1.59E-06
Age	5	-0.24	104	2.546794	102	0.012366
	6	-0.05	104	0.553535	102	0.581108
Education	5	-0.48	104	5.547386	102	2.3E-07
	6	-0.52	104	6.267433	102	8.89E-09
Experience	5	-0.27	104	2.835837	102	0.005513
	6	-0.22	104	2.317193	102	0.022492

Table 4.6 Confirmation Bias Test

While examining the above data, it can be seen that the P-value in most cases is less than 0.05, which is the significance level (alpha) of the test, where the degree of freedom = 102.

Thus, we conclude that-

- “We accept the null hypothesis and came to a conclusion that there was no correlation between Confirmation Bias & Age” (H₀ is accepted)
- “We reject the null hypothesis and came to a conclusion that there was correlation between Confirmation Bias & Demographic factors like Gender, Education & Experience” (H₁ is accepted)

Loss Aversion Bias

Independent Factor	Question No.	Correlation Coefficient	No.of Observations	T-statistic	Degree of Freedom	P-value
Gender	7	-0.00639	104	0.064551	102	0.948658
	8	0.054742	104	0.553696	102	0.580999
Age	7	-0.04528	104	0.457799	102	0.64807
	8	-0.18267	104	1.876472	102	0.063449
Education	7	-0.16443	104	1.683545	102	0.095328
	8	-0.35448	104	3.828662	102	0.000223
Experience	7	-0.12266	104	1.248202	102	0.005513
	8	-0.22	104	2.317193	102	0.214815

Table 4.7 Loss Aversion Bias Test

While examining the above data, it can be seen that the P-value in most cases is greater than 0.05, which is the significance level (alpha) of the test, where the degree of freedom = 102. Therefore-

“We accept the null hypothesis and came to a conclusion that there was no correlation between Loss Aversion Bias & Demographic factors like Gender, Age, Education & Experience” (H0 is accepted)

Herding Bias

Independent Factor	Question No.	Correlation Coefficient	No.of Observations	T-statistic	Degree of Freedom	P-value
Gender	9	0.130664	104	1.331057	102	0.186138
	10	0.090221	104	0.914915	102	0.362394
Age	9	-0.14246	104	1.4536	102	0.149127
	10	-0.37001	104	4.022356	102	0.000111
Education	9	-0.31204	104	3.317109	102	0.001261
	10	-0.23544	104	2.446647	102	0.016129
Experience	9	-0.28397	104	2.991117	102	0.003485
	10	-0.16657	104	1.706113	102	0.09103

Table 4.8 Herding Bias Test

While examining the above data, it can be seen that the P-value in case of Gender, Age & Experience is more than 0.05, which is the significance level (α) of the test. On the contrary, the P-value in case of Education is less than 0.05 where the degree of freedom = 102. Thus, we conclude that-

- “We accept the null hypothesis and that there was no correlation between Herding Bias & Demographic factors like Gender, Age & Experience” (H_0 is accepted)
- “We reject the null hypothesis and that there was correlation between Herding Bias & Education level” (H_1 is accepted)

Anchoring Bias

Independent Factor	Question No.	Correlation Coefficient	No.of Observations	T-statistic	Degree of Freedom	P-value
Gender	11	-0.17251	104	1.76882	102	0.079913
	12	-0.27047	104	2.83741	102	0.005488
Age	11	-0.24	104	2.546794	102	0.012366
	12	-0.05	104	0.553535	102	0.581108
Education	11	-0.3285	104	3.512624	102	0.000663
	12	-0.16157	104	1.653483	102	0.101307
Experience	11	-0.20433	104	2.108138	102	0.037469
	12	-0.33154	104	3.549122	102	0.000586

Table 4.9 Anchoring Bias Test

While examining the above data, it can be seen that the P-value in some cases is less than 0.05, which is the significance level (alpha) of the test, whereas the P-value in other cases is more than 0.05. Thus, we conclude that-

- “We accept the null hypothesis and that there was no correlation between Anchoring Bias & Demographic factors like Gender, Age, Education” (H0 is accepted)
- “We reject the null hypothesis and came to a conclusion that there was correlation between Anchoring Bias & Experience” (H1 is accepted)

4.3 Findings

From the above calculations, it is found that different biases are correlated with different demographic factors.

For Confirmation Bias-

- There is a positive correlation with Gender, which denotes that the presence of confirmation bias is found to be more in females, compared to males
- There is negative correlation with the Education Level & Investment Experience, which denotes that the presence of confirmation bias is found to be lower as age & investment experience increases.

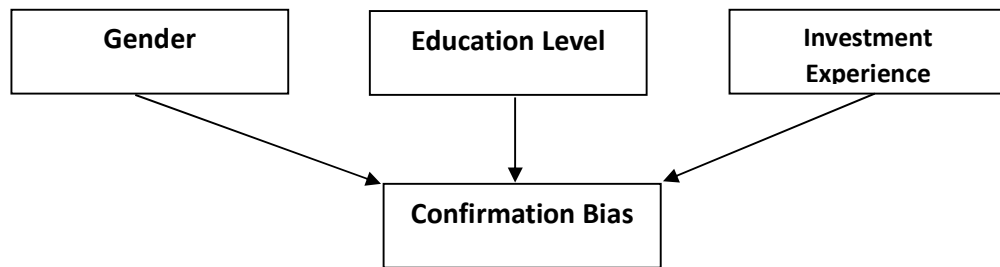


Fig. 4.6 Confirmation Bias Correlation Test Results

For Loss Aversion Bias-

- There is no significant correlation found with any of the tested demographic factors.

For Herding Bias-

- There is significant negative correlation found with Education only, which denotes that as education increases, the presence of herding bias decreases.

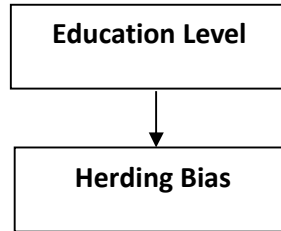


Fig. 4.7 Loss Aversion Bias Correlation Test Results

For Anchoring Bias-

- There is significant negative correlation found with Investment Experience only, which denotes that the presence of anchoring bias is lower as investment experience increases.

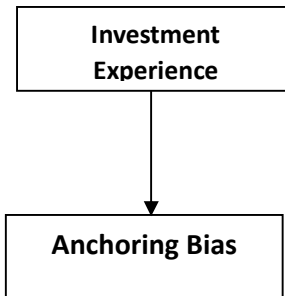


Fig. 4.8 Anchoring Bias Correlation Test Results

4.4 Recommendations

Financial literacy is crucial in today's society and affects everyone's life & Financial awareness is must among the individual so that they can create such portfolio through which they can meet their financial goals.

- Age between 18-27 needs to focus on performing due diligence and try to seek diverse perspective when investing in any stock to avoid confirmation bias
- Females are more susceptible to confirmation bias. Therefore, they are advised to practice critical thinking to avoid confirmation bias.
- Investors who have little to no investing experience should focus on using relative valuation techniques and also seek multiple sources of information to avoid the anchoring bias
- Investors who have do not have higher education levels are advised to think independently, do your own research, and then seek diverse opinions. They are also encouraged to educate themselves more by joining a professional course that adds value to your investments.

4.5 Limitations of study

The study acknowledges potential limitations.

- Sample Size – 104 investors have participated for the analysis. A larger sample size would have provided more accurate results.
- Sample demographics – Majority of the investors are of age 18-16, with education qualification of mostly graduates and post graduates.
- Nature of the Questionnaire – Since there are several questions that test the presence of biases, there is a possibility that people might select the option that sounds more logical and rational, irrespective of what they might do in real life scenario. Therefore, there is a possibility of the questions being somewhat leading.

CHAPTER 5

CONCLUSION

The findings of this research shed light on the nuanced nature of different biases, mainly four biases that are – “confirmation bias, anchoring bias, herding bias, and loss aversion bias”, and their relationship with demographic factors. Through a comprehensive examination of these biases and their respective influences, this study contributes to a deeper understanding of human decision-making processes in various contexts, particularly within the realm of financial decision-making.

Confirmation bias, emerged as a significant area of interest in this research. Our analysis revealed that confirmation bias exhibited variations across demographic factors, particularly gender, education, and investment experience. This highlights the importance of considering individual characteristics when examining behavioural biases, as they are important in shaping cognitive tendencies. The differential impact of confirmation bias based on gender suggests potential avenues for targeted interventions and educational initiatives aimed at mitigating biased decision-making.

Furthermore, our investigation into loss aversion bias yielded intriguing results, indicating that this bias remained consistent across various demographic factors. Unlike confirmation bias, which demonstrated variability, loss aversion bias appeared to be universal, transcending demographic distinctions. This underscores the robust nature of loss aversion bias as a fundamental aspect of human decision-making, irrespective of individual backgrounds or experiences.

In contrast, herding bias, the inclination to follow the crowd without independent evaluation, displayed a noteworthy association with education level. This suggests that individuals with higher levels of education may be more susceptible to herding behaviour, possibly due to increased exposure to social influences or conformity pressures within educated circles. The identification of education as a significant predictor of herding bias underscores the multifaceted interplay between cognitive biases and socio-cultural factors, warranting further exploration.

Finally, anchoring bias, characterized by the reliance on initial information when making decisions, exhibited a distinct pattern of influence based on investment experience. Our findings indicate that individuals with differing levels of investment experience may exhibit varying degrees of susceptibility to anchoring bias, highlighting the importance of domain-specific expertise in mitigating cognitive biases within financial decision-making contexts.

In conclusion, this research underscores the intricate interplay between behavioral biases and demographic factors, offering valuable insights into the complexities of human decision-making processes. By delineating the differential influences of “confirmation bias, anchoring bias, herding bias, and loss aversion bias” across various demographic dimensions, this study provides a foundation for developing targeted interventions and educational programs aimed at promoting more rational and informed decision-making practices. Moving forward, continued research in this field is essential to unravelling the intricacies of behavioural biases and advancing our understanding of human cognition in diverse socio-economic contexts.

CHAPTER 6

REFERENCES

- https://www.youtube.com/watch?v=4XGST_Ngwte&t=259s
- <https://www.emerald.com/insight/content/doi/10.1108/AJEB-06-2021-0074/full/html>
- <https://arxiv.org/abs/1901.07876>
- <https://fomcdmtu.edu.np/wp-content/uploads/International-Conference-Full-With-Cover.pdf#page=98>
- <https://www.worldscientific.com/doi/abs/10.1142/S2424786319500208>

CHAPTER 7 ANNEXURE

Thank you for participating in this research. Your responses will contribute to our understanding of how individuals are influenced by several factors when making financial decisions. The information collected will be kept confidential and will be utilized for academic purposes only.

Q1. Gender

- a) "Male"
- b) "Female"

Q2. Age

- a) "18-20"
- b) "21-23"
- c) "24-26"
- d) "Greater than 26"

Q3. Educational Qualifications

- a) "Intermediate"
- b) "Graduate"
- c) "Post Graduate"
- d) "Ph.D."

Q4. Investment Experience

- a) "Less than a year"
- b) "1-3 years"
- c) "4-6 years"
- d) "7-9 years"
- e) "More than 9 years"

Q5. Imagine you have invested in a technology company based on your belief that its innovative products will lead to substantial growth. Despite recent news highlighting challenges faced by the company, you come across an article praising its long-term potential. How likely will you keep holding the share? [Confirmation]

- a) "Very Unlikely"
- b) "Unlikely"
- c) "Neutral"
- d) "Likely"
- e) "Very Likely"

Q6. You have been following a popular financial analyst on social media who frequently recommends certain stocks. Despite recent market volatility, the analyst continues to express confidence in the stocks' performance. How likely will you continue to rely on the analyst's recommendations? [Confirmation]

- a) "Very Unlikely"

- b) “Unlikely”
- c) “Neutral”
- d) “Likely”
- e) “Very Likely”

Q7. Imagine you have \$1,000 to invest. In Scenario A, you have two options:

Option 1: “You have a 50% chance of gaining \$500 and a 50% chance of losing \$300.”

Option 2: “You have a guaranteed gain of \$100.” [Loss aversion]

Which option would you choose?

- a) “Option 1”
- b) “Option 2”

Q8. Suppose you own a stock that has appreciated by 30% since you bought it. You initially planned to sell it when it reached a 40% gain. However, the stock price starts to decline, and you are now facing a potential loss. Would you: [Loss Aversion]

- a) Sell the stock immediately to secure the 30% gain.
- b) Hold onto the stock, hoping it will recover and reach the 40% gain threshold

Q9. Imagine you are considering investing in a particular stock. You notice that many of your friends and colleagues are also investing in the same stock, believing it will perform well in the near future. Would you: [Herding Bias]

- a) Invest in the stock based on the positive feedback from your social circle.
- b) Make an independent decision based on your own analysis and research, regardless of others' actions.

Q10. You observe a sudden surge in trading activity for a specific stock on an online trading platform. The stock's price is rapidly increasing, and it appears to be the subject of significant attention and discussion on social media platforms. Would you: [Herding Bias]

- a) Follow the trend and purchase the stock to capitalize on its momentum.
- b) Exercise caution and refrain from making any investment decisions solely based on the observed surge in trading activity and social media attention.

Q11. Imagine you are considering purchasing a used car listed for \$15,000. After some negotiation, the seller agrees to lower the price to \$12,000. However, you initially estimated the car's value to be around \$10,000. How likely will you accept the seller offer of \$12,000? [Anchor Bias]

- a) Very Unlikely
- b) Unlikely
- c) Neutral
- d) Likely
- e) Very Likely

Q12. Suppose you are in the process of buying a new smartphone. You notice that the latest model is priced at \$1,200, which is higher than you anticipated. Despite this, you find out that it includes additional features that justify the higher price tag. How likely will you buy the smartphone? [Anchor]

- a) "Very Unlikely"
- b) "Unlikely"
- c) "Neutral"
- d) "Likely"
- e) "Very Likely"

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