

PROJECT DISSERTATION REPORT ON

EFFECTS OF DEMOGRAPHIC FACTORS ON

BEHAVIOUR BIAS IN INVESTORS

Submitted By

Ishika

24/DMBA/101

Under the Guidance of

Dr.Seema

Assistant Professor



DELHI SCHOOL OF MANAGEMENT

Delhi Technological University

Bawana Road Delhi 110042

CERTIFICATE

This is to certify that the Major Research Project titled “EFFECTS OF DEMOGRAPHIC FACTORS ON BEHAVIOUR BIAS IN INVESTORS” is a bona- fide record of original work carried out by Miss. Ishika, Roll Number 24/DMBA/101, in partial fulfilment of the requirements for the award of the degree of Master of Business Administration at Delhi School of Management, Delhi Technological University, Delhi.

This project has been completed under my supervision and guidance and is a genuine and original work to the best of my knowledge.

Dr. Seema

(Assistant Professor)

Signature of Faculty

Signature of Student

DECLARATION

I, Ishika, hereby declare that the Major Research Project titled “EFFECTS OF DEMOGRAPHIC FACTORS ON BEHAVIOUR BIAS IN INVESTORS” Submitted by me, in partial fulfilment of the requirements for the award of the degree of Master of Business Administration (MBA), is a record of original work carried out by me under the supervision and guidance of Dr. Seema at Delhi School of Management, Delhi Technological University.

I further declare that this work has not been submitted previously by me or any other individual for the award of any degree, diploma, or any other similar title in this or any other university or institution.

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EXECUTIVE SUMMARY

In this regard, the current research paper, entitled "Impact of Demographic Factors on Behavioural Biases Among Investors," has been carried out to identify the effect of demographics on the behavioural biases among investors. In this regard, there are four major behavioral biases including Confirmation Bias, Loss Aversion Bias, Herding Bias, and Anchoring Bias which will be studied with the aid of various demographic factors such as Gender, Age, Educational Qualifications, and Investment Experience.

Behavioral finance is one of the emerging branches of finance nowadays as the conventional financial theories consider investors to be rational in nature. Nevertheless, the behavioral aspects like heuristics, emotions, and psychology of the investor come into play when the investor makes any decision pertaining to the financial arena. Such behavioral biases have implications in the performance and risk management practices of the investors' portfolio.

This research is descriptive, analytical, and quantitative in its approach. Primary data were obtained from 200 respondents through the use of structured questionnaires that were sent through Google Forms. The respondents who participated in the study had previous experience in making investments in financial tools including stocks, mutual funds, SIPs, ETFs, and others.

The questionnaire was made up of two parts. The first part of the survey asked questions pertaining to demographics of the respondents such as gender, age, education, and previous experience in making investments. The second part comprised questions that pertained to the four behavioral biases being considered in the research. For gathering behavioral responses, the researcher employed the 5-point Likert Scale.

Purposive Sampling technique was employed for this study since it focused on participants who had some form of prior investment knowledge. The data collected was analyzed through statistical means including:

- Descriptive Statistics
- Cronbach's Alpha
- Chi-Square Test
- Spearman's Rank Correlation
- Multiple Linear Regression Analysis

Descriptive Statistics was applied to obtain information related to demographics of participants. It was found from the analysis that most respondents were between 21-25 years old and had completed either

their under-graduation or post-graduation. Moreover, most respondents had investment experience below three years.

Cronbach's Alpha was employed to measure reliability of the questionnaire items. It is important to note that reliability scores received for all behavioural biases were above the threshold score, which suggests that the research tool had high reliability.

To investigate associations between behavioral biases and demographic variables, chi-square test was conducted. According to the results, there was a statistically significant association between:

- Age and Confirmation Bias
- Educational Qualification and Loss Aversion Bias
- Age, Educational Qualification, and Investment Experience with Herding Bias
- Gender and Anchoring Bias

Spearman's Rank Correlation analysis was performed to find out the strength and direction of associations among demographic factors and behavioral biases. It was found that Educational Qualification had a significant negative correlation with Confirmation Bias, which means that educated people were less prone to exhibit confirmation bias.

Similarly, Loss Aversion Bias had significant negative correlations with Age, Educational Qualification, and Investment Experience. It means that educated, older, and experienced individuals had lesser tendency to behave in a loss averse manner.

Herding Bias was found to have significant negative correlations with Age and Educational Qualification, which means that older and educated investors had lower herding tendencies.

Anchoring Bias did not display significant correlations with other variables in the correlation analysis.

Multiple Linear Regression analysis was performed to determine the overall impact of demographic factors on behavioral biases. As per the regression findings, demographic factors accounted for a moderate amount of variation for Loss Aversion Bias and Herding Bias. One of the main demographic factors influencing investor behavior was found to be Educational Qualification.

The conclusions drawn from the research findings state that investor behavior is not entirely rational and is largely impacted by psychological and demographic factors. Behavioral biases are likely to affect investor decisions and may have implications for the financial welfare of the investors. Hence, the emphasis must be placed on enhancing financial literacy and investment knowledge among the investors.

This research adds to the existing body of knowledge on Behavioral Finance through its insights on how demographic factors impact the investor behavior in India. The research findings can prove beneficial for investors, financial advisors, educational institutions, policy makers and financial regulatory authorities in devising methods to increase investor awareness.

TABLE OF CONTENT

PARTICULARS	PAGE NO.
Certificate	i
Declaration	ii
Acknowledgement	iii
Executive Summary	iv
Table of Contents	v
Table of Figures	vi
List of Tables	vii
Chapter 1 – Introduction	
1.1 Background	1
1.2 Problem Statement	1
1.3 Objectives of the Study	2
1.4 Scope of Study	3
1.5 Significance of the Study	3
Chapter 2 – Literature Review	
2.1 Introduction	5
2.2 Theoretical Foundations of Behavioural Finance	5
2.3 Demographic Factors and Investment Behaviour	6
2.3.1 Gender and Behavioural Biases	6
2.3.2 Age and Behavioural Biases	7
2.3.3 Educational Qualification and Behavioural Biases	7
2.3.4 Investment Experience and Behavioural Biases	8
2.4 Review of Specific Behavioural Biases	8
2.4.1 Herding Bias	8
2.4.2 Confirmation Bias	9
2.4.3 Anchoring Bias	9
2.4.4 Loss Aversion Bias	10
2.5 Behavioural Finance in the Indian Context	10
2.6 Research Gap	11
Chapter 3 – Research Methodology	
3.1 Introduction	13
3.2 Research Design	13
3.3 Research Type	14
3.4 Target Population	14
3.5 Sampling Technique	15
3.6 Sample Size	16

PARTICULARS	PAGE NO.
3.7 Data Collection	16
3.7.1 Primary Data Method	16
3.7.2 Questionnaire Design and Structure	16
3.8 Classification of Data	18
3.8.1 Nominal Data	18
3.8.2 Ordinal Data	19
3.9 Reliability and Validity of the Research Instrument	19
3.9.1 Reliability	19
3.9.2 Validity	20
3.10 Hypothesis Formation	21
Chapter 4 – Analysis	23
4.1 Descriptive Statistics	24
4.2 Cronbach's Alpha Reliability Test	28
4.3 Chi-Square Test	29
4.4 Correlation Tests	31
4.5 Multiple Regression Analysis	34
4.6 Findings of the Study	37
4.7 Recommendations	39
4.8 Limitations of the Study	41
Chapter 5 – Conclusion	42
References	44
Annexures	49

TABLE OF FIGURES

Figure No.	Title of Figure	Page No.
Fig. 4.1	Age of Respondents	24
Fig. 4.2	Gender of Respondents	25
Fig. 4.3	Educational Qualification of Respondents	26
Fig. 4.4	Investing Experience of Respondents	27

LIST OF TABLES

Table No.	Title of Table	Page No.
Table 3.1	Research Design Framework	13
Table 3.2	Questionnaire Structure and Bias Mapping	18
Table 3.3	Summary of All Null Hypotheses	21
Table 4.1	Independent & Dependent Variables	23
Table 4.2	Age of Respondents	24
Table 4.3	Gender of Respondents	25
Table 4.4	Educational Qualification	26
Table 4.5	Investing Experience	27
Table 4.6	Cronbach's Alpha Reliability Test Results	28
Table 4.7	Confirmation Bias – Chi-Square Test	29
Table 4.8	Loss Aversion Bias – Chi-Square Test	29
Table 4.9	Herding Bias – Chi-Square Test	30
Table 4.10	Anchoring Bias – Chi-Square Test	30
Table 4.11	Confirmation Bias – Correlation Test	31
Table 4.12	Loss Aversion Bias – Correlation Test	32
Table 4.13	Herding Bias – Correlation Test	32
Table 4.14	Anchoring Bias – Correlation Test	33
Table 4.15	Regression Analysis – Confirmation Bias	34
Table 4.16	Regression Analysis – Loss Aversion Bias	35
Table 4.17	Regression Analysis – Herding Bias	35
Table 4.18	Regression Analysis – Anchoring Bias	36
Table 4.19	Overall Analysis	36

CHAPTER 1

INTRODUCTION

1.1 Background

There is an enormous amount of growth in various areas of businesses globally at present. It has led to ample investment opportunities for individuals in the financial market. These opportunities give rise to a large number of sources of incomes globally. The investors have now got the freedom to choose from a variety of financial tools to invest in equity markets like spot, Futures & Options, SIP, ETFs, Mutual Funds and other options. But it has also become complicated for the investors owing to the vast array of options. The Indian stock market has undergone remarkable changes during the last decade. According to figures provided by SEBI, there was a tremendous increase in the number of demat accounts that went up to 14 crore by 2024 from about 4 crore in 2020, thanks to the availability of many mobile-based platforms like Zerodha, Groww, and Upstox. There were millions of first-generation and inexperienced investors who entered the market without any knowledge of finance and investing. They were prone to behavioural biases, making the study important in the present context. Investment is a purposeful activity, which involves making sure one is prepared for any future events with the help of available resources. An investor is usually trying to earn profits from the investments undertaken or obtain capital gains at the same time considering the possible risks and expected rate of returns. Behavioral finance plays a vital role in investing as it is the phenomenon when individuals show irrational behavior as a result of psychological issues. The problem here is that many investors tend to ignore facts. People invest in stocks according to rumors and divest them because “people say” the shares are no good. While the advice received from stock market forums and analysis is not necessarily right, it could mislead the investor to buy those shares and raise their price, so that people recommending divestment get their profit. Moreover, demographic factors like gender, age, education level, and investment experience play a huge role in how an individual makes investment decisions.

1.2 Problem Statement

Traditional economic theories such as EMH and Expected Utility Theory presuppose that investors operate in a rational manner in order to maximise their wealth. The assumption further holds that they utilise all the available data objectively. However, over several decades now, numerous studies conducted under the purview of behavioural finance have proved that investors do not operate in a rational manner. This deviation is neither random nor arbitrary but has certain regularities owing to psychological limitations of investors.

Although many international studies have been undertaken on the issue of behavioural bias amongst investors and its implications, there still exists an evident gap in research on the influence of multiple demographic factors, including age, gender, education, and investment experience in relation to multiple types of investor biases in India. In general, most of the international studies consider one behavioural bias at a time or study the impact of one demographic variable independently. In addition to this, the recent surge in the number of retail investors in India, especially those who use applications and have a relatively poor understanding of finances, calls for immediate attention on studying the unique behavioural problems that this group faces. Financially harmful decisions arising out of these behavioural issues can lead to heavy financial losses at a personal level and even make markets more volatile at a broader level.

Hence, this study attempts to explore the following research question: What role does the demographic factor (age, gender, educational qualification, and investing experience) play in determining the presence and intensity of four major behavioural biases, such as Confirmation Bias, Loss Aversion Bias, Herding Bias, and Anchoring Bias, among investors from India? Finding answers to the above research question will add to our academic understanding of behavioural finance in general and help us practically too.

1.3 Objectives of the Study

The study is guided by the following specific objectives:

- To investigate the investment behavior and preferences of young investors such as their investment frequency, investment instruments used, and the percentage of their income invested.
- To determine the degree and nature of the behavioral biases of Confirmation Bias, Loss Aversion Bias, Herding Bias, and Anchoring Bias in the study population.
- To investigate the relationship between the demographic factor of gender and the aforementioned four selected behavioral biases.
- To investigate the relationship between the demographic factor of age and the aforementioned four selected behavioral biases.
- To investigate the relationship between the demographic factor of educational qualification and the aforementioned four selected behavioral biases.

- To investigate the relationship between the demographic factor of investment experience and the aforementioned four selected behavioral biases.
- To investigate the relationship between the demographic factor of investment experience and the above mentioned four selected behavioral biases.

1.4 Scope of Study

This research includes a thorough investigation into four types of behavioural biases: Loss Aversion Bias, Herding Bias, Confirmation Bias, and Anchoring Bias. An analysis is performed to show how these biases correlate with demographic factors like age, gender, educational qualifications, and investing experience, thus offering insights into the interplay between the demographics and the behaviour of investors. The research will be carried out among the students belonging to different fields from universities/colleges situated in Delhi. Besides, it will include working individuals with varied educational and investing backgrounds. Most participants of the survey will be aged between 18 to 35 years, as the trend towards younger retail investors in India seems to grow. However, the study will involve only those people who have made some investments in the Indian Stock Market in some capacity, including equity, mutual funds, SIPs, and ETFs.

Some points must also be kept in mind about those things that do not come under the purview of this study. First of all, it should be noted that this study does not focus on the effect of macroeconomic environment, economic cycles, and financial instruments on behavioral biases. Other biases, including but not limited to overconfidence bias, mental accounting, and framing effects, have not been considered in this study. Furthermore, the study has not included investors residing outside Delhi-NCR geographical boundary.

1.5 Significance of the Study

The research is important on several fronts, including theoretical, practical, and policy-related.

Academic Importance: The research makes a significant contribution to the burgeoning area of behavioral finance in emerging economies, especially in India. By considering four different biases for four demographic parameters at once, the research addresses an important research gap that exists in contemporary literature on either individual biases or individual demographics, but not both simultaneously. It provides an important analysis through the application of Spearman's Rank Correlation test on primary data.

Importance for Investors: Individual investors, especially the young or novice, will find it useful if they identify their propensity toward particular biases on the basis of their demographic characteristics. The first step toward overcoming any bias involves awareness. If investors are aware that their demographic characteristics are prone to induce particular biases, then they will make concerted efforts to avoid it.

Importance for Financial Educators/Advisors: The results of this study can be used by financial planners and certified investment advisors (CIAs) and financial educators to develop tailored financial literacy programs. For example, if it is found through this study that investors with lesser educational qualifications tend to be prone to herding behaviour, then a module can be designed specifically to counter that tendency.

Importance for Policy Makers: Authorities such as SEBI and AMFI can use the results of this study to come up with investor education campaigns as well as their suitability criteria in a manner that takes into account demographic weaknesses.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Behavioural Finance has become one of the most crucial areas in the subject of finance due to its ability to provide an understanding regarding the impacts of psychological, emotional and social aspects on the decision-making process of investors. In general, traditional financial theories state that investors tend to be logical and they always make decisions that help them earn maximum gains. But reality shows that the actual decisions made by investors deviate from this assumption since they are driven by emotions, personal opinions, sentiments of the market and demographic attributes which results in irrational decisions and biases. The current research is aimed at identifying the impacts of demographic attributes such as gender, age, educational qualifications and investment experience on Confirmation Bias, Loss Aversion Bias, Herding Bias, and Anchoring Bias. Various scholarly articles and research papers reveal that investor behaviour is not always logical and there is a considerable impact of demographic variables on their investment decisions.

This chapter highlights some key theoretical and empirical studies on Behavioural Finance, demographic variables influencing investors' decisions and the four biases in question.

2.2 Theoretical Foundations of Behavioural Finance

However, various studies have been conducted empirically that contradicted these classical financial concepts, including the efficient market hypothesis (Fama, 1970) and the expected utility theory by Von Neumann and Morgenstern.

For example, Shiller (1981) stated that there is too much volatility in stock markets in comparison to the changes in fundamentals, casting doubts on the efficient market theory. Likewise, De Bondt and Thaler (1985) found that the worst-performing stocks in the previous period tend to perform better than other stocks during the future periods, implying investor overreaction and irrationality. Therefore, the groundwork for behavioral finance had been set.

Prospect theory formulated by Kahneman and Tversky (1979) is considered the most influential theory regarding behavioral finance. First of all, this theory revealed that people perceive gains and losses based on some reference level rather than their wealth positions. In addition, Kahneman and Tversky (1979) introduced the concept of loss aversion, meaning that individuals experience losses much harder than any gain.

Further, Tversky & Kahneman (1974) brought forward the idea of heuristics and cognitive biases like representativeness, availability, and anchoring. Even though heuristics help in simplifying the decision-making process, they result in cognitive errors.

The idea of mental accounting came from Thaler (1985), stating that investors categorize money in their minds and make irrational choices according to each category. The idea of bounded rationality of Herbert Simon also helped in developing behavioral finance because it states that investors have finite cognitive capabilities. As a result, investors make decisions through simplified procedures rather than rational procedures.

2.3 Demographic Factors and Investment Behaviour

2.3.1 Gender and Behavioural Biases

Gender has been extensively researched in behavioural finance. In their research paper "Boys Will Be Boys," Barber and Odean (2001) analyzed over 35,000 brokerage accounts and discovered that men were much more active traders than women owing to overconfidence, resulting in lower returns from investments due to high transaction fees.

According to Baker, Kumar, Goyal, and Gaur (2019), men exhibited overconfidence and high-risk taking in their investments, whereas women were found to be risk averse while investing. However, women were found to herd more than men in investments because women like to rely on group decisions while investing.

Prosad et al. (2015) and Lin (2011) also established that women were herders in their investments, whereas men were found to be confident and independent investors. Feingold (1994) found that men exhibited greater assertiveness and were less dependent on group behavior.

Further studies by Bhandari and Deaves (2006) and Kumar and Goyal (2015) demonstrated how gender plays a crucial role in shaping investor psychology, especially regarding overconfidence, risk aversion, and trading activities.

In their study on Indian working women investors, Srivastava, Moid, and Rushdi (2024) discovered that those women having less experience in investing were more inclined towards being loss averse. All these studies thus prove that gender is a primary determinant of behavioural biases exhibited by investors.

2.3.2 Age and Behavioural Biases

The age plays an important role in shaping the investing behavior, since the investors in different phases of life have different experiences, financial responsibilities and risk preferences.

As Prosad et al. (2015) found, older investors, particularly those of ages 51-60 years, had higher levels of confidence owing to greater market experiences. In most cases, confidence led to the overconfidence bias. Meanwhile, younger investors exhibited greater susceptibility to herding and anchoring biases because of insufficient experience in investing and reliance on the peer opinion and information.

According to Arora and Kumari (2015), age is an influencing factor regarding risk aversion; specifically, older investors show higher degrees of loss aversion since they care about the safety of wealth before retirement. On the contrary, younger investors tend to be more risky.

Gervais and Odean (2001) argued that overconfidence of investors was time-sensitive. Their research revealed that the investors first gained overconfidence due to their successes and subsequently calibrated themselves through feedback from the market environment.

Akhtar & Das (2019) observed that young investors are likely to be more susceptible to confirmation bias and herding behavior, while older investors tend to show greater anchoring and loss aversion tendencies. Similarly, Chira et al. (2008) observed that young investors depended on crowd behavior more when markets were uncertain. From this evidence, it is clear that apart from risk-taking abilities, age also influences vulnerability towards certain kinds of behavioral biases.

2.3.3 Educational Qualification and Behavioural Biases

Education and qualifications have an inconsistent effect on behavioral biases. Education increases knowledge about finance and improves decision-making skills, although it does not entirely stop people from being irrational.

According to Baker et al. (2019), financially literate investors had a lower tendency to be affected by herding and anchoring biases since they can analyze financial information independently. Those investors with financial background education tended to make rational decisions.

According to Ritter (2003), education decreases certain biases but may also cause overconfidence in individuals having higher levels of education as they tend to think that they know much more than others. Mahmood et al. (2024) note that financial literacy decreases the tendency to be affected by anchoring bias as educated investors are able to update their decisions.

As mentioned by Abreu and Mendes (2010), educated individuals trade less often and exhibit reduced herd behavior. However, Odean (1998) pointed out that very educated individuals can also overtrade due to overconfidence.

According to Gakhar and Prakash (2019), postgraduates in financial fields were less affected by herding and confirmation bias than those who graduated from other fields. As stated by Almansour and Arabyat (2017), education affects investment decision-making quality, especially when dealing with biases like anchoring and herding. In summary, while education helps overcome behavioral biases, it does not completely remove emotions and psychology.

2.3.4 Investment Experience and Behavioural Biases

Experience of investing is regarded as one of the most powerful moderators of behavioural biases since investors gain knowledge through previous experiences with market outcomes, and gradually become more efficient at making decisions.

Investors who have gained more experience in investing, as found by Vania et al. (2021), using Structural Equation Modelling, show less herding, overconfidence, and mental accounting tendencies. Also, according to Menkhoff et al. (2013), experienced fund managers demonstrate resistance to herding bias and the ability to spot market mispricing.

Experienced investors were found by Feng & Seasholes (2005) to be less likely to succumb to anchoring and the disposition effect, but their herding tendencies remain stable until they go through a full market cycle.

In another research, Shukla et al. (2020) studied Indian investors and concluded that investment experience had the highest negative impact on behavioural biases in comparison to any other demographic factors.

However, Gervais & Odean (2001) pointed out that, in some cases, investment experience might lead to an increase in overconfidence when investors tend to attribute their past achievements to only their abilities.

2.4 Review of Specific Behavioural Biases

2.4.1 Herding Bias

The herding effect denotes the inclination of investors to behave like others as opposed to behaving independently. Christie & Huang (1995) found that herding was evident whenever there were unusual

occurrences in the stock market. Chang et al. (2000) discovered that herding behavior was prevalent in the Asian emerging markets.

Bikhchandani & Sharma (2001) highlighted two types of herding; the intentional and spurious forms, claiming that the former is caused by irrational imitation leading to market inefficiency. In India, herding was discovered to be one of the dominant biases in individual investors according to Baker et al. (2019).

Prosad et al. (2015) discovered that new investors and women exhibited greater herding behaviors. The proliferation of financial bloggers on social media sites has increased herding behaviors among Indian youths.

2.4.2 Confirmation Bias

Confirmation bias happens when investors focus on seeking information to confirm their existing opinions while ignoring evidence that might contradict these opinions. As stated by Rabin and Schrag (1999), confirmation bias results in investors having too much confidence in their beliefs and becoming unwilling to accept any correction.

Nickerson (1998) stated that confirmation bias is one of the most prevailing cognitive biases in human decision-making processes. In his study, Lord, Ross, and Lepper (1979) showed that people tend to explain evidence supporting both sides of an issue so that they can justify their existing opinion.

According to Rai (2024), confirmation bias is quite widespread among Indian investors who constantly get financial and social media information. As suggested by Pompian (2011), overconfidence goes hand-in-hand with confirmation bias in the context of interpreting market results.

2.4.3 Anchoring Bias

The anchoring bias is characterized by a tendency to depend on initial information in making decisions. Tversky and Kahneman (1974) carried out a study on anchoring bias using the wheel-of-fortune test.

In their subsequent study, Northcraft and Neale (1987) discovered that professional real estate experts were also affected by anchoring bias. Within the context of finance, Shefrin (2000) revealed that the investors tend to rely on purchase prices and thus cannot objectively appraise their investments.

George and Hwang (2004) discovered that investors tend to anchor to 52-week high stocks. Mahmood et al. (2024) discovered that financially literate investors are more likely to eliminate anchoring bias.

Focusing specifically on Indian retail investors, Sahi (2012) discovered that the investors tended to anchor to their purchase price and hold investments for very long periods despite incurring losses.

2.4.4 Loss Aversion Bias

Loss aversion implies that people derive more disutility from losses than utility from gains. Loss aversion was defined and made an important part of Prospect Theory by Kahneman and Tversky (1979).

The disposition effect in financial markets, where investors sell their winnings too soon but keep losing positions for too long, became the application of loss aversion in financial markets according to Shefrin and Statman (1985).

Soosunghwang and Satchell (2010) stated that people tend to secure their gains too early because of the risk of experiencing losses in the future. Mbaluka et al. (2012) showed that frame dependence increased the effect of loss aversion on investors.

Malik et al. (2017) noted that loss aversion significantly affects investment decision quality. Srivastava et al. (2024) found that female investors with little investment experience have higher levels of loss aversion. Loss aversion even applies to experienced professional traders, as shown by Haigh and List (2003).

2.5 Behavioural Finance in the Indian Context

India has become one of the leading markets for growing retail investments. Based on SEBI statistics, there is a rapid increase in Demat accounts from 2020 to 2024 owing to the emergence of online investing platforms like Zerodha, Groww, and Upstox.

The quick growth has led to many first-time retail investors who are less financially educated and highly susceptible to behavioural biases. Herding, anchoring, and overconfidence biases have been found to be prevalent among retail investors in India by Baker et al. (2019).

It has been shown by Rai (2024) that behavioural biases show great differences among different demographic segments of investors in India. Inexperienced Indian investors showed greater herding and confirmation bias tendencies, according to Shukla et al. (2020). Herding behaviour has also been identified among young investors in the Delhi-NCR region by Gakhar & Prakash (2019), driven by social media and peer network influence.

Indian market can thus be seen as a great example for the study of behavioural finance due to young and inexperienced investors using digital platforms.

2.6 Research Gap

The literature review points out some significant gaps in research. Firstly, the earlier studies concentrate on a single behavioural bias or a demographic aspect at a time but do not analyze more than one variable at once.

Secondly, most research in the field of behavioural finance is conducted in developed nations like USA and UK, while India lacks sufficient comprehensive studies in the same.

Thirdly, studies related to behavioural finance in India have considered overconfidence and disposition effect as the primary areas of study but failed to incorporate confirmation bias, anchoring bias, herding bias, and loss aversion into consideration.

Lastly, very few studies have been done on the behaviour of younger investors in Delhi-NCR area, which can be taken as one of the fastest growing segments of retail investors in India.

This paper intends to bridge these gaps by studying the association between four demographic aspects and four behavioural biases in India.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter gives a detailed explanation of the research methodology used in this study. It states the philosophy behind the research and the design used, explains the target population and sampling method used, highlights the data collection method and tool used, explains the classification method of data collected, discusses the hypotheses developed, and finally, talks about the analytical tools used to analyze data. This research methodology has been specifically designed in such a way as to enable achievement of the goals set out in Chapter 1.

This study examines the effect of gender, age, educational qualifications and investment experience on the following four behavioral biases, namely: Confirmation Bias, Loss Aversion Bias, Herding Bias, and Anchoring Bias of young investors in India. Data was collected through the use of a structured questionnaire while descriptive statistics and Spearman's Rank Correlation were the tools used in analyzing data.

3.2 Research Design

The research design is an overall framework that outlines how the researcher will collect and analyze data during the research process. It makes sure that the research process follows certain structures and is rational and consistent with the research objectives. The research design utilized for this research has been outlined on several levels below.

Dimension	Choice Made	Justification
Research Philosophy	Positivism	The research uses measurable hypotheses and numerical data along with statistical methods.
Research Approach	Deductive	Hypotheses were generated from prior theories (Prospect Theory, Heuristics and Biases Approach) and empirically tested.
Research Strategy	Survey	Structured questionnaires provide comparable data among different types of participants.
Research Type	Descriptive + Analytical	Descriptive statistics are used to characterize participants; analytical – for checking correlations between demographic characteristics and biases.
Data Type	Primary (Quantitative)	Primary data is obtained through questionnaires, making it relevant to research needs.
Time Horizon	Cross-sectional	Data is gathered at one-time period; enough for correlation analysis.

Table 3.1: Research Design Framework

Both descriptive and analytical approaches have been used for the research purposes in this study. In case of the descriptive approach, demographic information on the participants and behavior of the subjects with respect to their investments will be analyzed using frequency distribution, percentages, and graphs. On the other hand, in the analytical phase of this study, the 16 developed hypotheses will be tested to ascertain whether there exists any significant relationship between the four demographic and behavioral variables. The choice of a mixed approach in conducting the research was appropriate given the objectives of the study and the fact that the researcher needed not only to understand and describe the respondents but also to investigate the existing relationships among the selected variables.

As far as the deductive approach goes, the development of testable hypotheses based on the theory proved helpful in analyzing the behavioral finance theory empirically.

3.3 Research Type

In terms of categorization, the present research falls under the following categories:

Descriptive Research – The research provides information about the demographic characteristics and investment behavioral traits of the subjects under investigation. The descriptive research technique is best applied when the researcher tries to understand what is happening. In other words, descriptive research is suitable for the profiling purposes.

Applied Research – The findings of the present research have practical application value because they may be used by various stakeholders such as investors, financial advisers, and regulators. The knowledge about which demographic subgroups are more prone to particular types of cognitive bias will be helpful in organizing financial literacy workshops and courses.

Quantitative Research – The project relies on numerical data gathering and analysis techniques. In particular, responses on the Likert scale get ordinal values while some correlational statistical tests are performed to analyze collected data. Quantitative research is the proper methodological framework when the research aims at identifying relationships and testing hypotheses.

Finally, the nature of the research under discussion is determined by the need to identify relationships between dependent and independent variables. There is no attempt to establish any cause-and-effect relationships between the two groups of variables.

3.4 Target Population

Target population can be defined as the population comprising of those people who have the traits that are relevant to the research objectives and are the source for data collection. Research findings' validity mainly depend on the appropriate representation of the chosen sample for the target population. In the current research, the target population includes investors in India who have made investments in financial instruments like stocks, mutual funds, systematic investment plans (SIP), exchange traded funds (ETFs) among others.

The respondents consists of:

- Students from universities and colleges in Delhi-NCR
- Young working professionals
- Individuals with varying levels of investment experience

This study concentrated on young investors as the fast growing sector of retail investors in India. The growing tendency towards using trading/investment portals has resulted in young people joining in the markets in higher numbers. Quite many investors in their youth engage themselves in investment without much market knowledge and experience, thus are prone to behavioral biases. Young investors were chosen as the target audience in this study as it would allow analyzing the interconnection between demographic characteristics and behavioral biases in the behavior of investors. It is important to analyze investors of various educational backgrounds, ages, and experience to get diversified data. In total, 200 participants took part in the survey. All of them admitted investing in financial markets, hence meeting the criteria of inclusion into the research.

3.5 Sampling Technique

The current study focused on young investors who make up a rapidly expanding group of retail investors in India. As far as the increased inclination to use trading/investment portals, young people have become an active participant in financial markets. There are a great number of individuals at a young age who invest in the markets despite the lack of experience in that area. As young investors were selected as respondents for this research, it became possible to examine the relationship between the demographic profile of an investor and his/her behavioral bias. Thus, to conduct the study, it was essential to consider investors from diverse backgrounds in education, age, and experience.

All in all, the survey involved 200 respondents. Everyone of them stated that they invested money into financial markets, thus fulfilling the requirement for inclusion into the study:

- The selected participant should have investment experience in financial markets.
- The selected participant should fall within the appropriate demographic groups for the study
- The selected participant should be ready to fill the questionnaire in good faith.

Purposive sampling was chosen since choosing respondents from the general population in random manner may also involve people having no prior experience in investment, which will not add much to the study.

Since the topic of the research is investors and behavioral finance, it became necessary to choose those respondents having any investment experience whatsoever. Most of the respondents involved in the research were youngsters, students, and professionals having active involvement in the financial market in the form of investments made in stocks, mutual funds, SIP, ETF, and other financial tools. Data for the survey was collected online via Google forms and offline from the respondents present in Delhi-NCR region.

3.6 Sample Size

A sample is that part of the population targeted for use in a study. In this study, a total number of **200 questionnaires** were filled by participants who were eligible and met the set requirements. In terms of composition, the sample consisted of students, working professionals, and investors having some prior knowledge of investments in financial markets. The sample size chosen for the study was appropriate for running statistical tests such as Descriptive statistics, Cronbach's Alpha, Chi-Square Test, Spearman's Rank Correlation, and Multiple Linear Regression Analysis. In relation to calculating df for the test statistic, a degree of freedom of 198 was used, which is equivalent to $n - 2$ where $n=200$ at a significance level of $\alpha = 0.05$.

3.7 Data Collection

3.7.1 Primary Data Method

This research is completely dependent on the primary data collected from the respondents through a questionnaire. The employment of primary data helped in ensuring that the data collected was highly relevant to the study objectives. The questionnaire was distributed using Google Forms, and answers were collected from the students, young working professionals, and investors located in the Delhi-NCR region.

3.7.2 Questionnaire Design and Structure

The survey was meticulously developed in such a way that reliable answers could be obtained in relation to the investors' behavior and behavioral biases. The survey contained not only demographic questions but also questions pertaining to the behavioral biases as well. The questions relating to behavioral biases were developed on the basis of hypothetical investment scenarios and not directly asked questions about one's self-assessment.

A 5-point Likert Scale was used for all behavioural bias questions:

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

The Likert Scale responses helped in converting qualitative opinions into measurable numerical data suitable for statistical analysis.

The questionnaire was divided into separate sections for:

- Demographic Information
- Investment Bhevaiour
- Confirmation Bias
- Loss Aversion Bias
- Herding Bias
- Anchoring Bias

This proper classification helped in measuring each behavioural bias separately and reduced overlap between variables.

The questionnaire was organized into six sections, as detailed in the table below.

Section	Content	Question Nos.	Scale Used
Section A	Demographic Information: Gender, Age, Education, Investment Experience, Frequency of Investment, Instruments Used	Q1 – Q5	Nominal / Ordinal (MCQ)
Section B	Investment Behaviour: Percentage of income invested, awareness of financial instruments, primary source of investment information	Q5 – Q9	Ordinal (MCQ)
Section C	Anchoring Bias: Questions based on hypothetical investment scenarios testing reliance on initial price points and reference anchors	Q10 – Q13	5-point Likert Scale
Section D	Loss Aversion Bias: Questions based on hypothetical gain/loss scenarios testing sensitivity to losses versus equivalent gains	Q14 – Q17	5-point Likert Scale
Section E	Confirmation Bias: Questions testing the tendency to seek confirming information and ignore contradictory evidence in investment decisions	Q18 – Q21	5-point Likert Scale
Section F	Herding Bias: Questions testing the tendency to follow market trends, peer recommendations, and social media investment advice	Q22 – Q25	5-point Likert Scale

Table 3.2: Questionnaire Structure and Bias Mapping

3.8 Classification of Data

Data collected in this research can be categorized into two broad categories depending on their measurement scales. The two categories are known as Nominal Data and Ordinal Data. It is important to know how to classify data so that the right statistical tests are applied.

3.8.1 Nominal Data

The nominal level of measurement is the simplest form of measurement and entails the grouping of observations into mutually exclusive categories without any natural order or ranking among the categories. In this study, the following nominal variables have been used:

- Gender – classified into categories like Male and Female. Neither of these categories has an inherent rank or ordering. One category does not stand above or below the other.
- Types of Financial Instruments – categorized as Equities, Mutual Funds, SIP, ETFs, Derivatives, etc.

Nominal variables can be analyzed through frequency tables and percentages while associations between them can be analyzed using the Chi-Square test.

3.8.2 Ordinal Data

An ordinal scale represents categories that have a specific rank or order to them, although it may not be quantifiable or equal. The following ordinal scale variables will be used in this research study:

- Age: Measured on the basis of 18–20, 21–25, 26–30, and above 30. Although categories are in increasing order, their intervals are not equal.
- Educational Qualification: Measured as Intermediate, Graduate, Postgraduate, and PhD. This is measured on the basis of increasing education qualifications.
- Investment Experience: Measured on the basis of less than one year, 1-3 years, 4-6 years, and more than six years. This variable measures increasing market experience of individuals.
- Likert Scale Responses (Bias Questions): Responses on the Likert scale are measured from 1 to 5, meaning that individuals strongly disagree and strongly agree.

Since both independent variables as well as dependent variables are measured on ordinal scales, it means that the only relevant non-parametric test that can be used is Spearman's Rank Correlation.

3.9 Reliability and Validity of the Research Instrument

3.9.1 Reliability

Reliability refers to the consistency and stability of the research instrument in measuring behavioural biases. In the present study, reliability was tested using Cronbach's Alpha Test. Cronbach's Alpha measures the internal consistency of questionnaire items. A Cronbach's Alpha value greater than 0.70 is generally considered acceptable for behavioural research studies. The Cronbach's Alpha values obtained for all behavioural biases were above the acceptable threshold level, indicating good internal consistency and reliability of the questionnaire items. Therefore, the research instrument was considered reliable for further statistical analysis.

3.9.2 Validity

Validity can be defined as the degree to which the research instrument is capable of correctly measuring the variables being studied. In the current research study, the following two types of validity have been considered:

Content Validity

The questions of the questionnaire have been constructed in accordance with the established behavioral finance theories as well as the relevant studies conducted in the field of behavioral finance. Questions have been formulated with a view to determining the behavioral tendencies related to confirmation bias, loss aversion bias, herding bias and anchoring bias respectively. The formulation of questions on the basis of hypothetical scenarios rather than opinion helped in accurately assessing the actual behavioral tendencies. The questionnaire has been validated by the faculty guide to check its relevancy.

Construct Validity

Questions of the questionnaire have been classified according to different behavioral biases such that a separate set of questions for measuring confirmation bias, loss aversion bias, herding bias and anchoring bias has been formulated to avoid overlapping of constructs.

3.10 Hypothesis Formation

Hypothesis can be defined as the relationship existing between two or more variables which is formally stated in order for it to be tested against the data. In this case, hypotheses are generated in pairs such that there is the null hypothesis (H₀), which states that there is no significant relationship, and the alternative hypothesis (H₁), which says that there is a significant relationship. The null hypothesis is tested using the p-value generated from the Spearman's Rank Correlation test at $\alpha=0.05$.

A total of sixteen hypotheses are generated in this research project, involving four demographic variables interacting with four behavioral biases. The list of all hypotheses generated is provided below.

H#	Null Hypothesis	Independent Variable	Dependent Variable
H1a	No significant correlation between Gender and Confirmation Bias (H ₀)	Gender	Confirmation Bias
H1b	No significant correlation between Age and Confirmation Bias (H ₀)	Age	Confirmation Bias
H1c	No significant correlation between Education and Confirmation Bias (H ₀)	Educational Qualification	Confirmation Bias
H1d	No significant correlation between Investment Experience and Confirmation Bias (H ₀)	Investment Experience	Confirmation Bias
H2a	No significant correlation between Gender and Loss Aversion Bias (H ₀)	Gender	Loss Aversion Bias
H2b	No significant correlation between Age and Loss Aversion Bias (H ₀)	Age	Loss Aversion Bias
H2c	No significant correlation between Education and Loss Aversion Bias (H ₀)	Educational Qualification	Loss Aversion Bias
H2d	No significant correlation between Investment Experience and Loss Aversion Bias (H ₀)	Investment Experience	Loss Aversion Bias
H3a	No significant correlation between Gender and Herding Bias (H ₀)	Gender	Herding Bias
H3b	No significant correlation between Age and Herding Bias (H ₀)	Age	Herding Bias
H3c	No significant correlation between Education and Herding Bias (H ₀)	Educational Qualification	Herding Bias

H#	Null Hypothesis	Independent Variable	Dependent Variable
H3d	No significant correlation between Investment Experience and Herding Bias (H_0)	Investment Experience	Herding Bias
H4a	No significant correlation between Gender and Anchoring Bias (H_0)	Gender	Anchoring Bias
H4b	No significant correlation between Age and Anchoring Bias (H_0)	Age	Anchoring Bias
H4c	No significant correlation between Education and Anchoring Bias (H_0)	Educational Qualification	Anchoring Bias
H4d	No significant correlation between Investment Experience and Anchoring Bias (H_0)	Investment Experience	Anchoring Bias

Table 3.3: Summary of All Null Hypotheses

The decision rules for the hypotheses are: If the p-value generated by Spearman's Rank Correlation test is less than 0.05 ($\alpha=0.05$, $df = 198$), then H_0 is rejected and H_1 is accepted, showing that there is a statistically significant relationship between the demographic variable and the behavioural bias. If the p-value is greater than or equal to 0.05, then H_0 is accepted, showing that there is no statistically significant relationship.

CHAPTER 4

ANALYSIS

The research is underpinned by primary data sourced from respondents through a structured questionnaire. Data obtained in the process of research was analyzed through different statistical techniques such as Descriptive Statistics, Cronbach's Alpha, Chi-Square Test, Spearman's Rank Correlation and Multiple Linear Regression Analysis. The selection of the above mentioned statistics was based on ordinality of Likert Scale data and goals of research. Data analysis will aim at assessing relationship between demographic factors including Gender, Age, Educational Qualification, and Investment Experience and behavioral biases including Confirmation Bias, Loss Aversion Bias, Herding Bias and Anchoring Bias. In order to increase reliability of the study, composite scores have been computed for each behavioral bias by taking averages of responses for all biases. Internal consistency reliability of questionnaire measures has been measured using Cronbach's Alpha. The main statistical method for measuring relationship between demographic factors and behavioral biases will be Spearman's Rank Correlation coefficient. The reason behind that was ordinal character of the analyzed data.

The Chi-Square Test was applied in analyzing the relationship between demographic variables and behavioural bias groups. The Multiple Linear Regression analysis was used for assessing the relative role played by demographic variables in behavioral biases.

For testing the hypothesis, the statistical significance of relationships was measured through the use of P-values at 0.05 level of significance. When the P-value was found to be less than 0.05, the null hypothesis was rejected, implying the existence of a statistically significant relationship between the variables. However, when the P-value was found to be more than 0.05, the null hypothesis was accepted.

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

Table 4.1 Independent & Dependent Variables

4.1 Descriptive Statistics

Demographic Factors:

Age of Respondents

Age Group	No. of Respondents	Percentage
Below 20	86	43%
21 – 25	57	28.5%
26 – 30	29	14.5%
Above 30	28	14.0%
Total	200	100%

Table 4.2 Age of Respondents

Age Group

200 responses

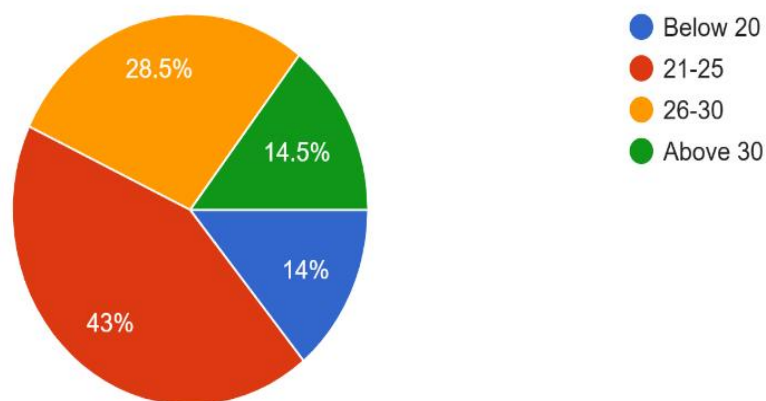


Fig 4.1 Age of Respondents

Gender of the Respondents

Gender	No. of Respondents	Percentage
Female	104	52.0%
Male	93	46.5%
Prefer Not to Say	3	1.5%
Total	200	100%

Table 4.3 Gender of the Respondents

Gender
200 responses

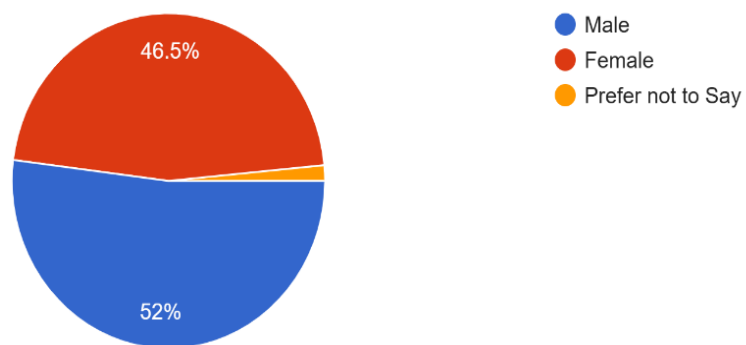


Fig. 4.2 Gender of the Respondents

Educational Qualification

Educational Qualification	No. of Respondents	Percentage
Postgraduate (MBA / M.Com / MA / M.Sc etc.)	60	30.0%
Undergraduate (B.Com / BBA / B.Tech / BA / B.Sc etc.)	56	28.0%
Postgraduate (Others)	28	14.0%
Graduate (Others)	17	8.5%
Intermediate (10+2 / HSC)	14	7.0%
Ph.D / Doctoral	14	7.0%
Undergraduate (Others)	9	4.5%
Others	2	1.0%
Total	200	100%

Table 4.4 Educational Qualification

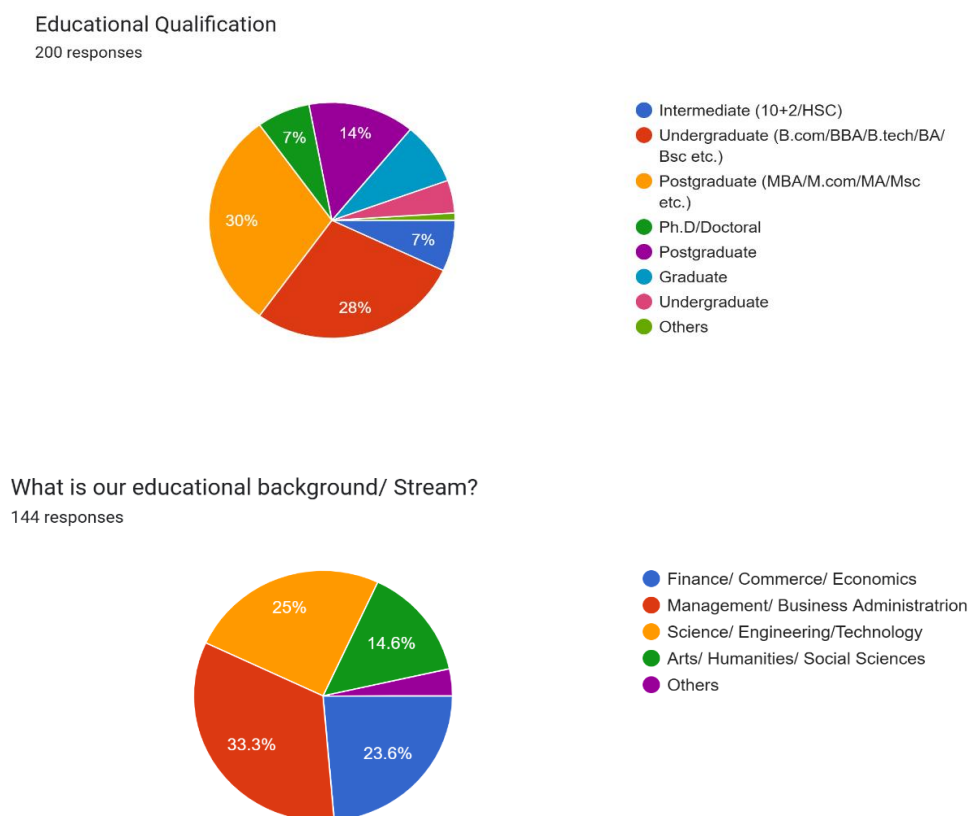


Fig 4.3 Educational Qualification

Investing Experience

Investment Experience	No. of Respondents	Percentage
Less than 1 Year	71	35.5%
1 – 3 Years	73	36.5%
4 – 6 Years	38	19.0%
More than 6 Years	18	9.0%
Total	200	100%

Table 4.5 Investing Experience

Investment Experience
200 responses

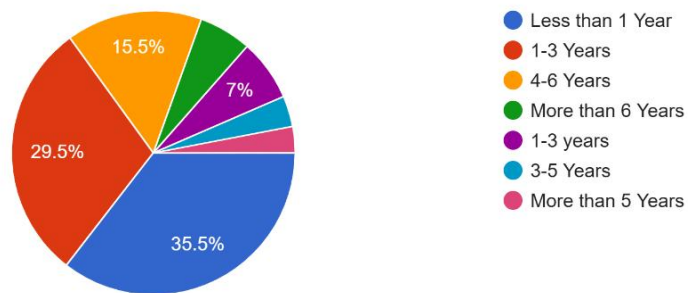


Fig. 4.4 Investing Experience

4.2 Cronbach's Alpha Reliability test

Analysis using Cronbach's Alpha reliability was performed to determine the internal reliability of the behavioral biases measures through questionnaires. The Cronbach's Alpha coefficient with a score of 0.70 or more can be regarded as satisfactory reliability.

Behavioural Bias	No. of Items	Cronbach's Alpha	Interpretation
Anchoring Bias	4	0.761	Acceptable Reliability
Loss Aversion Bias	4	0.739	Acceptable Reliability
Confirmation Bias	4	0.716	Acceptable Reliability
Herding Bias	4	0.821	Good Reliability

Table 4.6 Cronbach Alpha

Interpretation

- The Cronbach Alpha value for questionnaire questions concerning Anchoring Bias is 0.761, which means that reliability was acceptable.
- The Cronbach Alpha value for questionnaire questions concerning Loss Aversion Bias is 0.739, which means that reliability was acceptable.
- The Cronbach Alpha value for questionnaire questions concerning Confirmation Bias is 0.716, which means that reliability was acceptable.
- The Cronbach Alpha value for questionnaire questions concerning Herding Bias is 0.821, which means that reliability was good.

4.3 Chi-Square Tests for Behavioural Biases

Chi-Square Test was conducted separately for every individual behavioral bias, in order to evaluate the effect of demographic variables on the types of behavioral bias. The significance level adopted for testing the hypotheses is $\alpha = 0.05$.

Chi-Square Test – Confirmation Bias

Independent Variable	Chi-Square Value	Degree of Freedom	P-Value	Decision
Gender	3.684	4	0.4505	Accept H ₀
Age	12.896	6	0.0447	Reject H₀
Educational Qualification	14.372	8	0.0721	Accept H ₀
Investment Experience	16.524	12	0.1684	Accept H ₀

Table 4.7 Confirmation Bias Chi Square

Interpretation: Age demonstrated statistically significant relation to Confirmation Bias while Gender, Education and Investment Experience were not found to be significantly related.

Chi-Square Test – Loss Aversion Bias

Independent Variable	Chi-Square Value	Degree of Freedom	P-Value	Decision
Gender	2.711	4	0.6073	Accept H ₀
Age	9.027	6	0.1721	Accept H ₀
Educational Qualification	18.284	8	0.0191	Reject H₀
Investment Experience	17.078	12	0.1467	Accept H ₀

Table 4.8 Loss Aversion Bias Chi Square

Interpretation: Education had a statistically significant relationship with Loss Aversion Bias, whereas Gender, Age, and Investment Experience had no statistically significant relationship.

Chi-Square Test – Herding Bias

Independent Variable	Chi-Square Value	Degree of Freedom	P-Value	Decision
Gender	9.221	4	0.0558	Accept H ₀
Age	17.429	6	0.0078	Reject H ₀
Educational Qualification	16.917	8	0.0318	Reject H ₀
Investment Experience	26.136	12	0.0103	Reject H ₀

Table 4.9 Herding Bias Chi Square

Interpretation: Statistically significant relationships were found between Age, Education, and Investment Experience and Herding Bias, while no statistically significant relationship was observed with Gender.

Chi-Square Test – Anchoring Bias

Independent Variable	Chi-Square Value	Degree of Freedom	P-Value	Decision
Gender	13.216	4	0.0103	Reject H ₀
Age	4.734	6	0.5784	Accept H ₀
Educational Qualification	11.458	8	0.1762	Accept H ₀
Investment Experience	17.370	12	0.1362	Accept H ₀

Table 4.10 Anchoring Bias Chi Square

Interpretation: There was a significant relationship between Gender and Anchoring Bias, but no significant relationships were found between Age, Education, and Experience.

4.4 Correlation Tests

Confirmation Bias

Independent Factor	Correlation Coefficient	Observations	T-Statistic	Degrees of Freedom	P-Value
Gender	-0.081	200	-1.148	198	0.2519
Age	-0.093	200	-1.318	198	0.1887
Education	-0.155	200	-2.201	198	0.0287
Experience	-0.034	200	-0.483	198	0.6290

Table 4.11 Confirmation Bias Test

From the analysis of the data above, one can realize that the P-Value in the majority of cases is more than 0.05, which is the significance level (Alpha) of the test, when the degree of freedom is 198. But when it comes to Education Level, P-Value is less than 0.05. From this we can draw a conclusion that:

- "We accept the null hypothesis and come to the conclusion that there was no statistically significant correlation between Confirmation Bias and demographic factors like Gender, Age, and Investment Experience." (H0 is accepted)
- "We reject the null hypothesis and come to the conclusion that there was a statistically significant correlation between Confirmation Bias and Educational Qualification." (H1 is accepted)

Thus, we understand that Educational Qualification affects Confirmation Bias in investment behavior, but Gender, Age, and Investment Experience have no correlation with Confirmation Bias.

Loss Aversion Bias

Independent Factor	Correlation Coefficient	Observations	T-Statistic	Degrees of Freedom	P-Value
Gender	0.036	200	0.510	198	0.6118
Age	-0.159	200	-2.276	198	0.0241
Education	-0.225	200	-3.247	198	0.0014
Experience	-0.175	200	-2.504	198	0.0131

Table 4.12 Loss Aversion Bias Test

However, while analyzing the above data, it becomes clear that the value of P-value in respect of Age, Educational Qualification, and Investment Experience is less than 0.05. Therefore, we can say that:

- "We reject the null hypothesis and came to the conclusion that there was a statistically significant correlation between Loss Aversion Bias and demographic variables such as Age, Educational Qualification, and Investment Experience." (H1 is accepted)
- "We accept the null hypothesis and came to the conclusion that there was no statistically significant correlation between Loss Aversion Bias and Gender." (H0 is accepted)

Herding bias

Independent Factor	Correlation Coefficient	Observations	T-Statistic	Degrees of Freedom	P-Value
Gender	0.005	200	0.071	198	0.9432
Age	-0.188	200	-2.689	198	0.0076
Education	-0.147	200	-2.090	198	0.0378
Experience	-0.032	200	-0.456	198	0.6484

Table 4.13 Herding Bias Test

In analyzing the above data, it can be noticed that the P-value when it comes to Age and Educational Qualification is less than 0.05. As a result, we can conclude that:

- "We reject the null hypothesis and conclude that there is a statistically significant correlation between Herding Bias and Age and Educational Qualification." (H1 is accepted)
- "We accept the null hypothesis and conclude that there is no statistically significant correlation between Herding Bias and Gender and Investment Experience." (H0 is accepted)

Anchoring Bias

Independent Factor	Correlation Coefficient	Observations	T-Statistic	Degrees of Freedom	P-Value
Gender	-0.119	198	-1.677	196	0.0954
Age	-0.027	198	-0.374	196	0.7084
Education	-0.125	198	-1.767	196	0.0790
Experience	-0.018	198	-0.247	196	0.8052

Table 4.14 Anchoring Bias Test

On analysis of the above data, it may be seen that the value of P-Value is higher than 0.05, which is the level of significance (Alpha) for the test, where the degrees of freedom equal 196. From the above result, we deduce that:

- "We accept the null hypothesis and concluded that there was no statistically significant correlation between Anchoring Bias and demographic variables including Gender, Age, Educational Qualification, and Investment Experience."

4.5) Multiple Regression Analysis

Multiple regression analysis was used to identify the contribution made by demographic variables (Gender, Age, Education Qualifications, and Investment Experience) on investor's behavioral biases. The regression coefficients, p-values, and R² were then calculated to determine whether the demographic variables have any influence or not.

Regression Analysis – Confirmation Bias

Variable	Coefficient (β)	P-Value	Significance
Constant (Intercept)	3.845	0.0	Significant
Gender	-0.108	0.304	Not Significant
Age	-0.076	0.2798	Not Significant
Educational Qualification	-0.14	0.0707	Not Significant
Investment Experience	0.038	0.5856	Not Significant
Model Fit: R ² = 0.033 Adjusted R ² = 0.013 Model P-Value = 0.1564			

Table 4.15 Regression- Confirmation Bias

R² = 0.033, Adjusted R² = 0.013, Model Significance (p-value) = 0.1564.

The regression model indicates that none of the demographic variables have a statistically significant effect on confirmation bias.

Regression Analysis – Loss Aversion Bias

Variable	Coefficient (β)	P-Value	Significance
Constant (Intercept)	3.84	0.0	Significant
Gender	0.06	0.5711	Not Significant
Age	-0.094	0.185	Not Significant
Educational Qualification	-0.164	0.0351	Significant
Investment Experience	-0.067	0.3388	Not Significant
Model Fit: $R^2 = 0.069$ Adjusted $R^2 = 0.050$ Model P-Value = 0.0071			

Table 4.16 Regression- Loss Aversion Bias

$R^2 = 0.069$, Adjusted $R^2 = 0.05$, Model Significance (p-value) = 0.0071.

The regression model indicates that Education has a significant negative effect on loss aversion bias.

Regression Analysis – Herding Bias

Variable	Coefficient (β)	P-Value	Significance
Constant (Intercept)	3.916	0.0	✓ Significant
Gender	0.032	0.7927	Not Significant
Age	-0.226	0.0061	✓ Significant
Educational Qualification	-0.119	0.1851	Not Significant
Investment Experience	0.074	0.359	Not Significant
Model Fit: $R^2 = 0.054$ Adjusted $R^2 = 0.034$ Model P-Value = 0.0288			

Table 4.17 Regression- Herding Bias

$R^2 = 0.054$, Adjusted $R^2 = 0.034$, Model Significance (p-value) = 0.0288.

The regression model indicates that Age has a significant negative effect on herding bias.

Regression Analysis – Anchoring Bias

Variable	Coefficient (β)	P-Value	Significance
Constant (Intercept)	3.655	0.0	✓ Significant
Gender	-0.104	0.2244	Not Significant
Age	0.003	0.9517	Not Significant
Educational Qualification	-0.129	0.0408	✓ Significant
Investment Experience	0.037	0.5163	Not Significant
Model Fit: $R^2 = 0.029$ Adjusted $R^2 = 0.009$ Model P-Value = 0.2234			

Table 4.18 Regression- Anchoring Bias

$R^2 = 0.029$, Adjusted $R^2 = 0.009$, Model Significance (p-value) = 0.2234.

The regression model indicates that Education has a significant negative effect on anchoring bias.

Overall Model Summary

Bias	R^2	Adjusted R^2	Model P-Value	Significance
Confirmation Bias	0.033	0.013	0.1564	Not Significant
Loss Aversion Bias	0.069	0.050	0.0071	Significant
Herding Bias	0.054	0.034	0.0288	Significant
Anchoring Bias	0.029	0.009	0.2234	Not Significant

Table 4.19 Model Summary

4.6) Findings of the Study

Findings Based on Descriptive Statistics

- Over half of the respondents, comprising 52%, were male investors.
- Respondents who fell within the age group of 21-25 years were the majority, suggesting that young investors were more involved in investments.
- A majority of the respondents had attained undergraduate and postgraduate qualifications, implying that the sample was composed of educated investors.
- The respondents had less than three years of investment experience.
- Based on the demographic analysis, there were respondents belonging to different age groups, education levels, genders, and investment experiences.

Findings Based on Cronbach's Alpha Test

- Cronbach's Alpha values of all the behavioral biases were more than 0.70, suggesting reliability in the test.
- Herding Bias had the highest Cronbach's Alpha of 0.821.
- Internal consistency was present in Anchoring Bias, Loss Aversion Bias, and Confirmation Bias as well.
- Reliability testing proved that the questions posed in the questionnaire were fit for statistical tests.

Findings Based on Chi-Square Test

- Statistically Significant Association was found between Age and Confirmation Bias.
- Educational Qualification demonstrated Statistically Significant Association with Loss Aversion Bias.
- Age, Educational Qualification, and Investment Experience indicated Statistically Significant Association with Herding Bias.
- Gender demonstrated Statistically Significant Association with Anchoring Bias.
- Conducted Chi-Square analysis clearly demonstrated the variability of behavioural biases among various demographic groups.

Findings Based on Spearman's Rank Correlation Test

Confirmation Bias

- Statistically, there was a negative correlation between Educational Qualification and Confirmation Bias.
- The individuals who had higher educational qualifications displayed low confirmation bias.
- However, no statistically significant relationships existed between Gender, Age and Investment Experience with Confirmation Bias.

Loss Aversion Bias

- Statistically, there was a negative correlation between Age and Loss Aversion Bias.
- Statistically, there was a negative correlation between Educational Qualification and Loss Aversion Bias.
- Statistically, there was a negative correlation between Investment Experience and Loss Aversion Bias.
- Loss Aversion Bias was least likely to be displayed by older, educated and experienced investors.
- There was no statistically significant relationship between Gender and Loss Aversion Bias.

Herding Bias

- Age was found to be negatively correlated with Herding Bias.
- Educational Qualification was negatively correlated with Herding Bias.
- Older and more educated individuals were less likely to engage in herding while making investment decisions.
- Investment Experience and Gender were not found to be statistically significant with Herding Bias.

Anchoring Bias

- It is seen that Anchoring Bias does not have any relationship with demographic factors like Gender, Age, Educational Qualification, and Investment Experience.
- It means demographic characteristics do not impact Anchoring Bias.

Findings Based on Multiple Linear Regression Analysis

Confirmation Bias

- Statistically, the Regression Model for Confirmation Bias proved to be insignificant.
- Educational Qualification exhibited a negative impact on Confirmation Bias.
- Demographic factors taken together were found to explain a minor percentage of Confirmation Bias.

Loss Aversion Bias

- The model used for Loss Aversion Bias is statistically significant.
- Educational Qualification and Investment Experience significantly influence Loss Aversion Bias negatively.
- Demographic factors explain 6.9% variance in Loss Aversion Bias.

Herding Bias

- Regression Model of Herding Bias: Statistical significance
- Age & Educational Qualification: Significant negative impact on Herding Bias
- Demographic variables: Explained a total of 5.4% variance in Herding Bias

Anchoring Bias

- Regression Model of Anchoring Bias: Not statistically significant
- All Demographic variables: No significant impact on Anchoring Bias
- Very tiny proportion of variance in Anchoring Bias explained by demographic variables

4.7) Recommendation

Financial literacy has gained considerable significance in the current changing financial scenario since there is a direct or indirect link of an individual with investments. Investment decisions are made based on investor's biases, and this may have an adverse impact on the performance of investment. Hence, it is imperative to increase the financial literacy and decision-making skills of the investor.

Based on the findings of the study, the following recommendations are suggested:

- Young investors in the age range of 21-25 years must not make any investment based on rumours or hype prevailing in the market. They must base their investment on thorough analysis and study of the business environment and growth potential for companies before investing.

- The investors need to develop the practice of conducting independent research and looking at various aspects of the situation before they make their investments. This is done to minimize the problem of confirmation bias and enhance the rational thinking process.
- The less educated investors in terms of financial and economic education must take care to increase their knowledge level by becoming financially literate. They can do this through studying basic finance and economics so that they become aware of irrational behavior in investments.
- The novice and young investors must initially opt for the safer investment options like Mutual Funds, SIPs, and ETFs, and then move on to riskier investment options.
- As investors, one needs to be cautious against market trends or herds when putting money into the stock market. This is because they need to concentrate on their goals and risk tolerance.
- An investor must always ensure that his/her investment portfolio is diverse. One should not invest all funds in one asset or sector but rather spread the investments.
- An investor must have an investment approach that is long term rather than short term. He/she should avoid making emotional decisions when there are changes in the markets.
- The investor must continually evaluate and rebalance his investment portfolio based on the market situation, income, financial objectives, and his risk attitude.
- The experienced investor must advise the new investor about proper investment strategy, risk management, and rational thinking, which helps to reduce any behavioral biases.
- Anchoring bias must be prevented by avoiding emotional attachments to past prices and previous information when investing in the future.
- The financial advisor and certified investment planner may play a vital part in advising investors about proper financial behavior and rational financial planning. Hence, an investor may always seek professional advice in finance.
- Financial institutions, regulatory bodies for financial markets, stock exchanges, and financial intermediaries must aggressively pursue financial literacy programmes, investor awareness initiatives, and behavioural finance training to enhance decision-making capacity of the investors.
- Regulatory bodies and financial institutions can motivate investors to take the assistance of e-financial education and awareness sessions to become familiar with behavioural biases and risk management techniques.

- Investors are advised to develop specific financial goals like retirement savings, generating wealth, educating their kids, contingency savings, and future financial stability. A goal-directed investing strategy will minimize rash and emotional investments.
- Generally, growing awareness of financial matters and market experience can go a long way towards minimizing behavioral biases and making sound investments.

4.8) Limitations of the Study

There are some limitations of research that are intrinsic to it and these may have some impact on the scope and outcomes of research. Some of these limitations may apply to this particular research and these are discussed below.

Sample Size: Total 200 participants were part of this survey carried out as a means of collecting data for research. The sample size may have been sufficient for research purposes but bigger sample size would have provided more reliable information. A larger sample would have comprised more varied investors from different socio-economic strata.

Sample Demographics: Most of the respondents that comprised sample of investors were from younger generation and consisted of graduates and post graduates. Thus, the information provided by them may not truly represent those of people from older generation and those without formal education.

Geographical Constraints: Participants used for carrying out this research were from limited geography and institutions thus confining the applicability of study to those of different geographical and cultural backgrounds.

Survey Questionnaire: With regard to the kind of questionnaire used for conducting this survey, the answers provided by respondents may have reflected what seems more logical rather than true.

Complexity of Behaviour: Human behaviour involves various psychological and emotional factors. There may arise cases where all the elements involved in an investor's behaviour cannot be measured using a questionnaire approach.

Time Period Used for Research: The research was conducted during a particular time period, which is comparatively small. An extended time period will not only give the researcher more scope for research but also increase the number of samples available.

Certain Bias Were Selected for the Study: Various kinds of biases are present. However, the ones used for this study include Anchoring Bias, Loss Aversion Bias, Confirmation Bias, and Herding Bias.

Other significant biases include overconfidence bias, mental accounting bias, regret aversion, and framing effect.

Dynamics of Market Environment: Attitude or decision making process of the investor depends on some factors like the dynamics of market environment and economic factors. Therefore, results derived from this research will remain valid only for a certain market environment.

CHAPTER 5

CONCLUSION

The current research aimed at investigating the influence of demographic variables on behavioral biases in investors. Four significant behavioral biases have been considered for this purpose – Confirmation Bias, Loss Aversion Bias, Herding Bias, and Anchoring Bias – and their association with demographic variables like Gender, Age, Educational Qualification, and Investment Experience has been studied. The outcome of the research indicates that behavioral biases are affected by the demographic variables to varying degrees. Out of all the demographic variables, Educational Qualification has proven to be one of the most crucial in influencing investor behavior. It was observed that investors with higher educational qualifications showed lesser confirmation bias, loss aversion bias, and herding bias. This implies that financial knowledge plays a key role in making logical and rational investment decisions. It was also observed that other two variables, Age and Investment Experience, played an important role in deciding specific types of behavioral biases in investors. It was observed that loss aversion bias and herding bias were least observed among older investors. Chi-Square analysis also reinforced the existence of significant relationship between some other demographic and bias variables. The significant relationships were found to be existing between Age and Confirmation Bias, Educational Qualification and Loss Aversion Bias, Age, Educational Qualification and Investment Experience with Herding Bias, and finally Gender and Anchoring Bias. From the results of Spearman's rank correlation, it can be concluded that Educational Qualification had a significant negative relationship with Confirmation Bias. Similarly, Loss Aversion Bias had a significant negative correlation with Age, Educational Qualification, and Investment Experience, while Herding Bias had a significant negative correlation with Age and Educational Qualification. On the other hand, Anchoring Bias didn't have any significant relationship with the majority of the demographic variables. Analysis of Reliability was carried out through Cronbach's Alpha, which revealed that the questions employed in this study were highly reliable and consistent for conducting research on behavioural finance. The results obtained from Multiple Linear Regression showed that demographic attributes accounted for a certain degree of variance in Loss Aversion Bias and Herding Bias amongst investors.

To sum up, this study reveals that investors' behaviour cannot be entirely termed rational and is highly influenced by their psychological and demographic attributes. Behavioural biases play an important role in investment decisions, and may also have an impact on the financial performance of investors. Thus, enhancing financial literacy and improving investment decisions can assist investors in reducing behavioural biases.

Furthermore, this research brings out the increasing relevance of behavioral finance in studying current financial markets. As opposed to traditional finance theories that consider rational decision-making in their models, behavioral finance considers the significant role that emotions and heuristics play when it comes to investment decisions. The results of this research could prove helpful in the design of strategies aimed at improving investor consciousness by investors, financial advisers, educational institutions, policy makers, and financial regulators.

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ANNEXURES

Questionnaire

Q1) Age Group*

Below 20

21-25

26-30

Above 30

Q2) Gender*

Male

Female

Prefer not to Say

Q3) Educational Qualification*

Intermediate (10+2/HSC)

Undergraduate (B.com/BBA/B.tech/BA/Bsc etc.)

Postgraduate (MBA/M.com/MA/Msc etc.)

Ph.D/Doctoral

Q4) What is our educational background/ Stream?*

Finance/ Commerce/ Economics

Management/ Business Administration

Science/ Engineering/Technology

Arts/ Humanities/ Social Sciences

Others

Q5) Investment Experience *

Less than 1 Year

1-3 Years

4-6 Years

More than 6 Years

Q6) How frequently do you make investment decisions?*

Daily (Active Trader)

Weekly

Monthly

Occasionally (A few times a Year)

Q7) Which financial instruments do you primarily invest in?*

Stocks/ Direct Equity

Mutual Funds/ ETFs/ Index funds

Fixed deposits/ Bonds/ Debt instruments

Cryptocurrency

Gold/ Silver Bees

SIPs

Futures & Options (F&O)/ Derivatives

Q8) Percentage of Income invested *

Less than 10%

10-25%

26-50%

More than 50%

Q9) Primary Objective of Investment *

Wealth Creation

Safety

Regular Income

Speculation

Q10) Primary Source of Investment Information?*

Financial News Channels/ Newspapers (CNBC, ET, Mint etc.)

Friends/ Family/ Peers

Social Media/ Youtube/ Financial Influencers

Broker/ Financial Advisor Recommendations

Own Research (Annual reports, Screeners, Analyst reports)

Rate your Agreement with each statement (Anchoring Bias)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q11. I tend to judge whether a stock is cheap or expensive based on the price at which I originally purchased it, even when fundamentals have changed.	☐	☐	☐	☐	☐
Q12. When a stock has fallen significantly from its 52-week high, I consider it a good buy regardless of the current company fundamentals.	☐	☐	☐	☐	☐
Q13. I find it difficult to sell a stock at a loss, even when new information clearly suggests the stock will continue to decline.	☐	☐	☐	☐	☐
Q14. When an analyst sets a target price for a stock, that price significantly influences my own valuation of the stock.	☐	☐	☐	☐	☐

Rate your agreement with each statement. (Loss Aversion Bias)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q15. Losing ₹10,000 on an investment feels significantly worse to me than gaining ₹10,000 feels good.	☐	☐	☐	☐	☐
Q16. I prefer to sell winning stocks quickly to lock in gains, even if the stock still has strong upside potential.	☐	☐	☐	☐	☐
Q17. I continue to hold a poorly performing investment hoping it will recover, rather than cutting my losses and reinvesting.	☐	☐	☐	☐	☐
Q18. The fear of making a loss prevents me from taking investment opportunities that I believe have good potential.	☐	☐	☐	☐	☐

Rate your agreement with each statement. (Confirmation Bias)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q19. When I have already decided to invest in a stock, I tend to look for news and opinions that support my decision rather than seeking opposing views.	☐	☐	☐	☐	☐
Q20. I tend to dismiss or ignore negative news about a stock I already own and focus more on positive developments.	☐	☐	☐	☐	☐
Q21. I primarily follow financial analysts or influencers who share views similar to my own investment outlook.	☐	☐	☐	☐	☐
Q22. Even after a stock in my portfolio falls significantly, I remain confident it will recover because I believe in my original investment thesis.	☐	☐	☐	☐	☐

Rate your agreement with each statement. (Herding Bias)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q23. When I see that a large number of investors are buying a particular stock, I feel compelled to buy it too, even without doing my own research	☐	☐	☐	☐	☐
Q24. I have made investment decisions primarily because my friends, family, or colleagues were making the same investment.	☐	☐	☐	☐	☐
Q25. I tend to follow trending investment ideas on social media platforms (Twitter, Reddit, YouTube, WhatsApp groups) without thoroughly verifying them.	☐	☐	☐	☐	☐
Q26. During periods of market panic or crash, I tend to sell my investments because other investors around me are selling.	☐	☐	☐	☐	☐

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