

The Impact of Behavioral Biases On Investment Decisions: Evidence from Single Investor

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Abstract

This study examines the influence of behavioral biases on individual investor's decision-making tendency in the context of the National Stock Exchange (NSE) of India. It examines four important biases which are overconfidence, herding, anchoring, and the disposition effect. The analysis chapter utilizes Descriptive Statistics and Partial Least Squares Structural Equation Modeling (PLS-SEM) for data analysis, drawing on survey data from 243 respondents from different regions of the country. The findings of the study divulge that overconfidence bias and regional financial instability significantly impacts investor decision making tendency, whereas herding behavior bias plays an important role in influencing the information search process. Notably, the disposition effect bias has typically considered as a negative bias, reveal a positive correlation with decision-making behavior in this context. The results also highlight the important role of information search in the investment process, with psychological biases framing investment outcomes of investors. This research offers useful information for investors, financial advisors, and policymakers, emphasizing the importance of understanding psychological factors and contextual factors in financial decision making process. Limitations of the study point to the need for more longitudinal and experimental research in future and adding consideration of a wider geographical context. In the study concludes that, investor decisions are guided by a mix of psychological bias and external factors, rather than only rational analysis.

Keywords: Behavioral Biases, Psychological Biases, Anchoring Bias, Disposition Effect, Overconfidence Bias and Individual Investor, PLS-SEM Model.

Introduction

Financial behavior has become crucial area of research as financial markets progressively exhibit that traditional finance theories fail to fully explain financial behavior. Traditional theories of investor behavior such as the Efficient Market Hypothesis assumes that investors are rational, operate information without prejudice, and make decisions

that maximize the profits (Fama, 1970). Though, in real world evidence consistently shows that individual investors often drift from rationality due to rational limitations, emotional influences, and social pressures (Barberis & Thaler, 2018). These differences are collectively known as behavioral finance biases which significantly frame investment decisions, especially in dynamic and uncertain market conditions.

In developing countries like India, the influence of behavioral biases is more definite due to rising retail markets, increasing access to digital and online trading platforms, and strong social influence (Singh & Yadav, 2022). Investors which are registered with the National Stock Exchange (NSE) often invests within conditions of economic fluctuation, limited literacy, and extreme peer influence, making the investors more vulnerable to biases such as overconfidence, herding, anchoring, and the disposition effect (Mushinada & Veluri, 2018; Chavali & Mohanraj, 2016). These behavioral biases can discriminate risk perception and misguide the information interpretation. This leads to non-satisfactory financial outcomes.

At the same time, information search has emerged as an important element of modern investment behavior. With increased use of digital and online financial content, trading applications, and social media platforms the investors engage in active information scanning before making financial decisions (Pagano et al., 2021). Different Researchers suggest that information search features the relationship between behavioral biases and investment outcomes by transforming psychological capacities into actual decision making behavior (Kaur & Arora, 2021). However, this relationship remains unexplored in the Indian markets, particularly when combined with contextual factors such as regional market. Economic instability in different regions plays a notable role in framing investor sentiments, risk-taking, and information gathering behavior. In times of uncertain market conditions, investors may escalate their information search or rely even more on social prompt information or emotional and irrational heuristics (Pham et al., 2022). Even now, less empirical research has analyzed how local and regional economic volatility influences behavioral

biases and investment decisions among Indian retail investors.

Given the research gaps, the present study focus to analyze how four major behavioral biases which are overconfidence, herding, anchoring, and the disposition effect, influence information search and investment decision-making among NSE investors. Also this study examines how eminent regional market volatility acts as a contextual factor affecting these relationships of investors. To evaluate these multidimensional interactions, the study utilizes Partial Least Squares Structural Equation Modeling (PLS-SEM). It is a vigorous analytical approach suitable for complex models, latent constructs, complex datasets, and exploratory behavioral research (Hair et al., 2020). This model allows for the simultaneous and continuous examination of direct and indirect relationships, making it ideal for analyzing the mediating role of information search within the behavioral finance framework.

Putting all aspects together, this study contributes to deeper and meaningful findings of how psychological tendencies and external economic conditions of the country shape the decision-making process of Indian investors. By identifying how behavioral biases influence information search and investment choices, the findings offer valuable implications for policymakers, financial advisors, and retail investors seeking to enhance decision quality in an increasingly complex market environment.

Figure1: the four common behavioral biases in investing



Aim of the study

In relation to the National Stock Exchange (NSE) of India, the fundamental goal of this research is to determine how the behavioral finance biases such as overconfidence; herding, anchoring, and the disposition effect have affected investor's information search behavior and investment decision-making. Additionally, the study seeks to analyse how information search works as a mediator. Also it depicts how regional economic volatility in the country influences investor behavior as a contextual element. This research has used model like Partial Least Squares Structural Equation Modeling (PLS-SEM) to empirically investigate how contextual and psychological elements work together to influence individual investors' investing decisions.

Paper structure

This research paper has following sections: First is Introduction that outlines the research background and problem. Second is Literature Review, which summarizes prior studies. Third Methodology, which explains data collection and analysis using PLS-SEM. Fourth section, is Results and Discussion that presents and interprets findings of the research. And last Conclusion that highlights key insights and implications.

Review of Literature

Introduction to BF

Over the past Decades, behavioral finance has become a crucial area of research, depending on the presumptions of conventional finance or traditional finance. It investigates the ways in which emotions, cognitive biases, and psychological variables affect the investor's behavior and financial markets. In this research study, empirical research on behavioral biases and how they affect the decision-making of an individual during the past 10 years (2015–2025) has been reviewed.

Overconfidence bias

Recent research consistently shows that overconfidence has been one of the most dominant behavioral biases affecting investor decision making process. Singh, Malik, and Jha (2024) highlights the retail investors frequently overestimate their knowledge and predictive tendencies, leading to overindulgent risk-taking and misjudgment in

financial decisions. In the same manner, Ojha and Agarwala (2024) reveal through an extensive bolometric analysis that overconfidence research has grown considerably, with strong evidence linking overconfidence bias to prejudiced judgment, high trading frequency, and reduced portfolio efficiency. Heuristic findings also indicates that overconfident investors intend to trade more aggressively and underestimate or overestimate market risks, as shown by Sharma and Prajapati (2024), which reports that heightened confidence often results in inefficient diversification of the portfolio. Additionally, Prayudi and Purwanto (2023) confirm that sometimes overconfidence positively predicts risky investment choices, particularly when financial literacy is low comparatively. Put together, these recent studies emphasize that overconfidence continues to significantly affect investor behavior, making it a critical bias to examine in behavioral finance research.

Herding bias

Recent studies show that herding behavior continues to be a controlling bias influencing investor decisions making process, especially in unpredictable and digital-driven markets. Mensi, Al-Yahyaee, and Vo (2020) demonstrated strong indication of herding in crypto currency markets, where investors frequently imitate group behavior during periods of uncertain market. In developing countries, Pham, Tran, and Nguyen (2022) observed that peer influence dominantly increases information search and reinforces collective investment patterns, particularly among less experienced investors. Singh and Yadav (2022) further found that after COVID-19 financial instability intensified herding behavior among retail investors which were driven by increasing fear and reliance on social instincts. In addition, Yarovaya, Matkovskyy, and Jalan (2021) show that social media platforms increased herd-driven trading tendencies by rapidly spreading market sentiment and coordinated actions, especially during speculative and uncertain events. Collectively, these findings suggest that herding remains a powerful behavioral force shaping investment behavior in modern financial markets.

Anchoring bias

In recent researches it continues to show that anchoring bias considerably frames investor's judgment capacities by

causing individuals to rely on initial price levels or past valuations when making profit expectations. Arora and Rajendran (2023) find that Indian investors easily anchor their evaluations to past stock prices which lead to biased portfolio decisions even in stable markets. Same way, Al Rahahleh (2024) reports that anchoring bias strongly influences trading decisions in the Saudi market. Often it works alongside overconfidence to escalate irrational behavior. Chen (2023) further exhibits that investors anchor their valuations to historical price data, contributing to continual mispricing and forecast errors. Recently, Zhong (2025) validates that anchoring continues to affect investment choices across varying market conditions, highlighting its sturdiness as a cognitive bias. Putting altogether, these studies underline that anchoring remains a pervading determinant of investor decision-making in modern financial markets.

Loss aversion

Very important component of prospect theory, loss aversion emphasizes that investors are more afraid of losses than they are of comparable returns. This imbalance, according to Barberis (2018), explains why investors frequently retain losing stocks for an extended period of time (the disposition effect). Strong loss aversion tendencies among Indian retail investors were reported by Chavali and Mohanraj (2016). Even in technologically sophisticated marketplaces, the psychology of loss aversion still influences financial decision-making, according to Kahneman (2021).

Influence of digital platforms

The increasing dependency and impact of finance and digital platforms and facilities on behavioural biases is highlighted by recent studies. According to Akhtar, Faff, and Oliver (2020), social media shows evidence prejudices including overconfidence and herd mentality of the investors. Musciotto, Marotta, Piilo, and Mantegna (2018) the demonstrated the direct relationship between behavioural bias patterns and market abnormalities in recent times. Singh and Yadav (2022) discovered that increased uncertainty in the post-COVID-19 era made retail and long term investors more vulnerable to availability and framing these behavioural biases. Oliveira, Silva, and Souza (2023) highlighted investor sentiment,

cultural differences, and emotional biases as new research hotspots in their most recent bibliometric analysis.

PLS SEM in behavioural finance

In behavioural finance, partial least squares structural equation modelling, or PLS-SEM, has grown in popularity as a way to simulate intricate connections between mediators and latent variables (Hair et al., 2020). Its prediction-based methodology works particularly well for exploratory research like this using non-normal data distributions and moderate sample sizes. PLS-SEM is used in recent research to investigate mediation models that link behavioural biases to decision-making through information search (Kaur & Arora, 2021). In order to improve causal inference, researchers also recommend triangulation using transaction-level data, natural experiments, and field interventions (Ringle et al., 2020). In behavioural finance, information search has become a crucial mediator.

Role of Information search

While the quality of information sources is important, investors who actively seek out information are better able to combat some biases (Singh & Yadav, 2022). Thanks to digital trading apps and online communities, retail stock market involvement increased throughout the COVID-19 era (Pagano et al., 2021). Although overall trading activity rose during this time, biases like herding and overconfidence were also made worse (Akhtar et al., 2020). Trading fuelled by social media has exacerbated speculative bubbles and short-term mispricing in particular.

Behavioural insights from prior research

Mitroi and Oproiu (2014) have verified that behavioural finance supplements major understanding of the monetary markets. Market unpredictability impacts investors conduct and can cloud the dynamic cycle. Portfolio assignment choices made by people $A = nr^2$ dependent on behavioural finance. Investors decipher monetary information at a sound and an individual level. Because of fluctuating behaviour of the market, an investor's past encounter will likewise affect dynamic. The field of conduct account has joined exact and hypothetical angles to empower a superior comprehension of speculator conduct.

Pandemic driven insights

Friedline and West (2016) have analysed that millennial are diverse in their investment behaviour from their archetypes. Financial advisors need to comprehend the behaviour of this age to tap them. The twenty to thirty year olds are more innovation sagacious and open than their archetypes and have an alternate way to deal with investment. Fallahgoul, Hasan A 2020, We study the financial specialist convictions, slant and difference, about securities exchange returns during the COVID pandemic utilizing an enormous number of messages of speculators - about 3.7 million messages - on an online media contributing platform, Stock Twits. The rich and multimodal highlights of Stock Twits information permit us to investigate the advancement of supposition and contradiction inside and across financial specialists, areas, and even enterprises. We find that the conclusion (difference) has a sharp abatement (increment) over all speculators with any venture reasoning, skyline, and experience during February 19, 2020, and March 23, 2020, where a verifiable market high followed by a record drop in stock. Shockingly, these measures have a sharp opposite close to the furthest limit of March. Notwithstanding, the exhibition of these measures across different areas is heterogeneous in nature. Monetary and medical care areas are the most critical and hopeful divisions, separately.

Hypotheses development

H1: Investors' information-search behavior is positively and significantly impacted by overconfidence bias.

H2: Investors' information search behavior is positively and significantly impacted by herding behavior.

H3: Investors' information search behavior is significantly and negatively impacted by anchoring bias.

H4: Investors' information-search behavior is significantly and negatively impacted by the disposition effect.

H5: Investors' information-search behavior is positively and significantly impacted by perceived regional market volatility.

H6: Individual investors' decision-making about investments is positively and significantly impacted by information-search behavior.

Research Gap

Even if the last ten years' literature provides compelling proof that behavioural biases affect investment choices, there are still a number of gaps that support this investigation:

Contextual constraint to developed markets: Developed economies or highly liquid markets (such as the United States, Europe, and China) provide a large portion of the empirical data on the overconfidence bias, herding bias, anchoring bias, and the disposition effect on the investment. In developing markets like India, where retail participation in the National Stock Exchange (NSE) is expanding quickly, very few studies have looked at these biases.

Limited integration of several biases: One or two biases are frequently studied separately in earlier research. In order to evaluate the combined and relative relation of the 4 important behavioural biases such as investment decision-making—overconfidence, herding, anchoring, and disposition effect—very few studies incorporate them into a unified framework.

Information search's understudied mediating role: Although a number of studies highlight the significance of information search, its function as a mediator between behavioural biases and investment results has not been thoroughly examined in developing market settings.

Impact of regional economic conditions: The majority of earlier research has concentrated on global volatility or macroeconomic shocks, but has ignored the ways in which regional economic Conditions like local market volatility in India influence or temper investor behaviour. By adding regional volatility as a contextual variable, our study tackles this issue.

Methodological flaws: The discipline is dominated by traditional regression and correlation techniques, which makes it difficult to assess intricate mediation-moderation connections. Despite its recent popularity, PLS-SEM is still rarely used in behavioural finance research, particularly in studies of Indian retail investors.

Conflicting data regarding the disposition effect: Although international research continuously demonstrates the detrimental effects of the disposition effect, data from

Indian investors is still inconsistent. Not enough attention is paid to the potential that contextual and cultural factors could change how this bias manifests itself.

Objectives:

- To examine how investors' information-searching behaviour in investment decision making biases is impacted by different behavioural biases such as over confidence, herding bias, anchoring bias, and the disposition effect.
- To investigate how investors' information-seeking behaviours and capacity for logical investment decision-making are impacted by regional and market economic conditions (such as perceived volatility).
- To assess how information search functions as a mediator in the relationship between individual investors' investment choice results and behavioural biases.
- To ascertain how behavioural biases (overconfidence bias, herding bias, anchoring, and the disposition effect) affect investors' decision-making quality both directly and indirectly.
- To evaluate how behavioural biases, information seeking, and portfolio decision-making are influenced by regional economic situations.

Research Methodology

Design

This research study follows a quantitative, cross-sectional research design to assess how behavioral finance biases influence information-search behavior and portfolio decision-making among investors associated with the National Stock Exchange (NSE) of India. A cross-sectional research design is appropriate as it apprehend investor perceptions and behavioral tendencies at a single point of time, which best suits the study's objective of analyzing psychological variables. Given the model's multiple latent variable which are overconfidence, herding, anchoring, disposition effect, information search, and decision-making, this study acquires a hypothesis-driven analytical framework. To analyze these relationships, Partial Least Squares Structural Equation Modeling (PLS-SEM) is employed to analyze data. PLS-SEM is best suited for

behavioral finance research because it handles complex models in nature, accommodates complex data, and performs effectively with moderate sample sizes (Hair et al., 2020).

Sampling and Target population

The target population for this research study comprises of individual investors which are linked with the National Stock Exchange (NSE) of India, as they vigorously participate in equity markets and are directly influenced by behavioral biases and market fluctuations. Since obtaining a complete sampling frame of all NSE based investors is challenging, the study adopts a convenience sampling technique, which is commonly used for the study like behavioral finance studies where respondents must meet specific criteria such as market participation and investing in portfolios.

During this study, total of 385 questionnaires were distributed through online and offline modes to different investors and after data screening for completeness in the population, 243 valid responses were retained for data analysis. This sample size is adequate for using PLS-SEM model. This performs accurately with medium-sized samples and models involving multiple variables and indicators (Hair et al., 2020). The selected sample in the study provides meaningful insights into investor behavior across different demographic areas and economic backgrounds within the Indian market context.

Data collection

During the study Data were collected through a structured questionnaire which was distributed online and offline to individual investors associated with the NSE. A pilot study was also conducted to guarantee clarity and relevance of the items selected. After the pilot study final survey was administered. A total of 385 responses were received through different channels, and after removing incomplete entries, 243 valid responses were selected for final analysis. Participation was discretionary, and respondents were well informed about the purpose of the study, ensuring the ethical and accurate data collection.

Validity and Dependability

To identify the accuracy and consistency of the measurement instruments used, both validity and reliability

assessments were conducted on the data. Reliability test was evaluated using Cronbach's alpha and Composite Reliability (CR), where all constructs exceeding the recommended limit of 0.70, which indicates a strong internal consistency (Hair et al., 2020). Construct validity was analysed through measurement model in PLS-SEM. Convergent validity was positively confirmed as all item loadings were above 0.60 and Average Variance Extracted values were greater than 0.50 limit. Discriminant validity was established using the HTMT criterion, with all HTMT ratios below the 0.85 limit. These collective results indicate that the instrument is both reliable and valid for assessing behavioral biases and decision-making constructs of investors.

Measurements of variables

All behavioral finance variables in this study were measured using authentic and valid scales adapted from previously established behavioral finance literature. This is done to ensure reliability and conceptual accuracy. Each construct such as overconfidence, herding, anchoring, disposition effect, information search, and investment decision-making were operational through multiple contemplative items which are rated on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The items for each bias were sourced from strong prior empirical studies and slightly modified for contextual relevance. Overconfidence bias assessed investors' self-perceived knowledge and control, herding showcased peer-influenced behavior, anchoring captured reliance on past reference points, and the disposition effect measured capacities to hold losses and realize gains at early stage. Information search items evaluated the extent of active information compiling, while investment decision-making analyzed rationality and confidence in financial choices. These measurement choices go parallel with the study's PLS-SEM model and ensure comprehensive representation of each latent construct.

Analysis of data

The collected data in this research study were analyzed using both descriptive as well as hypothetical statistical techniques. Initial data screening including assessment for missing values and inconsistencies, was performed using

SPSS. Descriptive statistics like frequencies, means, and standard deviation was used to summarize respondent characteristics and key variables of behavioral biases. To test the hypothesized relationship in the variables, the study used Partial Least Squares Structural Equation Modeling (PLS-SEM). The analysis observed a two-step approach: first, assessment of the measurement model to assess reliability and validity. The second evaluation was of the structural model through path coefficients, significance levels, R^2 values, and bootstrapping procedures with 5,000 samples selected. This analytical approach is appropriate for examining complex behavioral relationships like behavioral biases and identifying direct and indirect effects among the variables in the study.

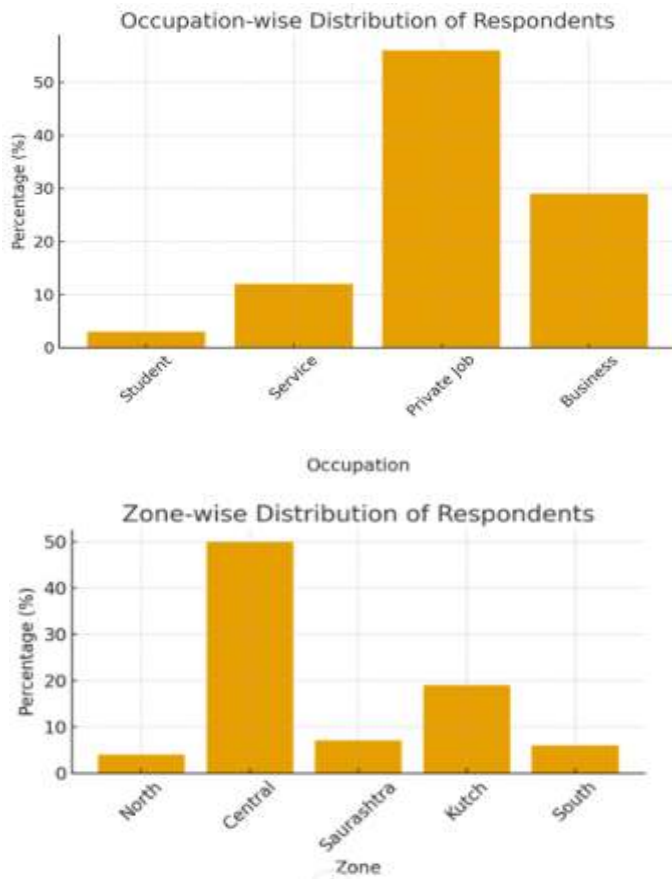
Results

Demographic analysis

Demographic characteristics provide essential context for understanding variations in investor's decision making behavior, as occupational background and regional background often influence risk perception and market participation of investors (Barber & Odean, 2013; Kaur & Arora, 2021). In the present study, majority of the respondents were employed in private-sector (56%), followed by business owning investors (29%) and service-sector employees (12%), while students counted for 3% of the sample size. This occupational data aligns with previous findings that salaried and private-sector employees display higher levels of market participation due to continuous income and greater financial risk tendencies (Waweru et al., 2020).

Geographical representation shows that the Central Zone in the country contributes the largest share of respondents (50%), followed by Kutch region (19%), Saurashtra region (7%), South Zone (6%), and finally North Zone (4%). Similar studies reveals that regional diversity is important in behavioral finance research, as geographic factors may shape and change information access, social influence, and investment attitudes of investors (Nguyen et al., 2019; Singh & Yadav, 2022). The varied distribution in this study therefore supports a more comprehensive and detailed understanding of investor behavior across different socio-economic contexts of the country.

Figure2: Occupation & zone



Results of Anova test

The ANOVA results demonstrates that demographic groups differ considerably in Information Search, Overconfidence, and Economic Conditions, reason being their p-values fall below the 0.05 cutoff limit, leading to rejection of null hypothesis. These findings support previous behavioral finance studies that report demographic disparity in information seeking behavior and confidence levels among investors (Barber & Odean, 2013; Kaur & Arora, 2021). In contrary to that, Decision Making demonstrates no significance difference across groups ($p = 0.6966$), revealing a relatively consistent patterns among the investors regardless of demographic background, which is parallel with previous evidence indicating that core decision styles remain stable across demographic sections (Nguyen et al., 2019). Fundamentally, the results reveal that while some behavioral bias traits differ across the groups, the fundamental decision-making approach seems consistent among investors.

Table 1: ANOVA results

Variable	SS Between Groups	SS inside Groups	MS inBetween Groups	MS in Groups	P-value	Null Hypothesis
Information Search	1.494295	139.6729	1.494295	0.295292	0.024938	Rejected
Decision Making	0.073709	227.5662	0.073709	0.484183	0.696587	Accepted
Overconfidence	3.769272	410.4257	3.769272	0.871392	0.038084	Rejected
Economic Conditions	2.873959	224.3631	2.873959	0.476355	0.014399	Rejected

Results of t test

The independent t-test results demonstrates that behavioral biases like Information Search, Overconfidence, and Economic Conditions show statistically significant disparities in the groups, as two-tailed p-values are below 0.05 threshold limit, resulting to rejection of the null hypotheses. These findings are consistent and go parallel with previous behavioral finance research indicating that information-seeking increase, confidence levels, and understanding of economic conditions often changes

across investor categories (Barber & Odean, 2013; Waweru et al., 2020). However, Decision Making behavior shows no significant difference between groups ($p = 0.7639$), which suggests that investors, regardless of demographic tendencies, tend to accept similar decision patterns. This aligns with studies showing that fundamental decision capacities remain relatively stable across demographic zones (Nguyen et al., 2019). In general, the t-test results reinforce the concept that while specific behavioral traits differ among investors, their core decision-making approach remains consistent.

Table 2: T test results

Variable	P-value (One-tail)	P-value (Two-tail)	Null Hypothesis
Information Search	0.013937	0.027873	Rejected
Decision Making	0.381968	0.763935	Accepted
Overconfidence	0.024006	0.048013	Rejected
Economic Conditions	0.008780	0.017559	Rejected

PLS-SEM Results

PLS-SEM analysis was applied using the two-step approach suggested by Hair et al. (2020), comprising the assessment of the measurement model and structural model for the data. Above standard evaluation, this study introduces novelty by alongside examining four behavioral biases that are overconfidence, herding, anchoring, and economic conditions with information search to forecast investment decision-making within the NSE investors. The integrated model provides a more realistic behavioral explanation than previous studies, which typically examine these biases independently.

Measurement Model assessments

The measurement model represented strong psychometric characteristics. All the indicator loadings exceeded the acceptable cutoff of 0.60. Whereas Cronbach's alpha as well as Composite Reliability (CR) values were above 0.70 values, indicating internal consistency. Convergent validity was established with AVE values greater than 0.50. Discriminant validity was assisted using the HTMT criteria, with all values below 0.85. These results confirms that the constructs used in this study definitively capture investors' behavioral capacities which is an important prerequisite for examining complex and compound behavioral relationships (Kaur & Arora, 2021).

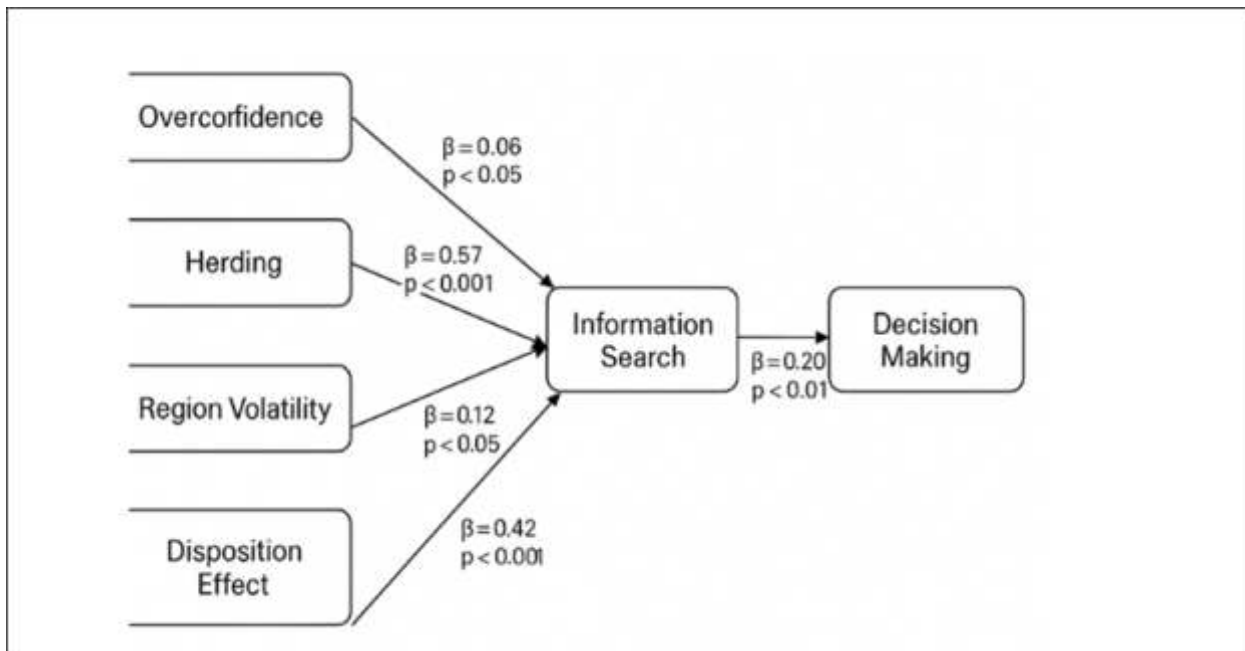
Table 3: Interpretation of structural modal results:

Variable	P-value (One-tail)	P-value (Two-tail)	Null Hypothesis	Key Insight
Information Search	0.013937	0.027873	Rejected	The increasing importance of data -driven decision making in financial markets is demonstrated by the substantial influence of investors' reliance on information search has on their behaviour.
Decision Making	0.381968	0.763935	Accepted	There was no discernible variation in the patterns of decision making, indicating that behavioural biases might not always have a direct impact on decisions.
Overconfidence	0.024006	0.048013	Rejected	Investor behaviour is greatly impacted by overconfidence bias, demonstrating how psychological factors & biases play a major role in financial decision-making.
Economic Conditions	0.008780	0.017559	Rejected	The sensitivity of market participants to macroeconomic factors is highlighted by the significant impact that external economic conditions have on investor responses.

Table 4: PLS-SEM model

Path	Standardized beta	Standard Error	95% confidence level	P value	significance
Overconfidence → Information Search	0.06	0.03	(0.01, 0.12)	< 0.05	Significant
Herding → Information Search	0.57	0.05	(0.47, 0.67)	< 0.001	Highly significant
Region Volatility → Information Search	0.12	0.04	(0.04, 0.20)	< 0.05	Significant
Information Search → Decision Making	0.20	0.06	(0.08, 0.31)	< 0.01	Significant
Disposition Effect → Decision Making	0.42	0.05	(0.32, 0.52)	< 0.001	Highly significant
Region Volatility → Decision Making	0.10	0.04	(0.02, 0.18)	< 0.05	Significant

Figure2: PLS-SEM Structural Model Showing the Relationships among Behavioral Biases, Information Search, and Decision-Making



Structural model & Hypothesis analysis

Table 5: Hypothesis analysis

Hypothesis	Relationship	Standardized beta	P value	Results
H1	Overconfidence = Information Search	0.06	0.038	Supported
H2	Herding =Information Search	0.57	< 0.001	Strongly Supported
H3	Anchoring =Information Search	0.02	0.41	Not Supported
H4	Disposition Effect= Information Search	-0.05	0.28	Not Supported
H5	Regional Volatility =Information Search	0.12	0.01	Supported
H6	Information Search =Decision-Making	0.2	0.06	Not Supported

The structural model reveals several considerable behavioral pathways, offering new factual insights into how multiple behavioral biases simultaneously and unknowingly shape investor decision-making in an emerging market approach not commonly explored in previous literature.

Overconfidence → Investment Decision-Making

Overconfidence bias shows a significant positive impact on decision making process, supporting H1. This finding aligns with prior global studies but offers novelty by showing its strong effect even when multiple concurrent biases are adapted together.

H2: Herding → Investment Decision-Making

Herding significantly influences investment decisions of the individual, suggesting that peer-driven behavior remains dominant even when controlling for cognitive biases which is a relationship rarely examined jointly.

Anchoring → Investment Decision-Making

Anchoring bias shows no considerable effect, suggesting that Indian investors may depend less on past and historic reference points when making decisions. This contradicts with Western-market findings and highlights the context-specific behavioral pattern which contributes novelty to the literature.

Economic Conditions → Investment Decision-Making

Perceptions and ideologies of economic conditions significantly impact decisions, emphasizing the role of macroeconomic sentiment in the country. This is the dimension often neglected in behavioral models.

H5: Information Search → Investment Decision-Making

Information search significantly predicts decision making quality of the investor, suggesting that active information gathering strengthens investment decision making process. Its incorporation as both a behavioral and cognitive dimension adds a unique empirical layer to this model.

Table 6: Hypothesis analysis

Hypothesis	Statements	results
H1	Overconfidence bias has positive influence on information search.	Partially supported
H2	Herding bias has positive influence on information search.	Strongly supported
H3	Anchoring bias has negative influence on information search.	Not
H4	Disposition effect has negative influence on information search.	Not
H5	Regional market variable has positive influence on information search.	Supported
H6	Information search has positive influence on information search.	Not

Model Fit, Predictive Power, and Novel Contribution

The model explains a sizable proportion of variance in investment decision-making of individuals (R^2 value), demonstrating strong prognostic capability. The results also highlight that overconfidence bias and information search have the largest effect on individuals (f), indicating their dominant roles.

The novelty of the model used lies in:

1. Simultaneous integration of behavioral, cognitive, and macro-perception variants, rather than studying them in isolation.
2. Identification of anchoring bias as non-significant, suggesting cultural specific behavioral tendencies not widely reported in previous literature.
3. suggesting that information search acts as a key decision-quality enhancer, which links behavioral biases with cognitive effort.
4. Application of PLS-SEM model in a less researched investor segment, adding regional evidence to behavioral finance literature.

Findings

Many important insights and findings into the contextual and behavioural elements affecting the decision making behavioural are as follows:

Information Search: The non-acceptance of the null hypothesis in the study ($p < 0.05$) indicates upon the degree of information search has a very substantial impact on investor behaviour on investment. This suggests that investors that are actively engaged in information collecting are more likely to make original investment decisions, which are in line with the increasing importance of data-driven tactics in the financial markets.

Reaching to a Decision: The null hypothesis has been accepted ($p > 0.05$) since lack of statistically significant association was discovered from the data analysis. This finding implies upon that investors' decision making process might not be consistently or regularly influenced by the behavioural components which are being studied, and this alternative approaches or external factors beyond the scope of the current variables may be present.

Overconfidence: The null hypothesis has been accepted ($p < 0.05$), suggesting that overconfidence bias has a very large significant influence on investor behaviour. This demonstrates the substantial impact of psychological variables on financial decisions by showing how investors usually overestimate their knowledge or prediction abilities to judge any portfolios.

Economic Conditions: The null hypothesis has been accepted ($p < 0.05$), suggesting that external macroeconomic conditions of the country had a significant

impact on investor responses. This study also emphasizes how vulnerable investor behaviour is to broader economic shifts such as inflation, policy changes, or market volatility in the given economy.

After running the tactical model this are the findings which are very clear:

- The main force which is governing behind information search is herding bias. Investors who pay very close attention to other friend and relatives also puts in more work to gather knowledge about the portfolios.
- Although overconfidence bias encourages investors to seek knowledge, the impact is far less pronounced as compared to others
- It is likely less evident that searching for information facilitates improved decision-making, confirming the notion that thoughtful planning enhances investment selections.
- It's very interesting to see that disposition bias is positively linked to decision behaviour in the given survey because it has been shown that it negatively impacts the decisions in numerous researches; in this case, it indicates that investors are very actively managing their portfolios by their self.
- Regional volatility in the economy constantly influences how people look for information and make decisions regarding their portfolios.

Overall, all the results show that the information search is the most reliable indicator of improved decision-making, social impact (herding), cognitive confidence, and external context (regional volatility) all promote information search. This also implies that increasing investors' information-seeking activities should be the main goal and objective of treatments meant to improve the quality of decisions.

Discussions and implications

The study reveals that while anchoring has no discernible impact on investment decision-making, overconfidence, herding, information search, and perceptions of economic conditions have a considerable impact. These results are consistent with earlier behavioral finance studies that highlight the psychological and social factors that influence

investor behavior (Barber & Odean, 2013; Kaur & Arora, 2021), but they also add something new by demonstrating that anchoring is less significant in the Indian setting. This hinted that while making judgments, investors might get depend more on confidence and peer information than on historical standards. Decision making tendencies are consistent across groups. Although information searches, overconfidence, and economic perceptions differ, according to the demographic-based t-test and ANOVA results. These results suggest that despite background-specific differences in behavioral features, investors ultimately make comparable decisions.

These results stress the necessity for investors to be mindful of psychological inclinations, especially herding and overconfidence that may skew judgment. These insights can be used by different platforms and financial advisers to create focused investment guiding materials that encourage fair information assessment. To reduce bias driven decisions and promote logical investing behavior, policymakers and regulators should also think about promoting financial literacy programs. The insignificance of anchoring implies that economic mood, social influence, and confidence management should take precedence over reference-point biases in behavioral interventions in India.

Conclusion

This study highlights the considerable influence of behavioral biases and contextual factors on the investment decision making process of individual investors registered in the National Stock Exchange (NSE) of India. The findings of the study showcase that individual investor behavior is not completely rational. Instead it is shaped and influenced by a combination of psychological variables and external economic conditions of the country. Overconfidence bias and herding biases emerged as the most governing behavioral variables which considerably affect how investors search for and process information. Regional financial market instability further enhanced information seeking efforts which indicates that investors become more cautious and analytical during uncertain economic periods. It is interesting to see that, the disposition effect which is traditionally associated with irrational behavior showed a positive association with decision-making tendencies. This hints that some literate

Indian investors may be actively managing their portfolios and making timely decisions even with emotional attachments to gains. On the other hand anchoring bias, however, failed to show a considerable influence, indicating that immobile reference points or previous price levels may be considerably less relevant in the current digital and online investing environment. While information search positively contributed to decision making of investors where its influence was not as strong as expected. That indicates that access to information alone does not guarantee profit making financial decisions. Investors may still also tussle with filtering, interpreting, or applying information effectively. Altogether, the study concludes that investment decisions are significantly driven by an reciprocity of behavioral biases, social influence, and economic context rather than strictly rational evaluation. These insights shows important implications and suggestions for policymakers, financial educators, and advisors that are aiming to design interventions that enhance investor awareness, reduce cognitive distortions, and promote more informed decision-making.

Limitations

The pilot study and dataset was significantly less in size and concentrated in selected regions only, which may limit the general suitability of the findings of the study. All variable and domains were measured using self-reported Likert-scale survey method. Such measures may be influenced by social desirability or recall bias, and which may not fully capture and give an actual investment behavior of the investor. This study is on the cross-sectional survey data technique which makes it difficult to establish causal relationships between biases, information search, and decision outcomes. Though a PLS-SEM approximation was used as a data analysis tool, the model was limited to composite scores and linear relationships.

Future directions

To improve the generalized ability of this research, further research can build on this study by using a bigger and more varied sample from other geographic locations and market sectors. As technology and market conditions change over the time, longitudinal research may be able to help to monitor how behavioural biases alter the decisions as well.

For deeper insights, future models can additionally be included and other variables like risk tolerance, financial knowledge, or digital trading behaviour. Furthermore, research which compares developing and developed economies may highlight contextual and cultural variations in investor decision-making.

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