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A Study on the Effect of Biases on the Stock Market Investors based on their Gender in Ahmedabad City

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Abstract
The stock market is not purely driven by rational decision-making; rather, investor psychology plays a crucial role in shaping market trends and asset prices. This study delves into the various cognitive and emotional biases that influence investor behavior, leading to systematic deviations from classical financial theories like the Efficient Market Hypothesis (EMH). Key biases explored include overconfidence bias, where investors overestimate their knowledge and predictive abilities; loss aversion, which leads to an asymmetrical response to gains and losses; and confirmation bias, where investors seek information that aligns with their preconceived views. Further, this study is focusing on the biases study based on demographic factor gender in Ahmedabad city of Gujarat State in India. For the study, sample size of 200 stock market investors were collected and data was analyzed using ANOVA test, and mean. By integrating insights from psychology, economics, and finance, this study provides a comprehensive understanding of investor biases and their implications for financial markets. The findings can help policymakers, institutional investors, and retail traders develop better investment strategies, risk management frameworks, and regulatory measures to foster market efficiency and stability.

KeyWord
Biases,stock market investors, psychology, investments.

1. Introduction
The human mind is the greatest and it is also the worst in some cases. The history of the behavioral finance goes back to Herbert Simon, the Nobel lieutenant of 1978, for his paper in 1955 ―A behavioral model of rational choice may be regarded as the first thought that strived to state about a new notion called behavioral finance.

Behavioural finance challenges the traditional finance and suggests that multiple biases impact individual investment decisions (Budhiraja et al., 2018). Kenya's real estate was heading towards a bubble with high volatility where not even one big international real estate development company entered the market or even showed any interest to invest interest to invest (Kioleoglou, 2018) which shows the presence of behavioural finance among foreign investors.

Confirmation Bias stems from people's tendency to prefer confirmatory information, where they will discount information that does not conform to their existing beliefs [51]. When querying, this may manifest as people employing positive test strategies where they try to find information that supports their hypotheses. While, when assessing they may actively dismiss or disregard information that contradicts their hypotheses This section describes what is understood by cognitive biases and how this universal psychological phenomenon, which most prominently occurs in human judgment and decision

making, can be explained. People are constantly forming judgments and making decisions, both consciously and unconsciously, without certainty about their consequences. The decision to invest money in shares, to start a new project, or to move to a new house is generally made without knowing beforehand whether stock prices will rise, how internal and contextual success factors will develop, or what is it like to live in that other place. Making conscious decisions in uncertainty is based on two main characteristics of the possible outcome: the (un)desirability of this possible outcome, and the probability of this outcome. Rational choice theory is concerned with the development of methods (algorithms) that provide an optimal choice for given problems and probabilities. The rational decision-maker is assumed to take as much as possible account of all available information, probabilities of events, potential costs, and benefits of possible outcomes, and select the optimal choice of action (Homans, 1961, Scott, 2000). In most situations, however, people make decisions in a more "intuitive" way, substantially deviating from the assumptions of formal choice models. Human decision making, in general, does not meet the criteria prescribed by the rules of logic, probability reasoning, formal cost-benefit models, and prudent considerations (e.g., Gigerenzer and Gaissmaier, 2011, Kahneman, 2011, Kahneman et al., 1982, Shafir and LeBoeuf, 2002, Tversky and Kahneman, 1974).

In this paper, we aim to bring together the research on cognitive biases in ISR, cataloguing the main cognitive biases that have been observed in ISR studies — 11 and categorising these studies in terms of their search domain and which part of the search process the cognitive biases manifest. Then, in our discussion, we critically reflect upon this prior work and consider, "whether we as researchers are suffering from the Observer-Expectancy Effect?", while detailing the difficulties, limitations and challenges in studying the influence and impact of cognitive biases in search.

Traditional finance appears to play a limited role in understanding or explaining issues, why do investors and financial professionals frequently make poor decisions? Although some people may be ill-informed or poorly trained, these mistakes are often made by highly intelligent and well- trained individuals.

The study discovered that investor decisions are inclined by the illusion of control bias, representativeness, herd instincts, cognitive dissonance, and hindsight biases. However, other behavioral factors such as self- attribution, risk aversion, over optimism and loss aversion were shown to have no effect on individual investors' decisions (Juliet, 2017) Students who enrolled for graduate programs are from different nationalities and countries have diverse taste when it comes to investment decision making.

2. Literature Review

According to Shefrin (2000), three topics that underlie behavioral finance are heuristic-driven biases in predicting future market tendencies, frame-dependent investors' preferences, and inefficient prices. Standard finance models assume a rational investor who is able to forecast prices in an unbiased fashion and who can make choices with respect to stable preferences toward risk. On the other hand, behavioral finance sketches a picture of a "normal" investor who is confused by cognitive errors, makes judgments that are guided by moods and affects, and is susceptible to different frames.

P. A. N. S. Anuradha, B. P. U. K. (B. P. U. K. Biyanwilaa, 31 Jan 2024)Biyanwila (31 Jan

2024)Demographic Variables on Behavioral Factors and Over Indebtedness: Insights from a Developing Nation. Demographic factors such as age, gender, income, and education moderate the relationship between behavioral factors like financial literacy and over-indebtedness in developing nations, as per the research findings.
Q.
Filipiak (2016), explored a new empirical indication on gender differences in self reported and Observed financial performance. Using a quasi-experimental framework, comparing people who live in a matrilineal and a patrilineal atmosphere in India, the results showed that no Significant gender differences in observed and self-reported performance occur among Respondents who belong to the matrilineal culture. Though, no significant gender differences In detected financial performance are found. Women are not only less risk prone when making financial investments than men (single as well as married women), but also less self-confident Men have even a tendency to behave overconfident when dealing with financial matters in Contrast to women.

Brachinger, Brown, Gysler, and Schubert (1999) completed a study considering whether or not females were truly more risk averse than males. Their experiment considered the choice behaviour of male and female undergraduate students from the University of Zurich and the Swiss Federal Institute of Technology. The choice behaviour was used to analyse the risk behaviour. For the actual experiment, the subjects were asked to make many different investment decisions. After this was completed, the subjects were asked to answer the same questions, but these questions were framed as insurance decisions. For each question there was a choice between a risk and a defined payoff. The results from the experiment were that females tended to make just as many risky financial decisions as males. It also found that males and females make a decision differently. Males tended to be more risk-prone toward gains and females were more risk prone toward losses (Brachinger, Brown, Gysler, et al., 1998). (William Montford, 2016)Furthermore, Montford and Goldsmith (2016) have explored how financial literacy and confidence levels vary by gender, finding that women often perceive themselves as less knowledgeable about financial matters, which can affect their investment choices and risk-taking behavior. These findings suggest that gender-specific strategies may be necessary to address the unique financial behaviors and needs of male and female investors. (Mishra, 2015) surveyed the i (B. P. U. K. Biyanwilaa, 31 Jan 2024) (A.K.Tyagi, -01 | January 2024) (Charness, Year-(2004)) (Vickie L. Bajtelsmit, 1997) (William Montford, 2016)impact of investment experience, gender, and level Of education on two specific biases: overconfidence and self-attribution, and exploring the Relationship between the two biases. Men have a stronger tendency to overconfident behavior Than women that the higher degree of overconfidence in men is reliant on the task involved. The outcomes presented that overconfidence is higher among men than women and rises with Investment experience and education. Self-attribution surges with education, but there is no 14 Significant association between self-attribution bias and gender, as also between self-attribution Bias and investor's experience. The conclusions also show a significant association between Self-attribution and overconfidence.

R. R. Bhuyan (01 Jan 2022) , Gender influences behavioral biases in financial decision making. Women are generally more risk-averse and less overconfident than men, with recent studies showing weak causal relations to biological gender traits.
S.
Barber and Odean (2001) studied the trading behaviors of men and women and found that men

trade 45% more frequently than women, which results in lower net returns. The study highlights how overconfidence, particularly in men, leads to more active trading and, paradoxically, worse investment outcomes.

Ulrike Malmendier (01 Oct 2018) Behavioural Corporate Finance. Behavioural Corporate Finance applies insights from psychology to explain long-standing puzzles in corporate finance, including biased behaviour in successful professionals and individual heterogeneity in biases.

2.1 Research gap

From the literature review it can be observed that few studies are done on behavioural biases of the stock market investors in Ahemdabad city of Gujrat state. Further the effect of demographic factors like genders on the behaviour biases of the stock market investors decesions are very few.

3. Research Methodology

3.1 Research Objectives

1. To study cognitive biases of the stock market investors.
2. To study effect of demographic factor gender on the cognitive biases of the stock market investor.
3. To study the association among the biases.

3.2 Research Hypothesis

$H0_1$ There is no significant effect of gender on the overconfident biases.
$H0_2$ There is no significant effect of gender on the loss aversion biases.
$H0_3$ There is no significant effect of gender on the conformation bias.
$H0_4$ There is no correlation among the different cognitive biases.

3.3 Research Design

This research paper uses a descriptive research design to describe data and characteristics of the study. Primary data is collected through a survey, while secondary data is gathered from various research articles and publications. A structured questionnaire is used to assess respondents' awareness and perception. Data is collected from Ahmedabad city of Gujarat. People with the age of 18 and Above (including all gender) in Ahmedabad city. As per (Dr. Poongodi B1, 2023) sample size for the unknown large population is minimum 162 samples. Accordingly, the authors approached to 200 respondents in the Ahmedabad city State, India. Out of which only a sample of 162 respondents was considered for analysis. The data was collected in the month of October to December 2024.

3.4 Statistical Tools

Questionnaire: This survey is done using structured questionnaire. The data analysis tool was SPSS and ANNOVA and Correlation are used to analyse the data.

Table 1 Demographic variables.

Demographic Profile	Features	Respondents	Percentage
Gender	Male	85	52.5%
	Female	77	47.5%

Age	18-30	137	84.6%
	31-45	15	9.3%
	46-60	10	6.2%
	60 Above		
Education	Undergraduate	42	25.9%
	Graduate	52	32.1%
	Post Graduate	68	42.00%
Occupation	Self Employed	93	57.4%
	Government Job	7	4.4%
	profestional	26	16%
	employee	36	22.2%
Annual Income	Upto 2.5 lakh	106	65.4%
	2.5 lakh-5lakh	38	23.5%
	5lakh-10lakh	13	8%
	Above 10,00,000	5	3.1%

Source: Authors Calculations

3.5 Limitation Of The Study

This study is limited to the stock market investors biases only. Among different demographic factors this study is restricted to gender of the Ahmedabad city of Gujarat state. Due to lack of funds the study is covering few cognitive biases on stock market investors only.

4. Data Analysis

Objective 1and 2-studying different cognitive biases among the stock market investors of Ahmedabad cities and effect of demographic factor gender on the behaviour biases.

Table 2 Effect of gender on the congnative behaviour biases of stock market investors

Biases	variables	Gender	N	Mean	Standard diavstion	F	Significance
Over confidence bias	1. Risk appetite 2. Confidence financial decision 3. social impact on risk appetite 4. Impulsive decision making	Male	85	3.1118	0.98690	0.162	0.688
		Female	77	3.04930	0.97640	0.162	0.688

Loss aversion bias	1. The fear of losing 2. females are risk averse 3. Experiance	Male	85	3.0424	0.96219	0.130	0.719
		Female	**77**	3.0947	0.86809	0.130	0.719
Conformation bias	1. more confident 2. I rarely change	Male	85	3.0922	3.0922	0.001	0.977
		Female	77	3.0965	3.0965	0.001	0.977

Source Authors calculations (sig<0.05)

Interpretation
The table presents the results of an ANOVA analysis comparing three types of biases — overconfidence, loss aversion, and conformation biases — across male and female groups. The sample size for males is 85, while the sample size for females is 77. Overconfidence Biases, the mean score for males is 3.1118, while for females, the mean score is 3.0493. Analysis interprets that both the genders are not affected by over confidence bias.

Similarly for loss aversion bias, Males have a mean score of 3.0424 and females have a mean score of 3.0947. The significance value here is 0.719 >0.05 for both genders which interprets females are majorly not affected by loss aversion bias.

Further Conformation bias the analysis interprets that mean value for male is 3.0922 and for female 3.0965,and 0.977 >0.05 hence there is no effect of the conformation bias on gender.

Table 3. Showing association among biases

	Overconfidence biases	Loss aversion biases	Confirmation biases
Overconfidence biases			
Loss aversion biases	0.739		
Confirmation biases	0.580	0.707	

Source authors calculation

Interpretation
The values represent how strongly these biases are linked. A positive correlation close to 1 indicates a strong relationship. The correlation between overconfidence and loss awareness biases is 0.739, suggesting a moderately strong positive relationship. This implies that as overconfidence increases, individuals tend to exhibit a higher level of loss aversion bias, or vice versa. Similarly, the correlation between Overconfidence and Confirmation biases is 0.580, indicating a moderate positive relationship people with Overconfidence bias are also likely to display Confirmation biases, though less strongly compared to Loss aversion . Lastly, the correlation between Loss aversion and Confirmation biases is 0.707, showing a positive

association. This indicates that individuals with a higher loss aversion bias are likely to also exhibit Confirmation biases.

5.Findings And Implications:

The findings of the analysis are that :

1.Both the genders are not affected by the cognitive biases. further there is association among the biases.

2.This study is helpful for the brokers as they can suggest the stock investment irrespective of the gender among investors.

Further both the gender stock investors takes investor decision without impact of cognitive biases. Practical implication of the study is that investment advisors, brokers can understand the behaviour of the stock market investors in Ahmedabad.

6.Conclusion:

This study provides valuable insights into how cognitive biases, specifically overconfidence, loss aversion, and confirmation bias, influence stock market investors in Ahmedabad, with noticeable variations between male and female investors. The data shows that male investors tend to exhibit a higher degree of overconfidence, often leading to more frequent trading and riskier investment choices. In contrast, female investors show greater risk aversion and are less susceptible to overconfidence, aligning more with conservative investment strategies. Both genders demonstrated confirmation bias, but the extent varied depending on experience and financial literacy. Although these biases influence investor behavior, gender differences are particularly prominent in risk tolerance and confidence. Female investors are generally more risk-averse, prioritizing financial security and stability, while male investors tend to pursue growth-oriented objectives, influenced by higher levels of confidence.

Future Scope Of The Study

To expand on these findings, future research could explore how these biases evolve over time and under different market conditions. Additionally, it would be insightful to study other demographic factors, such as age and educational background, to see how they may interact with gender in influencing cognitive biases. Investigating interventions that reduce the impact of these biases on investment decisions could also prove beneficial, potentially leading to more rational and optimized financial outcomes for investors.

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