Impact of Demographic Variables on Behavioural Biases and Stock Market Investment Decisions

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Abstract

The rationality hypothesis has been a very popular topic among the academics. Being a widely accepted hypothesis as part of the traditional finance theories, an investor is deemed a rational agent and makes rational decisions by exhausting all available alternatives. However, recently, new behavioural finance theories have been gaining ground as many empirical findings, which have been left unanswered by the traditional theories, can be explained by these behavioural-approach based theories. This research examined thebehaviour ofstock marketinvestors werestudied through three factors herding, overconfidence, and investment decisions. The study period was between November 2024and May2025. Questionnaire is floated online from which 107 responses are received out of which 80 responses are used for the study after refining the data.The study attempts to analyse the difference in the behaviour of stock market investors in terms ofgender, age, education, income, and investment experience.

Keywords: Behavioural factors, Investment decisions, Herding, Overconfidence

Introduction

"Understanding the impact of human physiology on investment decision making is an underappreciated area of study that represents a unique source of advantage for the thoughtful investor."

-Daniel Crosby

In finance theories, the individual is deemed an economic agent who is rational and always considers all available information in the process of making investment decisions. In addition to this, the financial market assumes stability and efficiency while the stock prices follow a random walk. For many years, due to its ability in the prediction of stock price movement, the rationality hypothesis has grown in popularity and has been widely supported by many academic researchers in the field of finance.

However, behavioural finance has been interpreted differently by many scholars and researchers in their own terms. Literature related to behavioural financial includes the phrases "psychology of investing" and "psychology of finance." While behavioural finance is applied by many researchers and scholars in explaining empirical findings, behavioural finance has become a household name in the financial

industry(Bondt et al., 2008). Investors think of themselves as rational and logical, but when it comes to investing, their emotional inclinations, ingrained thought patterns, and psychological biases, colour how they perceive the world and how they make decisions.

Behavioural finance had been growing specifically because investors rarely behave according to the assumptions suggested in these financial theories. The domain of behavioural finance seeks to better understand and explain how stock investment decision-making was influenced by financial behavioural factors, as better understanding of these factors helps the investors to select a better stock investment decision-making policy.

Literature Review

(Chaudhary, 2013)examined how behavioural finance affects investment choices and plans. The study looked at behavioural finance's significance and use in making investment decisions. The study examined behavioural biases, methods for overcoming behavioural finance, and various stock and bond trading tactics for investors to help them symbolise and manage their psychological barriers. The study concluded that the behavioural finance method analyses investor behaviour patterns and seeks to understand how these patterns influence investment choices. Investment professionals can benefit from behavioural finance's beneficial insights, which also provides a framework for assessing investment plans for investors.

(Wamae, 2013)studied the effects of herding, anchoring, and risk aversion on Kenyan stock market investors' investment decision-making processes, as well as the influence of prospecting and stock market investment decisions. The research revealed that the Kenyan stock market investing decision-making is significantly influenced by herding behaviour, risk aversion, prospecting, and anchoring. The paper made recommendations for investment banks to provide investors with pertinent information so that they are well-informed about the market and economic conditions at the time, and it stressed the necessity for companies to assure carefully considered stock market investments.

Chavali and Mohanraj (2016) examined the role of demographic variables in investment decisions by individual and their financial risk tolerance. The study considers demographic variables like a gender, occupation, and personal financial risk tolerance. The study investigates the investment pattern and financial decision making of individuals and their risk tolerance. It was found that gender has impact on investment pattern.It was found that age and occupation of the respondent has an impact on risk tolerance and respondents' perception of risk.

(Madaan & Singh, 2019)studied how behavioural biases affected the National Stock Exchange's investing decision-making. 243 investors responded to the study using a questionnaire. Both descriptive statistics and inferential statistics have been used in the study. The four behavioural biases of overconfidence, anchoring, disposition effect, and herding behaviour have been taken into consideration. The study concluded that herding bias and overconfidence had a considerable favourable influence on investment decision. Individual investors were shown to have little expertise and to be more susceptible to psychological mistakes.

(Mehtab & Nagaraj, 2019)has done comparative evaluation of the behavioural biases of Indian male and female investors. The study examined the four behavioural biases of male and female individual

investors in India, including confirmation, representative, herding, and familiarity bias. A systematic questionnaire was used to gather information from 120 individual investors who are active on the Indian stock market. For data analysis, "ANOVA Two Factor with Replication" was used. It has been determined that all Indian individual investors make behavioural biases in their investment choices. Additionally, compared to male investors, female investors are more susceptible to the four behavioural biases of confirmation, familiarity, herding, and representativeness.

(Soni & Desai, 2019)found the several cognitive biases that influence the decision-making of 20 investors in the Indian stock market, including representational biases, overconfidence biases, regret aversion, mental accounting, and herd behaviour. Higher income groups are significantly influenced by behavioural biases, according to the study, which demonstrated a relationship between income group and anchoring and confirmation bias. The study also established a link between male investors and disposition prejudice since these individuals are influenced by this bias when making investment decisions. Worry Bias has a significant impact on age groups since different age groups have varying risk tolerance levels.

(Munyas 2020) examined the behaviour patterns of the foreign exchange investor from the perspective of behavioural finance. overconfidence, overoptimism, regret aversion, loss aversion, and representative bias were studied. The study evaluates the difference in the behaviours of individual foreign exchange investors regarding marital status, age, education level, professional experience, frequency of reviewing the investments, the most frequently used sources of information while making decisions about the investments, the most common methods used for the preference of investment instruments, the main factors considered in the preference of the investment instruments, the amount of capital, and personality traits.

(Kartini & Nahda, 2021)attempted to determine the effect of several psychological elements on the choice of an investment. The psychological variables that were considered were divided into two categories: cognitive variables and emotional variables. Anchoring, representativeness, loss aversion, overconfidence, and optimism biases were examined from a cognitive perspective on investor decisions, while herding behaviour was examined from an emotional perspective on investment decisions. The results of the study demonstrated the influence of behavioural factors on investor decisions by showing that all of the variables, including anchoring bias, representativeness bias, loss aversion bias, overconfidence bias, optimism bias, and herding behaviour, had a significant impact on the investment decisions of Indonesian investors.

Purpose of the Study

This study attempts to investigate the difference in the behaviours of individual investors within regarding three factors, namely the overconfidence, herding and investment decisions factors, with respect to gender, age, education, income, and investment experience.

Research Methodology

The study was conducted using the scale developed by (Almansour & Arabyat, 2017)through academic research. The study period was between November2024to May2025. Questionnaire is floated online from which 107 responses are received out of which 80 responses are used for the study after refining

the data. The population of this study was all investors in the India, while the target population comprised of investors who invest in stock market. These investors were chosen because they have the key role on purchasing and selling securities in the Indian Stock market. The survey relates to a sample of individual investors, distributed throughout the national territory, composed of all socio-professional categories and of different levels of education and belonging to different age categories.

Table 1 Hypotheses of the Research

H	Null Hypothesis
H1	There are no significant differences in factors of herding, overconfidence, and investment decisions with respect to gender.
H2	There are no significant differences in factors of herding, overconfidence, and investment decisions with respect to age
H3	There are no significant differences in factors of herding, overconfidence, and investment decisions with respect to education
H4	There are no significant differences in factors of herding, overconfidence, and investment decisions with respect to income
H5	There are no significant differences in factors of herding, overconfidence, and investment decisions with respect to investment experience.

Findings and Interpretations

Measurement Reliability Test using Cronbach's Alpha

Each item and construct's measurement were evaluated using the reliability and validity analysis. A consistency measurement estimate defines reliability. For each scale in this study, the Cronbach's alpha was taken into account to determine its reliability. Cronbach's alpha values are shown in Table 1.1 for each factor used in this study.

Table 1.1 Results of Measurement Testing

Variables	Cronbach Alpha	Number of items
Herding	0.677	4
Overconfidence	0.731	4
Investment decisions	0.663	5

The finding shows that all scales of Cronbach's alpha values are above the minimum permissible alpha value of 0.60. This demonstrates the internal consistency of the scales employed in this investigation.

Frequency Distribution Analysis of the Demographic Variables

Table 1.2 Gender

Gender	N	Percent

Male	39	48.8
Female	41	51.2
Total	80	100.0

Table 1.3 Age

Age	N	Percent
Younger than 30	30	37.5
31-40	17	21.3
41-50	21	26.3
More than 50 years	12	15.0
Total	80	100.0

Table 1.4 Education

Education	N	Percent
Bachelors	30	37.5
Masters	35	43.8
PHD	15	18.8
Total	80	100.0

Table 1.5Monthly Income

Monthly Income	N	Percent
Less than 50000	15	18.8
50000-100000	12	15.0
100000-200000	30	37.5
200000-500000	12	15.0
More than 500000	11	13.8
Total	80	100.0

Table 1.6Investing experience in Stock Market

Investment Experience	N	Percent
Upto 1 year	23	28.7

2-3 year	16	20.0
4-5 year	16	20.0
More than 5 years	25	31.3
Total	80	100.0

Table 1.7 Mean and Standard Deviation of Behavioural Factors

Items	Mean	Standard Deviation
HER1	3.35	1.008
HER2	3.33	1.016
HER3	3.41	1.002
HER4	2.99	1.056
OVER1	3.01	0.855
OVER2	3.12	0.806
OVER3	3.76	0.851
OVER4	3.41	0.809
INV1	3.74	0.868
INV2	3.78	0.779
INV3	4.00	0.822
INV4	4.00	0.853
INV5	4.12	0.773

Hypothesis Testing

For checking normality Kolmogorov-Smirnov and Shapiro-Wilk tests were used which helped in selecting appropriate techniques for the study. Since $p>0.05$, the null hypothesis was accepted which states that normal distribution is not attained by both normality tests. Therefore, non-parametric methods are applied in the analysis of group differences. The Mann-Whitney-U test was applied for two groups, and Kruskal Wallis test was used for more than three groups for analysing group differences. Mean rank values were examined at for the source of the difference.

Table 1.8 Mann-Whitney U test results in terms of gender

Factors	Group	N	Mean Rank	Man-Whitney U	p
Herding	Male	39	39.85	774.000	.804
	Female	41	41.12		
Overconfidence	Male	39	42.50	682.500	.335
	Female	41	37.56		
Investment decisions	Male	39	40.33	793.000	.950
	Female	41	40.66		

* Difference at the level of significance of 0.05

Since there are no significant differences between male and female regarding overconfidence, herding and investment decisions. From the mean rank values, it is observed that the difference is caused by the male participants.

Table 1.9 Kruskal-Wallis test results with respect to age

Factors	Group	N	Mean Rank	Kruskal-Wallis H	p-value
Herding	Younger than 30	30	41.15	.513	.916
	31-40	17	37.41		
	41-50	21	40.45		
	More than 50 years	12	43.33		
Overconfidence	Younger than 30	30	36.25	7.174	.067
	31-40	17	32.15		
	41-50	21	45.13		
	More than 50 years	12	51.96		
Investment decisions	Younger than 30	30	37.65	4.124	.248
	31-40	17	35.24		
	41-50	21	48.88		
	More than 50 years	12	40.42		

* Difference at the level of significance of 0.05

No factors show significant differences between different age groups. It can be interpreted that behavioural factors affect every age group in a same manner. From the mean rank values, it is observed that the difference is aroused by More than 50 years group.

Table 1.10 Kruskal-Wallis test results with respect to education level

Factors	Group	N	Mean Rank	Kruskal-Wallis H	p-value
Herding	Bachelors	30	37.70	.712	.70
	Masters	35	42.19		
	PHD	15	42.17		
Overconfidence	Bachelors	30	47.41	5.155	.076
	Masters	35	34.57		
	PHD	15	38.33		
Investment decisions	Bachelors	30	39.88	.103	.950
	Masters	35	41.43		
	PHD	15	39.57		

* Difference at the level of significance of 0.05

There was no significant difference in factors with respect to education level.

Table 1.11 Kruskal-Wallis test results with respect to Monthly Income

Factors	Group	N	Mean Rank	Kruskal-Wallis H	p-value
Herding	Less than 50000	15	36.60	4.009	.405
	50000-100000	12	48.00		
	100000-200000	30	35.75		
	200000-500000	12	45.04		
	More than 500000	11	45.64		
Overconfidence	Less than 50000	15	32.86	9.226	.046
	50000-100000	12	49.33		
	100000-200000	30	33.43		
	200000-500000	*12*	*51.08*		
	More than 500000	11	44.73		
Investment decisions	Less than 50000	15	40.47	7.511	.111
	50000-100000	12	51.04		
	100000-200000	30	42.65		
	200000-500000	12	38.33		
	More than 500000	11	25.55		

* Difference at the level of significance of 0.05

Overconfidence differed significantly in terms of monthly Income,there was no significant difference in other factors. When we look at the mean rank values of the Overconfidence for the source of the difference, it is seen that the difference is due to the participants whose income is between 2 lakhs to 5 lakhs.

Table 1.12 Kruskal-Wallis test results with respect to Investment Experience

Factors	Group	N	Mean Rank	Kruskal-Wallis H	p-value
Herding	Up to 1 year	23	44.28	2.945	.400
	2-3 year	16	45.94		
	4-5 year	16	35.50		
	More than 5 years	25	36.74		
Overconfidence	Up to 1 year	23	33.80	2.599	.458
	2-3 year	16	40.50		
	4-5 year	16	43.81		
	More than 5 years	25	43.06		
Investment decisions	Up to 1 year	23	38.07	9.736	.045
	2-3 year	*16*	*52.25*		
	4-5 year	16	43.42		
	More than 5 years	25	40.00		

* Difference at the level of significance of 0.05

Investment decisions differed significantly in terms of investment experience, there was no significant difference in other factors. When we look at the mean rank values of the investment decisions for the source of the difference, it is seen that the difference is due to the participants whose experience is two to three years.

Table 1.13 Correlation Analysis Results that Determine the Relationship Between Herding and Overconfidence Bias

		Herding	Overconfidence
Herding	r	1.00	.224[*]
	p		.04
	n	80	80
Overconfidence	r	.224[*]	1.00
	p	.04	
	n	80	80

*. Correlation is significant at the 0.05 level (2-tailed).

As shown in the table there is positive relationship between Herding and Overconfidence Bias that is increase in herding will increase overconfidence in a positive direction by 22.4%.

Conclusion

Two behavioural biases and investment decisions is considered for study. These factors are studied with respect to gender, age, education, income, and investment experience. The study concluded following

- Thereare no significant differences between male and female regarding overconfidence, herding and investment decisions.
- Noneof the factors showed any significant differences in terms of education level
- there was no significant difference in factors with respect to education level.
- Overconfidence differed significantly in terms of monthly income whereas there are no significant difference in other factors
- Investment decisions differed significantly in terms of investment experience, while there is no significant difference in other factors.
- There is low-positive relationship between herding and overconfidence.

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