

Behavioural Biases in Stock Market Investments: A Study on Investor Decision-Making

¹Dr Anamika Sharma, ²Dr Devrshi Upadhayay, ³Dr Tanvi Pathak

^{1,2,3}Assistant Professor, Faculty of Management, GLS University, Ahmedabad

Abstract

Behavioural finance has challenged the traditional assumption that investors always make rational investment decisions by highlighting the influence of psychological biases on financial behaviour. This study examines the impact of behavioural biases on the investment decisions of individual investors in the Indian stock market. The research focuses on key behavioural biases, including overconfidence, herding, loss aversion, anchoring, confirmation bias, mental accounting, disposition effect, representativeness, availability bias, and regret aversion. Primary data were collected from 163 individual investors using a structured questionnaire. The data were analysed using descriptive statistics and non-parametric statistical techniques, namely the Friedman Test, Kruskal–Wallis Test, and Mann–Whitney U Test. The findings indicate that behavioural biases significantly influence investors' decision-making processes. Among the various biases, mental accounting and availability bias emerged as the most influential factors, while confirmation bias had the least influence. The Friedman test confirmed significant differences in the relative impact of behavioural biases on investment decisions. The Kruskal–Wallis test revealed that investment experience significantly affects overconfidence bias but does not significantly influence the remaining behavioural biases. Furthermore, the Mann–Whitney U test showed no significant gender differences in emotional influence, risk-taking behaviour, impulsive investment decisions, or responses to market volatility. The study concludes that psychological factors play a crucial role in shaping investment behaviour. Enhancing investor awareness of behavioural biases and promoting financial literacy can support more rational investment decisions and contribute to improved financial outcomes.

Keywords: Behavioural Finance, Investment Decision-Making, Behavioural Biases, Retail Investors, Indian Stock Market

1.1 Introduction of Financial Services

Financial services form the backbone of any modern economy, facilitating the efficient allocation of resources, mobilization of savings, and smooth functioning of financial markets. The financial services industry encompasses a wide range of institutions and activities that manage money-related transactions, including banking, insurance, investment management, stock market operations, pension funds, and financial advisory services. These services enable individuals, businesses, and governments to save, invest, borrow, and manage financial risks, thereby supporting overall economic growth and stability.

In the Indian context, the financial services sector has witnessed substantial transformation over the past few decades, particularly after the liberalization of the economy in 1991. Reforms in financial regulations, the entry of private and foreign players, technological advancements, and increasing investor awareness have contributed to the rapid expansion of financial markets. Among the various segments of financial services, the stock market investment sector plays a vital role in channelizing household savings into productive capital formation. It provides a platform where securities such as shares, bonds, and derivatives are issued and traded, enabling companies to raise funds and investors to participate in wealth creation opportunities.

1.2 Evolution and Growth of Financial Services in India

The financial services industry in India has undergone significant transformation over the past few decades, shifting from a highly regulated and government-dominated system to a diversified, technology-driven, and market-oriented sector. Prior to the 1990s, financial activities were largely controlled by public sector banks and state-owned institutions, while stock market operations were limited, manually conducted, and characterized by low transparency and restricted retail investor participation.

1.3 Trends in the Financial Services Industry

The financial services industry in India has undergone significant transformation in recent years, especially in the stock market investment segment. Technological innovation, regulatory modernization, and changing investor demographics have introduced new trends that are reshaping the delivery of financial products and the way investors participate in capital markets.

1.4 Challenges and Risks Faced by the Financial Services Industry

- **Market Volatility and Economic Uncertainty**

The stock market investment sector is highly sensitive to domestic and global economic conditions. Changes in interest rates, inflation, geopolitical events, and global market movements often lead to high volatility in stock prices. Such uncertainty can negatively affect investor confidence and encourage emotional decision-making, increasing the impact of behavioural biases in investment activities.

- **Behavioural Risks and Irrational Investor Decisions**

A major challenge in the financial services industry is the presence of behavioural biases among investors. Overconfidence, herd behaviour, panic selling, and excessive risk-taking often lead to irrational investment decisions. These behavioural risks can cause market overreactions, asset bubbles, and sudden market crashes, affecting overall market stability.

- **Cybersecurity and Data Privacy Risks**

With increasing reliance on digital trading platforms and online financial services, cybersecurity threats have become a critical concern. Risks such as data breaches, hacking, identity theft, and online fraud can compromise investor information and reduce trust in digital financial services. Financial institutions must continuously upgrade security systems to safeguard customer data and transactions.

- **Regulatory and Compliance Challenges**

Frequent changes in financial regulations, compliance requirements, and reporting standards create operational challenges for financial service providers. Maintaining adherence to regulatory norms increases administrative costs and requires continuous monitoring. Failure to comply with regulations can lead to penalties and reputational damage.

- **Low Financial Literacy Among Investors**

Despite growing market participation, a large section of the population still lacks adequate financial knowledge. Limited understanding of financial products, market risks, and investment planning leads to poor decision-making and vulnerability to misleading information. This challenge highlights the need for continuous investor education.

- **Technological Disruptions and Competition**

Rapid fintech innovation and the rise of discount brokers have intensified competition in the financial services industry. Traditional financial institutions face pressure to upgrade technology, reduce costs, and improve customer experience. Failure to adapt to technological changes can result in loss of market share.

- **Liquidity and Systemic Risks**

Sudden large-scale buying or selling by institutional investors, global fund withdrawals, or unexpected economic shocks can create liquidity risks in financial markets. Systemic risks may disrupt market operations and affect investor confidence.

- **Fraud and Market Manipulation**

Insider trading, false market rumours, and price manipulation remain persistent challenges. Although regulatory surveillance has improved, detecting and preventing such practices remains an ongoing task for regulators and exchanges.

2. Literature Review

1. (Rehman, M. A., Finance, M. H., Ali, M., & Ahmad, M. , 2025) This study investigates the role of investor psychology, heuristics, and cognitive biases in contributing to stock market anomalies and irrational investment choices. Key psychological factors examined include overconfidence, anchoring, loss aversion, and herd behavior. Adopting a mixed-methods approach, the research combines responses from 400 investor surveys with qualitative interviews of 15 financial experts. The results reveal that overconfidence and herd behavior have a particularly strong negative impact on investment decisions, while anchoring and loss aversion also significantly influence market outcomes. Statistical analysis and regression modeling show how these biases contribute to inefficiencies such as momentum effects and mispricing of securities. Qualitative insights further emphasize that emotional decision-making and media-driven panic are recurring barriers to rational investing. The study suggests implementing investor education initiatives, utilizing robo-advisors, and applying behavioral commitment strategies as potential solutions to mitigate bias-influenced decisions. By integrating behavioral insights with quantitative analysis, this research underscores the critical role of psychology in financial markets and offers practical tools for promoting rational decision-making and enhancing market stability.
2. (Haddad, V., Huebner, P., & Loualiche, E. ,2025) The conventional wisdom in finance is that competition is fierce among investors: if a group changes its behavior, others adjust their strategies such that nothing happens to prices. We estimate a demand system with flexible strategic responses for institutional investors in the US stock market. When less aggressive traders surround an investor, she adjusts by trading more aggressively. However, this strategic reaction only counteracts two-thirds of the impact of the initial change in behavior. In light of these estimates, the rise in passive investing over the last 20 years has made the demand for individual stocks 11 percent more inelastic.
3. (Karki, U., Bhatia, V., & Sharma, D. ,2024) In the current market scenario, it has been observed that biases are among the most significant factors influencing investment decisions. Among these biases, overconfidence is a common phenomenon managers tend to exhibit while making decisions. To understand the role of overconfidence bias in investment decision making, this study thoroughly scrutinizes and consolidates the current research on overconfidence bias. To achieve the objective, this study performs a systematic review of literature utilizing the PRISMA approach and examines 92 journal articles published in the last 20 years. Results suggest that the other two biases—hindsight and confirmation—are related to overconfidence bias. In addition, the review suggests that biases result in three major outcomes. The first, positive, aspect pertains to the promotion of mental well-being and significant allocation to research and development investments. Conversely, the second, negative, aspect involves the manipulation of operating cash flow, which tends to diminish the value of shareholders. Third, there is a preference for internal financing over external financing options. Furthermore, the research also suggests factors that may overcome the influence of the overconfidence bias. This study demonstrates its originality through thematic analysis, which effectively examines multiple dimensions of biases. Moreover, incorporating these research findings can enhance managerial decision-making processes, promote more objective assessments, and ultimately improve the overall quality of investment choices.
4. (Suresh, G. ,2024) Investors' financial literacy entails making sound investment decisions and the behavioural biases or irrational behaviour in decision-making that are collectively formed by heuristic bias, framing effect, cognitive illusions and herd mentality factors. The present study examines the combined impact of financial literacy and behavioural biases on investment decisions. A questionnaire was developed using Likert scaling technique to elicit study variables and collected data was analysed using SEM technique. The results showed that heuristic bias had a significant positive association with the creation of behavioural bias in decision-making. However, the framing effect, cognitive illusions and herd mentality have negative associations in the formation of behavioural biases. Further, investors often practice and follow heuristic biases rather than other irrational techniques for making investment decisions. Therefore, the financial literacy of individual investors has a significant impact on affecting stock market investment decisions.
5. Gurung, R., Dahal, R. K., Ghimire, B., & Koirala, N. (2024) The Nepalese stock market has experienced substantial transformations in recent years. Research on investors' herding behavior is of paramount importance

since it explores the influence of collective choices made by investors, which could result in intensified market price fluctuations. This study examined the influence of behavioral biases on investment decisions among Nepalese investors – general individuals who actively participate in the country's stock market, considering overconfidence, representative, anchoring, regret aversion, and herding biases as explanatory variables, with investment decisions as the response variable. The study employed a linear regression model, establishing relationships using a structured questionnaire with 379 observations. The study revealed the significant influence of overconfidence, anchoring, and regret aversion biases on investment decisions among Nepalese investors. Conversely, the influence of representative bias had a little impact on investment choices, and herding behavior showed no significant relationship with investment decisions. Hence, it suggests that behavioral biases have a greater impact on individual investment choices in the Nepalese financial market. It is essential for investors, advisers, and policymakers to be aware of and address these biases to make well-informed decisions, maintain financial stability, and foster market development.

3.1 Objectives of the Study

- To determine whether certain behavioural biases are more influential than others in shaping investment decisions of individual investors in the Indian stock market.
- To examine the effect of demographic factors, such as age, education, and investment experience, on the presence and patterns of different behavioural biases.
- To analyse the impact of demographic factors on investors' decision-making outcomes, including emotional influence, risk-taking and diversification, impulsive trading, and reactions to market volatility.

3.2 Scope of the Study

- Focuses on behavioural biases in stock market investments biases (overconfidence, herding, loss aversion, anchoring, confirmation, mental accounting, disposition effect, representativeness, availability, regret aversion).
- Covers individual investors in the Indian stock market.
- Includes demographic factors: age, gender, education, income, employment status, and investment experience.
- Analyses investment decision-making outcomes: emotional influence, risk & diversification, impulsive trading, and volatility response.

3.3 Research Design

- Population: Individual investors in the Indian stock market.
- Sample Size: 163 respondents.
- Data Collection: Primary data are collected through a structured questionnaire designed using Google Forms, which is distributed digitally to gather responses from the participants.
- Data Analysis: Descriptive statistical techniques are applied using SPSS to analyse the influence of behavioural biases and demographic factors on investment decisions.

3.4 Data Collection Sources

- Primary Data: The study relies primarily on primary data, which are collected through a structured questionnaire prepared using Google Forms. The questionnaire is circulated online among individual investors in the Indian stock market to obtain their responses regarding behavioural biases and investment decisions.
- Secondary Data: In addition, secondary data are used to strengthen the study. Secondary sources include published research papers, books on behavioural finance, and reliable online databases that provide insights into behavioural biases and investor behaviour. These sources help in framing the questionnaire, supporting the literature review, and interpreting the findings.

3.5 Sampling Plan

- Population: Individual investors in the Indian stock market.
- Sample Size: 163 respondents.
- Sampling Technique: Convenience sampling, as respondents selected based on accessibility and willingness to participate.
- Sampling Unit: Each individual investor participating in stock market investments.

3.6 Limitations of the Study

- The sample of 163 respondents may not fully represent the diversity of all Indian stock market investors.
- Findings are limited to the Indian stock market context and may not apply to other countries or financial markets.
- Time constraints may limit the ability to follow up with respondents for clarification or in-depth understanding.

Bivariate Analysis**Hypothesis**

Friedman Test:

- H_0 : There is no significant difference in the influence of behavioural biases among investors.
- H_1 : There is a significant difference in the influence of behavioural biases among investors.

Ranks	
	Mean Rank
Overconfidence bias	5.2
Herding bias	5.54
Loss aversion bias	5.58
Anchoring bias	5.46
Confirmation bias	4.86
Mental accounting bias	5.93
Disposition effect bias	5.19
Representativeness bias	5.71
Availability bias	5.93
Regret aversion bias	5.61

Table 1 Friedman Test Ranks

Test Statistics ^a	
N	163
Chi-Square	21.592
df	9
Asymp. Sig.	0.01
a. Friedman Test	

Table 2 Friedman Test

Interpretation:

The Friedman Test was applied to examine whether some behavioural biases influence investment decisions more than others. The result shows a Chi-square value of 21.592 with a significance level of 0.010, which is less than 0.05. Therefore, the null hypothesis is rejected. This indicates that there is a significant difference in the influence of behavioural biases on investment decisions. Based on the mean ranks, mental accounting bias and availability bias show the highest influence among investors, while confirmation bias shows the lowest influence. This suggests that some behavioural biases affect investors' decisions more strongly than others.

Test Statistics ^{a,b}										
	Behavioural Bias	Behavioural Bias	Behavioural Bias	Behavioural Bias	Behavioural Bias	Behavioural Bias	Behavioural Bias	Behavioural Bias	Behavioural Bias	Behavioural Bias
	(1 = Strongly Disagree, 5 = Strongly Agree)	(1 = Strongly Disagree, 5 = Strongly Agree)	(1 = Strongly Disagree, 5 = Strongly Agree)	(1 = Strongly Disagree, 5 = Strongly Agree)	(1 = Strongly Disagree, 5 = Strongly Agree)	(1 = Strongly Disagree, 5 = Strongly Agree)	(1 = Strongly Disagree, 5 = Strongly Agree)	(1 = Strongly Disagree, 5 = Strongly Agree)	(1 = Strongly Disagree, 5 = Strongly Agree)	(1 = Strongly Disagree, 5 = Strongly Agree)
	[Overconfidence Bias]	[Herding Bias]	[Loss Aversion Bias]	[Anchoring Bias]	[Confirmation Bias]	[Mental Accounting Bias]	[Disposition Effect Bias]	[Representativeness Bias]	[Availability Bias]	[Regret Aversion Bias]
Chi-Square	15.847	3.586	0.996	0.512	6.36	2.889	4.399	5.219	5.226	2.469
df	4	4	4	4	4	4	4	4	4	4
Asymp. Sig.	0.003	0.465	0.91	0.972	0.174	0.577	0.355	0.266	0.265	0.65
a. Kruskal Wallis Test										
b. Grouping Variable: Investment_Exp										

Table 3 Kruskal-Wallis Test

Kruskal-Wallis Test:

- H_0 : There is no significant difference in behavioural biases among investors with different levels of investment experience.
- H_1 : There is a significant difference in behavioural biases among investors with different levels of investment experience.

Interpretation:

The Kruskal–Wallis test was used to examine whether behavioural biases differ based on investors' investment experience. The results show that overconfidence bias has a p-value of 0.003, which is less than 0.05, so the null hypothesis is rejected for overconfidence bias. This indicates that investment experience significantly affects overconfidence among investors. For all other biases, the p-values are greater than 0.05, so the null hypothesis is accepted. This means there is no significant difference in these behavioural biases based on investment experience.

Mann-Whitney U Test

- H_0 : There is no significant difference in investment decision-making outcomes between male and female investors.
- H_1 : There is a significant difference in investment decision-making outcomes between male and female investors.

Test Statistics ^a				
	Decision-Making Outcomes	Decision-Making Outcomes	Decision-Making Outcomes	Decision-Making Outcomes
	<i>(1 = Mostly emotions, 2 = Both emotions and analysis, 3 = Mostly analysis)</i>	<i>(1 = Not at all, 2 = To some extent, 3 = To a great extent)</i>	<i>(1 = Rarely, 2 = Occasionally, 3 = Frequently)</i>	<i>(1 = Never, 2 = Sometimes, 3 = Always)</i>
	[My investment decisions are influenced by emotions rather than analysis.]	[Behavioural biases affect my risk-taking and diversification.]	[I often make impulsive investment decisions during market ups and downs.]	[Market volatility affects my ability to stick to my planned investment strategy.]
Mann-Whitney U	3148.5	3034	3006	2827.5
Wilcoxon W	5426.5	5312	5284	5105.5
Z	-0.255	-0.699	-0.772	-1.51
Asymp. Sig. (2-tailed)	0.798	0.485	0.44	0.131
a. Grouping Variable: Gender				

Table 4 Mann-Whitney U Test

Interpretation

The Mann–Whitney U test was conducted to examine whether there is a difference in investment decision-making outcomes between male and female investors. The results show that the p-values for all four decision-making outcomes (0.798, 0.485, 0.440, and 0.131) are greater than 0.05. Therefore, the null hypothesis is accepted, indicating that there is no significant difference between male and female investors in terms of emotional influence, risk-taking and diversification, impulsive trading, and reactions to market volatility. This suggests that gender does not significantly affect these investment decision-making outcomes among the respondents.

Findings Of the Study

The study reveals that the respondents were predominantly young (20–30 years), postgraduate, female, students or salaried employees, with lower monthly income (below ₹25,000) and limited investment experience. This indicates that the findings primarily represent the investment behaviour of young and relatively inexperienced retail investors.

The analysis confirms the presence of several behavioural biases influencing investment decisions. Respondents exhibited overconfidence, herding behaviour, loss aversion, anchoring, confirmation bias, mental accounting, disposition effect, representativeness, availability bias, and regret aversion. Investors were also found to be influenced by both emotions and logical reasoning, with behavioural biases affecting their risk-taking, diversification, impulsive decisions, and ability to maintain investment strategies during market volatility.

The Friedman test indicates that behavioural biases do not influence investors equally. Mental accounting bias and availability bias emerged as the most influential biases, whereas confirmation bias had the weakest influence. The Kruskal–Wallis test showed that investment experience significantly affects overconfidence bias, but it has no significant impact on the remaining behavioural biases. Furthermore, the Mann–Whitney U test revealed no significant gender differences in emotional influence, risk-taking behaviour, impulsive investment decisions, or responses to market volatility.

Overall, the findings suggest that behavioural biases play a significant role in shaping investment decisions, highlighting the importance of behavioural finance in understanding investor behaviour and promoting more informed and rational investment practices.

Conclusion

This study examined how behavioural biases influence the investment decisions of individual investors. The results show that most of the respondents are young investors, mainly between the ages of 20 and 30, with many being students and having relatively low income and limited investment experience. This indicates that the study mainly reflects the behaviour and perspectives of young and new investors in the market.

The findings reveal that several behavioural biases influence investment decisions. Biases such as overconfidence, herding, loss aversion, anchoring, confirmation, mental accounting, disposition effect, representativeness, availability, and regret aversion are present among investors. Among these, mental accounting bias and availability bias appear to have a stronger influence on investor behaviour. Many investors tend to treat profit money differently from their original investment and are also influenced by recent news, trends, and easily available information when making investment decisions.

The statistical analysis also supports these results. The Friedman test shows that different behavioural biases influence investors in different ways. The Kruskal–Wallis test indicates that investment experience has a significant effect on overconfidence bias, while the other biases are not significantly affected by investment experience. The Mann–Whitney U test shows that there is no significant difference between male and female investors in terms of emotional influence, impulsive behaviour, risk-taking, and reactions to market volatility.

Overall, the study concludes that behavioural biases play an important role in shaping investors' decisions. Psychological factors, emotions, and market perceptions can influence how investors interpret information and make financial choices. Therefore, improving financial awareness and understanding behavioural biases can help investors make more rational and better-informed investment decisions.

Bibliography

- [1] Rehman, M. A., Finance, M. H., Ali, M., & Ahmad, M. (2025). Behavioral Finance and Market Inefficiencies: Analyzing the Influence of Investor Psychology, Heuristics, and Biases on Stock Market Anomalies and Investment Decision-Making. *Advance Journal of Econometrics and Finance*, 3(2), 54-67.
- [2] Haddad, V., Huebner, P., & Loualiche, E. (2025). How competitive is the stock market? theory, evidence from portfolios, and implications for the rise of passive investing. *American Economic Review*, 115(3), 975-1018.
- [3] Karki, U., Bhatia, V., & Sharma, D. (2024). A systematic literature review on overconfidence and related biases influencing investment decision making. *Economic and Business Review*, 26(2), 130-150.
- [4] Suresh, G. (2024). Impact of financial literacy and behavioural biases on investment decision-making. *FIIB Business Review*, 13(1), 72-86.

- [5] Gurung, R., Dahal, R. K., Ghimire, B., & Koirala, N. (2024). Unraveling behavioral biases in decision making: A study of Nepalese investors. *Investment Management & Financial Innovations*, 21(1), 25.
- [6] Sathya, N., & Prabhavathi, C. (2024). The influence of social media on investment decision-making: examining behavioral biases, risk perception, and mediation effects. *International Journal of System Assurance Engineering and Management*, 15(3), 957-963.
- [7] Quang, L. T., Linh, N. D., Van Nguyen, D., & Khoa, D. D. (2023). Behavioral factors influencing individual investors' decision making in Vietnam market. *Journal of Eastern European and Central Asian Research (JEECAR)*, 10(2), 264-280.
- [8] Kumari, V., Kumar, G., & Pandey, D. K. (2023). Are the European Union stock markets vulnerable to the Russia–Ukraine war?. *Journal of Behavioral and Experimental Finance*, 37, 100793.
- [9] Jain, J., Walia, N., Singla, H., Singh, S., Sood, K., & Grima, S. (2023). Heuristic biases as mental shortcuts to investment decision-making: a mediation analysis of risk perception. *Risks*, 11(4), 72.
- [10] Almansour, B. Y., Elkrghli, S., & Almansour, A. Y. (2023). Behavioral finance factors and investment decisions: A mediating role of risk perception. *Cogent Economics & Finance*, 11(2), 2239032.
- [11] Jain, J., Walia, N., Kaur, M., & Singh, S. (2022). Behavioural biases affecting investors' decision-making process: a scale development approach. *Management Research Review*, 45(8), 1079-1098.
- [12] Mittal, S. K. (2022). Behavior biases and investment decision: theoretical and research framework. *Qualitative Research in Financial Markets*, 14(2), 213-228.
- [13] Jain, J., Walia, N., Singh, S., & Jain, E. (2022). Mapping the field of behavioural biases: A literature review using bibliometric analysis. *Management Review Quarterly*, 72(3), 823-855.
- [14] Ahmed, Z., Rasool, S., Saleem, Q., Khan, M. A., & Kanwal, S. (2022). Mediating role of risk perception between behavioral biases and investor's investment decisions. *Sage Open*, 12(2), 21582440221097394.
- [15] Ogunlusi, O. E., & Obademi, O. (2021). The Impact of behavioural finance on investment decision-making: A study of selected investment banks in Nigeria. *Global Business Review*, 22(6), 1345-1361.
- [16] Ferreira, F. G., Gandomi, A. H., & Cardoso, R. T. (2021). Artificial intelligence applied to stock market trading: a review. *IEEE Access*, 9, 30898-30917.
- [17] Sharma, D., Misra, V., & Pathak, J. P. (2021). Emergence of behavioural finance: A study on behavioural biases during investment decision-making. *International Journal of Economics and Business Research*, 21(2), 223-234.
- [18] Sattar, M. A., Toseef, M., & Sattar, M. F. (2020). Behavioral finance biases in investment decision making. *International journal of accounting, finance and risk management*, 5(2), 69.
- [19] Königstorfer, F., & Thalmann, S. (2020). Applications of Artificial Intelligence in commercial banks—A research agenda for behavioral finance. *Journal of behavioral and experimental finance*, 27, 100352.
- [20] Al-Mansour, B. Y. (2020). Cryptocurrency market: Behavioral finance perspective. *The Journal of Asian Finance, Economics and Business*, 7(12), 159-168.
- [21] Babu, R. (2020). D. Behavioural Finance Heuristic Driven Factors Impact on Indian Stock Market Investors Investment Decisions: A Review. *Asia Pac. J. Res*, 1, 16-19.
- [22] Raut, R. K., Das, N., & Mishra, R. (2020). Behaviour of individual investors in stock market trading: Evidence from India. *Global Business Review*, 21(3), 818-833.
- [23] Nkukpornu, E., Gyimah, P., & Sakyiwaa, L. (2020). Behavioural finance and investment decisions: Does behavioral bias matter. *International business research*, 13(11), 65-76.

- [24] Ashraf, B. N. (2020). Stock markets' reaction to COVID-19: Cases or fatalities?. *Research in international business and finance*, 54, 101249.
- [25] Elhussein, N. H. A., & Abdelgadir, J. N. A. (2020). Behavioral bias in individual investment decisions: Is it a common phenomenon in stock markets. *International Journal of Financial Research*, 11(6), 25.
- [26] Areiqat, A. Y., Abu-Rumman, A., Al-Alani, Y. S., & Alhorani, A. (2019). Impact of behavioral finance on stock investment decisions applied study on a sample of investors at Amman stock exchange. *Academy of Accounting and Financial Studies Journal*, 23(2), 1-17.
- [27] Madaan, G., & Singh, S. (2019). An analysis of behavioral biases in investment decision-making. *International Journal of Financial Research*, 10(4), 55-67.
- [28] Costa, D. F., Carvalho, F. D. M., & Moreira, B. C. D. M. (2019). Behavioral economics and behavioral finance: a bibliometric analysis of the scientific fields. *Journal of Economic Surveys*, 33(1), 3-24.
- [29] Lee, T. K., Cho, J. H., Kwon, D. S., & Sohn, S. Y. (2019). Global stock market investment strategies based on financial network indicators using machine learning techniques. *Expert Systems with Applications*, 117, 228-242.
- [30] Reddy, C. V. (2019). Predicting the stock market index using stochastic time series ARIMA modelling: The sample of BSE and NSE. *Indian Journal of Finance*, 13(8), 7-25.
- [31] Khilar, R. P., & Singh, S. (2019). Influence of behavioural biases on investment decision making in Bhubaneswar region. *International Journal of Recent Technology and Engineering*, 8(3), 8297-8301.
- [32] Oehler, A., Wendt, S., Wedlich, F., & Horn, M. (2018). Investors' personality influences investment decisions: Experimental evidence on extraversion and neuroticism. *Journal of Behavioral Finance*, 19(1), 30-48.
- [33] Zahera, S. A., & Bansal, R. (2018). Do investors exhibit behavioral biases in investment decision making? A systematic review. *Qualitative Research in Financial Markets*, 10(2), 210-251.
- [34] Asad, H., Khan, A. A. T. I. Q. A., & Faiz, R. A. F. I. A. (2018). Behavioral biases across the stock market investors. *Pakistan Economic and Social Review*, 56(1), 185-209.
- [35] Degiannakis, S., Filis, G., & Arora, V. (2018). Oil prices and stock markets: A review of the theory and empirical evidence. *The Energy Journal*, 39(5), 85-130.
- [36] Mankar, T., Hotchandani, T., Madhwani, M., Chidrawar, A., & Lifna, C. S. (2018, January). Stock market prediction based on social sentiments using machine learning. In *2018 international conference on smart city and emerging technology (ICSCET)* (pp. 1-3). IEEE.
- [37] Seetharaman, A., Niranjana, I., Patwa, N., & Kejriwal, A. (2017). A study of the factors affecting the choice of investment portfolio by individual investors in Singapore. *Accounting and Finance Research*, 6(3), 153-168.
- [38] Almansour, B. Y., & Arabyat, Y. A. (2017). Investment decision making among Gulf investors: behavioural finance perspective. *International Journal of Management Studies*, 24(1), 41-71.
- [39] Li, Q., Chen, Y., Wang, J., Chen, Y., & Chen, H. (2017). Web media and stock markets: A survey and future directions from a big data perspective. *IEEE Transactions on Knowledge and Data Engineering*, 30(2), 381-399.
- [40] Alquraan, T., Alqisie, A., & Al Shorafa, A. (2016). Do behavioral finance factors influence stock investment decisions of individual investors? (Evidences from Saudi Stock Market). *Journal of American Science*, 12(9), 72-82.

- [41] Paramati, S. R., Ummalla, M., & Apergis, N. (2016). The effect of foreign direct investment and stock market growth on clean energy use across a panel of emerging market economies. *Energy economics*, 56, 29-41.
- [42] Bakar, S., & Yi, A. N. C. (2016). The impact of psychological factors on investors' decision making in Malaysian stock market: a case of Klang Valley and Pahang. *Procedia Economics and Finance*, 35, 319-328.
- [43] Tuyon, J., & Ahmad, Z. (2016). Behavioural finance perspectives on Malaysian stock market efficiency. *Borsa Istanbul Review*, 16(1), 43-61.
- [44] Ali, I. (2016). Stock Market Volatility and Returns: A Study of NSE & BSE in India. *International Journal of Humanities & Social Science Studies*, 202-211.
- [45] Al Nasser, O. M., & Hajilee, M. (2016). Integration of emerging stock markets with global stock markets. *Research in International Business and Finance*, 36, 1-12.