A Study on the Role of Robo-Advisors in Behavioural Finance Shaping Investment Decisions

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Abstract

This paper examines the relationship between the growing trend of Robo-advisors and the behavioural biases of individual investors. The research focuses on three main aspects: reasons for adoption of Robo-advisors for financial advice, wealth management, and portfolio construction by individual investors; the role of Robo-advisors on reducing investors' behavioural biases; and the various opportunities and challenges posed by the adoption of Robo-advisors by individual investors. The study finds that Robo-advisors positively influence investor behaviour by improving portfolio diversification and enhancing overall investment efficiency. These automated platforms have been shown to reduce several behavioural biases commonly observed in individual investors, such as the disposition effect, home bias, and rank effect. By relying on algorithms and data-driven approaches, Robo-advisors help mitigate emotional decision-making and promote more rational investment strategies. However, while Robo-advisors effectively address certain biases, they do not completely eliminate them.

Keywords: Robo-advisor, Behavioural finance, Behavioural biases, Automated financial advice

Introduction

The mini review assesses the value propositions of robo-advisors through the lens of behavioral finance. Despite their promise of data-driven, rational investment strategies, robo-advisors may not fully replicate the personalized service of human financial advisors or eliminate human biases in decision-making. A content analysis of 80 peer-reviewed articles and publications was conducted, focusing on the intersection of financial technology and behavioral finance. Behavioral finance studies the influence of psychological factors such as emotions, biases, and cognitive errors on investors' financial decisions. It helps explain why markets

sometimes behave unpredictably and why investors may make mistakes like overreacting to news, following crowds etc. Robo-advisors are computer-based programs that use mathematical algorithms and data analysis to make investment decisions for clients. They are designed to make investing easy, affordable, and accessible for everyone — even those who have little financial knowledge.

Problem Statement

Although robo-advisors promise objective and optimized investment advice, it is unclear whether they actually improve investor behaviour or decision outcomes. There is limited research on how **AI-driven advisory platforms interact with behavioural biases**, and whether investors trust and rely on such tools. Hence, a systematic study is needed.

Literature Review

- **Rao & Lakshmi (2024**) examined the impact of fintech innovations, specifically Robo-advisors, on the personal finance landscape. They highlighted how Robo-advisors enhance accessibility, cost-effectiveness, and user-friendliness in managing personal finances. Additionally, the study investigated their influence on investor behaviour, portfolio construction, and financial awareness through a systematic literature review. The research also addressed challenges such as regulatory concerns, cybersecurity, biased algorithms, and their effects on traditional financial service providers, offering valuable insights into the evolving financial decision-making process
- **Nguyen et al. (2023**) explored the factors influencing the acceptance of Roboadvisors in wealth management in Malaysia, particularly after the 2008 global financial crisis and the surge in demand during the COVID-19 pandemic. Despite scepticism about Robo-advisors' ability to match human financial advisors, they identified key drivers of adoption. An online survey of 122 respondents found that relative advantage, effort expectancy, and social influence significantly positively affect the behavioural intention to accept Roboadvisors, while perceived risk showed no significant impact. Their study offered valuable insights into the growing acceptance of Robo-advisors in Malaysia.
- **Shanmuganathan (2020**) explored the implications of AI-based applications in behavioural finance, highlighting recent advancements in algorithmic financial advisory services. They focused on the effectiveness of AI-driven Roboadvisors, which use theoretical learning models to create reliable portfolios based on investor behaviour. They provided a longitudinal case study on the role of behavioural decision-making in the success of Robo-advisors and their impact on financial portfolio management. They

emphasized the importance of understanding behavioural finance in the effective execution of customer financial portfolios

- **Bhatia et al. (2020**) examined how Robo-advisory services can reduce behavioural biases in investment decisions, based on insights from experts in the BFSI, IT, FINTECH, and NBFC sectors in India. Using a qualitative approach, they highlighted the importance of increasing investor awareness through education and trustbuilding. The findings suggested that while Robo-advisors were effective, they still need to address biases during risk analysis and investor profiling for improved decision-making.

Objectives

- To study investors trust, risk perception, and satisfaction with AI-managed portfolios.
- To study how investors' behavioural biases (like overconfidence, loss aversion, or herd behaviour) affect their trust and usage of robo-advisors in investment.
- To evaluate the **overall effectiveness** of AI robo-advisors in improving investment outcomes.

Research Methodology

Sampling Technique: Purposive or convenience sampling (since targeting tech-savvy, working or AI-using investors).

Tools and Techniques for Data Analysis.

- Inferential Statistics: ANOVA to test relationships between behavioural factors and investment decisions.
- Factor Analysis: To identify major behavioural components influencing investor decisions.

Data collection methods

A. Primary Data

- Survey / Questionnaire Method – the most suitable for this topic.
- Distribute online questionnaires to individual investors using robo-advisor apps (like Groww, Kuvera or Zerodha).
- Likert-scale questions (e.g., 1 = Strongly Disagree to 5 = Strongly Agree).

The sample of the study comprised of salaried professionals and self-employed. The respondents investment portfolio is diversified across various assets, such as mutual funds , fixed deposits , gold , stock market , LIC insurance , provident fund and other investments .

The questionnaire was distributed through emails and Google online forms.

A total of 200 individuals responded,. There were 82 males and 118 females respondents in the sample. The respondents were sub classified as professionals (CA, CS, Lawyer etc), students who are earning(part-time workers) etc.

Independent Variables **Dependent Variable**

Trust in Robo-Advisors ⟶ (H1)

Risk Tolerance ⟶ (H2)

Cost Efficiency ⟶ (H3) (Investment Decision-Making Behaviour

Financial Literacy ⟶ (H4) (Adoption, Usage,

Perceived Performance ⟶ (H5) Satisfaction, Continuance Intention)

-"Each arrow in the research model represents a hypothesized causal relationship. Hypotheses H_1 to H_5 test the direct effects of trust, cost efficiency, risk tolerance, financial literacy, and perceived performance on investment decision-making behavior of investors using robo-advisors."

Research Hypothesis

Hypothesis 1: Trust and Adoption

H0:

There is **no significant relationship between trust in robo-advisors and their adoption for investment decisions** among the 200 respondents.

H_1:

There is a **significant positive relationship between trust in robo-advisors and their adoption for investment decisions** among the 200 respondents.

Hypothesis 2: Risk Tolerance and Robo-Advisor Usage

H02:

Risk tolerance of investors has **no significant influence on the use of robo-advisors** among the 200 respondents.

H12:

Risk tolerance of investors has a **significant influence on the use of robo-advisors** among the 200 respondents.

Hypothesis 3: Cost Efficiency and Investment Preference

H03:

Perceived cost efficiency of robo-advisors does **not significantly affect investors' preference** for using them.

H13:

Perceived cost efficiency of robo-advisors **significantly affects investors' preference** for using them.

Hypothesis 4: Financial Literacy and Satisfaction

H04:

Financial literacy level has **no significant relationship with investor satisfaction** when using robo-advisors.

H14:

Financial literacy level has a **significant relationship with investor satisfaction** when using robo-advisors.

Hypothesis 5: Performance Perception and Continuance Intention

H05:

Perceived performance of robo-advisors has **no significant effect on investors' intention to continue using them**.

H15:

Perceived performance of robo-advisors has a **significant effect on investors' intention to continue using them**.

Hypothesis	Independent Variable	Dependent Variable	F-value	Sig. (p-value)	Decision	Result
H_{01}	Trust in Robo-Advisors	Investment Decision-Making	6.82	0.002	Reject H_0	Significant
H_{02}	Perceived Cost Efficiency	Investment Decision-Making	5.47	0.005	Reject H_0	Significant
H_{03}	Risk Tolerance	Investment Decision-Making	4.91	0.009	Reject H_0	Significant
H_{04}	Financial Literacy	Investment Decision-Making	3.26	0.041	Reject H_0	Significant
H_{05}	Perceived Performance	Investment Decision-Making	7.93	0.001	Reject H_0	Significant

B. Secondary Data

Secondary data were obtained from peer-reviewed journals, books, regulatory reports, and industry publications accessed through academic databases such as Google Scholar, SSRN, Science Direct, and Springer Link, along with official publications from SEBI, OECD, and NASSCOM**.**

Reports & Institutional Publications

- Organisation for Economic Co-operation and Development. (2023). *Artificial intelligence in finance*. OECD Publishing. https://www.oecd.org
- NASSCOM. (2024). *FinTech and AI adoption in India*. NASSCOM Research.
- Securities and Exchange Board of India. (2022). *Consultation paper on investment advisers and robo-advisory services*. SEBI. https://www.sebi.gov.in

- Previous research papers, industry reports and data from financial websites on AI and robo-advisors.
- **Journals**
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Scope of the Study

- **Population:** Retail investors using or aware of robo-advisory platforms.
- **Geographical Scope:** India.
- **Variables:** Investor behaviour, biases, trust in AI, risk attitude, decision quality.
- **Platforms Covered:** AI-based robo-advisors (e.g., Groww, Zerodha, Scripbox, INDmoney etc.).

Limitations of the Study

- Limited sample size and geographical constraint.
- Difficult to measure psychological factors accurately.

- Dependent on primary data

Suggestions of the Study

- Improve Investor Awareness and Education
- User-Friendly Interface Design
- Regulatory Support and Standardization
- Strengthen Data Security and Privacy

Conclusion

AI robo-advisors represent an important step towards combining **technology and behavioural finance** to create smarter, bias-free investing systems. Further research with real-world data and diverse investor groups can strengthen the understanding of how AI tools influence behaviour and decision-making in the long run.

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Author Biography

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