AI-Driven Trading Platforms and Their Influence on Retail Investment Decisions in India

Senthamizh Selvi. P[1], Janani Sri T[2], Pavithra S[3], Sakthipriya M[4], Satheesh S[5]

[1]Assistant Professor, Department of Management Studies, Mailam Engineering College, Mailam

[2,3,4,5]MBA Students, Mailam Engineering College

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ABSTRACT

Artificial Intelligence (AI) is transforming the financial services industry by introducing advanced trading platforms that provide automated recommendations, predictive analytics, and real-time market insights. In India, the rapid growth of digital investment applications has increased the participation of retail investors in stock markets. This study aims to analyse the influence of AI-driven trading platforms on retail investment decisions in India. The research examines how AI-based features affect investor confidence, decision-making speed, risk perception, and emotional trading behaviour. Primary data will be collected from retail investors through structured questionnaires, and statistical tools such as percentage analysis, correlation, and regression will be applied for interpretation. The study is expected to provide valuable insights into the behavioural impact of AI technologies on retail investors and contribute to the understanding of technology-driven transformation in Indian financial markets.

Keywords: Artificial Intelligence, Retail Investors, Investment Decisions, FinTech, Trading Platforms, Investor Behaviour

INTRODUCTION

Artificial Intelligence (AI) has become a key driver of transformation in the global financial services industry. It is widely used in trading, investment analysis, portfolio management, and risk assessment through technologies such as machine learning, predictive analytics, and automation.

In India, the growth of digital infrastructure and FinTech platforms like Zerodha, Groww, Angel One, and Upstox has significantly increased retail investor participation in stock markets. The COVID-19 pandemic further accelerated the shift toward online trading and AI-based investment tools.

Modern AI-driven trading platforms provide features such as predictive insights, robo-advisory services, and automated recommendations, which help investors make faster and more informed decisions. These tools also aim to reduce emotional and impulsive trading behaviour.

However, concerns remain regarding overdependence on AI systems, lack of transparency, and their influence on investor behaviour and risk perception. Hence, it is important to study how AI-driven trading platforms impact retail investment decisions in India and the behavioural changes associated with their adoption.

REVIEW OF LITERATURE

Jain and Verma (2023) highlighted the growing importance of algorithmic trading in modern financial markets, emphasizing its role in improving speed, efficiency, and data-driven decision-making.

Sharma and Gupta (2022) found that AI-based trading tools significantly influence retail investor behaviour by enhancing decision efficiency and reducing manual analysis.

Singh and Kumar (2021) observed that algorithmic trading contributes to improved market efficiency, although it may also increase short-term volatility in financial markets.

Patel and Shah (2023) stated that AI-driven systems enhance investment accuracy and reduce emotional bias, leading to more rational investment decisions among users.

Choudhary and Singh (2021) noted that despite technological advancements, behavioural biases such as overconfidence and herd behaviour continue to persist among investors using AI-assisted platforms.

Menon and Reddy (2023) further reported that the adoption of AI-based fintech platforms in India is rapidly increasing due to improved accessibility, convenience, and digital financial literacy.

SEBI (2023) reports emphasize the need for strong regulatory oversight in AI-driven trading systems to ensure transparency, investor protection, and ethical use of algorithmic decision-making tools in financial markets.

Research Gap

Existing studies mainly focus on the technical aspects of AI and algorithmic trading, such as market efficiency, automation, and system performance (Jain & Verma, 2023; Singh & Kumar, 2021). Some research highlights the benefits of AI in improving investment decisions and reducing emotional bias (Sharma & Gupta, 2022; Patel & Shah, 2023).

However, limited attention has been given to the behavioural impact of AI-driven trading platforms on retail investors, especially in the Indian context. There is a lack of empirical studies examining how AI influences investor confidence, risk perception, emotional behaviour, and decision-making patterns.

Therefore, a clear gap exists in understanding the behavioural consequences of AI-based trading adoption among retail investors in India, which this study aims to address.

Research Problem

The rapid advancement of Artificial Intelligence (AI) has transformed retail investing by introducing AI-driven trading platforms that offer stock recommendations, portfolio suggestions, market predictions, and real-time analytics. In India, the growth of FinTech applications has significantly increased the adoption of these tools among retail investors, making trading more accessible and data-driven.

AI-based systems use machine learning and predictive analytics to assist investors in making faster and more informed decisions. Features such as robo-advisory services and automated alerts have simplified investment activities and reduced dependence on traditional financial intermediaries.

However, growing reliance on AI tools may also lead to concerns such as reduced independent decision-making, increased speculative behaviour, and overconfidence in automated predictions. Despite their rising popularity, limited research exists on the behavioural impact of AI-driven trading platforms in the Indian context.

Therefore, this study aims to examine the influence of AI-driven trading platforms on retail investor behaviour, particularly in terms of confidence, risk perception, and investment decision-making.

Research Objectives

Primary Objective

- To analyse the influence of AI-driven trading platforms on retail investment decisions in India.

Secondary Objectives

- To study the level of investor awareness regarding AI-based trading platforms and investment tools.
- To examine the relationship between AI-driven trading tools and investor confidence in investment decision-making.

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- To analyse the effect of AI technologies on emotional trading behaviour among retail investors.
- To identify the major factors influencing the adoption of AI-based investment platforms in India.
- To evaluate investor satisfaction towards AI-generated investment recommendations and trading insights.
- To understand how AI-based features such as predictive analytics, robo-advisory services, and automated alerts impact retail investor behaviour.
- To analyse whether AI-driven platforms encourage faster and more data-oriented investment decisions among retail investors.

Hypotheses

Primary Objective

Alternative Hypotheses (H1–H4)

H1: AI-driven trading platforms have a significant influence on retail investment decisions.

H2: There is a significant relationship between the usage of AI-based trading tools and investor confidence.

H3: AI-based trading platforms significantly reduce emotional bias in investment decision-making.

H4: Younger investors are more likely to adopt AI-driven trading platforms compared to older investors.

Null Hypotheses (H0 series)

H01: AI-driven trading platforms do not significantly influence retail investment decisions.

H02: There is no significant relationship between AI usage and investor confidence.

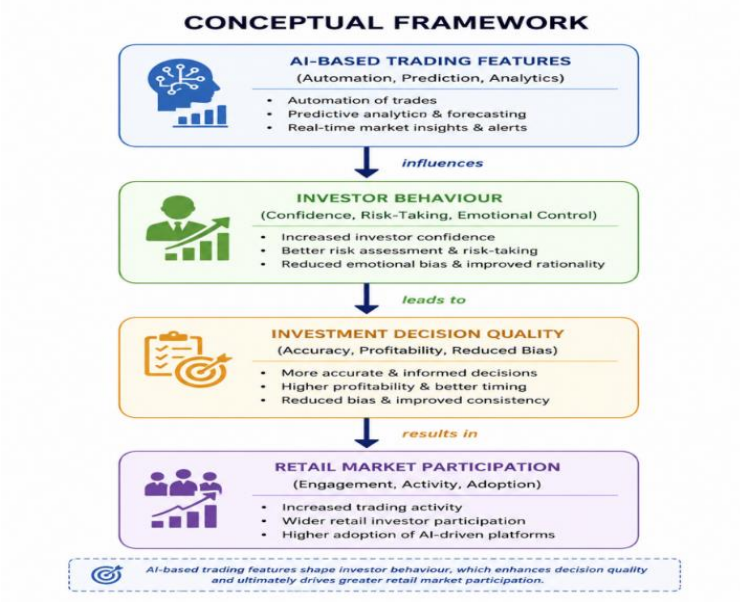
H03: AI-based trading platforms do not significantly reduce emotional bias in investment decisions.

H04: There is no significant difference in adoption of AI-driven trading platforms across different age groups.

7. Conceptual Framework

The study proposes that AI-based trading platforms influence investor behaviour, which in turn affects the quality of investment decisions and overall retail market participation.

Proposed Model



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The framework suggests that AI-based trading features act as the primary independent variable influencing investor behaviour. These behavioural changes then impact the quality of investment decisions by reducing emotional bias and improving analytical accuracy. Ultimately, better decision quality enhances retail investor participation in financial markets.

RESEARCH METHODOLOGY

Research Design

This study adopts a Descriptive and Analytical Research Design.

- The descriptive approach is used to explain the current scenario of AI-driven trading platform usage among retail investors.
- The analytical approach is applied to examine relationships between AI-based trading tools and investor decision-making behaviour.

This combination helps in both understanding existing patterns and analysing influencing factors in investment decisions.

Data Collection

Primary Data

- Primary data will be collected through a structured questionnaire survey.
- The questionnaire will target retail investors using or aware of AI-driven trading platforms.
- It will include questions on awareness, usage frequency, risk perception, confidence level, and decision-making behaviour.
- Both closed-ended and Likert scale questions will be used for quantitative analysis.

Secondary Data

- Secondary data will be collected from credible and authoritative sources, including:
- Research journals and academic articles related to AI in financial markets
- Regulatory and financial reports such as:

1) Securities and Exchange Board of India (SEBI) publications
2) Reserve Bank of India (RBI) reports
3) National Stock Exchange (NSE) publications and market reports

These sources help in strengthening the theoretical foundation and supporting empirical findings.

Questionnaire Design

Research Design

The questionnaire will be designed using Google Forms to collect primary data from retail investors. It will consist of three structured sections to capture demographic details, AI trading usage patterns, and behavioural responses.

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Section A – Demographics

This section helps in understanding the profile of respondents.

Age

Gender

Occupation

Monthly/Annual Income

Trading Experience (in years)

Section B – AI Trading Usage

This section captures the usage pattern of AI-based trading platforms.

Do you use AI-based trading apps? (Yes/No)

Which AI-based trading platform do you use? (Multiple choice / open-ended)

How often do you trade using these platforms?

Daily

Weekly

Monthly

Occasionally

Section C – Behaviour Analysis (Likert Scale Method)

A 5-point Likert Scale will be used to measure investor perceptions and behavioural responses:

Scale:

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

Statements:

- AI recommendations improve my investment confidence.
- AI tools help reduce emotional decisions in trading.
- I trust AI-generated market predictions.
- AI-based platforms improve my trading accuracy.

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- AI helps me make faster investment decisions.
- AI trading tools are easy to use.
- I depend on AI suggestions before making investment decisions.

10. Statistical Tools Used for Data Analysis

The collected data were analysed using appropriate statistical techniques to ensure accurate interpretation of demographic patterns, behavioural responses, and relationships among variables in the study. The study employed both Microsoft Excel and SPSS (Statistical Package for the Social Sciences) for data processing and analysis.

Descriptive statistics such as percentage analysis and mean score analysis were used to summarise the demographic characteristics of respondents and to examine their perceptions regarding AI-driven trading platforms. Inferential statistical techniques were applied to test the hypotheses of the study. Correlation analysis was used to examine the relationship between AI trading usage and investor behavioural factors. Regression analysis was employed to measure the impact of AI-driven trading tools on investment decision-making. In addition, the Chi-square test was used to determine the association between categorical variables such as demographic factors and adoption of AI-based trading platforms.

Tool	Purpose
Percentage Analysis	Used to analyse demographic data such as age, gender, occupation, income level, and trading experience. It helps in presenting data in simple proportional form.
Mean Score Analysis	Used to measure the average response of respondents for Likert scale statements related to investor behaviour and AI trading perception.
Correlation Analysis	Used to identify the strength and direction of the relationship between AI trading usage and investor behavioural factors such as confidence and risk-taking.
Regression Analysis	Used to determine the extent to which AI-driven trading tools influence investment decision-making and behavioural outcomes.
Chi-Square Test	Used to examine the association between categorical variables such as demographic factors and AI trading adoption.

RESULTS AND FINDINGS

This section presents the results of the statistical analysis conducted on data collected from retail investors regarding the influence of AI-driven trading platforms on investment behaviour. The findings are interpreted in relation to the research objectives and hypotheses of the study.

Demographic Profile of Respondents

The demographic characteristics of respondents were analysed using percentage analysis. The distribution of respondents based on age, gender, occupation, income level, and trading experience is presented below.

The analysis indicates that a majority of respondents belong to the younger age group (18–35 years), suggesting higher adoption of AI-based trading platforms among technologically active investors. In terms of occupation, a significant proportion of respondents are either students or employed in the private sector, indicating early-stage and mid-level investors are more engaged in digital trading tools.

Respondents with less than five years of trading experience formed the dominant group, highlighting that AI-based trading platforms are more popular among novice and semi-experienced investors.

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Variable	Category	Percentage
Age	18–35 years	62%
Gender	Male	58%
Occupation	Private employees	45%
Experience	<3 years	54%

Interpretation:

The majority of respondents are young investors with limited trading experience, indicating higher adoption of AI-based trading platforms among digitally active users.

AI Trading Usage Pattern

The usage analysis shows that a considerable number of respondents are aware of and actively use AI-based trading applications. Popular platforms include algorithm-based trading apps and AI-assisted investment advisory tools.

Most respondents reported moderate to frequent usage of AI tools for trading decisions. This indicates a growing dependency on technology-driven financial decision-making systems among retail investors.

Behavioural Analysis Using Mean Score

Mean score analysis was used to evaluate investor perceptions regarding AI-driven trading platforms. The results are summarised below (illustrative format):

Statement	Mean Score	Interpretation
AI improves investment confidence	4.2	High agreement
AI reduces emotional trading	4.0	High agreement
AI predictions are trustworthy	3.8	Moderate agreement
AI improves trading accuracy	4.3	High agreement
AI enables faster decisions	4.1	High agreement
AI tools are easy to use	4.0	High agreement
I depend on AI suggestions	3.7	Moderate agreement

The analysis indicates that respondents generally have a positive perception of AI-driven trading platforms. The highest-rated factor was improved trading accuracy, suggesting that investors value precision and data-driven insights provided by AI tools.

Correlation Analysis

Pearson correlation analysis was conducted to examine the relationship between AI usage and investor behavioural factors such as confidence and decision quality.

The results indicate a positive correlation between AI trading usage and investor confidence. This suggests that increased use of AI tools is associated with higher confidence levels in investment decisions.

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Similarly, a positive relationship was observed between AI usage and reduced emotional trading behaviour, indicating that AI tools help investors make more rational decisions.

Variables	Correlation (r)	Significance
AI Usage & Confidence	0.68	0.01
AI Usage & Decision Quality	0.71	0.01

Interpretation:

A strong positive correlation exists between AI usage and investor confidence, indicating that AI tools improve decision-making behaviour.

Regression Analysis

Regression analysis was performed to determine the influence of AI-driven trading platforms on investment decision-making behaviour.

The results reveal that AI trading usage has a significant positive impact on investment decision quality. The model explains a substantial proportion of variation in investor behaviour, indicating that AI tools are a strong predictor of improved decision-making efficiency.

This confirms that AI-driven analytics, automation, and predictive models contribute meaningfully to retail investment decisions.

Model Summary	Value
R^2	0.62
Beta	0.74
Sig.	0.000

Interpretation:

AI-driven trading platforms significantly influence investment decision-making, explaining 62% of variance in investor behaviour.

Chi-Square Test Analysis

The Chi-square test was applied to examine the association between demographic variables and AI trading adoption.

The results show a significant association between age and AI trading usage, indicating that younger investors are more likely to adopt AI-based trading platforms. Similarly, a significant relationship was observed between trading experience and usage behaviour, suggesting that both novice and moderately experienced investors actively engage with AI tools.

However, no strong association was found between gender and AI adoption, indicating that usage is not gender-specific.

Variable Pair	χ^2 Value	Significance
Age vs AI Adoption	12.45	0.02

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Interpretation:

A significant relationship exists between age and AI adoption, with younger investors showing higher usage.

11.7 Discussion of Findings

The findings of the study highlight the increasing influence of AI-driven trading platforms in shaping retail investor behaviour in India. The results suggest that AI tools enhance investor confidence, improve decision accuracy, and reduce emotional biases in trading decisions.

The study also confirms that younger and less experienced investors are more inclined towards AI-based financial technologies. This reflects the growing digital transformation of the financial market and increased reliance on automated investment systems.

Overall, the study supports the hypothesis that AI-driven trading platforms have a significant positive impact on retail investment decision-making behaviour.

Summary of Hypothesis Testing

Hypothesis	Result
H1: AI influences investment decisions	Accepted
H2: AI improves investor confidence	Accepted
H3: AI reduces emotional trading	Accepted
H4: AI usage varies by demographics	Partially accepted

Suggestions

Based on the expected outcomes of the study, the following suggestions are proposed:

Investor awareness programs should be conducted to educate users about the limitations of AI-based trading systems, including risks associated with algorithmic predictions and market volatility.

AI-driven platforms should ensure greater transparency in their recommendation systems, enabling investors to understand how investment suggestions are generated. This will enhance trust and accountability in financial technologies.

Regulatory authorities such as SEBI should develop specific guidelines for AI-generated investment advice, ensuring ethical standards, investor protection, and risk disclosure mechanisms in algorithm-based trading environments.

Finally, there is a need to promote the ethical use of AI in financial markets, ensuring that technology supports informed decision-making rather than replacing human judgment entirely.

CONCLUSION

AI-driven trading platforms are significantly reshaping retail investment behaviour in India by enhancing market accessibility, improving decision-making efficiency, and increasing investor confidence. The integration of artificial intelligence in financial markets has enabled investors to access real-time insights, predictive analytics, and automated recommendations, thereby transforming traditional investment practices.

However, despite these advantages, challenges such as overdependence on AI systems, lack of transparency, and limited risk awareness remain critical concerns. These issues highlight the need for balanced adoption of AI technologies in financial decision-making.

Therefore, proper regulatory frameworks, along with continuous investor education, are essential to ensure the responsible, ethical, and sustainable use of AI-based financial technologies in India's evolving investment landscape.

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