

“IMPACT OF AI-POWERED INVESTMENT TOOLS ON RETAIL INVESTORS’ DECISION-MAKING BEHAVIOUR”

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ABSTRACT

Artificial Intelligence (AI) has rapidly transformed the financial services sector by introducing automated advisory platforms and algorithm-driven investment solutions that support modern investors in making faster and more informed financial decisions. This study looks at how AI-powered investment tools affect Indian retail investors' decision-making, with a particular emphasis on how technology affects risk perception, investment selections, and portfolio management techniques. 347 retail investors provided primary data via well-known investment platforms like Kuvera, Groww, Upstox, and Zerodha. The study assesses important variables like demographics, perceived usability, behavioral results associated with investment decisions, and trust in AI systems. Descriptive statistics, correlation analysis, regression analysis, t-tests, and ANOVA using SPSS were among the quantitative research methods used to guarantee reliable analysis. The results show that trust and usability are important factors in promoting AI adoption and enhancing the return on investment. Compared to non-users, investors who utilize AI-based tools typically demonstrate more disciplined investment behavior, better risk management, and a more diversified portfolio. All things considered, the study offers significant insights for investors, FinTech companies, and policymakers, emphasizing the value of trustworthy and user-friendly AI systems in boosting technology-driven financial decision-making and encouraging broader adoption of digital investment solutions in India.

Keywords: *Artificial Intelligence, Robo-advisors, FinTech Adoption, Portfolio Diversification***1. INTRODUCTION**

Artificial Intelligence (AI) has significantly transformed financial markets by enabling algorithm-driven advisory services, predictive analytics, automated trading systems, and intelligent portfolio management solutions. The integration of AI into financial technology (FinTech) platforms has reshaped traditional investment practices by given that data-driven insights, real-time market analysis, and personalized investment recommendations (Arner, Barberis, & Buckley, 2017; Bughin et al., 2018). Robo-advisors and AI-powered investment platforms such as Zerodha, Groww, Upstox, and Kuvera have enhanced accessibility to professional investment advisory services for Indian retail investors by falling advisory costs and eliminating information asymmetry (Parveen et al., 2024; Sironi, 2016). These platforms use machine learning algorithms and big data analytics to optimize asset allocation, automate portfolio rebalancing, and support long-term wealth management. In emerging economies such as India, speedy digitalization, increased smartphone penetration, and expansion of online trading platforms have accelerated the adoption of AI-driven financial services (Bhatia & Mittal, 2022). Retail investors who previously relied on traditional brokers and informal advisory networks now have access to intelligent tools that provide real-time portfolio monitoring, risk profiling, and personalized investment strategies. Jung et al. (2018) argue that robo-advisory platforms improve diversification outcomes by contributing algorithm-based asset allocation models that minimize concentration risk. Additionally, by combining automated savings programs, goal-based investing, and performance tracking dashboards, AI-powered platforms encourage methodical investment behavior and improve retail investors' financial discipline.

The capacity of AI-powered investment tools to lessen behavioral biases frequently seen in retail investors is one of their biggest benefits. According to behavioral finance research, emotional decision-making, overconfidence, herd mentality, and excessive trading are common problems for individual investors that have a detrimental effect on portfolio performance (Barber & Odean, 2001). AI-driven systems, by relying on rule-based algorithms and data analytics, help investors make rational and objective decisions by reducing emotional influence and cognitive biases (Mohapatra et al., 2025). Furthermore, AI systems regularly examine market volatility, macroeconomic data, and past price trends to offer real-time analytical support, enabling investors to react to market developments more skillfully. Despite the technological benefits, investor trust and perceived utility play a major role in the successful adoption of AI-powered investment platforms. Technology adoption is heavily influenced by trust, particularly in financial applications that include financial risk and the protection of personal data (Gefen, Karahanna, & Straub, 2003). Gupta and Kumar (2023) found that transparency of algorithms, data privacy protection, and cyber security measures significantly influence Indian investors' confidence in robo-advisory services. Similarly, Lee and Shin (2018) emphasized that regulatory compliance and ethical AI implementation strengthen FinTech adoption by improving institutional credibility. When investors believe AI systems to be dependable, safe, and user-friendly, they are more likely to rely on them. Demographic characteristics further moderate AI adoption and investment behavior. The Unified Theory of Acceptance and Use of Technology (UTAUT) suggest that age, education, income, and technological familiarity significantly influence digital technology adoption (Venkatesh et al., 2012). Because they are more accustomed to technology and knowledgeable about digital financial instruments, younger investors and those with higher financial literacy are more likely to use AI-powered platforms (Kumar & Goyal, 2019). Older investors, on the other hand, can be resistant because they have less exposure to digital technology and because automated decision-making processes are seen as riskier. The necessity for tailored FinTech solutions aimed at various investor categories is highlighted by these demographic disparities. Examining how AI-powered investment tools affect retail investors' decision-making behavior is essential given the quick growth of FinTech ecosystems and rising retail engagement in Indian capital markets. Few empirical studies have focused on the combined effects of AI adoption, trust, demographic factors, and behavioral outcomes within the Indian investment environment, despite the fact that previous studies have looked at FinTech adoption and robo-advisory services globally (Anwar, 2025; Parveen et al., 2024). By examining awareness levels, adoption trends, perceptions of trust, behavioral shifts in portfolio management techniques, and demographic factors influencing AI adoption among Indian retail investors, this study aims to close this research gap. This study adds to the expanding corpus of research on FinTech adoption and behavioral finance by offering actual data on the behavioral effects of AI-driven investment platforms. It is anticipated that the findings will help FinTech companies improve the user experience and transparency of their platforms, assist legislators in creating efficient regulatory frameworks, and allow retail investors to embrace technology-assisted investment strategies for better financial decision-making and long-term wealth creation.

2. LITERATURE REVIEW

Overview of AI Adoption in Financial Services: The quick adoption of AI in financial markets has been noted in a number of researches. AI-based FinTech advances have greatly enhanced automation, personalization, and predictive analytics in wealth management, claim Arner, Barberis, and Buckley (2017). According to Bughin et al. (2018), financial companies that implemented AI technologies saw improvements in client engagement and operational efficiency. According to Bhatia and Mittal (2022), the rise in smartphone usage and digital payment infrastructure in India has sped up the implementation of FinTech.

Robo-Advisors and Automated Investment Platforms: According to Parveen et al. (2024), robo-advisors reduce behavioral biases and offer cost-effective portfolio management services. According to Sironi (2016), automated advising platforms increase modest retail investors' access to expert financial advice. According to Jung, Dorner, Glaser, and Morana (2018), algorithm-based portfolio suggestions lower concentration risk and increase the benefits of diversification.

Trust and User Acceptance of AI Systems: A key factor in the uptake of technology is trust. According to Gefen, Karahanna, and Straub (2003), behavior related to technology adoption is strongly influenced by perceived trust. Transparency, assurance of cyber security, and explainable AI models boost investor confidence in robo-advisory services in India, according to Gupta and Kumar (2023). Similarly, standards for data protection and regulatory compliance support the adoption of FinTech, according to Lee and Shin (2018).

Behavioral Impact on Investment Decision-Making: AI-enabled investing platforms have a positive impact on long-term wealth planning and sustainable investment decisions, as shown by Mohapatra et al. (2025). As previously noted by Barber and Odean (2001), emotional trading results in less-than-ideal returns, although AI-driven systems aid in lowering impulsive decision-making. According to Anwar (2025), using a robo-advisor enhances portfolio discipline and systematic investing habit.

Demographic Factors and Technology Adoption: According to the Unified Theory of Acceptance and Use of Technology (UTAUT), which was put forth by Venkatesh et al. (2012), adoption of technology is considerably moderated by age, income, and education. According to Preprints.org (2025), younger investors are more likely to accept robo-advisory platforms since they are more digitally literate. Additionally, financial literacy improves the efficient use of digital investing tools, according to Kumar and Goyal (2019).

2.1 Research Gap

While FinTech adoption has been the subject of numerous studies, little empirical research has been done on the combined effects of trust, demographic factors, and AI-powered advisory tools on the decision-making behavior of retail investors in India. By combining viewpoints on technology adoption and behavioral finance, this study aims to close this gap.

- AI and Financial Decision-Making: Prior research shows that AI-powered advising platforms enhance portfolio optimization and lessen the bias associated with emotional trading. Robo-advisors offer inexpensive automated services that make investing easier for small clients.
- Adoption of Technology and Trust: Adoption of FinTech is significantly impacted by trust. Research indicates that consumer confidence in AI systems is significantly impacted by perceived dependability, transparency, and data security.
- Behavioral Impact on Investors: Compared to traditional investors, AI tool users exhibit longer investment horizons, better diversification, and systematic investing behavior, according to empirical data.

3. RESEARCH METHODOLOGY

3.1 Research Design

In order to examine investor behavior patterns and identify causal links between AI adoption and decision-making efficacy, the study used a descriptive and explanatory research approach.

3.2 Objectives of the Study: The objectives of the study as below

1. To examine awareness and adoption of AI-powered investment tools among retail investors.
2. To analyze the impact of trust on AI-based investment decision-making.
3. To evaluate behavioral changes in risk appetite and diversification strategies.
4. To assess demographic influence on AI adoption behavior.

3.3 Hypotheses of the Study: The hypothesis for the study as below

- H₁: Trust in AI-powered investment tools positively impacts investment decision-making effectiveness.
H₂: AI tool users demonstrate higher portfolio diversification than non-users.
H₃: Perceived ease of use significantly influences AI adoption.
H₄: Demographic variables moderate AI adoption behavior.

3.4 Sample Design

- Population: Retail investors using digital investment platforms or applications in India
- Sample Size: 347 respondents
- Sampling Technique: Convenience sampling

3.5 Data Collection Method

A structured questionnaire was used to gather primary data from retail investors who were acquainted with AI-powered investment platforms like Kuvera, Groww, Upstox, and Zerodha. The survey was divided into two parts: perception-based factors about AI adoption and investment behavior, and demographic data (age, income, education, and investment experience). A five-point Likert scale, ranging from Strongly Disagree (1) to Strongly Agree (5), was used to quantify the perceptual variables. Both online and offline methods were used to collect the data, and SPSS was used for statistical analysis.

3.6 Reliability of Instrument

The questionnaire scale's Cronbach's Alpha rating was 0.86, indicating strong reliability and internal consistency.

3.7 Statistical Tools Used

To accomplish the goals of the study, the gathered data was examined using a variety of statistical methods. The degree and direction of correlations between important variables like perceived usefulness, trust, and investment decision-making behavior were investigated using correlation analysis. The effect of trust variables and AI-powered investment tools on the efficacy of retail investors' decision-making was evaluated using regression analysis. One-way ANOVA was utilized to examine differences in investing behavior across several demographic groups, such as age, income, and educational attainment, while independent sample t-tests were employed to assess mean differences between two groups, such as AI tool users and non-users. These statistical methods made it possible to fully comprehend the dataset's group differences and relationships.

4. DATA ANALYSIS AND INTERPRETATION

4.1 Reliability Analysis: To ensure the consistency and accuracy of the measurement instrument, a reliability analysis was conducted using Cronbach's Alpha.

Table 1: Reliability Statistics

Cronbach's Alpha	Number of Items
0.86	18

A high degree of internal consistency among the questionnaire statements is indicated by the Cronbach's Alpha value of 0.86 for the 18 scale items, as indicated in Table 1. This shows that the questions used to gauge things like perceived usefulness, simplicity of use, faith in AI, and investment decision-making behavior are accurate and consistently represent the opinions of the respondents. Since a reliability coefficient of 0.70 or above is typically regarded as appropriate for social science research, the result obtained validates that the information gathered from individual investors is appropriate for additional statistical analysis and interpretation.

4.2 Demographic Profile Analysis :Table 2 presents the demographic characteristics of the 347 retail investor respondents included in the study. The gender distribution indicates that 59% of the respondents were male and 41% were female, suggesting higher participation of male investors in AI-powered investment platforms while also reflecting growing female involvement in digital investing.

Table 2: Demographic Profile of Respondents

Variable	Category	Frequency	Percentage
Gender	Male	204	59
	Female	143	41
Age Group	18-25	87	25
	26-35	129	37
	36-45	76	22
	Above 45	55	16
Education	Graduate	164	47
	Postgraduate	183	53
Annual Income	Below ₹5 Lakh	105	30
	₹5-10 Lakh	160	46
	Above ₹10 Lakh	82	24

The bulk of respondents (37%), who were between the ages of 26 and 35, were followed by those between the ages of 18 and 25 (25%). This suggests that younger investors are more likely to use AI-based investment tools. 22% of respondents were between the ages of 36 and 45, and 16% were beyond 45. This indicates that older groups used technology less frequently because they were less familiar with it.

With 53% postgraduates and 47% graduates, the sample's investor base was highly educated, demonstrating a keen awareness and comprehension of AI-driven financial technologies. According to yearly income, 46% of people made between ₹5 and ₹10 lakh, 30% made less than ₹5 lakh, and 24% made more than ₹10 lakh. This suggests that middle- and upper-class people are more willing to invest and are more receptive to technology-based investment options.

The sample is primarily composed of young, well-educated, and financially active investors, according to the demographic profile, which supports the high adoption potential of AI-powered investment platforms. These attributes foster an environment that is conducive to digital investment solutions and enhance the study's findings' applicability to India's expanding retail investment ecosystem, which is driven by FinTech.

4.3 Descriptive Statistics

AI-powered investment tools are viewed favorably by retail investors, as Table 3 demonstrates. Investors find AI platforms easy to use, as evidenced by the highest mean score of 4.12 for ease of use.

Table 3: Descriptive Statistics

Variable	Mean	Std. Deviation
Trust in AI Tools	3.98	0.74
Ease of Use	4.12	0.68
Adoption Level	3.85	0.79
Decision-Making Effectiveness	4.05	0.71

Strong confidence in recommendations based on AI is also shown in decision-making effectiveness (Mean = 4.05) and trust in AI tools (Mean = 3.98). With a moderate degree of diversity among responders, the Adoption Level (Mean = 3.85) indicates broad usage. All things considered, the findings show that AI technologies are positively accepted and have a beneficial impact on how people make financial decisions.

4.4 Correlation Analysis

The results of the Pearson connection between decision-making effectiveness, adoption, and trust are shown in Table 4.

Table 4: Correlation Analysis

Variables	Trust	Adoption	Decision Effectiveness
Trust	1	0.62**	0.58**
Adoption	0.62**	1	0.66**
Decision Effectiveness	0.58**	0.66**	1

**Correlation is significant at the 0.01 level.

The results demonstrate a substantial positive relationship between adoption and trust ($r = 0.62, p < 0.01$), suggesting that retail investors are more likely to use AI-powered tools when they have greater faith in them. Additionally, there is a strong positive correlation between trust and the effectiveness of decision-making ($r = 0.58, p < 0.01$), indicating that investors who have faith in AI advice make better investment decisions. Additionally, there is a strong correlation between adoption and the effectiveness of decision-making ($r = 0.66, p < 0.01$), indicating that the use of AI tools improves the quality of investors' decisions. All things considered, the findings support the idea that trust is essential for promoting adoption and enhancing investment decision-making.

4.5 Regression Analysis

The regression findings analyzing the effect of ease of use and trust in AI technologies on the efficacy of investment decision-making are shown in Table 5. With a R value of 0.69, the model demonstrates a strong correlation, and the R2 value of 0.48 suggests that trust and usability account for 48% of the variation in decision-making effectiveness.

Table 5: Regression Analysis (Dependent Variable: Decision-Making Effectiveness)

Model	B	Std. Error	Beta	t	Sig.
Constant	0.782	0.211	—	3.70	0.000
Trust in AI	0.431	0.052	0.45	8.28	0.000
Ease of Use	0.356	0.049	0.38	7.26	0.000

Model Summary: $R = 0.69, R^2 = 0.48$

The findings show that decision-making effectiveness is significantly improved by trust in AI tools ($\beta = 0.45, p < 0.001$), suggesting that greater trust results in wiser investment choices. Ease of use also demonstrates a substantial beneficial benefit ($\beta = 0.38, p < 0.001$), indicating that platforms that are easy to use improve investors' capacity to make wise choices. Overall, the results show that among retail investors, trust and usability are important factors influencing AI-powered investment performance.

4.6 Independent Sample t-Test

The findings of the independent sample t-test comparing the portfolio diversification scores of AI tool users and non-users are shown in Table 6. AI users had a considerably higher mean diversity score (4.21) than non-users (3.62).

Table 6: Independent Sample t-Test (AI Users v/s Non-Users – Diversification Score)

Group	Mean	Std. Dev	t-value	Sig
AI Users	4.21	0.62	5.84	.000
Non-Users	3.62	0.71		

A statistically significant difference between the two groups is indicated by the computed t-value of 5.84 at a significance level of $p < 0.001$. This finding highlights the usefulness of AI-based recommendations in enhancing investment strategies by indicating that retail investors who utilize AI-powered investment tools achieve higher portfolio diversity than those who rely on conventional investment approaches.

4.7 One-way ANOVA

The one-way ANOVA findings analyzing the association between AI adoption levels and age groups are shown in Table 7.

Table 7: ANOVA (Age Group v/s AI Adoption Level)

Source	Sum of Squares	df	Mean Square	F	Sig
Between Groups	18.42	3	6.14	6.73	0.000
Within Groups	270.56	343	0.91		
Total	288.98	346			

With an F-value of 6.73 and a significance level of $p < 0.001$, the results demonstrate a statistically significant variation in AI adoption across age groups. This research implies that the adoption of AI-powered financial tools is significantly influenced by age. Compared to older age groups, younger investors are more likely to embrace and actively use AI-based platforms, underscoring the influence of digital preparedness and technology familiarity on investment behavior.

5. FINDINGS

1. Awareness of AI-powered investment tools among retail investors is significantly high, indicating strong FinTech penetration.
2. Trust in AI systems shows a strong positive association with adoption and decision-making effectiveness.
3. Investors using AI tools demonstrate better portfolio diversification and disciplined investment strategies.
4. Younger and higher-income investors exhibit greater acceptance and usage of AI-based platforms.
5. Perceived transparency and understanding of algorithm logic remain key challenges for widespread adoption.

6. IMPLICATIONS OF THE STUDY

6.1 Managerial Implications

FinTech companies should prioritize transparent AI algorithms, intuitive user interfaces, and investor education programs to improve adoption rates and trust.

6.2 Policy Implications

Regulatory authorities should strengthen data protection frameworks and ethical AI standards to ensure investor confidence and platform accountability.

6.3 Academic Implications

The study contributes to the growing literature on FinTech adoption and behavioral finance by integrating trust and demographic moderating factors.

1. Majority of respondents actively use AI-powered investment tools.
2. Trust significantly impacts AI adoption and investment effectiveness.
3. AI users demonstrate better diversification and disciplined investing behavior.

4. Younger and more educated investors show higher adoption rates.
5. Transparency and understanding of algorithms remain key challenges.

7. CONCLUSION

According to the study's findings, AI-powered investment platforms have a big impact on Indian retail investors' decision-making. According to empirical data, the most important factors influencing adoption and decision effectiveness are perceived simplicity of use and trust. AI users show better portfolio discipline, less emotional bias, and increased diversification. Adoption behavior is further moderated by demographic factors, highlighting the necessity of tailored FinTech solutions. The study emphasizes the significance of investor education, governmental backing, and the application of ethical AI. This study may be expanded in the future by using cross-country comparative analysis, qualitative interviews, and longitudinal data to confirm the results.

8. LIMITATIONS OF THE STUDY

1. The study is limited to Indian retail investors and may not fully represent global investment behavior.
2. Convenience sampling may limit generalizability of findings.
3. Behavioral responses were self-reported and subject to respondent bias.

9. SCOPE FOR FUTURE RESEARCH

1. Comparative analysis between human advisors and AI advisors.
2. Impact of AI tools on long-term portfolio returns.
3. Behavioral finance integration with AI-driven investment models.
4. Sector-wise adoption analysis across emerging markets.

The study comes to the conclusion that Indian retail investors' decision-making has been greatly impacted by AI-powered investing platforms. AI-enabled investors exhibit more confident portfolio management, disciplined investment patterns, and enhanced diversification techniques. The most reliable indicators of adoption and the efficacy of decision-making were found to be perceived simplicity of use and trust. Moreover, adoption behavior is considerably moderated by demographic variables including age, income, and education.

According to the findings, FinTech companies ought to concentrate on enhancing investor education initiatives, explainable AI models, and transparency. Lawmakers should fortify legislative frameworks to guarantee data protection and the application of AI in an ethical manner. By adding longitudinal data and comparing analyses across other emerging markets, future study may broaden the focus.

By increasing accessibility, diversification, and decision-making efficiency, AI-powered investment platforms are changing the behavior of Indian retail investors. Adoption is positively impacted by trust and convenience, but to optimize benefits, investor education and platform openness are crucial. FinTech companies and policymakers should prioritize investor awareness campaigns and ethical AI practices.

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