



How Artificial Intelligence Influences ESG Investment Decisions on Digital Platforms: The Mediating Role of Investor Trust

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Abstract

Artificial Intelligence (AI) is transforming digital investment platforms by providing personalised investment recommendations, predictive analytics, and real-time decision support. At the same time, Environmental, Social, and Governance (ESG) investing has gained increasing importance as investors seek sustainable investment opportunities. However, limited empirical research has examined how AI influences ESG investment decisions through investor trust, particularly among retail investors in emerging economies. This study investigates the effect of Artificial Intelligence Capabilities on ESG Investment Decisions, with Investor Trust serving as a mediating variable. A quantitative, cross-sectional research design was adopted, and data were collected from 324 retail investors using AI-enabled digital investment platforms in Chennai, India. The data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS 4. The findings indicate that AI Capabilities significantly enhance Investor Trust and positively influence ESG Investment Decisions. Furthermore, Investor Trust partially mediates the relationship between AI Capabilities and ESG Investment Decisions. The study contributes to the literature on AI, FinTech, sustainable finance, and behavioural finance by demonstrating the role of investor trust in promoting ESG investing. The findings also provide practical implications for digital investment platform providers, financial institutions, and policymakers in developing transparent, reliable, and trustworthy AI systems that encourage sustainable investment behaviour.

Keywords: Artificial Intelligence, ESG Investment, Digital Investment Platforms, Investor Trust, Sustainable Finance, FinTech, Retail Investors.

Introduction

The rapid advancement of artificial intelligence (AI) has revolutionised the financial services industry by fundamentally transforming how investors access financial information, evaluate investment opportunities, and make investment decisions. AI technologies, including machine learning, natural language processing, predictive analytics, big data analytics, and robo-advisory systems, have significantly enhanced digital investment platforms by providing personalised investment recommendations, automated portfolio management, real-time market analysis, and intelligent risk assessment (Arner et al., 2016; Gomber et al., 2018). These innovations have reduced information asymmetry, improved investment efficiency, lowered transaction costs, and increased accessibility to financial markets, enabling retail investors to participate in investment activities with greater convenience and confidence (Lee & Shin, 2018; Thakor, 2020). Consequently, AI-powered digital investment platforms have become an integral part of modern financial ecosystems, reshaping traditional investment practices across both developed and emerging economies (Dorfleitner et al., 2017; Jourdan et al., 2023).

Simultaneously, sustainable investing has gained considerable global attention as environmental concerns, climate change, and corporate social responsibility have become central issues for governments, businesses, and investors. Environmental, Social, and Governance (ESG) investing has emerged as an important investment strategy that encourages investors to consider not only financial returns but also companies' environmental performance, social responsibility, and governance practices when making investment decisions (Friede et al., 2015). Growing awareness of climate-related financial risks, together with international initiatives such as the United Nations Sustainable Development Goals (SDGs) and the Paris Climate Agreement, has accelerated the integration of ESG principles into global investment portfolios (Global Sustainable Investment Alliance [GSIA], 2023; OECD, 2024). As a result, institutional and retail investors increasingly recognise that sustainable investment practices can generate long-term financial value while contributing to environmental sustainability and social welfare.

The convergence of AI and ESG investing has created new opportunities for digital investment platforms to support sustainable investment decisions. AI algorithms can analyse massive volumes of structured and unstructured financial data, corporate sustainability reports, ESG disclosures, news articles, satellite imagery, and social media content to evaluate companies' ESG performance more efficiently than traditional analytical methods (Dorfleitner et al., 2022). These technologies enable digital investment platforms to provide ESG ratings, sustainability screening, climate-risk assessment, personalised green investment recommendations, and automated portfolio optimisation based on investors' sustainability preferences. Consequently, AI has become a powerful tool for helping investors identify responsible investment opportunities while reducing the complexity associated with analysing ESG information.

India has witnessed remarkable growth in digital investing during the past decade, supported by rapid technological innovation, expanding internet penetration, increasing smartphone adoption, and government initiatives promoting digital financial inclusion. Programmes such as Digital India, Aadhaar-enabled services, India Stack, the Unified Payments Interface (UPI), and the Pradhan Mantri Jan Dhan Yojana (PMJDY) have significantly strengthened India's digital financial infrastructure and increased access to formal financial services (Demirgüç-Kunt et al., 2022; Reserve Bank of India [RBI], 2024). Simultaneously, digital investment platforms such as Groww, Zerodha, Upstox, Angel One, ET Money, and INDmoney have attracted millions of retail investors by offering paperless account opening, AI-driven investment recommendations, portfolio analytics, robo-advisory services, and user-friendly investment interfaces (Securities and Exchange Board of India [SEBI], 2024). Many of these platforms have also begun integrating ESG investment information and sustainability-related analytics, allowing investors to incorporate environmental and social considerations into their investment portfolios.

Despite these technological advancements, investors continue to face challenges in relying on AI-generated investment recommendations, particularly in the context of ESG investing. Unlike conventional financial indicators, ESG performance is often measured using different methodologies across rating agencies, leading to inconsistencies in ESG scores and sustainability assessments. Furthermore, many AI systems operate as "black-box" algorithms, making it difficult for investors to understand how investment recommendations are generated. Concerns regarding algorithm transparency, explainability, fairness, privacy, cybersecurity, and data reliability may reduce investors' willingness to depend on AI-assisted investment decisions (Rai, 2020; European Commission, 2024). Such concerns are especially relevant in ESG investing, where investment decisions require confidence in both the quality of sustainability information and the credibility of AI-generated recommendations. Investor trust therefore becomes a crucial psychological factor influencing the adoption of AI-enabled digital investment platforms and ESG investment behaviour. Investor trust refers to an investor's belief that AI-powered investment platforms provide accurate, transparent, secure, and unbiased recommendations that align with both financial objectives and sustainability goals (Gefen et al., 2003; McKnight et al., 2011). Higher levels of trust reduce perceived uncertainty, increase confidence in AI-generated recommendations, and encourage investors to adopt innovative financial technologies. Previous studies have shown that trust significantly influences users' acceptance of digital financial services, online banking, and robo-advisory platforms (Ryu, 2018; Jünger & Mietzner, 2020). Within the context of ESG investing, trust becomes even more important because investors must rely on AI systems to interpret complex sustainability information and recommend environmentally responsible investment opportunities.

Although previous studies have extensively examined AI adoption, FinTech innovation, digital investment platforms, and ESG investing, the existing literature has primarily focused on technology adoption, behavioural intention, financial performance, or corporate sustainability outcomes (Davis, 1989; Venkatesh et al., 2003; Berg et al., 2022). Comparatively fewer studies have investigated how AI capabilities influence retail investors' ESG investment decisions, particularly through psychological mechanisms such as investor trust. This research gap is particularly evident in emerging economies such as India, where AI-enabled investment platforms are rapidly expanding but empirical evidence regarding sustainable investment behaviour remains limited (Kumar et al., 2023).

The literature on AI-enabled investing and ESG investment can be broadly classified into four major research streams. The first stream examines the adoption of AI technologies in digital financial services and investment platforms, emphasising factors such as perceived usefulness, ease of use, and technological acceptance (Davis, 1989; Venkatesh et al., 2003). The second stream focuses on AI applications in investment management, including robo-advisory services, predictive analytics, and automated portfolio management (Gomber et al., 2018; Dorfleitner et al., 2022). The third stream investigates ESG investing and sustainable finance, highlighting responsible investment behaviour, environmental sustainability, and climate-related financial risks (Friede et al., 2015; GSIA, 2023). Finally, the fourth stream explores investor trust in digital financial technologies; however, limited studies have examined its mediating role in explaining how AI influences ESG investment decisions among retail investors.

Addressing this research gap, the present study investigates how artificial intelligence influences ESG investment decisions on digital investment platforms through the mediating role of investor trust. By integrating perspectives from artificial intelligence, behavioural finance, sustainable finance, and digital investment research, this study contributes to the growing literature on AI-enabled investing and ESG decision-making. The findings are expected to provide valuable theoretical insights while offering practical implications for FinTech companies, digital investment platform providers, financial institutions, policymakers, and regulators seeking to promote responsible investing and strengthen investor confidence in AI-powered sustainable investment services.

2. Literature Review and Hypotheses Development

Behavioural finance suggests that investors' decisions are influenced not only by rational analysis but also by psychological and technological factors (Kahneman & Tversky, 1979; Barber & Odean, 2001). The rapid integration of artificial intelligence (AI) into digital investment platforms has fundamentally transformed investment decision-making by providing personalised recommendations, predictive analytics, and automated portfolio management (Gomber et al., 2018; Ryu, 2018). AI enables investors to process large volumes of financial and ESG-related information more efficiently, thereby reducing information asymmetry and improving investment decisions (Dorfleitner et al., 2022). However, the effectiveness of AI-driven investment

recommendations depends largely on investors' trust in the technology and their willingness to rely on algorithm-generated advice (Gefen et al., 2003; McKnight et al., 2011).

The literature on artificial intelligence and ESG investment decisions can be broadly classified into four research streams. The first stream examines the adoption of AI-enabled digital investment platforms and the technological factors influencing their acceptance, including perceived usefulness, ease of use, and transparency (Davis, 1989; Venkatesh et al., 2003). The second stream investigates AI applications in investment management, such as robo-advisory services, predictive analytics, and automated portfolio optimisation (Gomber et al., 2018; Dorfleitner et al., 2022). The third stream explores ESG investing and sustainable finance by examining investors' environmental concerns, responsible investment behaviour, and sustainability-oriented portfolio decisions (Friede et al., 2015; GSIA, 2023). Finally, the fourth stream focuses on investor trust and its influence on technology adoption and financial decision-making; however, limited studies have examined its mediating role in explaining how AI capabilities influence ESG investment decisions, particularly among retail investors in emerging economies such as India (Ryu, 2018; Kumar et al., 2023).

2.1. The Effect of Artificial Intelligence Capabilities on Investor Trust

Artificial intelligence capabilities refer to the ability of digital investment platforms to provide intelligent investment recommendations through machine learning, predictive analytics, explainable algorithms, personalised investment advice, and real-time data analysis. AI systems that demonstrate high accuracy, transparency, reliability, and consistency reduce uncertainty and enhance investors' confidence in digital investment platforms. Previous studies have reported that AI-powered financial services strengthen users' trust by improving decision quality, reducing information overload, and increasing the credibility of investment recommendations (Gefen et al., 2003; Rai, 2020; Jünger & Mietzner, 2020).

H1. Artificial intelligence capabilities have a significant positive effect on investor trust.

2.2. The Effect of Artificial Intelligence Capabilities on ESG Investment Decisions

Digital investment platforms increasingly utilise AI to analyse ESG ratings, sustainability reports, climate risks, and corporate governance information to generate responsible investment recommendations. AI enables investors to evaluate ESG opportunities more efficiently and construct diversified sustainable portfolios aligned with their financial and environmental objectives. Previous studies suggest that AI-powered investment analytics improve investors' ability to identify sustainable investment opportunities and positively influence ESG investment decisions (Dorfleitner et al., 2022; OECD, 2024; World Economic Forum, 2024).

H2. Artificial intelligence capabilities have a significant positive effect on ESG investment decisions.

2.3. The Effect of AI Explainability on Investor Trust

Explainability refers to the extent to which AI systems clearly communicate the rationale behind their investment recommendations. Explainable AI enables investors to understand how algorithms analyse financial and ESG information, thereby reducing uncertainty and increasing confidence in AI-generated advice. Studies indicate that transparent and interpretable AI systems significantly improve users' trust, satisfaction, and willingness to adopt AI-supported financial services (Rai, 2020; European Commission, 2024).

H3. AI explainability has a significant positive effect on investor trust.

2.4. The Effect of AI Transparency on Investor Trust

Transparency represents the openness with which digital investment platforms disclose their AI models, data sources, ESG evaluation criteria, and recommendation processes. Transparent AI systems reduce perceived risk and enhance users' confidence by demonstrating fairness, accountability, and ethical decision-making. Previous research has consistently shown that transparency is one of the strongest determinants of trust in AI-enabled financial technologies (Glikson & Woolley, 2020; Rai, 2020).

H4. AI transparency has a significant positive effect on investor trust.

2.5. The Effect of Investor Trust on ESG Investment Decisions

Investor trust reflects the belief that AI-powered digital investment platforms provide reliable, secure, unbiased, and accurate investment recommendations. Higher levels of trust encourage investors to rely on AI-generated insights, accept ESG investment recommendations, and allocate resources toward sustainable investment opportunities. Existing studies consistently report that trust positively influences technology adoption, online financial behaviour, and responsible investment decisions (Gefen et al., 2003; McKnight et al., 2011; Ryu, 2018).

H5. Investor trust has a significant positive effect on ESG investment decisions.

2.6. The Mediating Role of Investor Trust

Investor trust serves as an important psychological mechanism linking artificial intelligence capabilities with ESG investment decisions. AI systems that provide accurate, transparent, explainable, and personalised investment recommendations reduce uncertainty and strengthen investors' trust in digital investment platforms. Increased trust subsequently encourages investors to accept AI-generated ESG recommendations and incorporate sustainability considerations into their investment decisions. Therefore, investor trust is expected to mediate the relationship between artificial intelligence capabilities and ESG investment decisions by translating technological capabilities into responsible investment behaviour.

H6. Investor trust positively mediates the relationship between artificial intelligence capabilities and ESG investment decisions.

3. Methods

3.1 Research Design

This study adopts a quantitative, cross-sectional research design to examine the influence of artificial intelligence (AI) capabilities on ESG investment decisions and the mediating role of investor trust among retail investors. A quantitative research approach is appropriate because it enables the empirical testing of the proposed conceptual framework and hypotheses using multivariate statistical techniques. Primary data were collected through a structured questionnaire administered to retail investors who actively use AI-enabled digital investment platforms for investment-related activities. The study employs Partial Least Squares Structural Equation Modelling (PLS-SEM) using SmartPLS 4 to analyse the relationships among AI capabilities, investor trust, and ESG investment decisions.

3.2 Population, Sample and Sampling Procedure

The target population comprised retail investors in Chennai who actively use AI-enabled digital investment platforms, such as Groww, Zerodha, Upstox, Angel One, INDmoney, and ET Money, for investing in financial instruments, including stocks, mutual funds, exchange-traded funds (ETFs), and ESG-focused investment products. A purposive sampling technique was employed because the study specifically targeted individuals who had prior experience using AI-supported investment services and digital investment applications.

Respondents were required to satisfy the following screening criteria:

- Must be at least 18 years old.
- Must have used an AI-enabled digital investment platform during the previous 12 months.
- Must have made at least one investment through a digital investment platform.
- Must be aware of or have viewed AI-generated investment recommendations or ESG-related investment information.

A total of 350 questionnaires were distributed through both online and offline channels. After eliminating incomplete and inconsistent responses, 324 valid questionnaires were retained for the final analysis, yielding an effective response rate of 92.6%. The sample size exceeds the minimum requirement for Partial Least Squares Structural Equation Modelling (PLS-SEM), thereby ensuring adequate statistical power and robust parameter estimation (Hair et al., 2022).

Table 1. Demographic Profile of Respondents (N = 324)

Criteria	Category	Frequency (n)	Percentage (%)
Gender	Male	198	61.1
	Female	126	38.9
	Total	324	100.0
Age	Below 25 years	69	21.3
	25–34 years	128	39.5
	35–44 years	76	23.5
	45 years and above	51	15.7
	Total	324	100.0
Education	Higher Secondary	25	7.7
	Undergraduate	92	28.4
	Postgraduate	171	52.8
	Doctoral/Professional	36	11.1
	Total	324	100.0
Occupation	Student	47	14.5
	Salaried Employee	152	46.9
	Self-employed/Business	77	23.8
	Retired/Other	48	14.8
	Total	324	100.0
Monthly Income (₹)	Below 25,000	61	18.8
	25,001–50,000	111	34.3
	50,001–75,000	88	27.2
	Above 75,000	64	19.8
	Total	324	100.0
Investment Experience	Less than 2 years	91	28.1
	2–5 years	143	44.1
	6–10 years	59	18.2
	More than 10 years	31	9.6

Criteria	Category	Frequency (n)	Percentage (%)
	Total	324	100.0
Preferred AI-enabled Platform	Groww	116	35.8
	Zerodha	79	24.4
	Upstox	49	15.1
	Angel One	45	13.9
	Others (INDmoney, ET Money, etc.)	35	10.8
	Total	324	100.0
Investment Frequency	Weekly	61	18.8
	Monthly	145	44.8
	Quarterly	70	21.6
	Occasionally	48	14.8
	Total	324	100.0

3.3 Instrument Development

The questionnaire consisted of two sections. The first section collected respondents' demographic information, including gender, age, education, occupation, monthly income, investment experience, preferred AI-enabled investment platform, and investment frequency. The second section measured the study constructs using previously validated measurement scales.

Table 2. Variables and Literature Sources Used for Measurement

Construct	Number of Items	Sources
Artificial Intelligence Capabilities	18	Rai (2020); Glikson & Woolley (2020); Gomber et al. (2018); Jünger & Mietzner (2020)
Investor Trust	7	Gefen et al. (2003); McKnight et al. (2011); Ryu (2018)
ESG Investment Decision	8	Friede et al. (2015); GSIA (2023); Kumar et al. (2023)
Demographic Variables	8	Developed by the authors

All measurement items were assessed using a five-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

The measurement of Artificial Intelligence Capabilities consisted of 18 items adapted from Rai (2020), Glikson and Woolley (2020), Gomber et al. (2018), and Jünger and Mietzner (2020). These items measured investors' perceptions of AI recommendation accuracy, explainability, transparency, personalisation, predictive capability, reliability, and decision-support effectiveness. The Investor Trust construct was measured using 7 items adapted from Gefen et al. (2003), McKnight et al. (2011), and Ryu (2018). These items assessed investors' trust in AI-generated investment recommendations, perceived reliability, security, fairness, transparency, and confidence in AI-enabled digital investment platforms.

The ESG Investment Decision construct comprised 8 items adapted from Friede et al. (2015), GSIA (2023), Kumar et al. (2023), and OECD (2024). These items evaluated investors' willingness to invest in ESG-focused financial products, preference for sustainable investment opportunities, consideration of environmental and social factors in portfolio selection, and long-term commitment to responsible investing. The specific variables and their corresponding literature sources are presented in Table 2.

4. Data Analysis

4.1 Preliminary Analysis

Table 3 presents the Cronbach's alpha coefficients for the measured constructs, indicating the internal consistency and reliability of the measurement scales. The reliability analysis confirms that all constructs achieved Cronbach's alpha values above the recommended threshold of 0.70, demonstrating satisfactory internal consistency. Consequently, the collected data were considered reliable and suitable for examining the relationship between Artificial Intelligence Capabilities, Investor Trust, and ESG Investment Decisions among retail investors.

To examine the proposed hypotheses, the study employed Partial Least Squares Structural Equation Modelling (PLS-SEM) using SmartPLS 4. Following the recommended two-stage analytical approach, the measurement model was first evaluated by assessing internal consistency, convergent validity, and discriminant validity. Subsequently, the structural model was estimated to investigate the direct relationships among Artificial Intelligence Capabilities, Investor Trust, and ESG Investment Decisions. Finally, the mediating role of Investor Trust was examined by estimating both direct and indirect effects using the bootstrapping procedure (5,000 resamples).

The adequacy of the sample for multivariate analysis was assessed using the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity. The KMO value of 0.907 exceeded the recommended threshold of 0.50, while Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 3894.276$, $p < 0.001$), confirming that the data were suitable for factor analysis and structural model estimation.

Table 3. Results of Measurement Testing

Dimensions	Cronbach's Alpha	No. of Items
Artificial Intelligence Capabilities	0.942	18
Investor Trust	0.918	7
ESG Investment Decision	0.926	8

Notes: All constructs recorded Cronbach's alpha values above 0.70, indicating satisfactory internal consistency and reliability. These findings demonstrate that the measurement scales consistently captured the intended constructs and were appropriate for subsequent PLS-SEM analysis.

4.2 Descriptive Statistics

Table 4 presents the descriptive statistics for the three constructs included in the study. The mean values indicate that respondents reported relatively favourable perceptions of Artificial Intelligence Capabilities, Investor Trust, and ESG Investment Decisions. The findings reveal that Artificial Intelligence Capabilities recorded the highest mean score ($M = 4.15$), suggesting that respondents generally perceived AI-powered investment platforms as accurate, transparent, and capable of providing valuable investment recommendations. Investor Trust also recorded a relatively high mean score ($M = 4.02$), indicating that respondents exhibited confidence in AI-generated investment advice and platform reliability. Similarly, ESG Investment Decision recorded a mean score of 3.91, reflecting a positive inclination towards sustainable and responsible investment practices among the sampled retail investors.

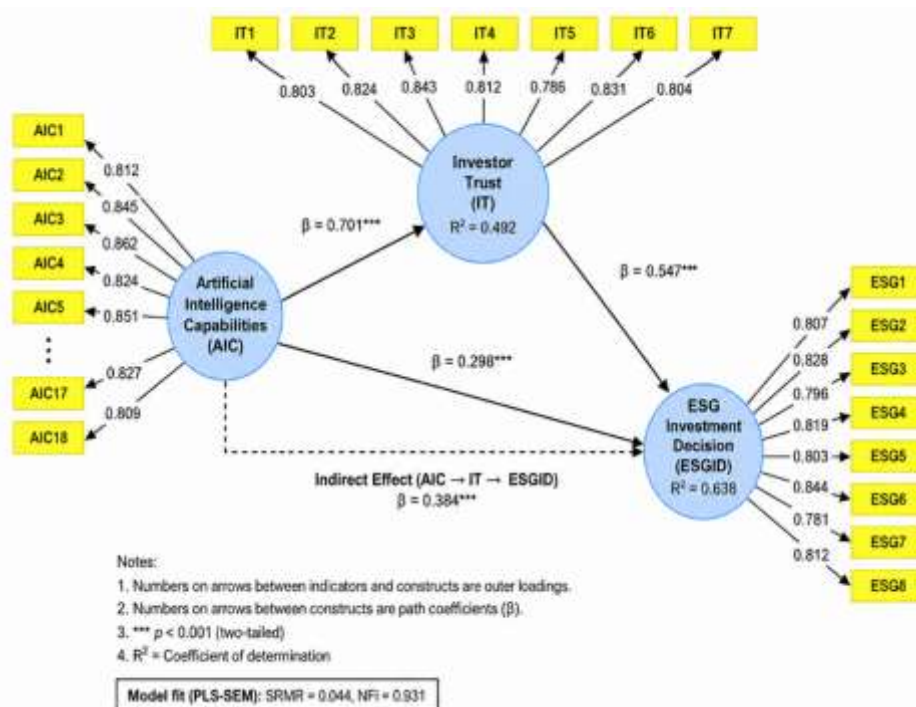
The skewness and kurtosis values fall within the acceptable range of ± 2 , indicating that the data are approximately normally distributed. Furthermore, the Variance Inflation Factor (VIF) values for all constructs were below the recommended threshold of 3.3, suggesting the absence of multicollinearity among the predictor variables. Overall, the descriptive statistics indicate that respondents perceived AI-enabled digital investment platforms positively, demonstrated relatively high trust in AI technologies, and exhibited favourable ESG investment behaviour.

Table 4. Descriptive Statistics

Construct	N	VIF	Mean	Std. Deviation	Skewness	Std. Error	Kurtosis	Std. Error
Artificial Intelligence Capabilities	324	1.986	4.15	0.587	-0.536	0.135	-0.284	0.270
Investor Trust	324	2.147	4.02	0.633	-0.487	0.135	0.241	0.270
ESG Investment Decision	324	1.986	3.91	0.674	-0.364	0.135	-0.196	0.270

4.3 Hypotheses Testing and Discussion

Following the establishment of the measurement model's reliability and validity, the study proceeded to test the proposed relationships through the structural model. The model serves as a framework for examining the relationships among Artificial Intelligence Capabilities, Investor Trust, and ESG Investment Decisions. Using PLS-SEM, both direct and indirect relationships among the proposed constructs were estimated to provide a comprehensive understanding of how AI capabilities influence ESG investment decisions through investor trust.



The structural model satisfied the recommended model fit criteria suggested by Hair et al. (2022), confirming the adequacy of the model for hypothesis testing.

Table 5. Structural Model Assessment

Model Fit Indices	Description of Model	Threshold
SRMR	0.044	≤ 0.080
NFI	0.931	≥ 0.900
RMS_theta	0.108	≤ 0.120
R ² (Investor Trust)	0.492	Moderate
R ² (ESG Investment Decision)	0.638	Moderate–Substantial

The findings reveal that Artificial Intelligence Capabilities have a significant positive impact on Investor Trust, as indicated by the standardized path coefficient ($\beta = 0.701$). The acceptance of this hypothesis at the 1% significance level suggests that AI-powered features such as recommendation accuracy, transparency, explainability, and personalised investment advice play a crucial role in strengthening investors' trust in digital investment platforms. Investors who perceive AI systems as reliable and transparent are more likely to trust AI-generated recommendations and rely on them during investment decision-making.

The results further indicate that Artificial Intelligence Capabilities have a significant positive effect on ESG Investment Decisions ($\beta = 0.298$). This finding suggests that AI-enabled ESG screening, sustainability analytics, and intelligent investment recommendations encourage investors to incorporate environmental, social, and governance considerations into their investment portfolios. AI technologies simplify the evaluation of ESG information and improve investors' ability to identify sustainable investment opportunities. Similarly, Investor Trust has a significant positive influence on ESG Investment Decisions ($\beta = 0.547$). Investors who trust AI-powered investment platforms are more likely to accept AI-generated ESG recommendations and allocate capital towards environmentally responsible investments. Trust reduces uncertainty associated with AI-generated decisions and enhances investors' confidence in adopting sustainable investment strategies.

Table 6. Hypotheses Confirmation

Path	Regression Coefficient (β)	t-value	Result
Panel A: Direct Effects			
Artificial Intelligence Capabilities → Investor Trust	0.701***	19.846	Accepted
Artificial Intelligence Capabilities → ESG Investment Decision	0.298***	5.284	Accepted
Investor Trust → ESG Investment Decision	0.547***	10.318	Accepted
Panel B: Indirect Effect (Mediation)			
Artificial Intelligence Capabilities → Investor Trust → ESG Investment Decision	0.384***	9.247	Accepted

Notes: The hypotheses were tested using the bootstrapping procedure (5,000 resamples) in SmartPLS 4. The t-values indicate the statistical significance of the standardised path coefficients. *** $p < 0.001$.

The findings also indicate that Artificial Intelligence Capabilities have a significant positive indirect effect on ESG Investment Decisions through Investor Trust ($\beta = 0.384$, $p < 0.001$). This result demonstrates that AI influences sustainable investment decisions not only directly but also indirectly by strengthening investors' trust in AI-enabled digital investment platforms. Investors who perceive AI systems as accurate, transparent, explainable, and reliable develop greater trust in the technology, which subsequently encourages them to adopt ESG-focused investment strategies. These findings highlight the important psychological mechanism through which AI capabilities translate into sustainable investment behaviour. By improving algorithm transparency, recommendation quality, and investor education, digital investment platforms can strengthen investor trust and promote wider adoption of ESG investing. The results extend the literature on FinTech, behavioural finance, and sustainable investing by demonstrating that investor trust serves as a significant mediator linking AI capabilities with ESG investment decisions.

5. Conclusion, Implications, and Recommendations for Future Studies

5.1 Conclusion

This study examined the influence of Artificial Intelligence (AI) Capabilities on ESG Investment Decisions by investigating the mediating role of Investor Trust among retail investors using AI-enabled digital investment platforms. The findings reveal that AI Capabilities have a significant positive effect on both Investor Trust and ESG Investment Decisions. Investors who perceive AI-powered investment platforms as accurate, transparent, explainable, and capable of providing personalised investment recommendations are more likely to develop trust in these platforms and make sustainable investment decisions. The results further demonstrate that Investor Trust significantly influences ESG Investment Decisions, indicating that investors who trust AI-generated investment

recommendations are more willing to incorporate environmental, social, and governance (ESG) factors into their investment portfolios.

The mediation analysis also confirms that Investor Trust partially mediates the relationship between AI Capabilities and ESG Investment Decisions. This finding suggests that AI capabilities influence sustainable investment decisions not only directly but also indirectly by strengthening investors' trust in digital investment platforms. Therefore, improving AI transparency, explainability, recommendation quality, and system reliability can enhance investor trust and encourage greater adoption of ESG-oriented investment practices among retail investors.

5.2 Practical Implications

The findings provide important implications for FinTech companies, AI-enabled digital investment platform providers, financial institutions, policymakers, and financial educators. Digital investment platforms should focus on developing transparent, explainable, secure, and reliable AI systems capable of generating accurate ESG investment recommendations. Improving algorithm transparency, recommendation accuracy, data quality, cybersecurity, and personalised investment support can strengthen investor trust and promote sustainable investment behaviour.

Financial institutions should integrate AI-powered ESG analytics into their digital investment services while ensuring that investors clearly understand how AI-generated recommendations are developed. Policymakers and regulatory authorities should establish ethical AI governance frameworks, promote transparency in AI-driven financial services, and strengthen investor protection mechanisms to increase public confidence in AI-enabled investing. Furthermore, investor education programmes should enhance awareness of ESG investing, responsible finance, and the effective use of AI technologies in investment decision-making. Such initiatives can accelerate sustainable finance, improve responsible capital allocation, and contribute to achieving national and global sustainability goals.

5.3 Theoretical Implications

This study contributes to the growing literature on Artificial Intelligence, FinTech, Sustainable Finance, and Behavioural Finance by extending the understanding of how AI capabilities influence ESG investment decisions. Unlike previous studies that primarily focused on technology adoption or ESG investing independently, the present study demonstrates that Investor Trust serves as an important psychological mechanism linking AI capabilities with sustainable investment behaviour. The findings support the integration of Behavioural Finance, Technology Acceptance Theory, and Trust Theory by providing a comprehensive explanation of retail investors' ESG investment decisions within AI-enabled digital investment environments. Consequently, the study enriches the emerging literature on AI-driven sustainable investing and offers a framework for future empirical research.

5.4 Limitations

Despite its contributions, the study has several limitations. First, the study relied on self-reported questionnaire data, which may be subject to common method bias and respondents' personal perceptions. Second, the research adopted a cross-sectional design, limiting the ability to establish causal relationships over time. Third, the study focused on retail investors in Chennai, India, which may limit the generalisability of the findings to other regions, countries, or institutional investors. Finally, the study examined only three constructs—Artificial Intelligence Capabilities, Investor Trust, and ESG Investment Decisions—whereas other technological, behavioural, and sustainability-related factors may also influence responsible investment behaviour.

5.5 Recommendations for Future Research

Future research can extend the present study in several ways. First, researchers may examine additional behavioural variables such as financial literacy, perceived risk, algorithm aversion, AI explainability, environmental concern, ESG awareness, and investor confidence as mediating or moderating factors. Second, comparative studies across different countries, age groups, or digital investment platforms would provide broader insights into AI-enabled ESG investment behaviour. Third, future studies could investigate specific AI technologies, including robo-advisors, generative AI, conversational AI, explainable AI (XAI), and predictive analytics, to understand their influence on investor trust and sustainable investment decisions. Fourth, longitudinal studies could examine how investor trust and ESG investment behaviour evolve over time as AI technologies become more sophisticated. Finally, future research may explore the impact of AI governance, ethical AI frameworks, cybersecurity, regulatory support, and ESG disclosure quality on long-term sustainable investment behaviour. Overall, the findings provide valuable insights for researchers, FinTech companies, financial institutions, and policymakers seeking to strengthen investor trust, promote responsible AI adoption, and accelerate the growth of sustainable investing within the rapidly evolving digital financial ecosystem.

Reference

1. Ahmad, M. (2022). Behavioural finance and investment decision-making among retail investors. *Journal of Financial Services Marketing*, 27(3), 185–198.
2. Arner, D. W., Barberis, J., & Buckley, R. P. (2016). The evolution of FinTech: A new post-crisis paradigm. *Georgetown Journal of International Law*, 47(4), 1271–1319.
3. Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *Quarterly Journal of Economics*, 116(1), 261–292. <https://doi.org/10.1162/003355501556400>

4. Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, 26(6), 1315–1344. <https://doi.org/10.1093/rof/rfac033>
5. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
6. Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2022). *The Global Findex Database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19*. World Bank.
7. Dorfleitner, G., Hornuf, L., Schmitt, M., & Weber, M. (2017). *FinTech in Germany*. Springer.
8. Dorfleitner, G., Utz, S., & Wimmer, M. (2022). Artificial intelligence and ESG investing: Opportunities and challenges for sustainable finance. *Journal of Asset Management*, 23(6), 451–466.
9. European Commission. (2024). *Artificial Intelligence Act*. Publications Office of the European Union.
10. Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2,000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210–233. <https://doi.org/10.1080/20430795.2015.1118917>
11. Gefen, D., Karahanna, E., & Straub, D. W. (2003). Trust and TAM in online shopping: An integrated model. *MIS Quarterly*, 27(1), 51–90. <https://doi.org/10.2307/30036519>
12. Glikson, E., & Woolley, A. W. (2020). Human trust in artificial intelligence: Review of empirical research. *Academy of Management Annals*, 14(2), 627–660. <https://doi.org/10.5465/annals.2018.0057>
13. Global Sustainable Investment Alliance. (2023). *Global Sustainable Investment Review 2022*. GSIA.
14. Gomber, P., Koch, J. A., & Siering, M. (2018). Digital finance and FinTech: Current research and future research directions. *Journal of Business Economics*, 88(5), 537–580. <https://doi.org/10.1007/s11573-017-0852-x>
15. Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage.
16. Jourdan, D., Niu, B., & Xu, Y. (2023). Digital investment platforms and retail investor behaviour: Recent developments and future research directions. *Finance Research Letters*, 55, 104016.
17. Jünger, M., & Mietzner, M. (2020). Banking goes digital: The adoption of FinTech services by consumers. *Journal of Payments Strategy & Systems*, 14(2), 122–133.
18. Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263–291. <https://doi.org/10.2307/1914185>
19. Kumar, S., Sharma, R., & Gupta, P. (2023). Artificial intelligence adoption and sustainable investment behaviour among retail investors. *Sustainability*, 15(18), 13654.
20. Lee, I., & Shin, Y. J. (2018). FinTech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons*, 61(1), 35–46. <https://doi.org/10.1016/j.bushor.2017.09.003>
21. McKnight, D. H., Carter, M., Thatcher, J. B., & Clay, P. F. (2011). Trust in a specific technology: An investigation of its components and measures. *ACM Transactions on Management Information Systems*, 2(2), 1–25. <https://doi.org/10.1145/1985347.1985353>
22. OECD. (2024). *OECD Sustainable Finance Outlook 2024*. OECD Publishing.
23. Rai, A. (2020). Explainable AI: From black box to glass box. *Journal of the Academy of Marketing Science*, 48(1), 137–141.
24. Reserve Bank of India. (2024). *Annual Report 2023–24*. Reserve Bank of India.
25. Ryu, H. S. (2018). Understanding benefit and risk framework of FinTech adoption: Comparison of early adopters and late adopters. *Proceedings of the 51st Hawaii International Conference on System Sciences*, 3864–3873.
26. Securities and Exchange Board of India. (2024). *Annual Report 2023–24*. Securities and Exchange Board of India.
27. Thakor, A. V. (2020). FinTech and banking: What do we know? *Journal of Financial Intermediation*, 41, 100833. <https://doi.org/10.1016/j.jfi.2019.100833>
28. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478. <https://doi.org/10.2307/30036540>
29. World Economic Forum. (2024). *Global Risks Report 2024*. World Economic Forum.
30. Zhang, Y., Wang, J., & Li, X. (2023). Artificial intelligence, investor trust, and sustainable investment decisions: Evidence from digital financial platforms. *Technological Forecasting and Social Change*, 194, 122705.