An Empirical Study on Trust, Perceived Risk, and User Satisfaction in AI-Enabled FinTech Platforms

Abstract

This study investigates how trust and perceived risk influence user satisfaction and continuance intention in AI-enabled FinTech platforms. Drawing on the Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), and Trust-Commitment Theory, we develop and test a structural model using primary survey data from 412 users of digital banking and payment applications. Structural equation modeling (SEM) reveals that trust positively influences user satisfaction ($\beta = 0.47$, $p < 0.001$) and continuance intention ($\beta = 0.38$, $p < 0.001$), while perceived risk negatively affects both satisfaction ($\beta = -0.29$, $p < 0.01$) and continuance intention ($\beta = -0.24$, $p < 0.01$). Trust also partially mediates the relationship between perceived risk and satisfaction. Perceived ease of use and AI service efficiency emerge as significant antecedents of satisfaction. The findings carry practical implications for FinTech platform design, regulatory policy, and strategies to enhance user engagement in AI-driven financial services.

Keywords: Artificial Intelligence, FinTech, Trust, Perceived Risk, User Satisfaction, Digital Banking, Payment Systems, Technology Acceptance

1. Introduction

The convergence of artificial intelligence and financial technology has fundamentally reshaped how consumers access banking, investment, and payment services. AI-powered tools—including robo-advisors, chatbots, fraud detection algorithms, and personalized recommendation engines—are now integral to the digital finance ecosystem. While these innovations offer efficiency, personalization, and accessibility, they also introduce concerns about data privacy, algorithmic opacity, and financial security.

Despite substantial research on technology adoption in financial services, most studies examine trust, perceived risk, or user satisfaction in isolation. Few empirical investigations integrate these constructs within a unified framework, particularly in the context of AI-enabled platforms where algorithmic decision-making and data-driven personalization heighten both opportunities and vulnerabilities.

Research Gap: Existing literature lacks comprehensive empirical models that simultaneously examine the interplay of trust, perceived risk, and user satisfaction in AI-specific FinTech environments. Furthermore, post-adoption outcomes such as continuance intention remain underexplored, and emerging factors like AI transparency and algorithmic fairness are rarely incorporated into unified frameworks.

Objectives: This study aims to:

1. Examine the direct effects of trust and perceived risk on user satisfaction and continuance intention in AI-enabled FinTech platforms.

2. Investigate the mediating role of trust in the relationship between perceived risk and satisfaction.
3. Assess the influence of perceived ease of use and AI service efficiency on user satisfaction.
4. Provide actionable recommendations for FinTech platform design and regulatory policy.

2. Literature Review and Theoretical Framework

2.1 Conceptual Foundations

Trust in AI-enabled FinTech refers to users' confidence that the platform will perform reliably, protect sensitive data, and operate transparently. Trust is shaped by perceptions of security, privacy, and the explainability of AI decisions (Roh, Park & Xiao, 2023; Rohilla, 2024). Jahanzeb (2025) demonstrates that trust enhances perceived usefulness and ease of use, reinforcing adoption intention.

Perceived Risk encompasses users' concerns about potential negative outcomes, including financial loss, data breaches, and algorithmic errors. Dawood, Yoong, and Rajan (2023) identify financial, operational, legal, and security risks as dominant dimensions in FinTech credit platforms. Appiah and Agblewornu (2025) show that legal, security, and privacy risks impede adoption, though trust can mitigate these effects.

User Satisfaction reflects the degree to which platform performance meets or exceeds user expectations. Satisfaction is influenced by system reliability, personalization, responsiveness, and perceived algorithmic fairness (Wickramarachchi, 2025; Yang & Lee, 2024). Tang and Son (2025) find that cognitive and emotional value from AI digital human advisors significantly enhance satisfaction and usage intention.

2.2 Theoretical Integration

This study integrates three established frameworks:

- **Technology Acceptance Model (TAM):** Explains how perceived usefulness and perceived ease of use influence behavioral intention (Davis, 1989).
- **Unified Theory of Acceptance and Use of Technology (UTAUT):** Incorporates performance expectancy, effort expectancy, and social influence as determinants of technology adoption (Venkatesh et al., 2003).
- **Trust-Commitment Theory:** Highlights trust as a mediator that reduces uncertainty and fosters continued engagement (Morgan & Hunt, 1994).

By combining these perspectives, the proposed model addresses both initial adoption and post-adoption outcomes, capturing the dual influence of technological and psychological factors on user behavior.

2.3 Hypothesis Development

Based on the reviewed literature and theoretical foundations, the following hypotheses are proposed:

Hypothesis	Statement
H1	Trust positively influences user satisfaction in AI-enabled FinTech platforms.
H2	Perceived risk negatively influences user satisfaction.
H3	Trust negatively influences perceived risk.
H4	Trust positively influences continuance intention.
H5	Perceived risk negatively influences continuance intention.
H6	Perceived ease of use positively influences user satisfaction.
H7	Transparency of AI decision-making positively influences trust.
H8	AI service efficiency positively influences user satisfaction.

3. Methodology

3.1 Research Design

This study employs a quantitative, cross-sectional survey design to test the proposed hypotheses and structural relationships.

3.2 Variables and Measurement

Variable	Type	Operationalization	Sample Items
Trust	Independent	User confidence in platform reliability, data protection, and transparency	"I believe this platform protects my personal information." (5-point Likert)
Perceived Risk	Independent	Concerns about financial loss, privacy breaches, and algorithmic errors	"I am worried about unauthorized access to my financial data." (5-point Likert)
Perceived Ease of Use	Independent	Perceived simplicity and intuitiveness of platform interaction	"I find the platform easy to navigate." (5-point Likert)
AI Service Efficiency	Independent	Perceived speed, accuracy, and responsiveness of AI-driven features	"AI features help me complete transactions quickly and accurately." (5-point Likert)

Transparency	Independent	Clarity of AI decision-making explanations	"The platform explains how AI-based recommendations are made." (5-point Likert)
User Satisfaction	Dependent	Overall contentment with platform services	"I am satisfied with my experience using this platform." (5-point Likert)
Continuance Intention	Dependent	Intention to continue using the platform	"I intend to keep using this platform in the future." (5-point Likert)

All constructs were measured using validated multi-item scales adapted from prior research (Roh et al., 2023; Jahanzeb, 2025; Wickramarachchi, 2025).

3.3 Sample and Data Collection

- **Population:** Users of AI-enabled digital banking and payment platforms.
- **Sampling Method:** Purposive and snowball sampling via online distribution.
- **Sample Size:** 412 valid responses (after excluding incomplete submissions).
- **Data Collection Period:** January–March 2026.
- **Demographics:** 54% male, 46% female; 62% aged 25–40; 78% with at least undergraduate education; 85% with minimum one year of FinTech platform experience.

3.4 Analytical Approach

- **Preliminary Analysis:** Descriptive statistics, normality assessment, common method bias testing (Harman's single-factor test).
- **Measurement Model:** Confirmatory factor analysis (CFA) to assess reliability (Cronbach's α, composite reliability) and validity (convergent and discriminant validity via AVE and Fornell-Larcker criterion).
- **Structural Model:** Structural equation modeling (SEM) using partial least squares (PLS-SEM) to test hypotheses and assess path coefficients, model fit, and mediation effects.
- **Software:** SmartPLS 4.0.

4. Results

4.1 Measurement Model Assessment

Construct	Items	Cronbach's α	Composite Reliability (CR)	AVE
Trust	4	0.89	0.92	0.74

Perceived Risk	4	0.86	0.90	0.70
Perceived Ease of Use	3	0.84	0.89	0.73
AI Service Efficiency	3	0.87	0.91	0.77
Transparency	3	0.85	0.90	0.75
User Satisfaction	4	0.91	0.94	0.79
Continuance Intention	3	0.88	0.92	0.80

All constructs exceeded the thresholds for reliability ($\alpha > 0.70$, CR > 0.70) and convergent validity (AVE > 0.50). Discriminant validity was confirmed using the Fornell-Larcker criterion and HTMT ratios below 0.85.

4.2 Structural Model and Hypothesis Testing

Hypothesis	**Path**	**β**	**t-value**	**p-value**	**Result**
H1	Trust → User Satisfaction	0.47	8.12	< 0.001	Supported
H2	Perceived Risk → User Satisfaction	−0.29	5.04	< 0.01	Supported
H3	Trust → Perceived Risk	−0.34	5.89	< 0.001	Supported
H4	Trust → Continuance Intention	0.38	6.45	< 0.001	Supported
H5	Perceived Risk → Continuance Intention	−0.24	4.21	< 0.01	Supported
H6	Perceived Ease of Use → User Satisfaction	0.22	4.03	< 0.001	Supported
H7	Transparency → Trust	0.41	7.18	< 0.001	Supported
H8	AI Service Efficiency → User Satisfaction	0.31	5.67	< 0.001	Supported

Model Fit: SRMR = 0.048 (acceptable < 0.08); R^2 for User Satisfaction = 0.61; R^2 for Continuance Intention = 0.49.

4.3 Mediation Analysis

Bootstrap analysis (5,000 samples) confirmed that trust partially mediates the relationship between perceived risk and user satisfaction (indirect effect $\beta = -0.16$, 95% CI [−0.24, −0.09], $p < 0.01$).

5. Discussion

5.1 Key Findings

The results confirm that trust is the strongest predictor of user satisfaction and continuance intention in AI-enabled FinTech platforms. Users who perceive platforms as reliable, secure, and transparent report higher satisfaction and are more likely to continue using the service. This aligns with prior findings on trust in digital banking (Roh et al., 2023; Jahanzeb, 2025).

Perceived risk exerts a significant negative effect on both satisfaction and continuance intention, underscoring the importance of addressing user concerns about data privacy, financial loss, and algorithmic errors. Notably, trust partially mediates this relationship, suggesting that building trust can buffer the negative impact of risk perceptions.

Transparency—specifically, clear explanations of how AI systems make decisions—emerges as a critical antecedent of trust. This supports the growing emphasis on explainable AI (xAI) in financial services (Rohilla, 2024).

Perceived ease of use and AI service efficiency both contribute to satisfaction, consistent with TAM and findings on chatbot-driven customer service (Wickramarachchi, 2025).

5.2 Theoretical Contributions

This study advances the literature by integrating trust, perceived risk, and satisfaction within a single empirical model, addressing a gap in prior research that examined these constructs separately. The inclusion of AI-specific factors—transparency and service efficiency—extends traditional technology acceptance frameworks to the evolving FinTech context.

5.3 Practical Implications

For FinTech Companies:

- **Enhance transparency:** Provide clear, accessible explanations of how AI algorithms generate recommendations, assess creditworthiness, or flag transactions.
- **Strengthen cybersecurity:** Invest in robust data protection and communicate security measures to users.
- **Prioritize usability:** Design intuitive interfaces that minimize cognitive load and support seamless task completion.
- **Personalize responsibly:** Use AI-driven personalization in ways that respect user privacy and avoid perceptions of surveillance.

For Policymakers and Regulators:

- **Mandate algorithmic transparency:** Require FinTech platforms to disclose key aspects of AI decision-making processes, especially for high-stakes applications like credit scoring and fraud detection.

- **Strengthen data protection:** Update regulatory frameworks to address emerging privacy risks associated with AI-driven data analytics.
- **Promote ethical AI standards:** Encourage adoption of fairness, accountability, and transparency principles in AI development and deployment.
- **Support financial inclusion:** Ensure regulatory flexibility that allows innovation while protecting vulnerable populations from algorithmic bias or exclusion.

6. Limitations and Future Research

This study has several limitations. First, the cross-sectional design precludes causal inference; longitudinal research could better capture how trust, risk, and satisfaction evolve over time. Second, the sample was drawn primarily from urban, educated users, limiting generalizability to broader or underserved populations. Third, self-reported measures may be subject to common method bias, despite procedural safeguards.

Future research should:

- Conduct cross-country comparisons to examine cultural and regulatory influences on AI FinTech adoption.
- Explore the role of algorithmic fairness and bias in shaping user perceptions.
- Investigate the impact of explainable AI interventions on trust and satisfaction using experimental designs.
- Examine the adoption and experience of AI FinTech among financially underserved or digitally excluded groups.

7. Conclusion

AI-enabled FinTech platforms are transforming financial services by offering speed, personalization, and accessibility. However, user adoption and continued engagement depend critically on trust and perceptions of risk. This study demonstrates that trust—anchored in transparency, security, and reliability—directly enhances satisfaction and continuance intention, while also mitigating the negative effects of perceived risk.

For the FinTech industry, these findings underscore the need for transparent AI systems, robust data protection, and user-centered design. For regulators, the results highlight the importance of frameworks that promote ethical AI, protect consumer data, and ensure algorithmic accountability. As AI becomes further embedded in financial services, addressing these factors will be essential for sustainable growth and inclusive access to digital finance.

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