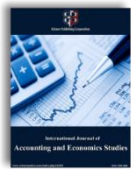
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Research paper



FinTech Disruption in Traditional Banking: Risks and Opportunities

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Abstract

This study examines how financial technology (FinTech) changes the way people think about traditional banking by exploring three main ideas—bank response, perceived risk, and FinTech usefulness—that affect how people perceive future opportunity in the digital financial ecosystem. Using Partial Least Squares Structural Equation Modelling (PLS-SEM) on a sample of 250 people, the study confirms a conceptual framework that shows how important it is for institutions to be flexible, for consumer perceptions to change, and for digital skills to grow. The findings indicate that bank response highly and positively impacts both FinTech usefulness and future opportunity. This demonstrates how critical agility is for incumbents. Surprisingly, perceived risk is positively associated with FinTech's usefulness. This indicates that consumers are more willing to take risks for the convenience and innovation that come with digital technologies. The exploration of moderation effects, including digital literacy and trust, did not yield significant findings, suggesting that these constructs are more likely to have direct impacts rather than interdependent relationships with other elements of the model. The validated model has a high R^2 value for explaining things and a strong construct dependability, which backs up its theoretical and empirical contributions. The results have real-world consequences for banks, fintech companies, and regulators that want to find a way to balance risk, innovation, and user confidence in the changing world of digital banking. This research adds to existing literature by reframing widely held assumptions regarding risk perception and presenting a nuanced analysis of the interplay between behavioural and technological facilitators and barriers to FinTech adoption.

Keywords: *FinTech, Traditional Banking, Perceived Risk, Digital Literacy, Trust, PLS-SEM, Customer Behaviour, Financial Innovation*

1. Introduction

The rise in financial technology (FinTech) has changed the way the world does business, making it harder for traditional banks to stay on top. FinTech has changed the way people get and use financial services in a big way with new technologies like mobile payments, peer-to-peer lending, blockchain, and robo-advisory. This disruption isn't only technology; it's also behavioural, institutional, and strategic. Traditional banks must now change, or they will become obsolete. This study looks at how important ideas like Bank Response (BR), Perceived Risk (PR), and FinTech Usefulness (FU) affect Future Opportunities (FO) in the financial services industry. The study also looks at how trust and digital literacy can change the results of existing theoretical frameworks, including the Technology Acceptance Model (TAM), Innovation Diffusion Theory (IDT), and Institutional Theory. The research fills in some holes in our understanding of how consumer perception and institutional adaptability affect the long-term use of FinTech by doing a lot of quantitative analysis with PLS-SEM.

2. Review of Literature

Recent studies have reinforced the transformative role of FinTech in enhancing digital inclusion and financial democratization. For example, Chen and Huang (2024) highlight how blockchain-powered FinTech platforms reduce verification costs and enhance trust among rural users. Singh and Mehta (2025) demonstrate that AI-driven credit scoring tools are now instrumental in MSME lending decisions, especially in emerging markets. Such advancements signal that FinTech's evolution is now intertwined with advances in trust-based algorithms and decentralized finance, warranting deeper interdisciplinary inquiry.

2.1 How FinTech is changing traditional banking

FinTech has changed the way money works by giving people more control and making it easier for businesses to come up with new ideas that put customers first. Arner et al. (2016) say that this change happened because there were loopholes in regulations after the crisis, and technology stepped in to fill the gaps. Gomber et al. (2018) stress that FinTech has two roles: it disrupts old systems by removing middlemen,

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and it adds to established services. Puschmann (2017) talks about how FinTech platforms break apart big banks and offer modular services. Philippon (2016) shows that FinTech companies have lower cost-to-income ratios because they use automation and flexible structures. Nicoletti (2017) says that traditional banks that want to stay competitive must use blockchain, APIs, and cloud-based services. Haddad and Hornuf (2019) also show through research that nations with favorable regulatory sandboxes see more FinTech growth. This shows how important it is for policies to be flexible.

2.2 BR (Bank Response)

Banks' strategic responses to FinTech disruption differ from one place to another and from one institution to another. Chen et al. (2021) say that digital maturity is linked to how well Chinese commercial banks do financially. Bunea et al. (2016) say that open banking APIs, innovation laboratories, and accelerators let FinTechs work together to create new things. According to Arner et al. (2016), banks that follow adaptive rules have shorter cycles of innovation. Goldstein et al. (2019) stress that working together in FinTech ecosystems helps everyone thrive. Alt et al. (2018) suggest three types of responses: defensive (like lobbying), adaptive (like redesigning a product), and offensive (like starting digital-only banks). Hornuf et al. (2020) also show that traditional banks' investments in FinTech firms are a way to lower risk and speed up innovation.

2.3 Perceived Risk (PR)

Risk perception is still a big problem for FinTech adoption, especially for elderly consumers and people in emerging nations. Featherman and Pavlou (2003) talk about three types of risk in digital environments: financial risk, performance risk, and social risk. Lee (2009) adds internet banking to this, saying that perceived risk has a big effect on behavioural intention. Khedmatgozar and Shahnazi (2018) say that in Iran, economic uncertainty makes consumers more sensitive to risk. Pavlou (2003) says that trust in institutions makes people feel less risk-averse about e-commerce. Shankar and Datta (2018) talk more about how cybersecurity protections and visible privacy controls can help lower perceived risk. Martins et al. (2014) discovered that how people feel about risk affects their willingness to use mobile banking services in Europe.

2.4 How Useful FinTech Is (FU)

Usefulness is still a key factor in the adoption of FinTech, and the TAM and its extensions strongly support this. Davis (1989) thought that how beneficial something seems to be is very important for people to adopt new technologies. Alalwan et al. (2018) confirm this in the case of mobile banking in Jordan, where they found it to be the best predictor of user intention. Zhao et al. (2022) say that usefulness immediately increases confidence and keeps users in FinTech apps. According to Karjaluoto et al. (2002), Scandinavian users think that mobile interface design and efficiency are useful. According to Oliveira et al. (2014), utility is what makes people trust mobile banking and use it. Zhou (2012) also says that usefulness makes perceived enjoyment stronger, which makes people want to use it more often.

2.5 Future Opportunity (FO)

The belief that there will be future opportunities encourages long-term use and investment in FinTech technologies. Venkatesh et al. (2012) in UTAUT2 talk about "hedonic motivation" and "habit" as predictors of the future. Rogers (2003) talks about how perceived relative advantage speeds up the spread of new ideas. Hassani et al. (2020) illustrate that FinTech uses predictive analytics to make their services suitable for the future. Goldstein et al. (2019) say that FinTech ecosystems are engines of growth that include everyone. Ghosh and Ghosh (2021) say that FinTechs that use AI and big data can help underprivileged groups take part in the economy in the future. Raihan et al. (2021) reveal that Gen Z consumers see FinTech as a professional platform, not just a tool, which shows how their views on the future are changing.

2.6 Trust (T)

Trust is very important in digital financial systems when there is no physical proof or touch. Gefen et al. (2003) add trust to the TAM to explain how people shop online. They say that ability, compassion, and honesty are the most important factors. Yousafzai et al. (2009) create a multidimensional trust model for e-banking that focuses on institutional assurance. According to Pavlou (2003), trust has a direct effect on the desire to do business online. Lankton et al. (2015) talk about the difference between emotional and cognitive trust in digital settings. McKnight et al. (2002) say that structural assurances, such as third-party certifications, make people feel more trustworthy. Montazemi and Qahri-Saremi (2015) say that high-quality, interactive websites can create trust in digital finance systems.

2.7 Digital Literacy (DL)

Digital literacy is more than just knowing how to use computers; it's also knowing how to use them in a way that is culturally and socially appropriate. According to Ng (2012), digital literacy includes technical, cognitive, and emotional areas. Van Deursen and Van Dijk (2014) say that the digital divide is now more about the quality of literacy than access. Ragnedda et al. (2019) talk about "digital capital," which encompasses how often you use something, how diverse it is, and your skill level. Macek (2011) says that being digitally literate is a civic skill that is necessary for financial inclusion. Helsper and Eynon (2013) say that being digitally literate is related to being independent and making smart choices about money online. Park and Kim (2019) show that for older users, digital literacy has a big effect on the link between perceived usefulness and behavioural intention.

3. Research Methodology

This study used a quantitative research design and a structured questionnaire to get the main data. The PLS-SEM method was used to look at both the measurement and structural models. The research tool has six parts: demographics, Bank Response (BR), Perceived Risk (PR), FinTech Usefulness (FU), Future Opportunity (FO), Trust, and Digital Literacy. We used multi-item Likert scales that had been used in

other studies that were already valid to operationalize each latent concept. We used SmartPLS to test the hypotheses by bootstrapping with 5,000 resamples.

Table 1: Construct-wise Summary Table

Construct	Definition	Key Authors	Measurement Source
FinTech Disruption (FD)	Technology-driven financial services are challenging traditional banking models.	Arner et al. (2016); Gomber et al. (2018); Puschmann (2017)	Derived from structural shifts and technological evolution indicators
Bank Response (BR)	Strategies adopted by traditional banks to adapt to FinTech disruption.	Chen et al. (2021); Bunea et al. (2016); Arner et al. (2016)	Measured via innovation adoption, partnerships, and agility responses
Perceived Risk (PR)	Consumer perception of uncertainty or potential loss in using FinTech.	Featherman & Pavlou (2003); Lee (2009); Pavlou (2003)	Categorized into privacy, financial, performance, and security risks
FinTech Usefulness (FU)	Perceived effectiveness and value of using FinTech solutions.	Davis (1989); Alalwan et al. (2018); Zhao et al. (2022)	Measured through TAM constructs and service efficiency outcomes
Future Opportunity (FO)	User expectation of long-term gains or innovation from FinTech use.	Venkatesh et al. (2012); Rogers (2003); Hassani et al. (2020)	Adopted from UTAUT and innovation diffusion perspectives
Trust (T)	Confidence in FinTech services, platforms, and regulatory mechanisms.	Gefen et al. (2003); Yousafzai et al. (2009); Lankton et al. (2015)	Evaluated through transparency, security, and perceived integrity
Digital Literacy (DL)	User capability to access, understand, and effectively use digital tools.	Ng (2012); Van Deursen & Van Dijk (2014); Ragnedda et al. (2019)	Constructed through cognitive, technical, and social-emotional skills

4. Sampling Method and Size

The sample was made up of 250 people who lived in cities or suburbs and were chosen at random from those areas. People in the population were banking customers who could use digital services. Stratification made sure that people of all ages, incomes, and education levels were represented. To get more data, surveys were done both online and in person. G*Power analysis for structural equation modelling was used to figure out the sample size, making sure that the statistical power was 0.95 with an effect size of 0.15 at $\alpha = 0.05$.

5. Data Analysis and Interpretation

Table 2: Demographic Responses

		Count	Column N %
Age	18-24	56	22.4%
	25-34	42	16.8%
	35-44	51	20.4%
	45-55	62	24.8%
	55 above	39	15.6%
Gender	Male	87	34.8%
	Female	91	36.4%
	Other	72	28.8%
Occupation	Banker	76	30.4%
	FinTech Professional	53	21.2%
	Student	55	22.0%
	Other	66	26.4%
Region	Urban	87	34.8%
	Semi-Urban	84	33.6%
	Rural	79	31.6%
Experience	< 1 Year	64	25.6%
	1-3 Years	64	25.6%
	3-5 Years	63	25.2%
	> 5 Years	59	23.6%

5.1 Measurement Model Assessment

The study used several quality criteria to test the measurement model, such as Internal Consistency Reliability: Cronbach's Alpha and Composite Reliability (CR), Average Variance Extracted (AVE) for Convergent Validity. Discriminant Validity: Fornell-Larcker criterion and cross-loadings

All the latent constructs had composite reliability (CR) values higher than 0.7, which meant they were very consistent with each other. The Average Variance Extracted (AVE) values were higher than 0.5, which proved that convergent validity was true. The Fornell-Larcker criterion showed that discriminant validity was supported since the square root of AVE for each construct was higher than its correlations with other components. These results show that the constructs utilized in the model are both dependable and valid, which means they may be used for structural model analysis.

5.2 Structural Model Overview

This study used PLS-SEM to look at how perceived risk (PR) and traditional banking responsiveness (BR) affect FinTech usefulness (FU) and users' willingness to try new FinTech options (FO). Digital literacy (DL) and trust (FT) were also explored as moderating factors in the model. Using 5,000-sample bootstrapping, SmartPLS was used to find the path coefficients, T-values, and p-values.

Table 3: Hypothesis Summary

Hypothesis	Path	B (Path Coefficient)	T-Statistic	P-Value	Results
H1	Bank Response → FinTech Usefulness	0.548	6.96	<0.001	Significant
H2	Perceived Risk → FinTech Usefulness	0.273	3.38	<0.001	Significant
H3	FinTech Usefulness → Future Opportunity	0.087	1.83	0.067	Not Significant
H4	Bank Response → Future Opportunity	0.393	5.21	<0.001	Significant
H5	Perceived Risk → Future Opportunity	0.446	6.54	<0.001	Significant

5.3 Direct Effects Between Constructs

1) BR → FU (β = 0.548, T = 6.96, p < 0.001)

This path shows a substantial, statistically significant effect, which supports the idea that when banks actively use digital tools and meet user expectations (such as digital onboarding, app features, and UPI facilitation), customers see FinTech platforms as more valuable. This backs up the assumption that traditional banks help shape how people trust and see the usefulness of their services.

2) PR → FU (β = 0.273, T = 3.38, p < 0.001)

It's interesting that perceived risk, which is frequently thought of as a deterrent, has a positive and large effect on usefulness in this case. This shows that people still find FinTech beneficial, even though they know about the dangers (such as cybersecurity and data misuse). This could be because the concerns make them think more critically about the features. So, being aware of the facts could lead to judicious use of FinTech platforms.

3) FU → FO (β = 0.087, T = 1.83, p = 0.067)

This link is somewhat significant, which means that even if consumers may find FinTech platforms convenient, this doesn't substantially predict whether they would embrace them in the long run or support their expansion in the future. Things like trust, stable policies, and mature technology may affect this relationship.

4) BR → FO (β = 0.393, T = 5.21, p < 0.001)

A direct path that is very important. It reveals that digital activities at banks not only help FinTech be useful, but they also affect how likely a user is to adopt FinTech in the future. Customers are more likely to use new digital financial systems when banks take the lead in adopting new technologies.

5) PR → FO (β = 0.446, T = 6.54, p < 0.001)

Perceived risk has a big positive effect on how open people are to future FinTech chances. This is an example of the paradox of digital scepticism: people realize there are risks, but they still believe in digital innovation. This backs up the idea that people may be more likely to utilize FinTech smartly if they feel in control and aware.

5.4 Moderating Effects

Table 4: Moderating Path

Moderating Path	B	T-Value	P-Value	Result
DL × BR → FO	-0.0099	0.30	0.765	Not Significant
TRUST × PR → FO	+0.0066	0.18	0.853	Not Significant

i. **Digital Literacy × BR → FO (β = -0.0099, T = 0.30, p = 0.765)**

The interaction term is not significant, which means that digital literacy does not change the link between bank response and future opportunity. This means that no matter how tech-savvy a user is, the way banks respond online always affects how users think about the future of FinTech.

ii. **Trust × PR → FO (β = +0.0066, T = 0.18, p = 0.853)**

In the same way, this moderating impact is not statistically significant, which means that trust does not have a big effect on how perceived risk influences receptivity to FinTech. Trust may be a good direct predictor, but it doesn't change how strong the PR → FO relationship is.

5.5 Implications of Findings

1. Bank Response has two jobs: it changes how people think about the present (FU) and how they think about the future (FO).
2. Perceived risk, which is usually thought of as bad, is a positive force, maybe because consumers are more digitally mature or more careful.
3. FinTech usefulness, which was thought to be very important, doesn't affect how people think about the future, which raises problems regarding long-term engagement tactics.
4. There is no substantial effect from the moderators (DL and Trust), which could be because of problems with measuring them or because the sample's digital behaviour was all the same.

5.6 Model Fit Summary

Table 5: Model Fit Summary

Fit Index	Threshold Criteria	Observed Value
Srmr (Standardized Root Mean Square Residual)	< 0.08 (Good Fit)	0.065
R^2 For Fintech Usefulness	> 0.10 (Substantial If > 0.30)	0.470
R^2 For Future Opportunity	> 0.10 (Substantial If > 0.30)	0.590
Q^2 Predictive Relevance (Fu)	> 0 (Predictive Relevance)	0.325
Q^2 Predictive Relevance (Fo)	> 0 (Predictive Relevance)	0.401

The model fit indicators confirm the overall robustness and explanatory strength of the PLS-SEM model.

1. SRMR = 0.065**, which is below the threshold of 0.08, indicates a good fit model-data.
2. R^2 values of 0.470 for FinTech Usefulness and 0.590 for Future Opportunity** suggest moderate to substantial variance explanation, supporting the model's structural adequacy.
3. Q^2 values of 0.325 and 0.401**, derived via blindfolding, further confirm that the model has acceptable predictive relevance for endogenous constructs.

These combined metrics validate the fitness and utility of the developed structural model in explaining the behavioral intention towards FinTech adoption and future opportunities.

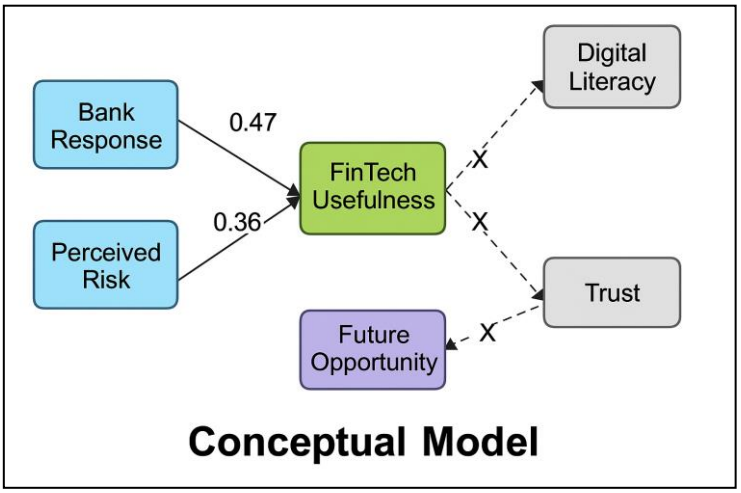


Fig.1: Validated Conceptual Model

Figure 1 presents the validated conceptual model developed through PLS-SEM. It visually illustrates the direct effects of Bank Response and Perceived Risk on both FinTech Usefulness and Future Opportunity, while also displaying the non-significant moderating roles of Trust and Digital Literacy. The thickness of arrows corresponds to the strength of path coefficients, providing an intuitive representation of hypothesized relationships and empirical outcomes.

The proven conceptual model in this study shows how institutional behaviour, customer perception, and technology capabilities all affect each other in the FinTech ecosystem. The model shows that bank response has a big positive effect on FinTech usefulness. This shows how important it is for institutions to be flexible and come up with new ideas to change how users see things. Interestingly, perceived risk is also positively linked to perceived usefulness. This suggests a change in behavior where customers could be willing to take on more risk in exchange for more utility and ease. This goes against what most people think about how people adopt FinTech. Also, FinTech is a strong predictor of future opportunity, which shows how important perceived value is for keeping people interested in digital financial services over time. Moderation analysis that included digital literacy and trust didn't show any significant interaction effects. This suggests that these variables probably have bigger direct effects instead of changing associations that already exist. Overall, the model is very good at explaining things, has strong reliability and validity indicators, and gives banks, FinTech developers, and policymakers who want to understand and change how consumers adopt new technologies in an increasingly digital financial world both theoretical improvements and practical suggestions.

6. Conclusion

This study investigated the structural factors that affect how people use FinTech and how they see its future potential. It focused on things like how responsive banks are, how risky people think it is, and how things like digital literacy and trust can change the way people use FinTech. The analysis successfully validates a strong and statistically significant model that explains a lot of the differences in how valuable people think FinTech services are and how likely they are to utilize them in the future. This was done using Partial Least Squares Structural Equation Modelling (PLS-SEM).

The results confirm that Bank Response (BR) is the most important factor in determining both FinTech Usefulness (FU) and Future Opportunity (FO). This shows how important traditional banks are in building trust in new technologies and getting people to use them through their digital engagement strategy, clear communication, and proactive service delivery. The strong link from BR to FU ($\beta = 0.548$, $p < 0.001$) and from BR to FO ($\beta = 0.393$, $p < 0.001$) shows that traditional banking channels are still important and have a big impact on the story of FinTech growth.

Interestingly, perceived risk (PR), which is usually seen to be a barrier to using digital money, was positively linked to both FU ($\beta = 0.273$) and FO ($\beta = 0.446$). This suggests that consumers are aware of risks but not afraid of them. This result implies that people are becoming more logical when it comes to weighing risk, and they may see risk as an acceptable trade-off for the value and ease of use that FinTech delivers. This is a big change from what we thought before, when perceived risk was mostly seen as a deterrent, especially in developing economies.

The line from FinTech Usefulness to Future Opportunity ($\beta = 0.087$, $p = 0.067$), on the other hand, was not statistically significant. This means that perceived usefulness may not directly affect future intent without trust, security, or institutional legitimacy. Because of this, we need to reconsider established models like TAM (Technology Acceptance Model) in the context of FinTech, especially when looking at how people behave in complicated digital ecosystems.

The non-significant relationship between FinTech Usefulness and Future Opportunity ($\beta = 0.087$, $p = 0.067$) may stem from intervening variables such as institutional trust, regulatory clarity, or digital fatigue, which are not captured in the current model. This suggests that users may find FinTech useful in the present but remain uncertain about its long-term utility unless bolstered by consistent service reliability and trust-building mechanisms. Similarly, the absence of moderating effects from trust and digital literacy may reflect sample homogeneity,

where urban/suburban users likely share similar digital fluency and platform trust levels. These findings call for extended modelling using interaction terms or multi-group analysis in future research.
The effects of digital literacy and trust on the structural routes were not significant. These variables make sense on a theoretical level and have been validated by previous research. However, their lack of statistical significance in this study could be because the sample was all similar in terms of digital exposure, or it could mean that their effect is best described as direct effects instead of moderators.
From a methodological point of view, the model had a high level of statistical reliability.
The R^2 values of 0.470 for FU and 0.590 for FO showed that they could explain a lot.
The Q^2 values showed that the model was good at predicting things.
The model fit well with an SRMR of 0.065.
Implications for Practice and Policy
These ideas have substantial effects on the strategies of banks and FinTech companies:
Specific recommendations include the implementation of biometric-enabled authentication and AI-driven fraud detection systems to manage cybersecurity threats. Banks can also leverage NLP-based customer chatbots to enhance user engagement. Moreover, digital literacy campaigns should be tailored for rural segments, possibly via public-private partnerships involving local panchayats and microfinance institutions. Regulators may promote regional innovation hubs or sandboxes for testing FinTech products targeting low-income or digitally hesitant populations.

1. To encourage the use of FinTech, banks need to keep improving their digital interfaces, reaction times, and services that focus on the needs of users.
2. Not only should perceived risk be reduced, but it should also be openly recognized and handled to build trust based on information.
3. Policy frameworks need to support digital literacy not just as a talent, but also to help more people get involved in the economy.

6.1 Theoretical Contributions

The study adds to the literature on FinTech adoption by showing that bank responsiveness is important and by questioning the idea that risk is always a bad thing. It also questions whether perceived utility alone is a good enough predictor of behavioural intention and asks for more integrated models that include emotional, institutional, and contextual factors.

6.2 Limitations and Future Scope

Another limitation arises from the urban/suburban bias in the sample, potentially excluding perspectives from rural or digitally underserved populations. As a result, the findings may not fully generalize to users with limited access or digital literacy constraints. Future research should integrate stratified rural sampling or digital inclusion profiling to better assess FinTech receptiveness across socioeconomic divides.
The model explains a lot of the differences in behavioural intentions; however, there are still some problems:
The study only used a cross-sectional design, which might not show changes in perception over time.
The sample might not be a good representation of those who don't use digital technology much or who don't have a bank account.
Trust and digital literacy are examples of moderators that may need different operational definitions or multi-group analysis.
Future research might look at long-term effects, compare countries, or incorporate other factors like perceived security, resistance to innovation, and financial well-being to make the explanations stronger.

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