

# Exploring the Impact of FinTech on Banking Performance: An Empirical Investigation into the Transformative Role of Financial Technology

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## Abstract

This empirical study delves into the dynamic landscape of financial technology (FinTech) and its profound influence on banking performance. With an increasing reliance on technological innovations, this research investigates the transformative role of FinTech in reshaping traditional banking operations. Through an empirical investigation, we examine the multifaceted impact of FinTech on key performance indicators within the financial sector. The study employs a comprehensive research framework to analyse the adoption and integration of FinTech solutions by financial institutions. As FinTech continues to redefine traditional banking paradigms, this study aims to provide valuable empirical evidence that informs industry stakeholders, policymakers, and researchers about the transformative dynamics unfolding in the intersection of FinTech and banking performance. Ultimately, the findings contribute to a deeper understanding of the ongoing revolution in the financial sector and its implications for the broader economy.

**Keywords:** FinTech (Financial Technology), Banking Performance, Technological Impact, Banking Efficiency, Digital Banking, Innovation in Finance

## Introduction

The nation is currently experiencing a notable surge in the prominence of technology, with its profound influence evident across diverse sectors such as banking, finance,

manufacturing, and financial services. This examination focusses on the repercussions of FinTech on banking performance, emphasising the application of innovative information and communication technology in the financial domain. The term “FinTech,” derived from “financial technology,” underscores the amalgamation of scientific knowledge for practical applications related to monetary matters. Traditional banks, recognised for their roles in accepting deposits and providing loans, have undergone substantial transformation owing to technological advancements. FinTech, characterised as a continuous and evolving process, has seamlessly integrated into everyday life, with its significance heightened during the COVID-19 pandemic. The increased demand for digital tools and techniques during this period underscores the shift towards replacing traditional physical communication among various stakeholders, concurrently enhancing the delivery of financial services (255\_f.Pdf, n.d.).

From the facilitation of online bank account openings to involvement in cryptocurrency investments, the banking sector has experienced substantial progress through the incorporation of technology. FinTech has not only reshaped customer preferences in financial management but has also contributed to a discernible enhancement in operational efficiency within the banking realm. The ubiquity of financial technologies is no longer confined to traditional financial institutions, as nonfinancial entities increasingly compete, particularly in the domain of payment services. The robust growth of FinTech in the banking sector, witnessing an 87% increase, reflects

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its rapid digitalisation, evolving customer preferences, and augmented support from investors and regulators. According to recent sources, the market size of the Indian FinTech industry reached \$50 billion in 2021, with projections estimating a surge to \$150 billion by 2025. The swift adoption of FinTech by the banking sector underscores its commitment to improving user experience and operational efficiency (Symmetry | Free Full-Text | Adoption Intention of FinTech Services for Bank Users: An Empirical Examination with an Extended Technology Acceptance Model, n.d.).

The incorporation of FinTech in banking processes has led to streamlined operations and reduced operational costs. Automation of tasks such as customer onboarding and transaction processing not only accelerates these processes but also mitigates the risk of errors. FinTech startups, in disrupting traditional banks, have successfully unbundled products and services, securing a share of lucrative business without encountering the entry barriers associated with being a full-service bank. FinTech's acceptance aligns seamlessly with the principles of the Fourth Industrial Revolution, significantly influencing societal living and working conditions. Its role in reducing errors and confusion in various tasks has not only facilitated work processes but has also contributed to economic growth, evident in the proliferation of bank branches. The remarkable progress in banking performance within the country is a testament to the transformative impact of FinTech (Jünger & Mietzner, 2020).

Bank branches have declined from nearly 100,000 in 2009 to 79,974 by 2020, reflecting the shift to digital. FinTech adoption in 27 countries has also surged, from 16% in 2015 to 64% in 2019. Despite technological advancement, FinTech exposes users to multifaceted risks, including ambiguous legal frameworks, regulatory gaps, compromised data privacy, and rapidly growing financial fraud. The divergence between FinTech's benefits and threats prompted research into consumer perceptions and intentions to adopt FinTech services in the banking sector (Jafri et al., 2024). Payment processing and money transfers this type of FinTech allows customers to make payments and move money quickly and securely. FinTech companies enable banks to offer customers a more convenient and secure payment experience and access

to faster money transfers. Investments which includes trading stocks, bonds, ETFs, mutual funds, hedge funds, etc. Banks can leverage this technology by giving customers a better way to manage their investments and handle the complexities of these markets. FinTech offering is loan origination, which enables banks to streamline the process of originating loans. This technology allows customers to apply for a loan online and get approval in minutes rather than days or weeks. FinTech's offering is wealth management, which includes asset allocation and portfolio optimisation services. This technology helps banks offer customers better advice and more personalised investment solutions tailored to their needs.

## Literature Review

FinTech is a term used to refer to the use of technology and software in financial services. It's an umbrella term for any business that uses innovative technology to offer financial products or services, such as payments and money transfers, investments, loan origination, and wealth management.

## Impact of Fintech in Banking Industry

FinTech introduces novel models and digital services to the banking industry, encompassing a broad spectrum including digital currency, online payment, digital invoicing, online investment, wealth management, digital leasing, digital advising, online insurance, and crowdfunding. The integration of blockchain and artificial intelligence into the banking sector enhances the efficiency of financial institutions (Sajid et al., 2023). While FinTech possesses welfare-enhancing disruptive potential, regulatory frameworks must adapt to ensure the realisation of promised benefits without compromising financial stability. FinTech is defined as the application of innovative information and automation technology within financial services. Emerging digital technologies automate diverse financial activities, offering potentially more cost-effective products across various financial sectors, from lending and asset management to portfolio advice and the payment system. The impact of FinTech competitors is notably surfacing in segments of the banking sector and capital markets, signifying a transformative influence (Ehrhart et al., 1975).

## Adoption of FinTech in Banking Industry

As per information systems researchers, the adoption of technological innovation involves the introduction and utilisation of a process, practice, or product, signifying the decision-making process and the physical acquisition of the specific technology. Adoption is frequently linked to the acceptance of an innovation (Bureshaid et al., 2022). In recent years, there has been a substantial upswing in the integration of FinTech within the banking sector. Scholars suggest that FinTech presents new prospects, including an improved digital banking experience, personalised customer services, heightened data security, and the provision of cost-effective and efficient services (Ebrahim et al., 2021). The adoption of FinTech leverages communication availability, facilitating easy and secure financial transactions, aided by the widespread use of the internet and the automated processing of information and transactions in the financial industry. However, the adoption of new FinTech in financial services operations carries inherent risks, particularly the potential for financial losses stemming from diverse factors in the business environment (Dwivedi et al., 2021). Moreover, the adoption of FinTech in banks can have ripple effects on the broader banking industry, instigating shifts in the provision and consumption of financial services. For instance, the utilisation of FinTech solutions such as online banking and mobile payment apps may lead to the closure of traditional branches, the emergence of new business models, and alterations in the dynamics of banks' interactions with their clientele (Sajid et al., 2023).

## Operational Efficiency of Banks

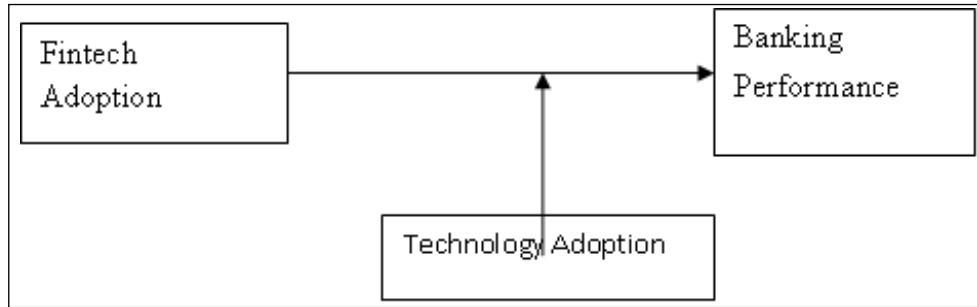
Financial Technologies (FinTech) exert a significant impact on the efficiency and market influence of banks in India, as substantiated by a quantitative analysis spanning the years 2011 to 2019, focussing on both private and public banks (Varma & Nijjer, 2022). The entry of new banks into the market has the potential to intensify peer competition, thereby potentially diminishing profits. However, these new entrants also introduce advanced technology, contributing to risk diversification and a deepening of financial reforms. Moreover, the strategic

implementation of digitisation plays a pivotal role in enabling the banking industry to efficiently manage operations and curtail costs (Chen, 2020). FinTech's impact extends to enhancing profitability, fostering financial innovation, and bolstering risk management. It has the potential to revolutionise the traditional business model by reducing operating costs, enhancing service efficiency, fortifying risk control capabilities, and creating customer-oriented business models, thereby augmenting overall competitiveness (Dwivedi et al., 2021). The adoption of FinTech not only diminishes transaction costs for banks, leading to heightened efficiency in financial operations, but also introduces complexities to financial business. Nevertheless, this transformative technology brings along a spectrum of risks, encompassing technological, systematic, and operational dimensions (Sajid et al., 2023).

## Banking Performance

The utilisation of state-of-the-art technology in the banking industry for delivering high-quality services proves instrumental in enhancing customer satisfaction and subsequently ensuring customer retention. This technological integration not only contributes to maintaining competitiveness but also, notably, improves the overall performance of the banking sector through the adoption of Financial Technologies (FinTech) (Dwivedi et al., 2021). The pivotal role of FinTech in averting and resolving financial risks is highlighted, especially in the context of small and medium-sized commercial banks utilising FinTech to address non-performing loan risks, warranting careful consideration (Wang et al., 2023). Examining the intricate relationships, it is observed that FinTech Adoption (FA) partially yields a positive and significant effect on Financial Performance (Fig. 1). Interestingly, the COVID-19 pandemic (COV) exhibits no negative impact on Financial Performance in isolation, yet when considered simultaneously with FinTech Adoption, it manifests a positive and significant effect on Financial Performance. Additionally, Capital Adequacy (CAR) is identified as a moderator for both FinTech Adoption (FA) on Financial Performance and the COVID-19 Pandemic (COV) on Financial Performance, indicating its role in influencing and shaping these relationships (Sunardi & Tatariyanto, 2023) (Table 1).

## Hypothesis and Theoretical Development



**Fig. 1: Proposed Conceptual Model**

### Hypothesis

*H1:* FinTech adoption significantly influencing banking performance.

*H2:* Technology adoption significantly influencing banking performance.

*H3:* Technology adoption positively mediating between FinTech adoption and banking performance.

**Table 1: Measurement Instrument**

Perceived usefulness (PU)	Using FinTech can meet my service needs.
	FinTech services can save time.
	FinTech services can improve efficiency.
	Overall, FinTech services are useful to me.
	It is easy to use FinTech services.
Perceived ease of use (PEU)	I find the FinTech service easy to use.
	The interface of the FinTech service is clear and straightforward.
	I can quickly become skillful in using the FinTech service.
	Interacting with the FinTech service is uncomplicated.
	I feel confident using the FinTech service even if I have limited technological knowledge.
FinTech	Knowledge of the existence of digital banks & FinTech companies.
	Transactions security as an interesting FinTech area of action.
	Funding as an Interesting FinTech area of action.
	Significance of interaction between customers and banks via mobile.
	Same level of trust for both banks and FinTech firms.
	Risk undertaken (i.e. related to the violation of privatisation, phishing etc.) through the use of FinTech.
	Better service provided by FinTech firms than traditional banks.
Banking Performance	This e-banking site makes it easy to find what I need.
	It makes it easy to get anywhere on the site.
	This e-banking site enables me to complete a transaction quickly.
	Information at this e-banking site is well organised.
	This e-banking site is simple to use.
	Stop using a traditional banking service due to better experience from FinTech.
	This e-banking site enables me to get on to it quickly.

## Data Analysis

The research utilised a standardised questionnaire to collect data, engaging 250 investors in the survey. Statistical methods, including descriptive statistics, Pearson's correlation, and Cronbach alpha, were applied for data analysis, and the study employed Smart PLS3 in the model-building process to establish a comprehensive understanding of the relationships among variables, conducting multiple phases of data evaluation as outlined by Nadiger et al. (2023). Variables and the financial literacy were examined by analysing descriptive statistical

findings obtained from 250 surveys, as highlighted by Hiremath et al. (2023).

## Results and Discussion

Table 2 shows that the correlation pattern is consistent with the projected correlations. These correlations provide insights into the relationships between different latent variables. The correlation matrix indicates the pair wise correlations between FinTech adoption, Technology Adoption, and Banking Performance; it seems to have relatively strong positive correlations with most other constructs.

**Table 2: Pearson Correlation**

	<i>Banking Performance</i>	<i>FinTech Adoption</i>	<i>Technology Adoption</i>
Banking Performance	1		
FinTech Adoption	0.909	1	
Technology Adoption	0.951	0.873	1

The Pearson correlation matrix illustrates strong positive relationships between Banking Performance and both FinTech Adoption (0.909) and Technology Adoption (0.951). These correlations signify that improvements in Banking Performance are closely associated with increased adoption of FinTech and technology. Additionally, there is a strong positive correlation (0.873) between FinTech Adoption and Technology Adoption, indicating a consistent trend where advancements in one area correspond to developments in the other. These findings emphasise the interconnected dynamics between banking performance, FinTech adoption, and technology adoption, highlighting their mutual influence and suggesting the need for integrated strategies in the financial and technological sectors.

## Scale Reliability and Validity-Findings

The scale's validity and reliability are robust. For banking Performance, all items show strong relationships with their underlying constructs (outer loadings 0.81 to 0.962), and internal consistency is excellent (Cronbach's alpha of 0.951) (Table 3). FinTech Adoption exhibits satisfactory item relationships (outer loadings of 0.651 to 0.879), with good internal consistency (Cronbach's alpha 0.81). Technology adoption demonstrates strong associations (outer loadings 0.71 to 0.937), excellent internal consistency (Cronbach's alpha 0.915), and high reliability (composite reliability 0.96). These results affirm the validity and reliability of the scale for assessing Banking Performance, FinTech Adoption, and Technology Adoption in the study context (Table 4).

**Table 3: Validity and Reliability of the Scale**

Items	Outer Loadings	Cronbach's Alpha	Composite Reliability ( $\rho_a$ )	Composite Reliability ( $\rho_c$ )	Average Variance Extracted (AVE)
BF1 <- Banking Performance	0.9	0.951	0.953	0.961	0.804
BF2 <- Banking Performance	0.962				
BF3 <- Banking Performance	0.908				
BF4 <- Banking Performance	0.886				
BF5 <- Banking Performance	0.81				
BF6 <- Banking Performance	0.908				
FA1 <- FinTech Adoption	0.725	0.81	0.834	0.859	0.774
FA2 <- FinTech Adoption	0.677				
FA3 <- FinTech Adoption	0.879				
FA4 <- FinTech Adoption	0.712				
FA5 <- FinTech Adoption	0.73				
FA6 <- FinTech Adoption	0.651				
FA7 <- FinTech Adoption	0.668				
TAM1 <- Technology Adoption	0.71	0.915	0.96	0.941	0.656
TAM10 <- Technology Adoption	0.889				
TAM2 <- Technology Adoption	0.92				
TAM3 <- Technology Adoption	0.777				
TAM4 <- Technology Adoption	0.867				
TAM5 <- Technology Adoption	0.894				
TAM6 <- Technology Adoption	0.937				
TAM7 <- Technology Adoption	0.912				
TAM8 <- Technology Adoption	0.725				
TAM9 <- Technology Adoption	0.71				

**Table 4: Hypothesis Testing**

	Original Sample (O)	T Statistics ( $ O/STDEV $ )	P Values	Results
FinTech Adoption -> Banking Performance	0.33	3.572	0	
FinTech Adoption -> Technology Adoption	0.873	28.106	0	
Technology Adoption -> Banking Performance	0.664	7.525	0	

The hypothesis testing results indicate significant relationships between the examined variables. Focusing on FinTech Adoption, the path to Banking Performance reveals a positive coefficient of 0.33, with a T-statistic of 3.572, leading to a p-value of 0. This suggests a statistically significant impact of FinTech Adoption on Banking Performance, supporting the hypothesis. Similarly, in the relationship between FinTech Adoption and Technology Adoption, the high positive coefficient

of 0.873, accompanied by a substantial T-statistic of 28.106 and a p-value of 0, underscores a significant and positive influence of FinTech Adoption on Technology Adoption. Lastly, the path from Technology Adoption to Banking Performance exhibits a positive coefficient of 0.664, a T-statistic of 7.525, and a p-value of 0, indicating a statistically significant impact of Technology Adoption on Banking Performance.

**Table 5: Total Effect**

	Total Effects	P Values
FinTech Adoption -> Banking Performance	0.909	0
FinTech Adoption -> Technology Adoption	0.873	0
Technology Adoption -> Banking Performance	0.664	0

The total effect analysis reveals substantial impacts of FinTech Adoption and Technology Adoption on Banking Performance (Table 5). For FinTech Adoption, the total effect on Banking Performance is 0.909, with a p-value of 0, indicating a highly significant influence. Similarly, the total effect of FinTech Adoption on Technology Adoption is 0.873, with a p-value of 0, emphasising a significant impact. In the case of Technology Adoption, the total

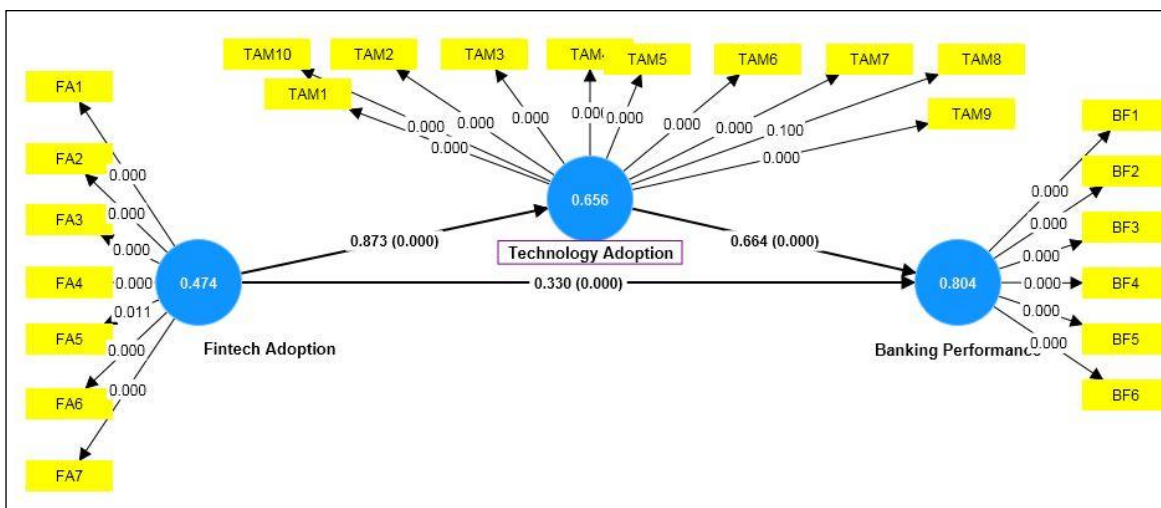
effect on Banking Performance is 0.664, with a p-value of 0, signifying a statistically significant influence. These results underscore the considerable overall effects of FinTech Adoption and Technology Adoption on Banking Performance in the studied context, providing valuable insights for understanding the interconnected dynamics within these variables.

**Table 6: Mediating Effect**

	Total Effect	Direct Effect	Specific Indirect Effects	P Value	Results
FinTech Adoption -> Technology Adoption -> Banking Performance	0.909	0.33	0.579	0	Full Mediation

The mediation analysis demonstrates that the relationship between FinTech Adoption and Banking Performance is fully mediated by Technology Adoption. The total effect of FinTech Adoption on Banking Performance is 0.909, comprising a direct effect of 0.33 and a specific indirect effect of 0.579 through the mediator, Technology Adoption. The p-value of 0 indicates the significance of this mediating pathway. These findings suggest

that FinTech Adoption primarily influences Banking Performance through its impact on Technology Adoption, emphasising the pivotal role of Technology Adoption as a mediator in the studied context. This mediation analysis provides valuable insights into the underlying mechanisms connecting FinTech Adoption, Technology Adoption, and ultimately, Banking Performance (Fig. 2).



Source: Authors own.

**Fig. 2: Path Coefficient**

The above figure illustrates the results, which indicate that the t value of FA for BP was greater than 1.96. The latter was significantly impacted by the former ( $\beta = 0.330$ ,  $t = 3.572$ ), FA for TA ( $\beta = 0.873$ ,  $t = 28.106$ ), DTA for BP ( $\beta = 0.664$ ,  $t = 7.525$ ), indicating that hypothesis H1, H2, and H3, were satisfied. An important mediating role for Technology adoption was seen in the interactions between FinTech Adoption and Banking Performance. The impact of TA ( $\beta = 0.664$ ,  $t = 7.525$ ) on Banking Performance was noteworthy.

## Discussion

### Implications of the Findings

The study's findings hold significant implications for the financial and technological sectors. The strong correlations between Banking Performance, FinTech Adoption, and Technology Adoption underscore the need for an integrated approach in decision-making. The study validates a reliable scale for assessing these constructs. Moreover, the results highlight FinTech Adoption's substantial impact on Banking Performance and Technology Adoption, emphasising the transformative role of FinTech in reshaping financial services. The mediation analysis reveals that Technology Adoption fully mediates the relationship between FinTech Adoption and Banking Performance. These insights suggest that financial institutions should prioritise technology investments to improve performance, while policymakers can use the findings to shape regulations fostering technological advancements in the financial sector. Overall, the study provides valuable guidance for stakeholders navigating the dynamic intersection of finance and technology.

### Practical Recommendations

Based on the study's findings, several practical recommendations can be offered. Financial institutions should prioritise investments in FinTech solutions and technology adoption to enhance overall banking performance. This may involve integrating digital platforms, enhancing cybersecurity measures, and leveraging data analytics for more personalised services.

Collaborations with FinTech firms could also accelerate innovation. Policymakers are encouraged to create a conducive regulatory environment that promotes responsible FinTech adoption and technological advancements in the financial sector. Educational initiatives to enhance financial literacy can complement these efforts, fostering a more informed user base. Lastly, industry stakeholders should continuously monitor technological trends and consumer preferences to stay agile in adapting to the evolving landscape. These recommendations aim to guide stakeholders in navigating the dynamic intersection of finance and technology, fostering resilience and growth in the financial sector.

## Conclusion

In summary, the hypothesis testing results provide strong evidence to support the hypothesised relationships between FinTech Adoption, Technology Adoption, and Banking Performance in the studied context. The emergence of FinTech is multifaceted, surpassing mere cost-effectiveness or attractiveness, as consumer willingness to adopt these services extends beyond simplistic dimensions. In conclusion, the comprehensive analysis of the study reveals critical insights at the intersection of financial performance, FinTech adoption, and technology integration. The strong positive correlations and robust scale validation underscore the interconnected nature of these variables, emphasising the importance of a holistic approach in decision-making. FinTech adoption emerges as a key driver, significantly influencing both banking performance and technology adoption. The mediation analysis further elucidates the pivotal role of technology in mediating the relationship between FinTech adoption and banking performance.

Practical recommendations stemming from these findings emphasises the strategic importance of financial institutions prioritising investments in technology, fostering collaborations with FinTech partners, and policymakers creating an enabling regulatory environment. Educational initiatives to enhance financial literacy also play a crucial role in this transformative landscape. Overall, this study contributes valuable insights for stakeholders in the financial and technological sectors, providing a roadmap for informed decision-making and positioning for resilience and

growth in an increasingly dynamic and technologically driven financial landscape.

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