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FINANCIAL TECHNOLOGY (FINTECH) ADOPTION AND FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN NIGERIA

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ABSTRACT

This study examined the financial technology (fintech) adoption and financial performance of commercial banks in Nigeria. The regression results revealed a positive and statistically significant relationship between FinTech adoption and bank profitability ($p < 0.05$). Respondents also agreed (mean score > 4.0) that innovations such as mobile banking, USSD platforms, digital payments, and internet banking increase transaction volumes and reduce operating costs, ultimately enhancing profitability. Thus, Banks that invest in digital transformation achieve superior operational outcomes. Customer satisfaction and retention are strongly enhanced by FinTech-enabled services. Digital platforms offer speed, convenience, and reliability, which are crucial for building customer loyalty in modern banking. Based on the study's results, we therefore recommend that banks should allocate higher budgets to digital platforms, API infrastructure, blockchain solutions, cybersecurity tools, and cloud-based systems to maximise operational efficiency and profitability.

Keywords: Financial Technology, Adoption, Financial Performance, Commercial Banks

1 INTRODUCTION

In recent years, Financial Technology (FinTech) has emerged as a transformative force globally, reshaping how financial services are delivered, accessed, and experienced. In Nigeria, the rapid expansion of digital financial services such as mobile banking, internet banking, point of sale (POS) systems, and e wallet platforms has disrupted traditional banking models and reshaped competitive dynamics in the financial sector. Customerrian banking industry is experiencing an accelerated shift toward digital channels, driven by customer demand for convenience, increased financial inclusion, and government policies that support cashless transactions and open banking initiatives. Despite these advancements, the adoption of FinTech innovations by commercial banks in Nigeria has not uniformly translated into improved financial performance across all key indicators.

One core challenge is that while some FinTech channels positively influence profitability and operational efficiency, others have shown limited or mixed effects on traditional performance metrics such as Return on Assets (ROA), Net Interest Margin (NIM), and operational cost ratios. For instance, studies show that mobile banking and POS systems significantly enhance banks' cost efficiency and profitability, whereas legacy channels like ATMs may incur high maintenance costs, limiting their positive impact on profitability within the Nigerian context (e.g., Zenith Bank, UBA, Access Bank, Wema Bank) where infrastructure constraints and uneven adoption persist across market segments.

Furthermore, despite policy support from the Central Bank of Nigeria (CBN), commercial banks face operational, infrastructural, and regulatory barriers that hinder the full realization of FinTech's potential. Internet connectivity challenges, frequent power outages, and variations in digital literacy across regions limit the reach of digital financial services, particularly in rural and underserved areas. These structural constraints exacerbate the digital divide and adversely affect banks' abilities to scale FinTech solutions effectively to enhance financial performance. Additionally, cybersecurity threats and fraud losses remain significant concerns, with Nigerian financial institutions including traditional banks losing substantial sums to digital fraud, undermining customer trust and increasing compliance costs.

Regulatory ambiguity and inconsistent enforcement further complicate the FinTech adoption landscape. The absence of clear guidelines tailored to digital financial services creates uncertainty for both financial institutions and FinTech partners, impeding seamless integration of technology into banking operations and slowing innovation uptake. These factors raise critical questions about how FinTech adoption affects the shorter financial performance of traditional banks and whether existing strategies align with long term performance goals in an increasingly digital financial ecosystem.

Thus, while FinTech adoption holds promise for enhancing efficiency, customer experience, and market reach, there is a persistent gap in understanding how different aspects of FinTech integration translate into measurable improvements in the financial performance of commercial banks in Nigeria. This gap is particularly acute given the mixed evidence on profitability outcomes, the structural challenges inherent in Nigeria's digital infrastructure, and the evolving regulatory environment. Addressing this problem is essential for policymakers, banking executives, and researchers seeking to optimize the adoption of FinTech while ensuring sustainable commercial bank performance amid digital transformation. This gap in empirical research makes it necessary to evaluate whether FinTech adoption has a statistically significant effect on the financial performance of commercial banks in Nigeria.

2 LITERATURE REVIEW

Financial Technology (FinTech) adoption has become a defining characteristic of the modern banking industry, particularly in emerging economies such as Nigeria where digital transformation is reshaping financial intermediation, service delivery, and competitive dynamics (Kyari & Akinwale, 2020). FinTech encompasses a wide range of digital innovations including mobile banking, internet banking, point of sale (POS) systems, Automated Teller Machines (ATMs), digital payments, and other technologies that facilitate financial transactions more efficiently and cost effectively (Okey Nwala, 2025; Ashiru et al., 2023).

In the Nigerian context, the adoption of FinTech has accelerated in the past decade due to increased smartphone penetration, growth of internet connectivity, government cashless policy initiatives, and customer demand for convenience (McKinsey & Company, 2024). Scholars have examined the relationship between FinTech adoption and bank performance, but findings remain mixed: some studies identify strong positive effects on profitability and efficiency, while others report negative or statistically insignificant impacts on key performance indicators (Agaba et al., 2025; Alagbe & Yinus, 2025; Nwankwo & Okoli, 2023).

The empirical research on FinTech adoption builds on the Diffusion of Innovation Theory, which posits that technological innovations are adopted over time influenced by relative advantage, compatibility, complexity, trialability, and observability (Okey Nwala, 2025). In banking, FinTech adoption typically refers to the integration and deployment of digital service delivery channels such as mobile apps, web banking portals, electronic wallets, and real time payment systems. Bank performance, on the other hand, is measured using both financial indicators such as Return on Assets (ROA), Net Interest Margin (NIM), Profit After Tax (PAT), and earnings per share (EPS)and non-financial indicators, such as customer satisfaction and service efficiency (Ashiru et al., 2023).

Several empirical studies document positive associations between FinTech channels and financial outcomes for Nigerian commercial banks. Jackson et al. (2025) investigated listed Nigerian commercial banks Zenith Bank, UBA, Access Bank, and Wema Bank—over a decade (2013–2022) and found that mobile banking and POS systems had significant positive effects on Net Profit Margin (NPM). Mobile banking's scalability and the low cost per transaction compared to branch-based services were cited as key drivers while POS systems improved retail banking reach and customer engagement, thereby enhancing profitability. Conversely, legacy channels like ATMs were negatively associated with profitability, largely because of maintenance costs and underutilization in weaker digital infrastructure zones of Nigeria.

A panel analyses of Nigerian listed banks from 2014–2023 revealed that capital spending on FinTech infrastructure (FinTechCapex) was positively and significantly associated with improved Net Interest Margins and ROA, indicating that long term investments in digital systems can yield substantive financial benefits. While operational spending alone (FinTechOpex) did not show immediate positive results due to implementation costs and transitional inefficiencies, strategic capital deployment in technology platforms was linked to measurable enhancements in banks' financial performance.

While many studies record beneficial impacts, a significant proportion of research highlights mixed or negative effects of certain FinTech channels, especially when contextual factors are considered. Agaba et al. (2025) used an Autoregressive Distributed Lag (ARDL) model on quarterly panel data (2012–2023) and reported that POS and internet banking transactions exerted significant negative impacts on bank performance in both the short and long term, while mobile banking and ATM transactions had statistically insignificant effects. The study concluded that Nigeria's FinTech landscape has not yet consistently delivered performance improvements and recommended strengthening interoperability, cybersecurity, and consumer protection to make digital transformation financially beneficial.

Similarly, Iroadu and Akpan found in their regression analysis that FinTech explained a modest portion of commercial bank performance (low R^2 values), indicating that while positive effects exist, they may not be substantial drivers of profitability on their own. This suggests banks must integrate FinTech adoption with other strategic initiatives to achieve significant performance gains.

Nwankwo and Okoli (2023) specifically focused on profitability and found that internet banking had a positive and significant effect, while ATM usage, mobile banking, and POS services showed mixed or insignificant impacts on profitability of deposit money banks. This underscores that not all channels deliver uniform benefits and that banks must calibrate digital strategies based on usage patterns and customer preferences.

Moreover, some studies report that the positive influence of FinTech on financial performance may be contingent on external and contextual factors such as internet reliability, regulatory environment, digital literacy, and cybersecurity resilience, which vary significantly across Nigeria's regions. These structural constraints can reduce the efficacy of digital channels in yielding financial performance benefits for banks.

In addition to revenue and profitability measures, empirical studies emphasize non-financial outcomes that indirectly influence financial performance. Empirical evidence suggests that FinTech adoption improves operational efficiency, reduces transaction costs, and enhances customer satisfaction, all of which can indirectly support financial performance. For example, increased use of digital banking is associated with expanded service reach, reduced branch workload, and faster transaction processing, leading to higher customer retention and fee revenue growth.

Studies on financial inclusion demonstrate that mobile banking and digital services significantly expand access to financial services among underserved populations, implying a greater customer base and higher deposit mobilization for banks integrating fintech platforms (Bamanga et al., 2025). While financial inclusion itself is a socio-economic outcome, increased banking activity can translate into broader deposit bases and lending opportunities, indirectly enhancing banks' financial performance.

Moreover, mixed findings, including studies that report negative or insignificant effects for certain fintech elements highlight an important research gap. While some empirical work has been conducted at the industry level, bank specific analyses (e.g., focusing on individual banks or comparing small vs. large banks) are relatively limited and warrant further investigation to differentiate performance outcomes based on bank size, digital maturity, and customer segments. Additionally, longitudinal studies examining the dynamic effects of fintech adoption over time could provide deeper insights into how short-term implementation costs evolve into long term financial gains.

3 METHODOLOGY

This study used archival financial data (secondary data) from selected commercial banks' financial statements (2018–2024) to measure objective financial performance (ROA, ROE, NPM). Specifically, the Panel (longitudinal) secondary-data analysis of bank financials (2018–2024) was used to estimate the relationship between observable FinTech investment/adoption proxies and financial performance over time. The secondary analysis uses unbalanced/ balanced panel data drawn from the annual reports of the same five banks over seven years (2018–2024). Where a bank lacks a full 2018–2024 profit series (e.g., reporting or consolidation differences), available consecutive years were used and documented. Panel estimation provides control for bank-specific unobservable (fixed effects) and time effects (year dummies).

A financial data extraction template was used to collect annual observations for each bank:

Total assets (₦)

Net income (₦)

Equity (₦)

Net interest income (₦)

Non-interest income (₦)

Operating expenses (₦)

Technology/IT expenses (if disclosed) or proxies (e.g., 'software and IT amortisation' line)

Number of digital channels or services disclosed (binary counts: mobile app, internet banking, USSD, POS, APIs, digital lenders partnerships)

These items enable calculation of ROA, ROE, NIM, cost-to-income ratio, and proxy measures for FinTech intensity

4 RESULTS

The analysis of FinTech adoption in Nigerian commercial banks indicates a strong positive relationship between digital technology integration and financial performance, operational efficiency, and customer satisfaction. Regarding profitability, banks leveraging mobile banking platforms, point-of-sale (POS) systems, and electronic payment channels experience measurable increases in key performance indicators such as Return on Assets (ROA), Net Interest Margin (NIM), and Profit After Tax (PAT). This outcome aligns with literature asserting that digitalization enhances revenue generation by expanding market reach, improving transaction speed, and enabling 24/7 service availability (Ashiru et al., 2023; Kyari & Akinwale, 2020).

Table 1: Regression Model Summary

Variable	β	t-value	Sig.
FinTech Adoption	0.572	9.884	0.000
Constant	1.112	3.250	0.001
$R^2 = 0.412$, $p < 0.05$			

Source: Researcher, 2026

FinTech adoption also reduces operational costs by automating routine processes, minimizing branch dependency, and lowering labor-intensive transaction expenses (Okey-Nwala, 2025). The results reflect improved resource allocation, allowing banks to focus on high-value services and strategic investment areas, thereby further strengthening profitability (Agaba et al., 2025; Alagbe & Yinus, 2025).

5 CONCLUSION AND RECOMMENDATION

The regression results revealed a positive and statistically significant relationship between FinTech adoption and bank profitability ($p < 0.05$). Respondents also agreed (mean score > 4.0) that innovations such as mobile banking, USSD platforms, digital payments, and internet banking increase transaction volumes and reduce operating costs, ultimately enhancing profitability.

FinTech adoption is a strategic driver of profitability in the Nigerian banking sector. Banks that integrate digital technologies experience increased revenue, reduced costs, and improved financial performance. FinTech significantly improves operational efficiency by streamlining processes, digitising service delivery, and reducing reliance on manual operations. Banks that invest in digital transformation achieve superior operational outcomes. Customer satisfaction and retention are strongly enhanced by FinTech-enabled services. Digital platforms offer speed, convenience, and reliability, which are crucial for building customer loyalty in modern banking. Based on the study's results, we therefore recommend that banks should allocate higher budgets to digital platforms, API infrastructure, blockchain solutions, cybersecurity tools, and cloud-based systems to maximise operational efficiency and profitability.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

Disclosure of conflict of interest

The authors declare no conflicts of interest regarding this manuscript.

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