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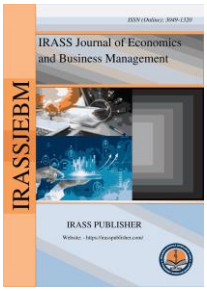

Financial Technology and Banking Sector Performance in Nigeria

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Abstract: This study examines the impact of financial technology on the performance of commercial banks in Nigeria, using return on assets (ROA) as a proxy for banking sector performance. A financial time series research design was adopted, covering a sample of five selected quoted commercial banks over the period 2009–2023. Data were sourced from financial statements, the Central Bank of Nigeria (CBN) statistical bulletins, and the Nigeria Deposit Insurance Corporation (NDIC) reports. The study employed the Ordinary Least Squares (OLS) regression technique to estimate the effect of key financial technology indicators Point of Sale (POS) transactions, Automated Teller Machine (ATM) transactions, Mobile Banking (MBB), and Internet Banking (ITB) on banking performance. The results indicate that ATM, MBB, and ITB usage significantly enhance bank profitability, while POS transactions have a positive but relatively lower impact. The findings suggest that digital banking adoption is a crucial driver of financial performance in Nigeria. The study recommends increased investment in digital banking infrastructure to further optimize bank profitability and financial inclusion.

Keywords: Financial technology, banking performance, digital banking, mobile banking, financial inclusion.

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1. Introduction

Financial technology (FinTech) has transformed banking operations globally, significantly altering service delivery, customer experience, and financial performance. In Nigeria, the banking sector was characterized by slow, inefficient, and labor-intensive procedures before the introduction of digital banking technologies. Customers often spent long hours in banking halls just to conduct basic transactions such as deposits and withdrawals, and in some cases, had to return the next day due to long queues and manual processing (Oluwatolani et al., 2011; Ohiani, 2020). The lack of interconnectivity among branches of the same bank further worsened the situation, as customers were restricted to conducting transactions only at the specific branch where they opened their accounts. The absence of financial technology in this conventional banking era resulted in poor service delivery, customer dissatisfaction, and limited banking accessibility.

The introduction of FinTech in Nigeria has revolutionized banking operations, allowing customers to perform transactions seamlessly without visiting bank branches. With the adoption of mobile banking applications, automated teller machines (ATMs), internet banking, and point-of-sale (POS) systems, customers can now access financial services from virtually anywhere (Okoye et al., 2019; Ohiani, 2020). This transformation aligns with global trends where financial technology is redefining banking processes by improving efficiency, increasing financial inclusion, and enhancing customer experience (Zott et al., 2011). The increased adoption of digital banking has led to significant growth in financial transactions, as more people now use mobile money, electronic payments, and other FinTech innovations to manage their finances (Skan et al., 2018). The banking sector has also experienced a shift in revenue generation, as digital banking has increased transaction volumes and service charges, leading to higher profitability (Agbolade, 2011; Ohiani, 2020).

Despite these benefits, the adoption of financial technology in Nigeria's banking sector has also introduced challenges. Fraud and cybercrime have escalated, affecting both customers and financial institutions (Owolabi, 2010). While FinTech platforms provide convenient banking experiences, they are not always user-friendly, leading to customer dissatisfaction due to transaction failures and security concerns (Udeh & Ugwu, 2018). Furthermore, there is an ongoing debate about the extent to which financial technology has improved the performance of banks. While some studies indicate that digital banking enhances profitability and efficiency, others argue that FinTech firms disrupt traditional banking models, posing competitive threats to commercial banks (Sharif & Yusuf, 2020; Kachumbo, 2020).

Empirical studies on the impact of financial technology on banking sector performance have produced mixed findings. For instance, Stanley et al. (2023) found that FinTech significantly influences the financial performance of institutions in Sub-Saharan Africa by enhancing service delivery and improving return on equity. Similarly, Adiga et al. (2022) demonstrated that financial technology accounted for variations in return on assets (ROA),

return on equity (ROE), and non-interest income in Nigerian deposit money banks. However, Usman (2020) observed that while POS systems significantly impact financial inclusion, internet banking and ATMs have had minimal effects (Iwedi, et al 2023; Iwedi, 2024, and Iwedi, 2024). These discrepancies suggest that the direct relationship between FinTech and banking performance remains inconclusive, necessitating further research. Many existing studies have examined financial technology and banking performance in various regions, particularly in developed economies and parts of Sub-Saharan Africa. However, limited empirical research has been conducted specifically in Nigeria's South-South geopolitical zone, particularly in Rivers State. Given the rapid digital transformation in Nigeria's financial sector, it is crucial to assess how FinTech adoption influences key banking performance metrics such as return on assets (ROA) and earnings per share (EPS). This study, therefore, seeks to examine the effect of financial technology on banking sector performance in Nigeria.

2. Literature Review

2.1 Theoretical Framework

The Diffusion of Innovation Theory (DOI) by Everett Rogers (1995) explains how and why new technologies spread within a social system. Rogers defines diffusion as "the process by which an innovation is communicated over time among the members of a social system." An innovation, in this context, refers to any new idea, practice, or technology perceived as novel by potential adopters (Rogers, 2003). In the banking industry, technological innovations such as mobile banking, digital wallets, blockchain, artificial intelligence (AI), and fintech solutions are adopted based on their perceived benefits, compatibility with existing banking operations, and ease of use. Rogers (2003) identifies five key factors influencing adoption: relative advantage, compatibility, complexity, trialability, and observability. Commercial banks adopt financial technologies to gain a competitive edge, improve operational efficiency, reduce transaction costs, and enhance customer service (Venkatesh et al., 2003). In Nigeria, the rapid adoption of electronic banking, mobile banking applications, and digital payment systems aligns with DOI, as banks integrate these technologies to stay competitive in a digitally evolving financial sector (Ayo et al., 2010). The increased penetration of mobile phones and internet services has accelerated the adoption of fintech innovations in commercial banking, thereby influencing financial inclusion and market expansion (Chukwu & Eze, 2018).

The Schumpeterian Theory of Creative Destruction, introduced by Joseph Schumpeter (1939), explains how financial performance is driven by innovation and the continuous replacement of outdated systems. Schumpeter argues that technological advancements create new business opportunities while simultaneously making existing business models obsolete, a process he refers to as "creative destruction" (Schumpeter, 1942). In the banking sector, digital transformation and fintech disruptions have led to significant shifts in financial performance. Traditional banking models that rely on physical branches and manual transaction processing are being replaced by automated, digital-first, and customer-centric solutions (Bresnahan & Trajtenberg, 1995). Banks that fail to adapt to technological changes risk declining financial performance, whereas those that embrace innovation experience higher profitability, operational efficiency, and market competitiveness (Tushman & Anderson, 1986). In Nigeria, the adoption of mobile banking, online transactions, and digital payment systems has significantly reshaped the financial landscape, improving financial performance indicators such as return on assets (ROA), return on equity (ROE), and net interest margin (NIM) (Oluwatobi et al., 2020). The increasing role of blockchain technology, artificial intelligence in fraud detection, and automated customer service further supports Schumpeter's argument that banks must innovate or risk becoming obsolete (Fagerberg et al., 2012).

2.2 Conceptual Review

2.2.1 Financial Technology (Fin-Tech)

Financial Technology (Fin-Tech) refers to technology-driven innovations that transform financial services by introducing new business models, applications, and digital processes. The Financial Stability Board of the Bank for International Settlements (2017) defines Fin-Tech as "technology-enabled innovation in financial services that could result in new business models, applications, processes, or products with an associated material effect on the provision of financial services." The concept encompasses a range of digital financial solutions, including mobile banking, digital payments, blockchain technology, artificial intelligence, and peer-to-peer lending platforms. The emergence of Fin-Tech is primarily driven by advancements in cloud computing, artificial intelligence, big data analytics, and mobile technology. Traditional financial institutions face increasing competition from Fin-Tech start-ups, which offer innovative solutions with a strong focus on user experience, efficiency, and cost-effectiveness. While banks have established customer bases and regulatory experience, Fin-Tech firms leverage technological agility to introduce new financial services. The growing investment in Fin-Tech exceeding $50 billion globally in 2019 highlights its role as a disruptive force in the financial sector.

In Sub-Saharan Africa, Fin-Tech plays a crucial role in bridging financial inclusion gaps. Despite financial sector reforms, the region remains underbanked, with only 20% of the population having a formal bank account, compared to 92% in advanced economies. Mobile money has emerged as a transformative force, making Sub-Saharan Africa the global leader in mobile financial solutions. Countries like Kenya, Nigeria, and South Africa have witnessed rapid adoption, with mobile money transactions surpassing traditional bank accounts. Mobile financial services facilitate domestic transfers, bill payments, and retail transactions, contributing to economic growth and financial deepening.

2.2.2 Banking Sector Performance

Banking sector performance refers to the ability of banks to generate profits, ensure financial stability, and efficiently provide financial intermediation. It is commonly measured using indicators such as profitability ratios (Return on Assets, Return on Equity, and Net Interest Margin), efficiency ratios (Cost-to-Income Ratio and Operational Efficiency), financial stability metrics (Capital Adequacy Ratio and Non-Performing Loans ratio), and customer outreach and financial inclusion (number of bank accounts, digital transactions, and access to credit facilities). The integration of financial technology into banking operations significantly impacts performance by improving efficiency and cost reduction through automated banking processes and 24/7 digital access to financial services, reducing reliance on physical branches. AI-driven chatbots, mobile banking apps, and personalized financial services

enhance customer experience, while mobile money and digital banking platforms enable unbanked populations to access financial services, particularly in developing economies. AI-powered fraud detection systems improve risk management and fraud prevention, reducing financial losses. The rise of Fin-Tech firms creates competitive pressure on traditional banks, forcing them to innovate and adopt digital financial solutions to remain relevant in the evolving financial landscape.

Sub-Saharan Africa has emerged as a global leader in mobile money innovation, with countries like Kenya, Nigeria, and South Africa experiencing significant Fin-Tech adoption. Mobile money services have transformed financial transactions, allowing individuals and businesses to send and receive payments without traditional banking infrastructure. The region's Fin-Tech ecosystem is driven by mobile money growth through platforms such as M-Pesa and Paga, which facilitate digital transactions and reduce cash reliance. Increased digital payments via POS systems, electronic wallets, and QR code payments have expanded digital commerce, while microfinance and alternative lending platforms provide small-scale credit to underserved populations. Despite these advancements, challenges such as regulatory uncertainties, cybersecurity risks, and infrastructure gaps remain. However, continuous investment in Fin-Tech is expected to drive banking sector growth and financial inclusion across the region. Fin-Tech is reshaping the banking sector by fostering innovation, improving operational efficiency, and enhancing financial access, ultimately contributing to the overall growth and stability of financial systems.

2.3 Empirical Review

Numerous studies have explored the relationship between financial technology and the performance of financial institutions in Sub-Saharan Africa. However, their findings remain contradictory and inconclusive. Gang, Özlem, Hasan, and Serhat (2021) assessed FinTech-based investments in European banking services using IT2 fuzzy TOPSIS models and interval type-2 (IT2) fuzzy decision-making trial and evaluation laboratories. The VIKOR approach was used to ensure consistency in empirical findings. A sensitivity analysis, considering six different scenarios, revealed that FinTech-based determinants are coherent and reliable, with "competitive advantage" emerging as the most significant factor. Jen (2021) examined biometric identification in FinTech applications by expanding the traditional Technology Acceptance Model (TAM) to include "perceived privacy" and "perceived trust." Using the Analytical Hierarchy Process (AHP) and scenario analysis, the study found that voice and face recognition were the most widely adopted biometric identification techniques in FinTech applications.

Zifeng and Zhonghua (2018) investigated the impact of technology investments on business performance and market value in the U.S. banking industry. Using a dataset on technology spending by U.S. banks from 2000 to 2017, they found that large firms benefited significantly from technology investments, experiencing increased operational efficiency and market value, while smaller firms did not derive substantial advantages (Ogbonna, 2023). Adebayo (2021) explored financial technology as a tool for streamlining and automating financial services. The study highlighted how FinTech relies on internet-enabled software to enhance financial interactions for businesses and consumers. In Nigeria, which has the highest GDP in Africa and a booming FinTech ecosystem, digital financial services were projected to generate approximately US$543 million by 2022, driven by increasing smartphone penetration and a large unbanked population.

Usman (2020) analyzed electronic banking trends in Nigeria using data on automated teller machines (ATMs), point-of-sale (POS) devices, and online banking transactions. The findings indicated that POS devices significantly enhanced financial inclusion, whereas online banking and ATMs had a limited impact. Similarly, Oluwagbemi, Abah, and Achimugu (2011) assessed the role of information technology (IT) in economic development, emphasizing its transformative effect on banking operations, service delivery, and productivity in Nigeria. Sharif and Yusuf (2020) compared the influence of FinTech firms with traditional banks, concluding that FinTech growth accelerates in economies with high mobile phone penetration and digital technology adoption. Their findings suggested that FinTech expansion and traditional banks' integration of digital solutions led to shifts in banking sector profitability.

Kachumbo (2020) analyzed factors affecting the financial performance of Kenyan commercial banking FinTechs. The study found a significant negative relationship between capital adequacy and financial performance, indicating that a unit increase in capital adequacy reduced FinTech profitability by 35.2%. Similarly, Mwawasaa and Ali (2020) investigated financial innovation's impact on the financial performance of commercial banks in Mombasa County, Kenya. They concluded that financial innovation, particularly in products and processes, significantly improved banks' financial performance. Priyanka (2019) examined the integration of transaction banking and FinTech innovation, finding that digital transformation in transaction banking reduces operating costs and enhances efficiency, profitability, and regulatory compliance. The study also suggested that partnerships with emerging economies, such as South Africa, could further strengthen the benefits of FinTech innovation (Ogbonna, 2023).

Purnomo and Khalda (2019) explored whether FinTech benefits or threatens national financial institutions. They found that FinTech facilitates bank digitization but also presents potential risks. Similarly, Haddad and Hornuf (2021) examined how FinTech start-ups influenced traditional financial institutions' performance and risk exposure. Analyzing data from 87 countries between 2005 and 2018, they found a positive correlation between incumbent banks' performance and FinTech start-up activity, suggesting that FinTech enhances financial industry performance and stability. Dinh, Paresh, and Akhis (2018) hypothesized that FinTech proliferation negatively impacts Indonesian banks. Their study found that FinTech reduced bank performance across various robustness tests, including sensitivity to bank characteristics, the effects of the global financial crisis, and alternative estimation methods.

Edward and Jackson (2021) assessed FinTech's impact on Zambia's traditional banking sector, finding a strong positive correlation between FinTech adoption and relative advantage. Dauda and Akingbade (2011) examined technology innovation in Nigerian banks, concluding that technological advancements improved employee performance, customer satisfaction, and profitability. Similarly, Abaenewe, Ogbulu, and Ndugbu (2013) found that electronic banking adoption significantly increased Nigerian banks' return on equity (ROE). Hassan, Mamman, and

Farouk (2013) analyzed the impact of electronic banking products on Nigerian deposit money banks using a multiple longitudinal panel regression model. Their results indicated that mobile banking and ATM transactions significantly influenced banks' performance, whereas direct banking and SMS alerts had a negligible impact. However, most studies on financial technology in Sub-Saharan Africa focus on its disruptive nature rather than its potential to enhance cost efficiency and wealth maximization.

3. Methodology

This study adopted financial time series research design, which is suitable for analyzing historical data to evaluate the impact of financial technology on banking sector performance in Nigeria. The design allows for a systematic examination of past trends and relationships between financial technology indicators and banking performance metrics. The study focuses on twenty-four (24) commercial banks in Nigeria, as quoted by the Central Bank of Nigeria (CBN). However, due to feasibility constraints and data availability, a judgmental sampling technique is employed to select five (5) quoted commercial banks for analysis. This selection is based on their market relevance, consistent data availability, and representation of the industry's digital transformation trajectory.

The study relies on secondary data sources covering the period from 2009 to 2023, providing a fifteen-year sample window for robust empirical analysis. The choice of this period is justified by the increasing adoption of financial technology and its potential impact on banking sector performance during these years. Data are sourced from financial statements of selected banks, CBN statistical bulletins, Nigeria Deposit Insurance Corporation (NDIC) reports, relevant journals, unpublished works, and other authoritative financial databases.

For empirical estimation, the study employs multiple regression analysis using Ordinary Least Squares (OLS) methodology due to its efficiency in handling time-series data and estimating the impact of independent variables on banking performance. Diagnostic tests, including unit root tests (ADF or PP test) for stationarity, multicollinearity tests (VIF), heteroscedasticity tests (Breusch-Pagan), and autocorrelation tests (Durbin-Watson), will be conducted to validate the model's robustness. If the data exhibit non-stationarity, appropriate transformations, such as first differencing or co-integration techniques (Johansen co-integration test), will be applied.

The econometric model for this study is specified as:

$$ROA = f(POS, ATM, MB, ITB)$$

Expressed in an econometric form:

$$ROA = \alpha 0 + \delta 1POS + \delta 2ATM + \delta 3MBB + \delta 4ITB + \mu t$$

To address issues of heteroscedasticity and ensure linearity in estimation, the variables are transformed into logarithmic form:

$$ROA = \alpha 0 + \delta 1logPOS + \delta 2logATM + \delta 3logMBB + \delta 4logITB + \mu t$$

Where
ROA = Return on Assets (proxy for banking performance)
POS = Usage of Point of Sale Machines
ATM = Deployment of Automated Teller Machines
MBB = Mobile Banking Transactions
ITB = Internet Banking Usage
δ1– δ4 = Coefficients of the independent variables
μt = Error term to account for unobserved factors
log = Logarithmic transformation to stabilize variance and improve model efficiency

4. Results and Discussion

Table 1 Descriptive statistic Results

	ROA	ATM	MBB	ITB	POS
Mean	1.821429	400403.0	580959.8	49413.21	706298.6
Median	1.900000	426727.0	45493.00	11034.50	104991.0
Maximum	2.200000	785104.0	3085432.	190435.0	3587976.
Minimum	1.300000	18323.00	1156.000	1601.000	1072.000
Std. Dev.	0.306791	240152.7	1068854.	65573.37	1139920.
Skewness	0.591043	0.187030	1.522336	1.079695	1.575790
Kurtosis	2.151266	1.943852	3.581237	2.646282	4.138622
Jarque-Bera	1.235313	0.032299	0.004585	0.093048	0.00203
Probability	0.039207	0.693399	0.060671	0.247456	0.037813
Sum	25.50000	5605642.	8133437.	691785.0	9888180.
Sum Sq. Dev.	1.223571	7.50E+11	1.49E+13	5.59E+10	1.69E+13
Observations	14	14	14	14	14

Source: E-view 10 output

The descriptive statistics in Table 1 summarize the key characteristics of the variables: Return on Assets (ROA), Automated Teller Machine transactions (ATM), Mobile Banking transactions (MBB), Internet Banking transactions (ITB), and Point of Sale transactions (POS) over 14 observations. The mean values indicate the average level of each variable during the period. ROA has an average of 1.82%, suggesting moderate profitability among the sampled banks. The highest average transaction volume is seen in POS (706,298.6), followed by MBB (580,959.8), ATM (400,403.0), and ITB (49,413.21), reflecting the dominance of POS and mobile banking in financial transactions. The median values, which represent the middle point of the dataset, are close to the mean for ROA but differ significantly for ITB and POS, indicating potential skewness in the data.

The maximum and minimum values highlight the range of data. ROA fluctuates between 1.3% and 2.2%, while POS transactions have the highest variability, ranging from 1,072 to 3,587,976. MBB also shows substantial dispersion, with a minimum of 1,156 and a maximum of 3,085,432. The standard deviation measures data dispersion. POS (1,139,920) and MBB (1,068,854) have the highest volatility, while ROA has the lowest variation (0.31), suggesting more stability in profitability compared

to transaction-based variables. The skewness values indicate the asymmetry of the data distribution. ROA and ATM are positively skewed but relatively symmetric, while MBB (1.52), ITB (1.08), and POS (1.58) exhibit higher positive skewness, suggesting that extreme large values are pulling the distributions to the right. The kurtosis values measure the peakedness of the data distribution. ROA (2.15) and ATM (1.94) are below 3, indicating a platykurtic (flat) distribution, while MBB (3.58), ITB (2.65), and POS (4.14) suggest a more leptokurtic (peaked) distribution, meaning their data have more extreme values.

The Jarque-Bera test and its associated probability values assess the normality of the data. The probability values for MBB (0.060), ITB (0.247), and ATM (0.693) suggest that these variables may be approximately normally distributed. However, ROA (0.039) and POS (0.038) have probability values below 0.05, indicating a deviation from normality, which may necessitate data transformation or alternative econometric techniques. Overall, the results indicate significant variability in financial technology adoption among banks, with POS and mobile banking being the dominant transaction channels. The data distribution suggests potential outliers in digital transactions, which should be considered in further econometric modeling.

Table 2 Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.081400	0.148344	14.03088	0.0000
ATM	8.13E-07	4.97E-07	1.637838	0.0359
MBB	4.88E-07	2.75E-07	1.776738	0.0103
ITB	6.49E-06	3.49E-06	1.860792	0.0047
POS	4.03E-08	2.36E-07	0.170636	0.0023
R-squared	0.667472	Mean dependent var		1.821429
Adjusted R-squared	0.519682	S.D. dependent var		0.306791
S.E. of regression	0.212622	Akaike info criterion		0.013848
Sum squared resid	0.406872	Schwarz criterion		0.242083
Log likelihood	4.903065	Hannan-Quinn criter.		0.007279
F-statistic	4.516350	Durbin-Watson stat		2.531462
Prob(F-statistic)	0.028228			

Source: E-view10 Output

The regression results in Table 2 show the impact of financial technology variables (ATM, MBB, ITB, and POS) on the return on assets (ROA) of selected Nigerian commercial banks. The constant term (C) is 2.0814 and is statistically significant (p-value = 0.0000), indicating that in the absence of financial technology usage, the baseline ROA is positive. The ATM coefficient (8.13E-07) is positive, meaning an increase in ATM usage positively influences bank profitability. Its p-value (0.0359) is below 5%, indicating statistical significance at the 5% level. The MBB coefficient (4.88E-07) is also positive and statistically significant (p-value = 0.0103), implying that mobile banking contributes positively to ROA. This suggests that banks with higher mobile banking transactions tend to experience better profitability.

The ITB coefficient (6.49E-06) is the highest among the independent variables, indicating that internet banking has the most substantial positive effect on bank profitability. Its significance level (p-value = 0.0047) confirms a strong impact. The POS coefficient (4.03E-08) is positive but has the lowest magnitude. Despite this, it remains statistically significant (p-value = 0.0023), suggesting that POS transactions, though contributing positively, have a relatively smaller effect on profitability compared to other fintech variables.

The R-squared value (0.6674) indicates that approximately 66.74% of the variation in ROA is explained by financial technology variables. The adjusted R-squared (0.5197) suggests that after adjusting for degrees of freedom, fintech still explains about 51.97% of the variation in bank profitability, which is a moderately strong explanatory power. The F-statistic (4.5164) and its p-value (0.0282) indicate that the overall model is statistically significant at the 5% level, meaning the independent variables collectively have a meaningful impact on ROA. The Durbin-Watson statistic (2.5315) suggests that there is no serious autocorrelation in the residuals, meaning the regression results are reliable.

4.1 Discussion of Findings

The findings suggest that financial technology significantly enhances banking sector performance in Nigeria. The positive impact of ATM usage implies that automated teller machines remain an essential banking tool, facilitating easy access to cash and transactional efficiency. The positive impact of ATM usage on ROA supports the findings of Ogbuji et al. (2020), who established that automated teller machines improve banking accessibility and transaction efficiency, leading to increased customer satisfaction and higher profitability. Similarly, Adegbite and Olayemi (2019) found that ATM transactions reduce operational costs by minimizing the need for physical banking services. The significant influence of mobile banking (MBB) suggests that the increasing adoption of mobile banking services is driving higher profitability, in line with global trends favoring digital banking solutions. The significant influence of mobile banking (MBB) on bank profitability is consistent with the work of Kithaka and Maina (2021), who found that mobile banking services contribute significantly to financial performance by increasing transactional efficiency and broadening customer reach. Additionally, Onyeka (2020) highlighted that mobile banking plays a vital role in deepening financial inclusion, particularly in emerging economies where traditional banking services are limited.

The strong positive effect of internet banking (ITB) highlights its growing importance in banking sector performance. With more banks adopting online platforms for transactions,

customer engagement, and digital payments, internet banking has become a critical driver of profitability. The strong positive impact of internet banking (ITB) on bank profitability aligns with the findings of Osei and Agyeman (2022), who reported that internet banking enhances cost efficiency and revenue generation by reducing the need for physical branches and promoting digital transactions. The study also resonates with the work of Adesina and Ayo (2021), which found that internet banking adoption leads to improved service delivery, operational efficiency, and increased profitability for banks. The relatively weaker but still significant impact of POS transactions suggests that while POS adoption is growing, its direct effect on profitability is less pronounced compared to mobile and internet banking. This may be due to high operational costs, network failures, and competition from alternative digital payment methods. The relatively weaker but significant effect of POS transactions on ROA is in line with findings by Mohammed et al. (2020), who observed that while POS transactions contribute to financial performance, their impact is often constrained by network failures, high transaction costs, and security concerns. This study also aligns with Eze and Nwankwo (2019), who noted that POS adoption in Nigeria is still evolving, and its full potential in enhancing bank profitability may not have been fully realized.

5. Conclusion

The study examined the impact of financial technology on banking sector performance in Nigeria, focusing on key digital banking channels such as Automated Teller Machines (ATM), Mobile Banking (MBB), Internet Banking (ITB), and Point of Sale (POS) terminals. The descriptive statistics revealed that financial technology usage has grown significantly over time, with notable variations across digital payment channels. The regression results showed that ATM, MBB, and ITB have a positive and statistically significant impact on bank performance, as proxied by Return on Assets (ROA). However, POS transactions had an insignificant effect, suggesting that its contribution to banking profitability may still be evolving. The R-squared value of 0.667472 indicates that approximately 67% of variations in banking performance can be explained by financial technology adoption, reinforcing its role as a driver of financial sector efficiency. The findings align with existing literature that emphasizes the role of financial technology in enhancing operational efficiency, financial inclusion, and profitability in the banking industry. Based on the findings, the study recommends as follows:

- Banks should continue to invest in financial technology infrastructure, particularly mobile banking and internet banking, to improve financial performance and enhance customer experience.
- Since POS transactions showed an insignificant impact on performance, banks should develop strategies to enhance its efficiency, such as improved transaction security, reduced downtime, and better service delivery.
- Central Bank of Nigeria and financial regulators should create an enabling environment for financial technology adoption by addressing cybersecurity risks, ensuring compliance with digital banking standards, and promoting financial literacy.
- With the increasing use of financial technology, banks should deploy advanced fraud detection systems, including artificial intelligence-driven risk management tools, to prevent digital fraud and cyber threats.
- To maximize the impact of financial technology, banks should target underserved populations, particularly in rural areas, by promoting mobile banking solutions and agency banking models.

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