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Research Article

DIGITAL FINANCIAL SOLUTIONS AND THE PERFORMANCE OF NIGERIAN COMMERCIAL BANKS

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Abstract

This study analyzed the effect of financial technology on financial performance of Commercial banks in Nigeria for the period of 2012-2023. The specific objectives were to evaluate the effect of automated teller machine, point of sales, mobile banking and internet banking on the financial performance of Commercial banks in Nigeria. The variables were financial performance as the dependent variables while automated teller machine, point of sales, mobile banking and internet banking was the independent variables. Panel Least Squared (PLS) method of data analysis was used. The study also employed descriptive statistics, Hausman test and correlation in this study. From the analysis result the study found that, Point of sales has no significant effect on financial performance of Commercial banks in Nigeria. (t=3.583072=0.009) Automated teller machine has no significant effect on financial performance of Commercial banks in Nigeria (=0.569002, p=0.5721). Mobile banking has significant effect on financial performance of Commercial banks in Nigeria. (t=3.378671, p=0.0006). The study concluded that FinTech variables (volume of transactions on ATM, internet banking, MBB and POS) significantly influenced changes in the performance of Commercial Banks in Nigeria. The study concludes that financial technology has significant and positive effect on financial performance of commercial banks in Nigeria. The study recommended amongst others that; Point of sales has significant effect on financial performance, it should be encourage because POS systems simplify and streamline transactions, reducing errors and improving efficiency in the banking business. Automated teller machine has no significant effect, CBN should as a matter of urgency compel all the commercial bank in Nigeria to fix their ATM and load it with cash for customers to have seamless and round-the-clock access. Mobile banking has significant effect on financial performance, commercial banks should upscale their investments in information and communication technology (ICT) infrastructure to enhance internal capacity to provide uninterrupted services, as well as develop capacity resolve customer complaints real-time.

Keyword: Stakeholders financial technology, Automated teller machine, point of sales, mobile banking, internet banking, financial performance, Commercial banks

1.1 Background to the Study

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Prior to the rise of financial technology (fintech), commercial banks' financial performance was defined by slower technological improvements, traditional banking models that prioritized physical branches, and a reliance on in-person transactions. Commercial Banks provided a variety of financial services and products to consumers while operating in highly regulated environments with little room for competition. According to Atueyi, Nkechukwu, Nzotta, and Jacobs (2019), commercial banks mostly made money through conventional means such interest income from loans, fees from services, and investment activities. Interest rates, the state of the economy, and regulatory requirements all had an impact on profit margins. The number of physical branches, employees, and manual procedures all affected how efficiently banks operated. Regulatory compliance, customer service, and back office operations required a lot of time and resources. Instead focusing on disruptive breakthroughs, banks prioritized small-scale enhancements to their offerings. Adoption of technology was mostly restricted to internal systems rather than solutions that dealt with customers. Credit, market volatility, and regulatory compliance were among the issues that banks had to deal with (Gupta, 2023). Their financial performance was significantly influenced by risk assessment and management, with strict procedures in place to protect assets and preserve stability. Prior to fintech, banks' financial performance was defined by stability, existing client connections, and regulatory compliance. However, as consumer preferences and technical breakthroughs hinted at the emergence of fintech solutions that would transform the banking landscape, the industry was ready for upheaval (Atueyi, .Nkechukwu, & Jacobs 2019). The era of financial technology, or fintech, has brought about substantial changes in the way banks operate. For traditional banks, the emergence of financial technology has brought both new opportunities and challenges (Kwadwo & Nagaraju, 2020). With their cutting-edge goods and services that rival those of traditional banks, fintech startups have entered the financial services sector. Banks have had to adjust and innovate in order to remain competitive as a result of the growing rivalry for consumer deposits and loans (Nwafor, 2022). By providing streamlined digital interfaces, individualized services, and expedited transactions, fintech companies have elevated the standard for the consumer experience. In order to satisfy consumer demands, traditional banks have had to enhance their own digital products. Traditional banks have been forced to digitize their operations and embrace new technologies in order to increase efficiency and lower overhead costs as a result of fintech solutions' simplification of procedures and cost reductions for numerous financial services. Traditional banks and fintech startups frequently operate under distinct regulatory frameworks, which present difficulties for banks in terms of risk management and compliance. In order to pursue partnership prospects with fintech partners, banks have had to overcome these regulatory obstacles (Lv, Du, and Liu, 2023). In response to shifting consumer tastes, technological breakthroughs, and competitive pressures, banks have been compelled to adapt and change in the financial technology era. In an industry that is changing quickly, those who have embraced innovation and partnered with fintech companies have been able to enhance their performance and remain relevant. FinTech has been widely used in the financial services sector, particularly in commercial banking

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institutions, but its applications are not limited to this sector; it also helps managers, business owners, and consumers better manage their operations, business processes, and personal lives. Fin-tech applications in the banking industry span a number of domains, including core banking services including lending operations, money transfers, payment services, and personal loans. Additionally, it is used in wealth and asset management, including portfolio management and the provision of an automated advice service (Ali, Abdullah, & Zaini, 2019). It is anticipated that the integration of Fin-tech innovations into CBs' service delivery process will impact their operational performance because of the ease with which ICT advances enable the evaluation of bank services. It is anticipated that the implementation of Fin-tech infrastructure will streamline banking operations in a way that expedites service delivery, including deposit taking, loan disbursement, and customer complaint handling. This will increase the volume and value of deposits and disbursed loans, ultimately impacting the operational performance of Commercial banks. The advent and acceptance of electronic banking, a method that incorporates the advantages of adopting financial technology, has brought about dynamic changes in the banking industry, which is not an exception in the developing Nigerian economy. Therefore, there is a need for this study to look at how financial technology affects Nigerian commercial institutions' financial performance.

1.2 Objectives of the Study

The broad objective of the study is to analyze the effect of financial technology on financial performance of Commercial banks in Nigeria. The following are the specific objectives that will guide this study:

i. To evaluate the effect of automated teller machine on the financial performance of commercial banks in Nigeria.
ii. To analyze the effect of point of sales on the financial performance of commercial banks in Nigeria.
iii. To determine the effect of mobile banking on the financial performance of commercial banks in Nigeria.
iv. To determine the effect of internet banking on the financial performance of commercial banks in Nigeria.

REVIEW OF RELATED LITERATURE

2.1 Theoretical Framework

2.1.1 Technology Acceptance Model

Technology acceptance model (TAM) was originally proposed by Davies in 1986. This model was designed to forecast the user's acceptance of information technology and usage in an organizational setting. Wasilwa and Omwenga (2016) posits that firms are adopting technology to cope with the dynamics of the external environment. This model has been tailored in a manner that can accommodate changes for improved costs reduction and efficiency. Technology Acceptance Model deals with perceptions as opposed to real usage, the model suggest that users are the key factors that influence their decision on how, where and when they will use it. This theory is relevant to this study since it explains user's acceptance of FinTech and usage in an organizational context. Acceptance is the first process in technology use and has a bipolar implication. First of

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all acceptance is a precursor to adoption and hence this theory complements the preceding theories. Secondly, acceptance dictates the attitude and perception of the users which eventually affects efficiency of use and hence performance. Strategic adoption as well as operational efficiency and hence productivity of systems are a function of acceptance of the technology. It is thus plausible to conclude that without acceptance, the rest of the theories would be redundant and invalid. Though acceptance is an initial phase, it is also an attitude shaping facet that influences adoption and effectiveness of use.

Relevance of the Theory to the Study

The technology acceptance model finds its perceived usefulness in that it examines the degree to which a person believes that using a particular technology will enhance his or her job performance. Venkatesh and Davis (2000) explain that the perceived ease of use, on the other hand, examines the degree to which a person believes that using a particular technology would require minimal effort. The model stresses that the perceived ease of use and usefulness are further influenced by external factors. There are however, different opinions regarding these external factors and this review identifies the differences and how they influence the model (Legris, Ingham, & Collerette, 2003). The Technology Acceptance Model has been studied by many researchers such as Dishaw and Strong (1999); Pijpers (2001); Koufaris (2002) and Averweg (2008). Venkatesh and Davis (2000) developed a theoretical extension of the TAM that explains perceived usefulness and usage intentions in terms of social influence and cognitive instrumental processes. They identified that there is an interactive effect between job relevance and output quality in determining perceived usefulness.

2.1.2 Diffusion of Innovation Theory

The theory was advocated by Rogers in 1962 posit that diffusion of innovations is a theory that seeks to explain how, why, and at what rate new ideas and technology spread through cultures. He explains that critical factors that determine the adoption of an innovation at the general level are the following: relative advantage, compatibility, complexity, trial-ability and observability. In the context of FinTech adoption, benefits such as immediacy, convenience and affordability to customers have been reported. Thus, it is assumed that, when customers perceive distinct advantages offered by FinTech, they are more likely to adopt it (Wasilwa & Omwenga, 2016). Compatibility refers to the degree to which a service is perceived as consistent with users' existing values, beliefs, habits and present and previous experiences (Wasilwa & Omwenga, 2016). Compatibility is an important feature of innovation as conformance with user's lifestyle can propel a rapid rate of adoption. Observability of an innovation describes the extent to which an innovation is visible to the members of a social system, and the benefits can be easily observed and communicated. According to Rogers trial-ability is defined as the capacity to experiment with new technology before adoption. Potential adopters who are allowed to experiment with an innovation will feel more comfortable with it and are more likely to adopt it. Perceived risk refers to the degree of risks in using an innovation.

Relevance of the Theory to the Study

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The diffusion innovation theory seeks to explain how, why, and at what rate new ideas and technology spread. It, aims to understand how innovations become established in the market and the elements contributing to their diffusion. It outlines how new technological and other advancements spread throughout societies and cultures, from introduction to widespread adoption. The diffusion of innovations theory seeks to explain how and why new ideas and practices are adopted, including why the adoption of new ideas can be spread out over long periods. It shows the way in which innovations are communicated to different parts of society and the subjective opinions associated with the innovations are important factors in how quickly diffusion-or-spreading-occurs. This theory is frequently referred to when companies are developing a marketing strategy for new products and developing market share.

2.2 Empirical Studies

Ngango (2015) examined the contribution of E-banking towards banking on performance of banking Institutions in Rwanda because according to National bank of Rwanda, there is delay in payment of checks between banks; time wasted in banks as people line in queue waiting for service, errors as a result of manual work and fraud related cases was common. As a result some clients complain of the above hence the researcher would like examined the contribution of this system to banking efficiency in Rwanda. The researcher used descriptive method of study based on qualitative and quantitative approach in order to get better analysis of the study. He will use both primary and secondary data collection tools with their relevant tools like questionnaire and documentary analysis in order to come up with required data. In the findings it was established that Electronic banking system like ATM, Pay direct, electronic cheque conversion, mobile telephone banking and E transact has a great impact on bank performance because they increase profitability, reduce bank cost of operations, and increase bank asset and bank efficiency.

Sindwani and Goel (2012) analyzed some of the important studies conducted in various countries across the world for finding the dimensions of ATM banking service quality. On the basis of review, it has been found that there is no consensus among researchers on dimensions of ATM banking service quality. The paper suggests the need for further research to develop a generally accepted scale based on standard dimensions for measuring ATM banking service quality.

Ahmed, and Wamugo, (2018) investigated the effect of financial innovation on the performance of commercial banks in Kenya.. The study adopted a descriptive research design. The study targeted all the 16 commercial banks which have embraced all the financial innovations under the study in Kenya. The study used primary data collected using structured questionnaires which were administered to the senior management employees and secondary data obtained from the Central Bank of Kenya Bank Supervision reports. Descriptive statistics were used to describe the quantitative data. Pearson's correlation, analysis of variance and multiple regression analysis were used to establish the relationships among the study variables. The study found that agency

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banking, mobile banking, internet banking as well as ATM banking had a positive and statistically significant effect on the performance of commercial banks in Kenya.

Gbanador, (2023) accessed the influence of electronic banking on performance of commercial banks (DMBs) in Nigeria. Utilizing secondary data procured from the Central Bank of Nigeria's statistical bulletin on monthly time series from 2019 - 2021 and adopting the ordinary least square (OLS) technique for analysis. The study found that, in the short-run, e-banking systems had no significant impact on performance of DMBs in Nigeria. However, the result from the long-run analysis revealed that ATM and POS positively and insignificantly influence performance of DMBs in Nigeria while Mobile banking has a positive and significant impact on DMBs' performance. Thus, the study concludes that e-banking influences performance of DMBs in Nigeria, and recommends that DMBS should sensitize clients regarding the benefit of using ATM, POS and other e-payment channels; and also offer quality mobile banking services to sustain their performance.

In the research of Mwatsika (2016) conducted in Malawi on the Impact of ATM Banking Performance on Customer Satisfaction, using data source from self-administered questionnaire on 353 respondents. The study adopted a performance only approach to measuring customer satisfaction. Using multi-attribute Likert measurement scales and SPSS for analysis. The results showed that performance of automated teller machine banking has 40 percent predictive capability of customer satisfaction with the bank. The study further found that despite influencing customer satisfaction with the bank, Automated teller machine has no capability to attract customers to switch banks. Therefore banks could improve their customer satisfaction ratings through improvements in Automated teller machine banking services but where the banks wish to attract customers from rivals, alternative marketing strategies should be sought. Worako, (2018) assessed the impacts of ATM services on the customers saving rate in the Commercial Bank of Ethiopia, Akaki Branch. Beside the major objective customers' satisfaction and prominent constraints and challenges of ATM services were assessed. To achieve the desired objectives of the study, totally 42 ATM service users were selected by using the purposive sampling techniques and filled the questionnaires and other information gathered from the branch office. The collected data were organized, analyzed and interpreted by using simple descriptive statistics and results presented by graphs and tables. Based on the respondents, the ATM service has shown negative influences on their saving rate. Out of 42 respondents 23(54.76%) were said that the saving rate decreased, 18 (42.86%) there is no difference on their saving rate and the rest 1(2.38%) said the saving rate increased after using the ATM services. The customer satisfaction on the services delivered by the ATM in the Commercial Bank of Ethiopia is moderately satisfies their needs. However, there are a lot of problems which needs immediate and long-term solutions to improve service system like network interruption, limited amount withdrawal per day, card retention and unsuitability of installation place for the peoples with disability. Hence, the CBE should address all problems in timely and properly to enhance the customers' satisfaction and confidentiality on the services delivered. Ndirangu, et al. (2022) evaluated the effect of ATM banking on performance of the microfinance

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banks in Kenya. The study adopted technology acceptance model and used primary data collected administered questionnaires. Descriptive and inferential statistics were used to calculate the simple means; standard deviations and to make conclusions from the information. Data was presented using frequency tables, and correlations table. Factor analysis was conducted to reduce the number of factors and Kaiser Meyer Olkin and Barlett's test of Sphericity were tested and total variance explained, scree plot and rotated component matrix were drawn. Model R - Square, ANOVA Statistics and regression coefficients R were used to test the hypothesis of bivariate model. The study concluded that there is a statistically significant relationship between ATM banking and performance.

Muluka, et al. (2015) investigated the effect of digital banking on customer satisfaction in Kenya. The target population for the study was bank customers and banking staff from National Bank in Bungoma County. Using a sample size of 417. Data for the study were collected using a combination questionnaires, interview and desk reviews. Analysis was undertaken with the aid of Statistical Package for Social Sciences where both descriptive and correlation analysis were performed. The findings of the study established that there was a significant relationship between speed of transaction and customer's satisfaction. Thus, banks were advised to invest more on robust reliable systems to reduce incidents of failed transactions and transactional errors in ATMs.

Medyawati, Yunanto and Hegarini (2021) analyzed the influence of financial technology on the financial performance of banks listed on the Indonesia Stock Exchange (IDX) during the 2014-2020 period. Financial technology was measured by the number of Automated Teller Machine (ATM) transactions and internet and mobile banking, while bank profitability was measured by Return on Assets (ROA). Furthermore, this study used the panel data regression analysis, with the Automated Teller Machine (ATM) transactions as well as internet and mobile banking as the independent variables, and ROA as the dependent variable. Purposive sampling was used to select six banks as samples. The results showed the fixed effect as the most suitable model, where ROA is affected by the internet and mobile banking, while the ATM technology has no effect.

Kabir, Kurfi and Isa (2021) examined the impact of electronic banking on the financial performance of Deposits Money Banks in the Nigerian banking industry. The study relied on descriptive study. The study was centered on all the 21 Deposits Money Banks licensed in Nigeria and used secondary data for the period 2013 to 2017 and sourced from reports and publications. Statistical package for the social sciences (SPSS) was used to analyses the data. Findings established that electronic banking has contributed positively to the financial performance of Nigeria's commercial banks. The study also showed that mobile, internet banking and use of ATM cards positively and significantly influenced the financial performance of Nigeria's Deposits Money Banks as measured by the return on assets. The study recommends that Deposits Money Banks in Nigeria increase their efforts towards adoption of e-banking to automate their service delivery to customers and that the banking industry's policy makers and regulators consider electronic banking as a major input when crafting guidelines to regulate the industry.

Alubisia, Githii and Mwangi (2018) investigated how the adoption of ATMs

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and Cards, Internet and Mobile Banking and use of Funds Transfer Systems such as RTGS and EFT has impacted the non-interest income of commercial banks in Kenya. Descriptive research design was used for the study. Findings showed that technology based financial innovation has significant effect on the non-interest income earned by commercial banks in Kenya. It recommends all stakeholders in commercial banks to take any investments made towards technology based financial products as a strategy to improve non-interest income. Tshukudu, et al. (2022) determined the relationship between financial technology and commercial banks' financial performance. Adopting simple linear regression along with descriptive analysis and correlation analysis based on the top five banks in South Africa. Two measures of financial performance, return on equity and return on assets, were utilized using secondary bank data for the period of 2011-2021. The findings indicated that within the chosen sample period, there is a relationship between the financial performance of the top five banks in South Africa and the incorporation of financial technology led by the number of mobile subscriptions used for internet banking. Findings also showed that competition within the banking sector is emerging, meaning that South Africa's banking sector is moving from an oligopolistic environment into a more competitive one. This may be viable for experts within the banking space as it can provide substantial evidence that the transition from traditional-based banking to a more digital approach be to their benefit in termsof financial performance and gaining market share within the sector. Asante-Gyabaah, Danquah and Tetteh-Wayoe (2015) assessed the impact of the ATM technology in delivering service quality in the banking industry in Ghana. The study focused on customers and staff of GCB Bank Ltd in ten (10) branches in Greater Accra Region. The purposive sampling technique was used in selecting 272 customers and staff from these 10 branches in the Greater Accra Region. The results of the study generally indicated that, 30% of respondents use the ATM services once a week while 26.4 % often use the ATM on alternate days and 22.8% use it once a month. A high percentage of 84.8% of respondents asserting that they watch out for the location of the ATM before going to transact means customers who go to the ATM are becoming more security conscious and banks must consider this factor in locating an ATM. Respondents also use the ATM as and when needed and since banks also must satisfy them should make the ATM available to them at all times. The three top-most challenges customers are faced with at the ATM were also identified in the study and these included," accounts being debited without dispensing" (92.4%), followed by "ATM being sited at an obscured area" (86%) and "the ATM not dispensing the denomination required" by customers ranked third with an average of 62.4%. These show that the ATM service has contributed positively to the provision of banking services in GCB Bank Ltd. and the Ghanaian Banking industry as a whole.

METHODOLOGY

3.1 Research Design

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In this study, an ex-post facto research design was employed in this study. The time period was from 2012 to 2023. The selection of an ex-post facto research design is on the presumption that the author cannot manipulate the data as they are available in public domain via established and regulated government agencies.

3.2 Nature and Sources of Data

The study relied on secondary data. Data were extracted from the Annual Reports of the selected commercial banks in Nigeria. The Companies and Allied Matters Act require companies to keep and produce accounts that render a true and fair view of the state of affairs of the company. The accuracy of this information is consistent with the mandate that all publicly traded corporations perform an independent external audit of their released financial statements. Additionally, because accounting data is audited, accounting-based measurements are thought to be more trustworthy than market-based measures.

3.3 Population of the Study

The population of this study consists of the twenty-four (24) commercial banks quoted on the Nigerian Exchange Group (NGX). The study covers twelve years annual reports and accounts of these banks from 2012 to 2023.

3.4 Sample Size and Sampling Technique

This study selected all the ten (10) commercial banks in Nigeria for the study. The banks were chosen because of availability of data.

Table 3.1: List of Commercial Banks Used for the Study

1	Fidelity bank plc
2	FCMB plc
3	First bank plc
4	Access bank plc
5	United bank of Africa (UBA)
6	Sterling bank plc
7	GT Bank
8	ECO Bank
9	Zenith Bank
10	Union Bank

3.5 Model Specification

ROA = F (POS, ATM, MB, IB)

Where

ROA = Return on asset

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POS= Point of sales
ATM= Automated teller machine
MB = Mobile banking
IB= Internet banking
F = Functional Notation

Our model is now restated in an econometric form as:

ROE - $B_O + B_1POS_{it} + \beta_2ATM_{it} + \beta_3MB_{it} + + \beta_4IB_{it} + u$ ---------- (2)

ROA= Return on equity (proxy of financial performance of bank)
ATM= Automated teller Machine
POS= Point of sale
MB= Mobile banking
INB= Internet banking
Bo= constant
β_1-β_4 is parameters to be estimated

3.6 Variables and Measurement

Variable	Measurement	sources
Dependent Variable Return on Assets	Firm's net income to total assets in the same year	(Setiawan&Gestanti, 2022)
Independent Variable Point of sale	Measured by the total amount of transactions done through POS on an annual basis	Ibenta and Anyanwu (2017)
Automate Teller Machine	This is measured by the Value of Transaction on Automated Teller Machines	Ibenta and Anyanwu (2017).
Mobile Banking	Measured by the Value of Transaction on Mobile Banking.	Ibekwe, (2021)
Internet Banking	Measured by the Value of Transaction on Web/Internet	Ibenta and Anyanwu (2017)

DATA PRESENTATION AND ANALYSIS

4.1 Descriptive Statistics Analysis

Table below which displays the number of observations, mean, standard deviation, minimum and maximum values of the explained variable, and each of the explanatory variables, provides the descriptive statistics for all

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the variables in the model. The descriptive data of the chosen service sector that comprise our sample are displayed in the table below.

Table 1 Descriptive Statistics

	ROA	LPOS	LATM	LMBB	LIB
Mean	0.102727	16.26176	17.57151	16.38742	8.493355
Median	0.030000	17.44278	19.43901	17.63820	9.406934
Maximum	0.610000	20.12964	30.43941	19.73981	11.55281
Minimum	0.010000	7.414573	10.21899	7.440734	3.001217
Std. Dev.	0.127638	3.172703	3.777851	3.610735	2.531564
Skewness	1.604184	-0.843594	-0.448847	-1.007445	-1.002340
Kurtosis	5.214986	2.387396	2.969313	2.509920	2.691636
Jarque-Bera	69.66568	14.76699	3.697816	19.70815	18.85506
Probability	0.000000	0.000621	0.157409	0.000053	0.000080
Sum	11.30000	1788.794	1932.866	1802.616	934.2691
Sum Sq. Dev.	1.775782	1097.199	1555.665	1421.077	698.5610
Observations	120	120	120	120	120

Source: Researcher's summary of descriptive result (2025) using E-view 10

The mean values for each variable, along with their maximum and lowest values, standard deviation, and Jarque-Bera values—which indicate the data's normality and nature—are displayed in the descriptive statistics result in table 4.2.1 above. The outcome sheds some light on the characteristics of the chosen listed commercial bank from Nigeria that were employed in the research. The objective of the descriptive statistics was to characterize the overall distributional characteristics of the data and to pinpoint any anomalous observations or anomalous patterns of observations that would pose issues for the data's further analyses. The data generated for the study was thus described and summarized by an initial analysis of the data using basic descriptive methods. According to the study's goal, the descriptive statistics are provided in this part. This is the result of Nigeria's fintech and the bank performance of the commercial banks, as table 4.1 illustrates. The researcher aimed to determine the financial technology on financial performance and central tendency for the commercial banks. First, the dependent variable was the return on assets. 10% was the average return on assets. It was noted that the sampled banks' average positive point of sales over the review period was 16.26%. The companies' return on assets had a maximum value of 0.61% and a minimum value of 0.01% throughout the review period. The significant variance between the highest and lowest return on assets suggests that the chosen banks' financial

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technology vary widely from one another, and this implies that the firms are not homogenous across the period under examination. The return on asset's standard deviation was 0.12. The return on asset's skewness was 1.60, suggesting that the data were skewed to the right and that most values were therefore clustered to the left of the distribution. A kurtosis value of 5.21% indicates a distribution with a significantly higher degree of peakedness than a normal distribution (which has a kurtosis of 3). A kurtosis of 5.21% implies that the distribution has a longer and thinner tail than the normal distribution, which means there are more extreme outliers present.

Table 4.1. Above presents the descriptive analysis of Point of Sales (POS), which is defined as Point of Sale (POS) systems are devices or software applications used by businesses to complete financial transactions, including processing credit and debit card payments, tracking inventory, and generating sales receipts. 16.26% was the minimal number for the Point of Sales. Additionally, it can be seen that the Point of Sales reached a level of 16.26%. The standard deviation was 3.17, indicating that the available resources or size of the ten listed bank in Nigeria were dispersed around the mean by around 3.17%. With a skewness of -0.84, the Point of Sales was negatively skewed, suggesting that the majority of its values were clustered to the left. A kurtosis value of 2.38% indicates a distribution with a somewhat lower degree of peakedness than a normal distribution (which has a kurtosis of 3). A kurtosis of 2.38% implies that your distribution has a shorter and flatter tail than the normal distribution, meaning that there are fewer extreme outliers present. This type of distribution can be thought of as having a more symmetrical, bell-shaped curve than a normal distribution.

Automated Teller Machine (ATM) which was measured as an Automated Teller Machine (ATM) is a computerized electronic device that allows users to perform various banking transactions, such as cash withdrawals, deposits, balance inquiries, and transfer of funds, without the need for human assistance this have about 17.57 % of their average value. The mean of Automated Teller Machine was 17.57 % suggesting that the average number of Automated Teller Machine for the 10 listed bank studied was about 17%, implying that the Automated Teller Machine were exactly quarter of the profit. The standard deviation of 3.77% suggests that there is high return on Automated Teller Machine amongst the member selected banks, with a minimum and maximum value of about 10.21% and 30.43% respectively.

In a similar vein, mobile banking, and 16.38% was the average mobile banking. It was noted that the tested enterprises had an average positive mobile banking of 16.38% during the review period. The bank has a minimum mobile banking income value of 7.44 and a maximum dividend per share value of 19.73 for the evaluation period. The substantial variation between the maximum and minimum mobile banking suggests that the bank vary significantly among the chosen firms and during the reviewed period, demonstrating the heterogeneity of the enterprises. The standard deviation for mobile banking was 3.61 the skewness for mobile banking was -1.00 implying that the data on mobile banking were skewed to the right hence most values were bunched to the right of the distribution. A kurtosis value of 2.50% is very close to the kurtosis of a normal

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distribution, which is 3. This indicates a distribution with a similar degree of peakedness, meaning that the distribution of our data is not significantly different from a normal distribution.

In practical terms, this means that our data is likely to be relatively balanced and stable, with a similar degree of variability as a normal distribution. This can be helpful in analyzing and making decisions based on the data, as it suggests that the results will be more predictable and less prone to unexpected outliers or extreme events.

In addition, the JB Probability values of 0.0000 demonstrate that, with the exception of the financial technology, which is not normally distributed, all the variables are normally distributed at the 1% level of significance. This suggests that the variables are distributed according to the Gaussian standard distribution. This suggests that the distribution of all the variables is roughly normal. This indicates that there are no outlier-containing variables, or if there are, they are not expected to affect the outcome and can thus be trusted when making generalizations. This further supports the application of panel least squares estimation methods. Therefore, recommendations that are provided in a significant way will reflect the traits of the actual research population.

4.2: Pearson Correlation Matrix

In order to ascertain the nature or degree of association, i.e., positive or negative correlation, as well as the magnitude of the correlation between dependent variable (Return on Asset) and independent variables with other explanatory variables, Pearson's correlation matrix was used to assess the degree of association between Fintech component and performance of the commercial bank in Nigeria. The direction and strength of the relationship between two or more variables are measured by the correlation coefficient. At this stage, it is important to remember that correlation quantifies association rather than causation. Positive (>0) or negative (<0) correlations are both possible. When two variables have a positive correlation, they are moving in the same direction; when they have a negative correlation, they are moving in the other way. As a consequence, we used the Pearson correlation coefficient (correlation matrix) to investigate the relationship between the variables, and the outcomes are shown in table 4.2.2 below.

Table 2: Correlation Analysis Result

	ROA	LPOS	LATM	LMBB	LIB
ROA	1.000000	0.309547	0.359617	0.287201	0.292822
LPOS		1.000000	0.360353	0.466790	0.568127
LATM			1.000000	0.580013	0.609822
LMBB				1.000000	0.573757
LIB					1.000000

Source: researcher's summary of correlation result (2025) using E-view 10

The correlation coefficient's result revealed a mixed correlation. The finding of this link supports the idea that there is a linear relationship between our variables. Additionally, the Pearson product-moment correlation, which measures the strength of the relationship between variables, revealed that the association between the

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variables is relatively small and falls below the 0.80 threshold, indicating that multicollinearity is not a problem for the predictor variables. The pairwise correlations between the variables of the financial technology component and the performance of commercial bank are presented and discussed in this section. Although there are still some reasonably strong correlations between some of the study's variables, Table 4.2 demonstrates that the majority of correlation coefficients between the variables are quite low. The aforementioned findings indicate that the financial technology and performance have a very weak but positive correlation. The correlation table above revealed that none of the explanatory variables were completely or highly correlated, ruling out the possibility of an outlier when the study was looking for multicollinearity. This suggests that the model utilized for the analysis does not have a multi-collinearity issue. This further supports the application of panel regression analysis.

4.3 Variance Inflation Factor (VIF) Test

The VIF of an explanatory variable indicates the strength of the linear relationship between the variable and the remaining explanatory variables.

Table 3 Variance Inflation Factors

Variance Inflation Factors
Date: 02/16/25 Time: 18:40
Sample: 0001 120
Included observations: 120

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
LPOS	0.005622	48.43949	1.045583
LATM	0.009022	10.79480	1.022679
LMB	0.045362	40.58713	1.279560
LIB	0.025564	30.12922	1.305170
C	2.760729	89.99166	NA

The VIF and tolerance values in Table 3 further confirm that all the study variables have relative scores that are less than five and greater than 0.10, indicating a satisfactory correlation. In addition, Table 4.2.3 reports Fintech characteristics of LPOS (VIF=1.04), LATM (VIF=1.02), LMB (VIF=1.27), LIB (VIF=1.30), in the panel models. Table 4.3 shows the VIF test and indicates no multicollinearity between all the variables. Therefore, even though there are relatively high correlations between some variables in Table 4.2.3, all variables can be used together for analysis. This is consistent with the notion that Tolerance and the VIF are both often used

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indicators of how much an independent variable in a regression model interacts with other independent variables. Many practitioners view the most frequently cited rule of 10 associated with VIF as a symptom of severe or serious multi-collinearity (O'Brien, 2007).

4.4 Hausman Test

To choose between these two regressions models, Hausman test can be run to examine whether the difference between the random effects regression and the fixed effects regression is zero. In other words, H0: random effect is preferred. Based on the present analysis, Hi was strongly rejected (p-value= 0.000) which means that the random effects model was preferred.

Table 4: Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test period random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	2.786894	5	0.0749

** WARNING: estimated period random effects variance is zero.
Period random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LPOS	0.055175	0.051913	0.000156	0.7942
LATM	0.126403	0.114009	0.000321	0.4890
LMB	0.052997	0.036933	0.000187	0.2403
LIB	0.235261	0.222191	0.000897	0.6626

Source: researcher's summary of Hausman Test (2025) using E-view 10

The pooled OLS model is applicable if the Hausman test's p-value is less than the significance level, which allows you to reject the null hypothesis. You should apply the Random effects model and cannot reject the null hypothesis if the p-value exceeds the significance level.

4. 5: Test of Hypotheses/ Regression Results

Since the data had both time series (2012–2023) and longitudinal properties (Ten Commercial Bank), we used a panel least square regression analysis to investigate the relationship between the dependent variable (ROA) and

the independent variables (LPOS, LATM, LMB, LIB) and to test our hypothesis. Our analysis is shown in the following table 4.3.1:

Table 5: Panel Least Regression Result

Dependent Variable: ROA
Method: Panel Least Squares
Date: 02/16/25 Time: 05:40
Sample: 2012 2023
Periods included: 12
Cross-sections included: 10
Total panel (balanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.502159	0.019774	0.109194	0.9135
LPOS	0.160554	0.000950	3.583072	0.0009
LATM	0.290588	0.001033	0.569002	0.5721
LMBB	0.560348	0.000919	3.378671	0.0006
LIB	0.491620	0.001807	2.896441	0.0059
	Effects Specification			
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.616141	Mean dependent var		0.022273
Adjusted R-squared	0.557591	S.D. dependent var		0.014336
S.E. of regression	0.010558	Akaike info criterion		6.018756
Sum squared resid	0.005128	Schwarz criterion		5.355224
Log likelihood	218.6189	Hannan-Quinn criter.		5.756563
F-statistic	9.886092	Durbin-Watson stat		2.117084
Prob(F-statistic)	0.000085			

Source: Researcher's summary of regression result (2025).

The panel regression study of ten quoted commercial bank is displayed in table 5 above. The aforementioned table indicates that the model was well-specified in explaining financial technology as seen by the F-statistics value of 9.886092 and their P-value of 0.000085, which indicate that the total analysis of our variables in the regression model was generally significant at the 1% level of significance. Based on the aforementioned findings, the study found that the R-squared adjusted value was 0.616141 (61%) and the R-squared value was 0.557591 (55%). The coefficient of determination, or R-squared, was found to be 61%. This indicates that 61% of the systematic fluctuations in the individual dependent variables could be described by the model, with the other 39% being explained by the stochastic error factor. This shows that over a twelve year period, the fintech

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of our sampled banks in Nigeria can be explained by the independent variables together to the extent that they account for around 61% of the system variation. The stochastic error term captures the remaining 39% of the overall variations. Furthermore, the financial technology model that was employed for the analysis was statistically significant at the 1% level, as indicated by the F-statistics value of 9.886092 and its probability value of 0.00085. This attests to the suitability of our model for the analysis. The Durbin Watson statistics value of 2.1 showed that the model is well spread since the value is approximately 2 and that there have not been self or auto correlation problem and that error are independent of each other.

Hypotheses

H_{o1}: Point of sales has no significant effect on financial performance of commercial banks in Nigeria.

Table 5 above's panel regression result revealed that the Point of sales had a positive coefficient value of 0.160554 and a P-value of 0.0009. Based on the model's outcome, the Point of sales of Nigeria's quoted commercial bank showed a statistically significant and positive correlation with the financial performance, which indicated the number of performance ratios. This implies that the point of sales has a positive correlation with performance of commercial bank, as indicated by the positive coefficient and likelihood, but that this correlation is statistically negligible and sufficient to influence the performance of Nigerian bank. This suggests that a 1% increase in the point of sales causes a 5% increase in performance, supporting the idea that raising the point of sales is crucial for performance in commercial bank. The Nigeria Exchange Group's increased level of inspection and monitoring is generally predicted to improve bank performance when the point of sales rises. We accepted our alternative hypothesis as a result of the strong link we found, and as a result, we can say that the Point of sales has no significant effect on financial performance of commercial banks in Nigeria.

H_{o2}: Automated teller machine has no significant effect on financial performance of commercial banks in Nigeria.

In Nigeria, the Automated teller machine of the listed commercial bank is positively and significantly impacted on the performance, as demonstrated by the study's 0.569002 positive coefficient value and 0.5721 p-value ($\beta 2$=-0.290588, p = 0.5721> α = 0.05). The positive coefficient value of $\beta 2$ indicates that the Automated teller machine of Nigeria's listed commercial bank is positively impacted on performance. As a result, performance rises by 29% units for every 1% increase in bank performance. This indicates that, although being not statistically significant among Nigerian banks, performance has a favorable impact on the level of banks performance of businesses. The analysis's findings led the study to accept the second null hypothesis, which leads it to the conclusion that Automated teller machine has no significant effect on financial performance of commercial banks in Nigeria

H_{o3}: Mobile banking has no significant effect on financial performance of commercial banks in Nigeria.

The analysis of the impact of Mobile banking expressed on financial performance revealed a 0.0006 P-value, a t-value of 3.378671, and a positive coefficient value of 0.560348. According to table 4.3.2 above, the Mobile

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banking of Nigeria's listed commercial bank has a positive and significant relationship with performance. A rise in Mobile banking may result in a 0.56% increase in the financial performance of Nigeria's listed commercial bank, according to the coefficient value of 0.560348. Mobile banking has a positive impact on the financial performance of commercial bank, as indicated by the t-value of 3.378671. At the 1% level of significance, the probability value of 0.0006 suggests that the impact of Mobile banking on the stock price of Nigeria's listed banks is statistically significant. This study accepts the third alternative hypothesis and comes to the conclusion that Mobile banking has significant effect on financial performance of commercial banks in Nigeria.

H_{O4}: Internet banking has no significant effect on financial performance of commercial banks in Nigeria.

From the regression Table 5 above, the result of Internet banking shows that financial performance has a positive coefficient value of 0.491620 and P-value of 0.0059. The result of the analysis from the model indicates that Internet banking has positive but significant influence on financial performance of listed commercial bank in Nigeria. This implies that a 1% increase in the proportion of Internet banking will lead to a magnificent increase in the bank performance. The probability value showed that the effect is statistical significant. As a result of this significant effect we documented, we accepted our fourth hypothesis and therefore conclude that Internet banking has significant effect on financial performance of commercial banks in Nigeria.

CONCLUSION AND RECOMMENDATION

5.1: Conclusion

Following from the findings of the study, it is concluded that within the scope of this research, FinTech variables (volume of transactions on ATM, internet banking, and POS) have significant effect on the performance of DMBs in Nigeria, and that the models developed to determine the nexus of FinTech and performance of DMBs in Nigeria is adequate. The integration of financial technology (FinTech) into commercial banks (CBs) has had a significant impact on financial performance in Nigeria. FinTech solutions have enabled CBs to increase operational efficiency, improve customer experience, and expand their customer base. The use of digital channels, such as mobile banking and online banking, has made banking services more accessible to a broader range of customers, including those in rural areas or underserved markets. However, challenges remain, such as cyber security risks, regulatory concerns, and the need for continued investment in technological infrastructure and customer education.

5.2 Recommendations

The recommendations of the study are as follows:

1. Point of sales has significant effect on financial performance, it should be encourage because POS systems simplify and streamline transactions, reducing errors and improving efficiency in the banking business.

2. Automated teller machine has no significant effect, CBN should as a matter of urgency compel all the commercial bank in Nigeria to fix their ATM and load it with cash for customers to have seamless and round-the-clock access.
3. Mobile banking has significant effect on financial performance, commercial banks should upscale their investments in information and communication technology (ICT) infrastructure to enhance internal capacity to provide uninterrupted services, as well as develop capacity resolve customer complaints real-time.
4. Internet banking has significant effect on financial performance; commercial bank should regularly monitor customers' accounts for unauthorized transactions or suspicious activity, and report any issues immediately to the security agency.

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