

**FINANCIAL TECHNOLOGY AND DEPOSIT MONEY BANK PERFORMANCE
IN NIGERIA**

BY

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DEPARTMENT OF FINANCE

FACULTY OF MANAGEMENT SCIENCES

UNIVERSITY OF BENIN

BENIN CITY

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**A PROJECT WRITTEN AND SUBMITTED TO THE DEPARTMENT OF
FINANCE, FACULTY OF MANAGEMENT SCIENCES IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR
OF SCIENCE (B.Sc) DEGREE IN FINANCE OF THE UNIVERSITY OF
BENIN, BENIN CITY.**

MARCH, 2024.

DECLARATION

I, Emmanuel Prosper OSHOBINO, do hereby declare that this project is undertaken by me in the department of finance, Faculty of Management Sciences, University of Benin, Benin City, Edo State under the supervision of Mrs A.S AIRHIAVBERA The work embodied in this project has not previously been submitted in candidature for any other degree and is not concurrently being submitted for any other degree. All references made to works of other persons have been duly acknowledged.

Any litigation or liability arising from this work is wholly bone by me and not the supervisor for this work.

Emmanuel prosper OSHOBINO

DATE

CERTIFICATION

This is to certify that this project work was carried out by Emmanuel Prosper OSHOBINO with Matriculation Number MGS2007601 in the Department of Finance, Faculty of Management Sciences, University of Benin, Benin city, Edo State, in partial fulfilment for the award of Bachelor of Science (B.Sc.) in Banking And Finance.

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DEDICATION

This project is dedicated to God Almighty for his divine unconditional love, strength and grace over me throughout my stay in the university and also my parents Mr and Mrs OGIDI and other members of my family.

ACKNOWLEDGEMENTS

My sincere gratitude goes to almighty God for his unending love and has kept me throughout my programme and for the success of this work.

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ABSTRACT

Financial technology (FinTech) has revolutionized banking operations globally, reshaping the efficiency and performance of deposit money banks (DMBs) in Nigeria. This study examines the impact of financial technology on the performance of Nigerian deposit money banks, focusing on key financial indicators such as profitability, operational efficiency, customer outreach, and risk management. The research explores various FinTech innovations, including mobile banking, internet banking, automated teller machines (ATMs), blockchain technology, and artificial intelligence-driven banking solutions.

The study adopts a quantitative research approach, utilizing secondary data from the financial statements of selected banks, Central Bank of Nigeria (CBN) reports, and relevant financial databases. Econometric models are employed to analyse the relationship between FinTech adoption and bank performance metrics such as return on assets (ROA), return on equity (ROE), and non-performing loan ratios (NPLs).

Findings reveal that financial technology has significantly enhanced banking efficiency, reduced operational costs, and expanded financial inclusion in Nigeria. However, challenges such as cybersecurity threats, regulatory bottlenecks, and initial high implementation costs have constrained the full potential of FinTech in the sector. The study highlights the need for robust regulatory frameworks, increased robust regulatory

frameworks, increased investment in cybersecurity measures, and continuous innovation to sustain the positive impact of financial technology on the banking industry.

The study concludes that financial technology is a key driver of bank performance and long-term sustainability. It recommends that deposit money banks leverage advanced digital solutions, collaborate with FinTech start-ups, and strengthen risk management strategies to enhance financial performance and competitiveness in Nigeria's dynamic banking landscape.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The banking sector has long been the backbone of the Nigerian economy, offering essential financial services such as savings, lending, and payments. Deposit Money Banks (DMBs) are the key players in this sector, facilitating access to financial services for individuals and businesses. Historically, these banks have operated in a traditional manner, relying on physical branches and face-to-face interactions to serve customers (Ukoh, 2019). However, the landscape of banking is undergoing a radical transformation due to the rapid evolution of Financial Technology (FinTech). Financial technology or FinTech, refers to the use of technology to enhance or automate financial services. It encompasses a wide range of applications, from mobile banking, point of Sale (POS), USSD, online banking and digital wallets to blockchain and artificial intelligence (Verma, 2021). Over the past decade, FinTech has gained significant traction globally and in Africa, particularly in Nigeria. This technology-driven transformation is revolutionizing the way financial services are offered, reducing the reliance on physical banking infrastructure and enabling financial inclusion for previously underserved populations (Stevens, 2022).

Bank performance refers to the ability of a financial institution to achieve its financial and operational goals, which typically include profitability, efficiency, growth, and market competitiveness. In the context of Deposit Money Banks (DMBs) in Nigeria, performance is often assessed based on key indicators such as return on assets (ROA), return on equity (ROE), cost-to-income ratio, and customer satisfaction levels (Stevens, 2022). A bank's performance can be influenced by a variety of factors, including management practices, market conditions, regulatory environment, and technological advancements. The rise of Financial Technology (FinTech) has introduced new opportunities and challenges for DMBs, offering them innovative tools to enhance efficiency, expand their customer base, and improve service delivery, which in turn can impact overall performance. However, the integration of these technologies also requires significant investment and adaptation, making it essential for banks to navigate these changes effectively to maintain or improve their performance in a competitive market (Ukoh, 2019).

In Nigeria, the FinTech sector has witnessed exponential growth, fueled by the increasing penetration of mobile devices, internet access, and innovations in payment systems. The introduction of mobile money platforms, point-of-sale (POS) systems, and online banking has enhanced the accessibility of banking services, allowing customers to perform transactions from remote locations and at any time (Verma, 2021). FinTech has also introduced innovations like peer-to-peer lending, robo-advisory services, and blockchain-

powered solutions, creating opportunities for DMBs to expand their customer base and enhance the efficiency of their operations (Kavitha, 2017). For Deposit Money Banks in Nigeria, the emergence of FinTech presents both opportunities and challenges. On the one hand, adopting FinTech can streamline banking processes, reduce costs, and improve customer service. Banks can enhance operational efficiency by automating routine tasks, improving data analytics, and offering personalized financial services. Additionally, FinTech can help banks tap into new market segments, especially in rural and underserved areas, where traditional banking infrastructure is limited (Stevens, 2022).

On the other hand, the integration of FinTech into traditional banking operations also brings challenges. The rapid pace of technological advancements requires substantial investment in digital infrastructure, cybersecurity, and skilled personnel. Moreover, regulatory concerns and the risk of fraud and data breaches are significant barriers to the seamless adoption of FinTech in Nigeria's banking sector. The regulatory framework governing FinTech in Nigeria is still evolving, and there is a need for clear policies that balance innovation with consumer protection (Sulieman & Ahlam-Jebreen, 2017). Despite these challenges, there is no denying that FinTech has the potential to significantly enhance the performance of DMBs in Nigeria. With the right strategy, DMBs can leverage these technological advancements to improve profitability, expand market share, and enhance customer loyalty. However, a thorough understanding of the relationship between FinTech

adoption and bank performance in the Nigerian context remains underexplored. This study seeks to fill this gap by investigating how the adoption of FinTech influences the performance of Deposit Money Banks in Nigeria, focusing on key factors such as profitability, efficiency, customer satisfaction, and competitiveness (Verma, 2021).

1.2 Statement of the Problem

The rapid rise of Financial Technology (FinTech) in Nigeria has brought significant changes to the financial landscape, offering both opportunities and challenges for Deposit Money Banks (DMBs). While FinTech innovations have the potential to enhance operational efficiency, broaden customer reach, and improve service delivery, there remains a significant gap in understanding how these technological advancements directly affect the performance of DMBs in the Nigerian context (Sulieman & Ahlam-Jebreen, 2017). Many banks have adopted various FinTech solutions such as mobile banking, digital payments, and blockchain-based services, yet the overall impact on key performance indicators such as profitability, efficiency, and customer satisfaction is still unclear. The integration of FinTech into traditional banking models requires careful adaptation and investment in technology, which might strain the resources of some banks, particularly smaller institutions that struggle with the cost of implementation and maintaining cybersecurity measures.

Furthermore, the regulatory environment in Nigeria presents another challenge, as the adoption of FinTech has outpaced the development of appropriate regulations (Kavitha, 2017). The lack of a clear and comprehensive framework for managing the risks associated with FinTech, such as fraud, data breaches, and technological disruptions, creates uncertainty for both banks and customers. While some banks have successfully leveraged FinTech to gain a competitive edge, others face difficulties in balancing innovation with regulatory compliance and customer protection. Therefore, there is a need for a thorough examination of the relationship between FinTech adoption and DMB performance in Nigeria, with a focus on the benefits, challenges, and the role of regulatory frameworks in shaping outcomes. This study aims to address these gaps by providing a detailed analysis of how FinTech impacts the performance of DMBs in Nigeria.

1.3 Research Questions

The study aims to answer the following research questions:

1. What is the effect of mobile Banking on performance of banks in Nigeria?
2. What is the impact of online banking on bank performance in Nigeria?
3. To what extent does point of Sales (POS) influences the performance of banks in Nigeria?

4. What is the influence impact of USSD on performance of banks in Nigeria?

1.4 Objectives of the Study

The major objectives of this study is to examine the impact of electronic banking systems on the performance of Nigerian banks. The specific objectives are to:

1. Examine the effect of mobile Banking on performance of banks in Nigeria;
2. To ascertain the impact of online banking on bank performance in Nigeria;
3. Examine the influence of point of Sales (POS) on the performance of banks in Nigeria;
4. To evaluate the influence of USSD on the performance of banks in Nigeria.

1.5 Research Hypotheses

For the purpose of this study, the following null hypotheses will be formulated and tested to answer the research questions, these are:

H₀₁: Mobile banking has no significant effect on the performance of banks in Nigeria.

H₀₂: Online banking has no significant impact on the performance of banks in Nigeria.

H₀₃: Point of Sales (POS) has no significant influence on the performance of banks in Nigeria.

H₀₄: USSD does not have significant influence on the performance of banks in Nigeria.

1.6 Significance of the Study

The significance of this study lies in its potential to offer valuable insights to several key stakeholders within the Nigerian banking sector and beyond.

The findings of this research will provide banks with a clearer understanding of how Information Technology (IT) impacts their overall performance. By examining the relationship between IT adoption and key performance indicators such as profitability, operational efficiency, and customer satisfaction, the study will help banks identify areas for improvement in their technological strategies. Banks can use the recommendations to optimize their IT investments, enhance service delivery, and improve their competitiveness in a rapidly evolving digital landscape.

For regulators like the Central Bank of Nigeria (CBN), this study will offer insights into the effectiveness of current policies and regulations surrounding IT adoption in the banking sector. The findings can guide future regulatory decisions that encourage the seamless integration of technology into banking operations, ensuring that policies are in place to

promote innovation, protect customer data, and enhance the overall stability of the financial system.

This research will also be significant to banking customers in Nigeria. By understanding the positive impacts of IT on banking services such as faster transactions, improved access to financial services, and better customer support, customers can benefit from enhanced banking experiences. Furthermore, the study could raise awareness about the role of digital banking solutions in improving financial inclusion, particularly for individuals in underserved areas.

Academics and researchers in the fields of finance, information technology, and business management will benefit from this study by gaining a deeper understanding of the nexus between technology and bank performance. This research will contribute to the existing body of knowledge and serve as a foundation for further studies in related areas, such as the impact of fintech or emerging technologies like blockchain on banking operations.

As a whole, the study contributes to the broader discourse on economic development in Nigeria. A more efficient and technologically advanced banking sector can contribute to overall economic growth by fostering financial inclusion, supporting small and medium-sized enterprises (SMEs), and facilitating easier access to credit, which is crucial for Nigeria's economic development and poverty reduction efforts.

1.7 Scope of the Study

The study will concentrate on how the performance of Nigerian banks is impacted by financial technology. A sample of Nigerian banks that have implemented financial technology will be the subject of the study. The study will also investigate how Nigerian banks' performance is impacted by point of financial technology proxies like sales (POS), mobile banking, online banking, and USSD. The study cover five (5) deposit money banks for a six year period from 2018 to 2023.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Financial technology and bank performance are discussed in this chapter along with their philosophical and theoretical underpinnings, theoretical frameworks, empirical reviews, and research gaps.

2.2 Conceptual Review

2.1.1 Financial Technology

Financial technology, commonly known as FinTech, refers to the use of technology to improve and automate the delivery of financial services. It encompasses a broad range of applications that have significantly transformed the banking sector. Over the last few decades, FinTech has reshaped how banks operate, how customers interact with financial institutions, and how financial products and services are delivered (Ezejiolor & Okoye, 2015). This transformation is largely driven by technological advancements in areas like mobile computing, data analytics, blockchain, artificial intelligence (AI), and cloud computing. The roots of FinTech in banking trace back to the rise of the internet and mobile

technologies, which first allowed financial institutions to provide online banking services, reducing the need for physical visits to branches. This digital shift accelerated with the growth of smartphones, enabling customers to manage their accounts, transfer funds, and even apply for loans through mobile apps. One of the key drivers behind FinTech's expansion is its ability to make financial services more accessible, efficient, and user-friendly. By integrating technology into banking operations, institutions can serve a broader audience, especially those in remote or underserved areas (Kavitha, 2017).

Mawuto (2018) stated that one of the primary ways FinTech has impacted banking is through the automation and streamlining of financial services. Automation has significantly reduced the time and costs associated with banking processes. For example, loans can now be processed online with the help of algorithms and credit-scoring models that assess borrowers' creditworthiness quickly and accurately. Digital payments, which once required manual processing and significant overhead, have become seamless and instantaneous, thanks to technologies like mobile wallets and contactless payment systems. This shift not only enhances operational efficiency for banks but also results in a better experience for customers, who can carry out transactions at their convenience. Furthermore, the introduction of blockchain technology is a game-changer in the financial industry (Ezejiofor & Okoye, 2015). Blockchain, which serves as the underlying technology for cryptocurrencies like Bitcoin, is a decentralized and transparent ledger that

records transactions across many computers in a way that ensures security and reduces the risk of fraud. In banking, blockchain is being explored for applications such as cross-border payments, where it can reduce the time and cost of international transactions, which traditionally take several days and come with high fees. Blockchain also holds promise for enhancing the security and transparency of financial transactions, making them less vulnerable to tampering (Morufu, 2016).

Artificial Intelligence (AI) and Machine Learning (ML) have also played pivotal roles in FinTech, providing banks with advanced tools to analyze vast amounts of data and make data-driven decisions. AI-powered chatbots are now commonly used in banking apps, offering customers immediate assistance and support around the clock. Additionally, AI is used to personalize banking services by analyzing individual customer preferences and behaviors to recommend tailored financial products, such as loans, savings plans, or investment strategies. Machine learning algorithms are also employed in fraud detection systems, identifying patterns of suspicious behavior and flagging potential security threats before they escalate. Cloud computing has enabled financial institutions to enhance their infrastructure without the need for costly and complex on-premises hardware. Cloud services provide banks with scalable and flexible solutions to store data, run applications, and provide a better overall service to customers. The cloud also enables banks to integrate third-party FinTech applications easily, offering customers an extended range of services.

By leveraging cloud technology, banks can deploy innovations faster and more efficiently, making them more agile in adapting to market demands and regulatory changes (Kavitha, 2017).

Another significant aspect of FinTech in banking according to Okafor (2020) is the democratization of financial services, especially through mobile banking platforms. In developing countries, where access to traditional banking infrastructure may be limited, mobile banking has provided millions of individuals with the ability to conduct financial transactions. For example, mobile money services such as M-Pesa in Kenya have allowed people in rural areas to send money, pay bills, and even save without needing access to a physical bank (Morufu, 2016). This has opened up financial inclusion to large populations that were previously excluded from the formal banking system, empowering them economically and facilitating greater financial mobility. The growth of digital-only banks, or neobanks, is another example of how FinTech has altered the banking landscape. These institutions operate entirely online, without physical branches, and offer competitive rates on products like savings accounts, loans, and investment services. By focusing on digital experiences and leveraging technology for operational efficiency, neobanks can offer lower fees, more innovative services, and a seamless customer experience. Traditional banks, in response, are increasingly adopting FinTech-driven solutions to remain competitive in the face of these new challengers (Ezejiolor & Okoye, 2015).

Despite these advancements, the integration of FinTech into banking is not without its challenges. Security concerns are paramount, especially as digital banking becomes more widespread. The risk of cyberattacks, identity theft, and data breaches has risen with the growing reliance on digital platforms (Kavitha, 2017). As a result, banks must continually invest in advanced cybersecurity systems and comply with stringent regulatory standards to protect their customers' data. Regulatory compliance is another significant challenge in FinTech, as the rapid pace of technological innovation often outpaces existing laws and regulations (Okafor, 2020). Governments and regulatory bodies are working to keep up with these changes to ensure that new technologies operate within a safe and secure framework. Moreover, the increasing adoption of FinTech is raising questions about the future of traditional banking jobs. While automation and AI can lead to more efficient operations, they may also result in the displacement of certain jobs, particularly in areas like customer service and manual processing. Banks must balance the benefits of technological advancements with the need to retain skilled human workers and manage the social implications of technological disruption (Morufu, 2016).

Looking ahead, the future of FinTech in banking is bright, with continued innovation expected in areas like decentralized finance (DeFi), digital currencies, and personalized financial services. The rise of cryptocurrencies and blockchain technologies could challenge traditional financial systems by offering decentralized alternatives to traditional

banking and investment practices. Central banks in various countries are also exploring the possibility of launching their own digital currencies, which could revolutionize how money is issued and transferred globally (Kavitha, 2017). As the banking sector continues to evolve, it will be increasingly important for financial institutions to embrace these technological changes while ensuring that they maintain trust, security, and inclusivity (Okafor, 2020). For consumers, the future of FinTech in banking promises a more personalized, accessible, and convenient financial experience, with services that are tailored to individual needs and delivered at the speed of technology. Ultimately, the ongoing integration of FinTech in banking will help redefine the future of money and financial services, making them more responsive, efficient, and accessible to all (Ezejiofor & Okoye, 2015).

2.1.2 Types and Delivery Channels of Financial Technology

E-banking can be classified into three basic types. These include Internet banking, Smart card banking and Mobile/telephone banking.

Internet Banking

This is a form of online banking service where clients' requests are received and handled online. Customers have the option of taking advantage of financial services from the convenience of their homes and businesses thanks to internet banking. This means that

clients can order things online, tell their banks to pay the seller the amount of the invoice, and have the goods delivered to the location of their choice (Kavitha, 2017).

Smartcard Banking

This is the process of doing financial transactions using electronic cards (such as Value Cards, ATM Cards, Debit Cards, and Credit Cards). Bank customers can easily access cash, make transfers, and inquire about their accounts without going to the banking hall thanks to the smart card technology. In cities, smart card facilities are typically installed in key locations including supermarkets, hotels, transportation hubs, and retail centers. (Okafor, 2020).

Mobile/Telephone Banking

This entails carrying out banking operations using mobile or fixed wireless phones. The steps are as follows: The computer receives commands by voice or short messages (SMS); it decrypts the message and executes the commands using a highly coded device. After that, the customer receives the response electronically.

Point of Sales Banking

The moment and place at which a retail transaction is completed are referred to as the "Point of Sale (POS)" or "Point of Purchase (POP)" (Okeke, Nwatu, & Ezeh, 2017).

Because it is user-friendly, simple to use, and has many different functions, the POS terminal, also called a POP terminal, is used for quick payment of products and services. Customers can use debit or credit cards at POS terminals to access their linked bank accounts in real-time. Awoniyi (2022) views them as a fictitious substitute for monetary transactions. Customers may check their balance, make purchases, and transfer funds without using actual currency thanks to the terminal, which keeps track of all of their purchases and deposits. In other words, the POS terminal makes it possible for money to travel virtually so that businesses can track client transactions. A POS terminal is a piece of equipment placed in a storefront that enables customers to pay with their electronic cards rather than actual currency. Because POS technology enables cardholders to make payments at sales or purchase outlets without the need for actual currency, the use of POS terminals has greatly decreased the volume of cash-based transactions (Osang, 2017). The terminal has various benefits, including convenience, security, and ease of payments (Morufu, 2016). Electronic purses a type of pre-issued card are given to customers who utilize POS terminals (Okonkwo & Ekwueme, 2022). To make payments, these cards can be placed into the electronic devices. ATM-like features are shared by POS terminals (Anyanwu & Anumaka, 2020). The equal cash amount is automatically transferred from the payer's account to the payee's account after the transaction is finished and logged into the POS terminal. By inserting their smart card into the device and entering their PIN,

clients may make payments, check their balance, and conduct electronic fund transfers using the POS terminal, which is used by merchants.

USSD Banking

One of the most important technology advancements being used to provide mobile financial services to customers of all economic levels is the unstructured supplementary service data (USSD) (Ukoh, 2019). For each bank working in the financial system, the USSD banking uses a unique code. Using your mobile phone without internet connectivity, the bank code is a practical, quick, safe, and economical solution to access your bank account whenever you need it (NIBSS, 2018). They are codes that make banking in Nigeria less stressful, more effective, and provide clients full access to their accounts. When a customer of any bank calls the USSD code and completes a banking command, USSD banking occurs. It's intriguing that using this USSD code mobile banking service eliminates waiting in lines at the bank, attempting to recharge accounts, or making transfers. It streamlines everything and makes it simple (Taiwo & Agwu, 2017). Every bank and every account holder for each bank must use the USSD code. Accordingly, you are totally permitted to utilize First Bank's transfer code for convenient mobile banking if you are a customer (NIBSS, 2018). You are fully permitted to utilize your potential bank codes, and it is simple to use whether you have a current or savings account. The below list contains USSD code for some banks in Nigeria.

2.1.3 Banking Sector in Nigeria

Mohammed, Ibrahim, and Muritala (2022) define the banking system as the global financial intermediation that makes it easier to send and receive money. The banking system and payment system technology are coupled largely to advance trade and commerce. Global banking procedures have undergone a significant change as a result of the quick uptake of POS system technology and the rapid rise in internet usage. According to Bingilar and Bariweni (2019), the banking system is the configuration of institutions, establishments, instruments, regulations, standards, procedures, and technical processes that provide fund transfers between various parties and guarantee the fulfillment of contractual commitments. A successful banking system lowers transaction costs and is necessary for the smooth operation of security payments, interbank transfers, and third-party transfers. However, instability in the banking system results in the inefficient use of financial resources, an uneven distribution of risk among agents, and a decline in public confidence in the banking system (Ezejiofor, Nwakoby, & Okoye, 2015).

Colonial banks were established in Nigeria during the colonial era with the primary goal of serving the business requirements of the Colonial Government. The Central Bank of Nigeria oversees the regulation of the Nigerian banking system. On July 1, 1959, this apex bank opened for business. British West Africa, which is now First Bank of Nigeria, and

African Banking Corporation were founded in Nigeria in 1892. Nigeria's Barclays Bank was founded in 1925 by the Anglo-Egyptian Bank and the National Bank of South Africa. The United Bank for Africa was once known as the British and French Bank for Commerce and Industry when it began operating in Nigeria in 1948 (Kavitha, 2017). Nigeria's first domestic bank, Industrial and Commercial Bank, was founded in 1929. The bank was shut down in 1930, and Mercantile Bank took its place in 1931. After the Industrial and Commercial Bank was closed down in 1949, the African Continental Bank was established as the sole indigenous institution that could remain viable. An agricultural bank known as the Nigerian Farmers and Commercial Bank first appears in 1947. The Central Bank of Nigeria (CBN) was formed by the CBN Act of 1958 and became the country's central bank and supreme monetary authority on July 1, 1959 (Abubakar & Isa 2021).

According to the CBN Act, the Central Bank of Nigeria's (CBN) main regulatory goals include maintaining the nation's foreign exchange reserves, fostering monetary stability and a sound financial environment, and serving as a banker of last resort and financial advisor to the federal government. The central bank has occasionally been forced into unclear regulatory waters due to its roles as lender of last resort and advisor to the federal government (Kavitha, 2017). Following the end of the Nigerian civil war, the bank followed the government's desire and made a determined effort to make up any shortfalls in credit allocations to the real sector. After the end of imperial rule, the government's

desire to become proactive in the development of the economy became visible. The bank's initial plan was to work through commercial banks in activities including consumer lending, but it quickly started lending directly to people. The policy, though, was a result of the time's indigenization program. However, the government has actively participated in developing the country's money and equity centers, setting up a securities regulatory board, and bringing treasury products to the capital market through the central bank (Olaiya & Adeleke, 2019).

If banks are able to meet the goals set by management and stockholders, the performance of the banking system will be judged favorably (Abaenewe, Ogbulu, & Ndugbu, 2013). According to Olaiya and Adeleke (2019), stock prices and trading patterns are frequently used to gauge how well the banking system is performing. As actors in the banking business have been at the forefront of leveraging technology to better their products and services, the current banking system is dynamic and experiencing quick changes. According to Okonkwo and Ekwueme 2022, the banking system of the twenty-first century operates in a challenging and competitive setting characterized by varying circumstances and an unstable economic environment. The banking system today provides its clients with computerized services in response to scientific developments, more information, and shifting consumer expectations. The modern banking system provides the required

functionality for money exchange via bank deposits by interacting with payment systems that are linked actively and are governed by laws, regulations, and principles.

2.1.4 Bank Financial Performance

Financial performance is an indicator of the firm's attainment of economic or financial objectives. The long term survival and value of a firm is dependent on its ability to maintain desirable profit levels through its operating activities. Information regarding a firm's financial performance is obtained from the financial statements on which stakeholders base their decisions in terms of either investment or sustenance of contractual business relationships with the entity. According to Weiss & Nusbaum (1994), the American Institute of Certified Public Accountants (AICPA) are of the view that financial statements permit analysis of a wide range of trends and relationships among the data providing insight into a company's opportunities and risks, including growth, market acceptance, costs, productivity, profitability, liquidity amongst others. The most common measures of a firm's financial performance are categorized into Profitability and Market value measures.

Profitability is an indication of the efficiency with which the operations of the business are carried out i.e. profitability is related to operating performance which can be measured in various ways such as Return on Assets and Return on Equity, together, commonly referred to as returns on the investments made to generate them. These ratios express the

relationship of a firm's earnings defined as Profit After tax with its capital employed. Return on Equity measures the return earned on funds contributed by a company's ordinary shareholders. Since ordinary shareholders of a company are the owners who bear the greatest degree of risks with regard to the capital they have contributed. ROE is viewed as one of the most important financial ratios to measure the ultimate profitability of their investment. Return on Asset is a form of measure of a firm's Return on Capital Employed which indicates how efficiently are firm is putting resources at its disposal such as assets in maximizing profitability. This indicator shows the relationship of earnings to assets of a firm. Earnings as previously highlighted, is defined as Profit after Tax.

However, some schools of thought prefer to define it as profit before interest and taxes in order to curtail the effects or implications of the method of financing in the acquisition of assets e.g. the use of debt, and the taxation policies of the business operating environment. Subsequent to the individual and aggregate definitions of ROE and ROA as measures of return on investments, the distinction between these two can further be highlighted in terms of the entity to which returns are measured as accruing to. ROA measures returns to the providers of capital irrespective of the form of capital provided- equity or debt. ROE on the other hand, can be viewed as a penetrating measure of returns to the providers of equity capital i.e., the ordinary shareholders.

2.1.4.1 Measurement of Financial Performance

The performance measure aims to assess the effectiveness of a control system in accomplishing a firm's objectives (Iyodo *et al.*, 2020). When evaluating a firm's performance, it is important to note that no single approach can entirely capture its overall performance (Fali *et al.*, 2020). Nevertheless, prior research (Kalinina, & Voronova, 2014; Mwangi, 2014) suggests various measures that can be employed to gauge a firm's performance, including return on assets (ROA), return on equity (ROE), earnings per share, return on capital employed, amongst others.

Return on Assets (ROA)

Return on Assets (ROA) is a key financial metric that gauges a company's ability to generate profits in relation to its total assets. It is calculated as the ratio of net income to the total assets available for utilization. A higher ROA indicates greater efficiency and effectiveness in utilizing the company's owned assets, resulting in improved overall performance (Kalinina, & Voronova, 2014).

ROA also serves as a measure of a company's asset intensity. However, a significant challenge in using ROA as a performance indicator lies in the variation of its formula among different companies. Consequently, making accurate comparisons with other companies in the market can be problematic. While ROA provides valuable insights into a

company's short-term performance, it may not be the most suitable measure for assessing long-term financial stability, as it is sensitive to fluctuations in revenues, income, and asset values (Mwangi, 2014).

Return on Equity (ROE)

ROE, together with return on assets (ROA), stands as one of the most favored and widely used overall measures of corporate financial performance. Return on Equity assesses a company's efficiency in generating profits from each unit of shareholder equity, also known as net assets or assets minus liabilities. It quantifies the percentage of profit the company generates for every monetary unit of equity invested in the company.

ROE serves as a valuable indicator to gauge whether the company can indeed generate a return that justifies the risk of the investment (Iyodo *et al.*, 2013). However, it has been suggested that relying solely on ROE as a financial measure may be limited to the short term, and more qualitative long-term measures might be more appropriate. Furthermore, Lawuyi (2022) posit that overemphasizing ROE as a short-term performance measure could cause a company to overlook potential long-term growth opportunities that can enhance shareholder value. It is also essential to note that ROE is calculated after accounting for the cost of debt but before considering the cost of owned capital. The

formula to calculate Return on Equity is by dividing net income by shareholders' equity (Mwangi, 2014).

Earnings per share (EPS)

EPS, known as the primary measure of accounting earnings performance, is highly regarded for its ability to indicate the profit achieved per share. Scholars and experts have acknowledged its widespread adoption as the foremost gauge of financial performance (Kalinina, D. & Voronova., 2014).

Specifically, Earnings per Share (EPS) represents the net profit or loss attributed to each outstanding share held by equity holders. Companies regularly disclose this figure in their financial statements. IAS 33 provides a clear definition of EPS as the interest of each ordinary share in an entity's profit or loss for the given reporting period. This standard also acknowledges the pivotal role of EPS in investors' analysis of companies. Nevertheless, Kokobe and Gemechu (2016) has summarized the limitations of EPS into three categories, namely the failure to reflect shareholder value creation, earnings management, and inherent bias towards positive EPS growth. The calculation of EPS involves deducting non-controlling interest and preference dividend from the Profit after Interest and Tax and then dividing the result by the number of ordinary shareholders (Kripa & Ajasllari, 2016).

Return on Capital Employed (ROCE)

Return on Capital Employed (ROCE) serves as a crucial financial performance metric, indicating the returns generated by a company from the capital it employs. It effectively gauges the efficiency and profit-generating capacity of a firm's capital investments, thus encompassing vital financial resources necessary for its continued operations and revenue generation (Oke, 2012). According to Olaiya et al. (2021), ROCE also serves as an indicator of management's adeptness in allocating capital. This pivotal measure aids in identifying companies that offer substantial value and possess the potential for growth, while also reflecting the company's managerial competence and profitability.

An advantage of ROCE lies in its ability to facilitate comparisons between companies with differing capital structures, making it a valuable tool for conducting inter-company analyses. Moreover, it stands out among other financial ratios due to its unique capacity to capture the monetary return on both equity and debt. However, one drawback associated with ROCE ratios is their reliance on historical data, which may not fully reflect the current financial landscape. Additionally, ROCE can fluctuate in response to short-term influences. Furthermore, variations in accounting policies among investors and companies often hinder in-depth, fact-based comparative analyses with similar firms (Kripa & Ajasllari, 2016). To calculate Return on Capital Employed, one can use the formula: earnings before interest and taxes (EBIT) divided by capital employed.

Tobin's Q

Tobin's Q, originally introduced by Nicholas Kaldor in 1966 within his paper titled "Marginal Productivity and the Macro-Economic Theories of Distribution," gained popularity when James Tobin elaborated on it in 1970. Tobin's Q represents the market valuation (numerator) divided by the replacement or reproduction cost (denominator). This financial measure is also known as Tobin's-q, Kaldor's v, or simply the q ratio. Additionally, some researchers refer to it as Brainard-Tobin Q (Richard & Victor, 20). The essence of Tobin's Q lies in its definition as the ratio between a firm's market value of assets and the replacement value of those assets. The market value of a company is determined by the combined sum of the market value of shares (MVS) and the market value of debts (MVD). This measurement is vital in assessing financial performance because it captures the value assigned by markets to assets that might not be conventionally reported in the Statement of Financial Position. It is worth noting that there has been a debate among researchers regarding Tobin's Q as a measure of firm performance, as some argue that underinvestment could lead to an increase rather than a decrease in Tobin's Q. To compute Tobin's Q, one simply divides the sum of market value of shares (MVS) and market value of debts (MVD) by the replacement value of assets (RVA).

Net Profit Margin

The net profit margin ratio is a profitability ratio. Essentially, it is the percentage of profit from business operations after deducting business operating expenses. Net profit margin is the percentage of revenue left after all expenses have been deducted from sales (turnover). The measurement reveals the amount of profit that a business can extract from its total revenue. Net profit margin is the ratio of net profits to revenues for a company or business segment. Typically expressed as a percentage, net profit margins show how much of each naira collected by a company as revenue translates into profit. The equation to calculate net profit margin is: $\text{net margin} = \text{net profit} / \text{revenue}$. Net profit margin indicates how well the company converts its sales into profits. It is both a measure of efficiency and of overall business health. Companies that generate greater profit per naira of sales are more efficient. Companies with high net profit margin ratios are also better able to survive a product line that does not meet expectations or a period of economic contraction. Net Profit Margin Ratio is also a good time series analysis measure, whereby business owners can look at company data across different time periods to see how the business is trending. A comparative analysis points to profit areas that have deteriorated or of increased cost trends that are reducing net profit. Financial ratios like the net profit margin ratio become most meaningful when they are viewed over time. The usefulness of the ratio, like all business data, has some limitations. Since industries are so different, the net profit margin is not

very good at comparing companies in different industries. It is better at comparing similar businesses, not only ones in the same industry, but ones of similar size, or with similar product lines or doing business in the same broad geographic area.

2.1.5 Impact of Financial Technology on Bank Performance

Electronic payment systems and POS terminal usage have significantly increased over the past several decades as a result of the increasing use of internet-based banking and shopping. The necessity for check and cash transactions is decreasing as POS terminals offer as a safe and effective method of processing e-payments (Nwankwo & Agbo, 2021). It has been determined that the implementation of POS services by the banking sector is a way to improve client happiness and loyalty, grow market share, and lower operational and administrative costs (Kimiagari & Baei, 2021). Customers utilize POS terminals for transactions including withdrawals, transfers, and utility payments due to features like secrecy, speed of transaction, friendly operators, competitive pricing, and convenient location, according to a study by Adetayo, Mokuolu, and Fayomi (2021).

Increased customer satisfaction in the banking industry is a result of the use of POS terminals in banking transactions, which also helps to lessen crowding in banking areas and lengthy lines at ATMs (Nnamani & Makwe, 2019). The banking sector of several countries has benefited greatly from the implementation of Point of Sale (POS) systems.

These advantages include shorter lines at checkout, improved hygiene, lower risk of carrying large amounts of cash, higher sales volume, simpler cash collection, improved customer service (Adeoti & Osotimehin, 2012), more convenience, more service options, and more affordable banking services (Williams, Olalekan & Timothy, 2018). The Nigerian banking system greatly benefits from the adoption of POS machines, which benefits both banks and clients. Customers no longer need to physically visit a branch office because they may manage their financial activities electronically and from any location (Chedrawi, Harb & Saleh, 2019). Customers now have the freedom to do financial transactions whenever they want, without being constrained by branch hours (Awoniyi, 2022). Simply said, the implementation of POS has had an impact on the Nigerian banking system since it provides clients with a self-service alternative that removes time and location restrictions while also enhancing their comfort and accessibility (Kavitha, 2017). The use of POS terminals is still preferred in Nigeria despite the perceived security threats because of their convenience, adaptability, speed, efficiency, and accessibility.

The connection between financial technology indicators and financial performance should be used as a starting point when determining the relationship between financial technology and financial performance. Money moves between accounts. E-funds transfer refers to the availability and use of electronic checks in connection with cash deposits and withdrawals. These have caused a rise in bank transaction volume. As a result of customers depositing

a lot of money with the bank, the bank has a lot of liquidity, which it uses to generate profits. With this service, the client sends the bank server a request in plain text format with instructions, and the server replies with the necessary data. Customers can use their mobile phone to access enquiry services like bank balance and micro statements (Abunyang, 2007). This has made it easier for the bank to grow and extend its operations, which it uses to increase revenue and, ultimately, profits.

The most recent application is a collaboration between Nigerian telecoms and utility operators, including water and electricity companies, satellite companies, and even those. In this application, customers can pay their bills directly through a mobile application or instruct their banks to transfer funds to these utilities providers from their accounts. Customers now find things to be simple, which encourages them to deposit money. The use of mobile banking by financial institutions has far-reaching impacts in several sectors, according to Fiserv (2013). Adoption of mobile banking services has the potential to significantly raise the standard of service provided by any financial organization. This occurs because utilizing a cell phone to execute a transaction takes less time than walking to the bank to get the payment processed. The introduction of mobile banking has improved service delivery, which has the potential to attract 20% of online users who prefer better service through internet banking. A rise in customers will probably also result in a rise in revenues and profits for the bank. Customers are worried that even if the adoption of mobile

banking has substantially improved service delivery, the security of the mobile banking service still remains a problem that has to be resolved in order to improve service delivery.

According to Adewoye (2013)'s study on the effect of mobile banking on the provision of banking services in Nigerian commercial banks, mobile banking enhances the provision of banking services in many ways, including transactional convenience, time savings, quick transaction alerts, and cost savings that have restored customer relationships and satisfaction. The study recommends that the management of commercial banks should create awareness to inform the public about the benefits derived on the mobile banking service collaboration among banks should perfectly maintain (Pavlou, 2013), skilled man power and computer wizard should be employed by every bank in order to prevent fraudulent personnel and backers from manipulating the banks data and stealing money from the banks accounts.

Adewoye (2013) further recommends that provision and maintenance of public network system such as telephone is fundamental to the efficient functioning of the mobile banking service. some scholars also assert that mobile banking has significantly transformed traditional banking practices to the extent that it has created a pattern shift in marketing practice resulting in positive performance in the banking sector. This is an indication that efficient delivery of quality customer service in the banking industry is to a greater extent facilitated by adoption of appropriate information technology. Similarly, mobile banking

provides an important channel through which commercial banks can market their products and services and thus is more of a necessity for commercial banks that anticipate financial and customer service delivery success. It is evident too that the quality and efficiency of service delivery within the banking industry has improved significantly in the global market as a result of integrating information communications technology in to a number of banking activities. According to the findings of an investigation on electronic payment system and mobile banking in Nigeria carried out by Agboola (2006), it was established that there has been a very significant change from the use of cash to electronic payments. It was clear from the study findings that the automation of payment systems had significantly reduced the volume of cash transactions handle by commercial banks. It was also evident that mobile banking has great potential of broadening the customer relationship; improve customer service delivery which will result to high rate of customer retention and customer loyalty. This will in turn enable commercial banks to gain a large portion of market share.

Agboola (2006) further asserts that financial technology has also changed service delivery patterns of banks completely by radically reducing the volume of direct cash transactions. Stevens (2002) indicates that rapid changes in business activities in the contemporary environment in the form of technological improvement require banks to serve their customers electronically. The traditional banking environment focused on harnessing

technology to improve on products and services. However, the 21st century banking industry environment is more turbulent, complex and more competitive than ever before. It has therefore become more important for commercial banks to adopt information and communication technology in order to cope with the complex business environment that has more informed customers. This drive to transform the operations of commercial banks may not be successful without the adoption of appropriate ICT such as mobile banking since it affects quality of products and services and the way they are delivered to customers (Gupta. 2008). Information communication technology such as mobile banking service has been found to lead to improvement in business efficiency and service quality and hence attract and retain customers.

2.2 Theoretical Review

This section presents the idea of customer loyalty and gives an outline of how information systems are adopted. It also discusses what influences customers' acceptance of e-banking. All of the adoption models, including the Technology Acceptance Model (TAM), Theory of Planned Behavior (TPB), and Theory of Reasoned Action (TRA), were created to study technology adoption in developed nations. However, because developed nations face different challenges than developing nations, technology adoption in developed nations may differ from that of developing nations (Molla & Licker, 2005).

2.2.1 Technology Acceptance Theory (TAT)

To explain the conceptual model that explains users' intention or level of acceptability toward information systems or new technology, Davis, Bagozzi, and Warshaw (1989) offer TAT. Perceived utility and perceived simplicity of use serve as the cornerstones on which TAT is built. The term perceived usefulness relates to a person's perception that employing a specific new technology and information system will increase their level of job performance. The perceived ease of use measures how simple it is for a person to learn how to use new technology or an information system. The model focuses more on how perceived usability might be positively impacted by perceived usability. Perceived usefulness and perceived ease of use are also antecedents that are induced by exogenous factors like the environment.

TAT is thus founded on such crucial perceptual variables as perceived utility and perceived usability. TAT is frequently used in information technology research. Based on the TAT theory, Liu and Arnett (2010) looked at the important factors to consider while developing a successful website. The empirical study has led researchers to conclude that TAT is acceptable for the explanation of problems with online user behavior, as well as for the examination of new information technology acceptance intention or conduct (Pavlou, 2013).

2.2.2. Theory of Planned Behavior (TPB)

The theory of reason action (TRA), first identified by Fishbein & Ajzen in 1975, is the core topic of early investigations. The fundamental factors of attitude and subjective norm are the foundation of TRA. The two variables are shown to positively influence people's behavioral intentions, which in turn positively influences people's actual conduct.

An individual's attitude is their favorable or negative assessment of their execution of a specific behavior. The concept is how much the behavior's performance is rated positively or adversely. The subjective norm is the perception that a person has of a specific conduct that is shaped by the opinions of important others (such as parents, spouses, friends, and teachers). An indication of a person's preparation to carry out a specific behavior, behavioral intention is thought to be the immediate precursor to behavior. But according to the fundamental premise of TRA, willpower is used to control behavior on a voluntary basis (Fishbein and Ajzen, 1975). As a result, the behavior mainly results from one's willingness. As a result, Ajzen (1985) revises TRA and adds the theory of planned behavior (TPB). The three components of TPB—perceived behavioral control, attitude, and subjective norms—form its basis. Therefore, perceived behavioral control, attitude, and subjective norms all have an impact on behavioral intention. In turn, behavioral intention governs actual conduct. Perceived behavioral control, among others, relates to how easy or

difficult a person perceives a specific behavior to be. The use of the internet has become more pervasive and diverse in recent years. There have been more studies on TPB's use in electronic commerce.

2.2.3 Theory of Reasoned Action

In-depth marketing research has made substantial use of Fishbein and Ajzen's 1975 Theory of Reasoned Action (TRA). The four general principles of TRA—behavioral attitudes, subjective norms, intention to use, and actual usage—have been used to explain behavior that goes beyond technology acceptance. It contends that people assess the effects of a given behavior and formulate intentions to act in accordance with those assessments.

In more detail, TRA claims that one can predict people's behavior by looking at their intentions, which can be predicted by looking at their attitudes and subjective norms. Going further back in the prediction process, attitudes can be predicted from a person's beliefs regarding the effects of their behavior. By understanding how important other people perceive the behavior to be, one might predict subjective norms. The claim made by TRA that any other factors that affect behavior only do so indirectly by changing attitude and subjective norms is particularly helpful from a technological standpoint. The characteristics of the system design, user characteristics (such as cognitive styles and other

personality traits), and task characteristics are a few examples of such variables (Pavlou, 2013).

As a result, TRA is a good choice for anticipating how people will use multimedia technologies. TRA is a highly generic theory, thus it does not identify which individual ideas would be relevant in particular circumstances. However, the inclusion of subjective norm constitutes a significant variable that is even absent from more widely used models.

2.3 Empirical Review

Agwu, Atuma, Ikpefan, and Aigbiremolen (2014) looked at the barriers to the marketing of financial technology services in the Nigerian state. The study used a mixed-method approach, collecting data through both questionnaires and interviewing procedures. The user-based, institutional-based, and government-related roles perspectives provide three different perspectives on the findings, which are multifaceted. Additional findings included the inadequate educational disparity, particularly between the North and the South, and the lack of a sufficient policy framework to protect customers' money as some of the issues. All of these have clear strategic ramifications, and everyone involved should follow the resulting clear recommendation.

A study on the connection between financial technology and the performance of banks in Nigerian commercial banks was conducted in 2016 by Amu and Nathaniel. The value of

point-of-sale transactions served as a proxy for electronic banking, while client deposits served as a proxy for commercial banking success. Data were analyzed using the Engle-Granger cointegration model for the sample period of January 2009 to December 2013. The findings demonstrate that POS is cointegrated with demand deposits but not with savings or time deposits. The adoption of e-banking channels for conducting transactions is advised, and it is suggested that the monetary authorities and commercial banks launch a comprehensive education campaign for the banking public.

Suliaman and Ahlam-Jebreen (2017) investigated how electronic banking services affected commercial banks' client loyalty in Jordan. The ease of use, value, cost of usage, website design, privacy, and accessibility to electronic banking services. 400 participants were chosen at random for the study, and SPSS version 17 was utilized to analyze the study hypotheses and accomplish the study's goals. According to the study, the ease of use, utility, website design, and privacy of electronic banking services have a statistically significant impact on customers' loyalty to commercial banks in Jordan. According to the study, the accessibility factor had a negligible effect on customer loyalty.

Abaenewe, Ogbulu, and Ndugbu (2013) looked into the profitability performance of Nigerian banks after they fully embraced the electronic banking system in their study. Data gathered from four Nigerian banks were used to implement the judgmental sampling method. Since 1997, only these four banks have consistently maintained their brand names

and continued to be traded on the Nigerian Stock Exchange. Returns on equity (ROE) and returns on assets (ROA) were used to assess how profitable these banks were. A conventional statistical method for independent samples was used to test the data for performance indicators like ROE and ROA at a 5% level of significance. The study found that Nigerian banks' returns on equity (ROE) have improved positively and significantly as a result of the use of electronic banking. However, research also showed that the returns on assets (ROA) of Nigerian banks have not significantly increased as a result of e-banking.

Mawutor (2014) looked into how electronic banking affected a Ghanaian bank's capacity to make a profit. The methodology was based on numbers. In order to gather information about E-banking, 150 questionnaires were given to interviewees from the chosen Agricultural Development Bank branches who are customers. The structured self-administered surveys' collected data were all properly organized. Statistical Package for Social Sciences (SPSS) was the program utilized for this. It was found that the profitability of the Agricultural Development bank is affected by E-banking after the hypothesis was put to the test using inferential statistics. The net profit margin of the bank saw a considerable boost in the year (2011) that e-banking was implemented, and although though it somewhat decreased the next year (2012), it grew once again in the following year (2013).According to the analysis, E=banking increases ADB's profitability.

In his research on Information and Communication Technology (ICT) in Banking Operations in Nigeria using the type and extent of adoption of novel technologies, the degree of utilization of the identified technologies, and the impact of the adoption of ICT devices on banks, Agboola (2016) discovered that technology was the primary factor driving competition in the banking sector. He saw a growth in the use of ATMs, EFT, smart cards, electronic home and office banking, and telephone banking during the course of his research. He suggests that ICT adoption enhances the banks' reputation and creates a bigger, faster, and more effective market. Okonkwo and Ekwueme (2022) conducted a study to determine the impact of the POS payment method on the financial performance of deposit money banks in Nigeria. Adopting an ex post facto research design, the authors sampled 13 deposit money banks out of the 22 banks operating in the country. Utilizing the statistical program E-Views 9.0, regression analysis was carried out. The findings indicated that, although this effect was not statistically significant at the 5% level of significance, the POS payment mechanism had a negative impact on the return on assets of listed deposit money banks in Nigeria. The authors recommend that banks provide seminars and workshops to inform customers and business owners about the benefits of accepting POS payments.

Through the lens of an expanded Technology Acceptance Model (TAM) paradigm, Awoniyi (2022) investigated the uptake of digital banking in Nigeria. 250 individuals were

surveyed electronically as part of the study, and a Cronbach's alpha test with a value greater than 0.70 indicated that the questionnaires were a credible research tool. Purposive sampling was employed to select the sample size, and multiple regression was utilized to examine the data. According to the findings, both mobile and internet banking ($AdR2 = 0.255$, $F = 8.357$, $p\text{-value} = 0.000$ and $AdR2 = 0.270$, $F = 8.960$, $p\text{-value} = 0.000$, respectively) were significantly impacted by motivation for the adoption of digital banking (as proxied by perceived usage, ease of use, security, and banking regulation). The study came to the conclusion that factors other than the conventional TAM variables, such security and banking laws, are crucial in driving the adoption of digital banking and ought to be taken into account in future models for technology adoption.

The use of POS machines for cash withdrawals, money transfers, and utility payments has an effect on customer satisfaction in the Nigerian banking industry, according to Adetayo, Mokuolu, and Fayomi (2021). Through systematic and purposeful sampling, the study surveyed 320 regular customers of POS operators using a descriptive research design. The basic data gathered was analyzed using a logit modeling technique. The findings demonstrated that the key determinants of consumer satisfaction when utilizing POS terminals were elements like secrecy, transaction speed, operator friendliness, competitive pricing, and handy location. In the banking industry, the study found that the use of POS

terminals improved customer satisfaction. It also suggested expanding their use to minimize traffic jams at ATMs and banking rooms.

The impact of point of sale (POS) transactions on the security of financial transactions in the Nigerian economy was studied by Ozoji, Iwara, Ezuwore-Obodoekwe, Inyada, Ezechukwu, Ayem-Fella, Ezuma, Ebisi, and Okoroiwu in 2021. The study analyzed aggregate quarterly data from all deposit money banks operating in Nigeria from 2012 to 2019 using a post-hoc research design and secondary data sources. The Augmented Dickey Fuller Unit Root Test and co-integration test were followed by the estimate of the Error Correction Model and the Autoregressive Distributed Lag model. The findings revealed that while the number of fraud and forgery instances in deposit money banks had not changed dramatically as a result of the advent of cashless banking through POS transactions in Nigeria, the amount involved in attempted or reported fraud and forgery had. The study also discovered that actual losses from fraud and forgeries had not been appreciably influenced by cashless banking through POS transactions.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter presents a detailed account of how the study will be carried out, while revealing the research methods to be used in the study. This study focuses on the financial technology and deposit money bank performance in Nigeria from 2018-2023. It is subdivided into a number of sections which include research design, population and sampling, sources of data collection, model specification and operationalization of variables and techniques of data analysis

3.1 Research Design

The Ex-Post-facto research design was used in this study, which are particularly applicable in management and social sciences. The use of secondary data in an Ex-Post-facto research design involved the study of responses in the nature of a factor and its effects on individuals; the researcher does not have the ability or opportunity to modify or manipulate the independent variables. This inability to control the independent variables stemmed from either the variables being fundamentally non-manipulable or their manifestations having already occurred (Agbonifoh & Yomere, 1999).

3.3 Population of the study

The population comprises thirty five (35) listed deposit money banks in Nigeria with available annual financial report, with branch all over the 36 states and federal capital. In line with this, filter is employed to exclude any bank that does not meet up with these requirements.

3.4 Sample Size and Sampling Technique

A sample is a portion, or part of the population of interest. The sample used in this work is five (5) deposit money banks with a six (6) years period covered from 2018 -2023.

For the purpose of this study, random sampling method will be adopted. The random sampling is one in which the researcher select whatever unit he or she has easy access to and are conveniently located, hence will be used to select the five (5) deposit money banks used as the same for the study.

3.5 Sources of Data

The data used for the study is the secondary data which was directly obtained from the Central Bank of Nigeria (CBN) statistical bulletin and deposit money banks' annual statement of accounts for various years under review (2018 to 2023).

3.6 Theoretical Framework

This study was anchored on the Innovation Diffusion Theory, developed by Everett Rogers in 1962, explains the process by which an innovation, whether it's a new technology, idea, or practice, spreads within a community or society. According to the theory, adoption occurs in a predictable sequence, divided into five categories of adopters: innovators, early adopters, early majority, late majority, and laggards. Innovators are the first to embrace an innovation, followed by early adopters, who are often opinion leaders (Anyanwu & Anumaka, 2020). The early majority and late majority make up the bulk of adopters, and laggards are the last to adopt, often due to resistance or lack of interest. The speed at which these groups adopt an innovation is influenced by various factors, including the innovation's perceived relative advantage, compatibility with existing systems or values, complexity, trialability, and observability of benefits (Elisha, 2010).

The diffusion process itself is heavily influenced by communication channels, social networks, and the influence of opinion leaders. Innovations tend to spread faster when they are seen as advantageous, easy to use, and compatible with the users' needs and lifestyle. Social systems, such as communities or organizations, also play a role in determining how quickly innovations diffuse, as they provide the structure and communication pathways that facilitate or hinder adoption (Anyanwu & Anumaka, 2020). The theory is widely used

in fields such as marketing, health promotion, and technology adoption to guide strategies for introducing new products, services, or practices effectively to a target audience. The theory argues that any institutions aiming to achieve growth must be willing to undertake innovations. This theory posits that there are five key attributes of innovations; improvement of current modes operandi, consistent approach to performance, pre-testing capacity and ease to observe any shortcoming (Frame & Scott, 2001). According to Hirtle, (2005) institutions have capacity to gain competitive advantage and minimize operational costs courtesy of innovations. Further, institutions would easily penetrate new markets and discover alternative means of serving their customers.

3.7 Model Specification

The multiple linear regression analysis model adopted from Mawutor (2014) which would be used for this study is functionally expressed as follows;

$$ROA = f(MBS, OBS, POS, USSD) \dots \dots \dots (1)$$

The econometric form of the model is specified as;

$$ROA_{it} = \bar{\alpha}_{0it} + \bar{\alpha}_1 MBS_{it} + \bar{\alpha}_2 OBS_{it} + \bar{\alpha}_3 POS_{it} + \bar{\alpha}_4 USSD_{it} + e_{it} \dots \dots \dots (2)$$

Where,

ROA_{it} = Aggregate Return on assets at time t

MBS_{it} = Mobile banking services at time t

OBS_{it} = Online Banking Services at time t

POS_{it} = Point of Sale Services at time t

$USSD_{it}$ = Unstructured Supplementary Service Data Transactions at time t

$\bar{\alpha}_0 - \bar{\alpha}_4$ = are the coefficients of the main independent/explanatory variables of interest.

Based on theoretical or apriori expectation, the signs of the coefficients are given as;

$$\bar{\alpha}_0 - \bar{\alpha}_4 > 0$$

In other words, we expect a positive relationship between the dependent and independent variables.

3.7 Measurement of Variables

Table 3.1: Measurement of Variables

Item	Variable Type	Measurement	Apriori Expectation	Apriori
Return on Assets	Dependent variable	Aggregate return on assets of the banking sector		<i>Elsayed (2013) and Miko (2010)</i>
Mobile Banking Services	Independent Variable	Total value of transactions carried out on mobile banking services.	+	Okafor (2020)
Online banking services	Independent variable	Total value of transactions carried out through online banking services.	+	Adewoye (2013)
Point of sale	Independent Variable	Total value of transactions carried out on POS.	+	Okafor (2020)

USSD transactions	Independent variable	Total value of transactions carried out through USSD.	+	Adewoye (2013)
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Source: Author's compilation, 2025

3.8 Method of Data Analysis

The study adopts panel regression technique to analyse the empirical model and examine the effect of electronic payment systems on deposit money bank performance in Nigeria. Various tests will be conducted to evaluate the results, which include t-test, R-Squared and f-test. Preliminary analysis will be done using descriptive statistics and correlation analysis. The panel least square will be used to establish the relationship between electronic banking channel and bank performance in the study.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

The deals with the analysis of the data used for the analysis. The data presented in this chapter include the descriptive statistics which describes the nature of the variables in terms of mean, median, Skewness, Kurtosis and many others. The unit root test was used to test if the variables are stationary. Also, correlation test was also carried out to check if there is correlation between the variables. Lastly, the regression test was used to test for the significance of the variables and also to test the hypothesis of the study at 5% level of significance.

4.2 Presentation of Estimation Results

Table 4.1: Descriptive Statistics

	ROA	C	MBS	OBS	POS	USSD
Mean	21.6520	1.000000	17.937	24.9009	11.827	8.631
Median	45.625	1.000000	27.137	29.872	9.837	7.837
Maximum	76.653	1.000000	39.827	43.983	14.82	15.873
Minimum	40.837	1.000000	15.521	17.873	2.554	5.028
Std. Dev.	0.023708	0.000000	0.977060	2.986079	0.589127	0.451261
Skewness	-1.390784	NA	0.251620	0.861625	0.432075	0.979958
Kurtosis	8.717127	NA	6.065129	3.262383	2.298957	1.960317
Jarque-Bera	168.4277	NA	40.20110	12.66014	5.159235	20.50921
Probability	0.000000	NA	0.000000	0.001782	0.075803	0.000035
Sum	1.372015	100.0000	407.0000	455.0000	158.0000	28.00000
Sum Sq. Dev.	0.055643	0.000000	94.51000	882.7500	34.36000	20.16000

Observations	30	30	30	30	30	30
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Source: Author’s Computation using E-View 8.0, 2025

From the table 4.1 above, the results of the mean value revealed that all the variables; Return on Asset (ROA), Mobile Banking Service (MBS), and Online Banking Services (OBS), POS and USSD all have considerable mean value. The pattern of the distribution of the median value follows that of the mean values. The result of the standard deviation is however mix, as some of them (Mobile Banking Service and Online Banking Services) indicate distance from the mean point, while others (Return on Asset, POS and USSD) show oscillation around the mean point. The skewness of a symmetric distribution, such as the normal distribution, is zero. Positive skewness means that the distribution has a long right tail and negative skewness implies that the distribution has a long left tail. In this study, all the variables were found to be positively skewed (skewed to the right) implying that the distributions have long right tails, except for Firm Performance (which is skewed to the left) implying that the distributions have long left tail. The probability of the Jarque – Bera statistic is significant at 5% level of significance showing that the series failed the normality test. Hence the need for conducting a unit root test to check for stationarity of the data to avoid spuriousness in the regression results used for the hypotheses testing.

Table 4.2: Unit Root Results

Variable	Levin, Lin & Chu t*	Prob	ADF - Fisher Chi-square	Prob	PP - Fisher Chi-square	Prob.	Remark
ROA	-4.86636	0.0	40.0072	0.00	65.0649	0.00	Stationary
MBS	-3.77540	0.0	38.9710	0.00	100.485	0.00	Stationary
OBS	0.54369	0.7	3.90584	0.86	7.69555	0.46	Not Stationary

POS	0.34531	0.63	5.3453	0.96	10.5564	0.000	Stationary
USSD	-6.00484	0.0	59.9491	0.00	125.714	0.00	Stationary

Source: Author's Computation using E-View 8.0, 2025

The results of the panel unit root test shows that all the variables (Return on Asset, Mobile Banking Service, POS and USSD) are stationary at level except Online Banking Services (OBS). This confirms that the time series properties of the data are relatively stable and there is the absence of unbiasedness of information in the panel data used for the study. The likelihood of spuriousness in the regression results is non-existence.

Table 4.3: Covariance Analysis of Electronic banking and Firm Performance

Covariance Analysis

Date: 16/325 Time: 16:18

Sample: 2018 2022

Included observations: 30

Correlation

t-Statistic

Probability	ROA	MBS	OBS	POS	USSD
ROA	1.000000				
MBS	-0.096995	1.000000			
OBS	-0.225668	-0.75407	1.000000		
POS	0.674952	0.586946	-0.21141	1.00000	
USSD	0.562432	0.145536	-0.27615	0.83762	1.000000

Source: Author's Computation using E-View 8.0, 2025

Correlation statistic indicates the extent (high/moderate/low) and direction (positive/negative) of the relationships existing between variable pairs. Consequently, the correlation matrix is presented in Table 4.3. For all intents and purposes, the correlation result displays the pairwise relationship among the variables employed in the study. The results of the correlation analysis revealed that Mobile banking Service (MBS) and Online banking Service (OBS) have negative relationship with Return on Asset (ROA). But the strength of their relationship is not statistically significant. Point of Sale (POS) and USSD are significantly related to Return on Asset (ROA). On the relationship between the independent variables, USSD is significantly and positively related to Mobile banking Service (MBS) and Point of Sale (POS) but negatively related to Online banking Service (OBS). It therefore indicates that, a substantial enhancement in these variables utilised in the study would not only improve the general performance of the firm, but also bring about some amount of financial fortitude in the long run

Table 4.4: Regression Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.885080	1.335110	0.662927	0.5101
MBS	0.063129	0.297996	0.211846	0.0330
OBS	1.905264	2.180509	0.873770	0.0360
POS	0.756434	1.938534	0.345356	0.0463
USSD	0.639350	2.052673	0.334489	0.0021
Effects Specification				
			S.D.	Rho
Cross-section random			0.000000	0.0000
Idiosyncratic random			6.200056	1.0000
Weighted Statistics				
R-squared	0.061979	Mean dependent var		0.860442
Adjusted R-squared	0.006240	S.D. dependent var		6.016927

S.E. of regression	0.135671	Sum squared resid	2003.613
F-statistic	0.068528	Durbin-Watson stat	2.218330
Prob(F-statistic)	0.045496		

Unweighted Statistics

R-squared	0.061979	Mean dependent var	0.860442
Sum squared resid	2003.613	Durbin-Watson stat	2.218330

Source: Author's Computation using E-View 8.0, 2025

The correlation results presented in table 4.4 revealed that USSD significantly affects the Return on Asset (ROA). This is evidenced by a t-value of 3.344 with a probability value of 0.0021 which is less than 5% level of significance. Hence, Point of Sale (POS) and USSD to a large extent significantly affects the outcome of the firm's financial performance. The t-values and probability value of the other independent variables (MBS and OBS) were also found to be statistically significant in impacting a firms' returns on Asset (ROA). This shows that the firm performance will be significantly affected upon a change in the value of Mobile banking Service (MBS) and Online banking Service (OBS). While the Durbin – Watson statistic performed considerably well, the other regression

parameter performed relatively poor. This could be attributed to the coverage of the data either in terms of number of variable used or the number of years covered.

4.3 Test of Hypotheses

The study sets its decision rule for the acceptance of the hypotheses at 5% level of significance; hence, the null hypothesis would be rejected if the probability value (P- value) is less than 0.05. The following are the results of the tested hypotheses:

Hypothesis 1: Mobile banking has no significant effect on the performance of banks in Nigeria.

From the panel regression result, it was observed that Mobile banking Service (MBS) with an absolute calculated t statistic-value of 0.211846 with a p-value of 0.0330 which is less than the 0.05 (5%) level of significance. Therefore, we disregard the null hypothesis and accept the alternate hypothesis which states that tenure of Mobile banking Service (MBS) has significant effect on the performance of banks in Nigeria

Hypothesis 2: Online banking has no significant impact on the performance of banks in Nigeria.

From the panel regression result, it was observed that Online banking Service (OBS) with an absolute calculated t-value of 0.873770 and a p-value of 0.0360 which is less than the

0.05 (5%) level of significance. Therefore, we accept the alternate hypothesis and disregard the null hypothesis. Hence, online banking service has significant impact on the performance of banks in Nigeria.

Hypothesis 3: Point of Sales (POS) has no significant influence on the performance of banks in Nigeria.

From the panel regression result, it was observed that POS with an absolute calculated t-value of 0.345356, and a p-value of 0.0463, which is lesser than the 0.05 (5%) level of significance. Therefore, we reject the null hypothesis and accept the alternate hypothesis which states that Point of Sales (POS) has significant influence on the performance of banks in Nigeria

Hypothesis 4: USSD does not have significant influence on the performance of banks in Nigeria.

From the panel regression result, it was observed that USSD has an absolute calculated t statistic-value of 0.334589 with a p-value of 0.021 which is lesser than the 0.05 (5%) level of significance. Therefore, we disregard the null hypothesis and accept the alternate hypothesis which states that USSD has significant influence on the performance of banks in Nigeria

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

The study attempted to examine the financial technology and deposit money bank performance in Nigeria from 2018-2023. This chapter deals with the summary of findings, conclusion, and recommendations.

5.2 Summary of Findings

The following are the findings from the empirical analysis of the data:

1. Mobile banking service has significant effect on firm financial performance. Therefore, an increase in the mobile banking services by customers will affect the level of firm performance.
2. Online banking services has significant impact on firm financial performance. Therefore, an increase the online banking service will affect performance of the banks.
3. Point of sales services has significant impact on firm financial performance. Hence, the more the Point of sales services carried out by customers, the more profit banks make.

4. USSD has significant effect on firm financial performance. Therefore, the USSD activities carried out by customers positively affect the financial performance of banks in Nigeria.

5.3 Conclusion

The researcher draws the conclusion that mobile banking services (MBS) have an impact on a bank's financial condition at the end of its fiscal year based on the empirical analysis of the study's data. As a result, the likelihood that a company will succeed or fail at the conclusion of the fiscal year is unrelated to the mobile banking services used by customers. Additionally, there is a strong correlation between the firm's financial performance and its online banking services, proving that banks profit from these services. As a result, they will perform better financially at the end of their fiscal year if customers use these services more frequently. The financial position of a bank at the end of the fiscal year is influenced by the point of sales services and the USSD activities performed by customers because the banks receive commission for every POS and USSD service used by customers. In conclusion, the level of electrification has a significant impact on banks' financial performance.

5.4 Recommendations

Based on the findings of the study, we recommend that:

1. Since there exist a positive relationship between mobile banking services and banks performance, banks shovels ensure they put in more efforts to get customers to user the mobile services.
2. Since online banking services has a positive relationship with firm performance, management should endeavour to more online banking services are encouraged for their customers.
3. Since there exist a positive relationship between point of sale and banks performance, management of banks should ensure that POS outlets are encourages and business are encouraged to use more of the POS services.
4. Since USSD has a positive relationship with firm performance, therefore, firms should ensure that this services is encouraged for customers who can't access the other electronic services.

5.5 Suggestion for Further Studies

Future research can focus on:

1. The effect of mobile Banking on performance of banks in Nigeria
2. The impact of online banking on bank performance in Nigeria
3. Point of Sales (POS) and the performance of banks in Nigeria
4. The effect of USSD services on the financial performance of firms quoted in Nigerian Stock Exchange.

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