Financial Innovation and Firm Survival of deposit Money Banks in Nigeria

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Abstract

The objective of the study is to examine the effect of financial innovation on firm survival of deposit money banks in Nigeria. The study discomposed financial innovation into, point of sale transaction, internet banking transaction, automated teller machine transaction and firm survival proxy by net assets per share. The study adopted ex-post facto research design. The population of the study is made up of 14 quoted deposit money banks in Nigeria out of which 10 were used as sample size using purposive sampling technique to select the sample size and used least square regression model. The data used for this study were collected from the Statistical Bulletins of the Central Bank of Nigeria covering the period 2012 – 2023. The result of this study shows that point of sale is negative and statistically significant, internet banking transaction shows positive and insignificant result while automated teller machine indicates positive and statistically significant. The study conclude that the survival of deposit money banks in Nigeria is heavily influenced by the adoption and integration of various financial innovations, which are increasingly becoming crucial in the competitive banking sector. The recommend that banks executives are advised to reduce the reliance on point of sales (POS) transactions as a primary service offering. Instead, focus on optimizing and diversifying revenue streams to mitigate the negative impact on bank survival, enhance the revenue-generating potential of internet banking platforms by introducing value-added services and loyalty programs that can differentiate the bank from competitors and improve customer retention and continue to expand and maintain a robust network of automated teller machines (ATMs) to capitalize on their significant positive effect on bank survival, ensuring that ATMs are accessible, reliable, and meet customer demand efficiently.

Keywords: Financial Innovation, Point of Sale, Internet Banking, Automated Teller Machine, Firm Survival and Net Assets Per Share.

1.0 Introduction

The adoption of universal banking and the cashless policy have boosted the emergence of financial technology (Fintech) in Nigeria. The Central Bank of Nigeria (CBN) and the Bankers Committee joined forces to introduce the cashless policy, with the objective of addressing long-standing obstacles to financial inclusion for millions of Nigerians. This policy facilitated the provision of mobile payment services, enabling secure and convenient financial transactions across urban, semi-urban, and rural regions (Itah & Emmanuel, 2014). Consequently, Nigeria's banking system transitioned to retail banking and e-banking channels, enhancing financial inclusion. E-banking is widely accepted internationally and gaining momentum in Nigeria, with more banks entering the market (Ovia, 2001). All Nigerian banks are leveraging e-banking facilities to excel in the competitive industry and provide enhanced services to customers, benefiting both individuals and corporations. The rapid development and global acceptance of e-banking have further encouraged its adoption (Ogbuji et al., 2020). The form of payment in an economy is crucial to the effective operation of the financial and real estate sectors. A good payment system settles financial transactions quickly and allows the interchange of products and services in a timely, secure, and trustworthy manner (Tahir et'al, 2018). Victor et'al (2015) believe that the effectual use of various advanced banking technologies, as well as applications of digitalization in banking operations, has become one reason for banks' deposit money to be redirected toward an unforeseen improvement in the setup of banking products and various instruments, which are key means to stimulate customer needs and, thus, the economy. The application of new technologies to introduce new financial instruments into financial institutions and markets is referred to as "financial innovation." All types of innovation are covered, including process, product, and institutional. Process innovation includes new ways of doing business and utilising information technology, such as the Automated Teller Machine (ATM), mobile banking, and online banking (Abor, 2005). As per Abubakar & Tasmin, various financial innovative products, like automated teller machines, web/internet banking, and mobile banking, are a critical ingredient for bank diversification, sales growth, and cost reduction for both customers and banks, because customers can access their accounts through the aforementioned financial innovative products (2012).

The management of deposit money banks in Nigeria have over the years streamlined their organizations, tailored their products and service delivery and automated their operations to enhance their performance and capture the market. As the struggle to enhance performance intensifies, the focus is moving to the complete automation of all their operation and services. The system or industry is highly competitive and competition is expected to intensify as new players of local and global scope entered the market. As the competitive terrain becomes more challenging to navigate, banks will need to maintain their competitive edge, and to do this; they have to adopt new technology. Consequently, Nigerian bank's investments in information technology (IT) equipment have grown rapidly in the last ten years. There have been investments in computer hardware, software and telecommunication equipment, the corollary of which has been the introduction of Electronic Bank (E-Banking) in the Nigeria Banking Industry (Shehu, Aliyu &

Musa, 2013). The study became imperative as a result of increased penetration of electronic banking which has redefined the banking operations in Nigeria and globally.

Financial innovation helped in the deployment of various electronic payment channels to enhance the survival in the competitive economy in Nigeria. Kamau and Oluoch (2016), assert that numerous banks have leveraged financial innovation as a potent tactical variable to overcome any sort of rivalry among deposit money institutions, allowing banks to increase their efficiency while preserving their market effectiveness. The emergence of financial innovation as a tool to offer efficient services to banks' clients births the utilization of information technology infrastructure. As in Gbanador (2021), the hardware, software, networks and other relevant equipment that makes information technology based services possible is called Information technology infrastructure. Financial innovation is predicted to tool for survival of deposit money banks in Nigeria. However, research findings revealed that opinions on the influence of financial innovation on financial performance of commercial banks are divided (Abubakar, 2014; Ibenta & Anyanwu, 2017; Njogu, 2019 and Tahir et al, 2018). These divergent views could be attributed to the possible difficulties and risk exposure that is associated with the deployment of financial innovation which could hinder its utilization. For instance, fraud, illiteracy, poor network, inadequate infrastructure, poor power supply, etc. It is on this background that necessitated the study of the effect financial innovation on the survival of deposit money banks in Nigeria. The specific objectives of this study are to

i.   Investigate the effect of point of sales transactions on firm survival of deposit money banks in Nigeria.
ii.   Examine the effect of internet banking transactions on the firm survival of deposit money banks in Nigeria.
iii.   Examine the effect of automated teller machine transactions on firm survival of deposit money banks in Nigeria.

2.0   Review of related Literature

2.1   Conceptual Review

2.1.1   Financial Innovation

Financial innovation refers to the development of new financial products, services, technologies, or processes that enhance the efficiency and effectiveness of the financial system, this can include a wide range of activities such as the creation of new financial instruments, the development of new ways of conducting transactions, and the implementation of new technologies to improve financial services. Financial innovation aims to increase the accessibility, speed, and security of financial services, ultimately benefiting consumers and businesses. However, it also presents challenges and risks, including regulatory concerns, cybersecurity threats and potential impacts on financial stability. Financial innovations have greatly impacted the financial market in relating to

the establishing up new and big opportunities for the shareholders, thus developing new products and services to improve new markets (Zu, Gu, Li & Bonsu, 2019). Some of the products that are upshots of financial innovations that are popular amongst the payments channels deployed by banks in Nigeria are; mobile banking, point of sales terminal, Automated teller machines, internet banking, etc. These products are hereby discussed in turns.

2.1.2 Point of Sale (POS) Transactions and Firm Survival

Point of sale (POS) system is a combination of hardware and software that allows businesses to conduct sales transactions, it is the place where customers make payments for goods or services, typically at a checkout counter in a retail store, but POS systems are also used in restaurants, hotels, and other service industries. Modern POS systems often integrate with other business systems, such as e-commerce platforms, accounting software, and supply chain management tools, creating a comprehensive solution for managing business operations.

The financial institutions and telecommunication companies' worldwide are facing new loop on the Information and Communication Technology convergence curve. Point of sale [POS] terminal has emerged as a promising new application of the next generation e-payment system. The role and importance of efficient payment system has been closely monitored and promoted by monetary authorities in all countries. The Nigerian payment system that is cash- driven cannot and has not guaranteed the much needed efficient and effective payment platform required for a sustainable economic development, [Adeoti, 2013] The Nigerian economy being largely cash-based is associated with high cost of cash management. Reliance on cash based payment platform has been found to be risky and cumbersome. Carrying cash in the economy is responsible for large pool of money being found in the hand of the unbanked citizens. In an effort to reduce the volume of cash in circulation and reduce the risk of going about with huge cash, the CBN introduced electronic payment system such as point of sale (POS) terminal, automated teller machine (ATM), payment cards [Smart card] etc into the Nigerian economy. This has given rise to the introduction of switch companies that facilitate interconnectivity (Adeoti 2013).

2.1.2 Internet Banking Transactions and Firm Survival

This is a payment channel that enables the bank customer to make financial transactions using the banks' website. Thus, financial transactions are accessed using the internet and a personal computer or similar device. It does not require physical interaction between the banks' customer and the bank teller once a biometrics has been done and enrollment made (Gbanador et'al, 2022). Internet banking also known as online banking or e-banking, refers to the use of the internet to perform various banking activities and transactions. This service allows customers to manage their finances conveniently from anywhere with an internet connection, eliminating the need to visit a physical bank branch. However, internet banking also poses certain risks, such as security: the

potential for cyber threats, including hacking, phishing, and malware attacks. Secondly, privacy: the need to protect personal and financial information from unauthorized access. Thirdly, technical issues: potential disruptions due to technical problems or internet connectivity issues. Banks mitigate these risks by implementing robust security measures, such as encryption, two factor authentication, and continuous monitoring of accounts for suspicious activity.

2.1.3   Automated Teller Machine (ATM) Transactions and Firm Survival

It is a computerized telecommunication device that allows the bank's customer to access the basic teller services outside the banking hall without direct interaction with a bank teller. Some of the teller services performed with the ATM includes Cash withdrawal, cash deposit, fund transfer, bills payment, account balance enquiry, account opening (Gbanador, 2021). Rose (1999) define ATMs as computer terminal, having recordkeeping system and cash vault in one unit, permitting customers to enter the bank's book keeping system with a card holding a Personal Identification Number (PIN) or by punching a special code number into the computer terminal linked to the bank's computerized records 24 hours a day. ATM card is made of a plastic having magnetic stride that hold all the information about the customers such as customer name, account, card number, card limit, concerned bank etc.

2.1.4. Firm Survival

The term "survival" has many connotations -- both subjective and objective. The most objective way to measure survival in organizations is to observe their continuing existence. An organization survives as long as it acquires inputs from suppliers and provides outputs to a given public i.e customers, clients, patients, etc (Jerry, 2014). The organization fails when coalitions of resource providers cannot be induced to supply resources and the firm cannot repay resource providers for past support. In other words, corporate survival is simply non-failure of an existing organization.

Surachai and Nongnit (2013) considered financial performance as a determinant of corporate survival. Hence, financial performance is conceded as a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. This term is used as a general measure of a firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation (Okeke, 2015).

2.2   Theoretical Framework

2.2.1   Diffusion of Innovation concept Theory

This research is based on Everett M. Rogers' 1962 Diffusion of Innovation concept. The five variables necessary for the spread of new ideas, according to the theory, are the innovations themselves, adopters, communication routes, time, and a social structure. He considers diffusion to be the mechanism through which innovation spreads over time among users in a social system. Innovators, early adopters, early majority, late majority, and laggards are examples of innovation adopters. Diffusion can take several forms, depending on the types of adopters and the creative decision-making process. Innovativeness, which is defined as the degree to which an individual adopts a new notion, is the criterion for classifying adopters. According to Bamidele (2006), IT spread entails more than just obtaining computers, microelectronics-based devices, and related know-how. It entails being prepared and developing the technical change-generating competence to apply given technology to a variety of demands. According to these beliefs, innovation without communication, coordination, and understanding may be ineffective, as it is unlikely to yield significant results for either banks or customers. There must be prompt communication and information dissemination. This causes time awareness and a reduction in response time, which influences turnaround time.

2.3   Empirical Review

Iwedi et' al (2023) studied effect of financial technology on financial inclusion in Nigeria. This study used quarterly secondary data and all the data were extracted from Central Bank of Nigeria (CBN) Statistical Bulletin (2021) from 2009-2019. In this study, financial technology was proxy using point of sale, automated teller machine, web banking technology and mobile banking technology, while financial inclusion in Nigeria was proxy using deposit ratio. Time series data were analyzed using the vector auto regression (VAR) estimation technique. The results show that web banking technology has a positive and significant effect on financial inclusion in Nigeria, whereas point of sale, automated teller machine and mobile banking technology have a positive but not significant effect on financial inclusion in Nigeria. This suggests that an increase in the usage of financial technology (ATM, POS, WEB and mobile technology) will cause more Nigerians to be financially included. Based on the findings.

Otonne and Ige, (2023) studied exploring the influence of financial technology on banking services in Nigeria. This study employed a quantitative research approach, analyzing data from the financial statements of selected Nigerian banks, and financial technology application statistics through econometric modelling and descriptive analysis. The study found that Fintech positively impacts Nigerian banks' traditional and market-based performance measures.

Domeher et'al (2022) evaluate financial innovations and economic growth: Does financial inclusion play a mediating role? This study thus, sought to establish if financial inclusion mediates

the relationship between innovation and growth. Secondary data from 26 selected SSA countries over the period 2004 to 2017 were used. The data were analysed using the GMM estimation technique. It was found amongst other things that investments in innovations in the banking sector promote financial inclusion. In addition, financial inclusion fully mediates the relationship between innovation and economic growth.

Misati et' al (2022) studied digital financial innovation enhance financial deepening and growth in Kenya. The study utilized autoregressive distributed lag (ARDL) model, which is preferable over other time series methods as the model allows application of co-integration tests to time series with different integration orders and is flexible to the sample size including small and finite. The main findings of this paper are as follows: first, there is evidence of a positive relationship between digital financial innovation and financial depth with the strongest impact emanating from Internet usage and mobile financial services and the lowest impact from bank branches; second, the results reveal a significant positive impact of financial depth on economic growth consistent with the supply-leading finance theory. The results of the study imply a need for investment in technology-enabling infrastructure for digital financial services (DFS) and a redesign of strategies to avoid further financial exclusion of low-income earners due to the unaffordability of digital devices and financial and digital illiteracy.

Mbizi et' al (2022) studied the nexus between technological financial innovation and financial performance of commercial banks in Zimbabw. A positivist philosophical orientation approach guided this study wherein an eight year quarterly panel data for a time period ranging from 2015 to 2021 for thirteen commercial banks in Zimbabwe was adopted for data collection. STATA software was used to analyse the impact of each dimension of technological financial innovation on commercial financial performance. The results showed that the use of automated teller machines and internet banking have strong positive relationship with financial performance, whilst a weak positive relationship was established between mobile banking and financial performance of commercial banks. Moreover, an insignificant association was established between electronic funds transfer and financial performance of commercial banks. The major implication was that banks should intensify the adoption of financial innovation as it enhances their operations.

Nasution et'al (2022) studied investigation of financial inclusion, financial technology, economic fundamentals, and poverty alleviation in asean-5: using sur model. The study used Seemingly Unrelated Regression (SUR) model during the period 2009 to 2019. The results obtained are: (1) Financial inclusion through the credit variable and the number of ATMs, and fintech through the e-money variable, contributed to the most significant increase in GDP in the ASEAN-5 countries. Meanwhile, the most critical contributor to reduction in the unemployment rate from financial inclusion is through the credit and savings variables, while from fintech it is through mobile phone subscriptions. (2) Thailand is the country that has most effectively influenced the economic fundamental of unemployment rate, while Indonesia is the country that has most effectively influenced the economic fundamental of GDP. The results obtained from the panel regression

model and cross-sectional weighting indicate that financial inclusion through savings, credit, and number of ATMs, and fintech through cellular phone subscription, are effective in reducing poverty rates in the ASEAN-5 countries. Nevertheless, financial inclusion and fintech do not significantly affect the inflation rate.

Adiga et'al (2022) studied financial technology and the banking sector performance in Nigeria (2005-2020). The specific objectives are to examine the effect of financial technology on return on assets (ROA), return on equity (ROE), interest income (II) and noninterest income (NII) of Deposit Money Banks (DMBs) in Nigeria. The study was anchored on Technology Acceptance Model (TAM) and Central Bank of Nigeria (CBN) statistical bulletin and Nigeria Deposit Insurance Corporation (NDIC) report of various years form the data source which were subjected to Auto Regressive Distributed Lag (ARDL) technique to test the interaction between independent variables namely payment system, automated clearing services and remittance services with the dependent components in return on asset, return on equity, interest income and non-interest income at 5% level of significance. Financial technology significantly explained the variation in ROA, ROE and noninterest income DMBs in Nigeria except the variation in interest income. The study concludes that financial technology significantly explained the variation in banking sector performance components in ROA, ROE, and non-interest income. The effect of financial technology on performance of the banking sector is inconclusive thus financial technology could not be said to improve and exert the required impact on the banking sector performance within the period studied.

Rachid and Nadir (2022) studied the relation between Financial Innovation and Economic Growth in Algeria: ARDL approach. The study used Autoregressive distributed lag model covering the period from 1964 to 2019. Financial innovation represented by Domestic Credit to the Private Sector (DCP) and economic growth represented by GDP, an intermediate variable was used represented by Broad-to-Narrow Money (BNM). The results indicated that Financial Innovation have significant positive impact on economic growth in both the long-run and the short-run period, also results show that variables are Co-integrated by using ARDL method.

Idriss et'al (2021). Using mobile money to bank the unbanked in Sub-Saharan Africa: an empirical study. The aim of this research is to thoroughly investigate the role of mobile money toward a cashless society in Sub-Saharan Africa. The research is best on information gathered from reliable sources but mainly focused in developing countries where the aim of mobile money is for banking the unbanked. The findings of the research provide a foundation for directing future policy debates on the journey to cashless society.

Alhassan et'al (2021) examined financial innovation: The impact of mobile money on innovative economic growth. The study covered 2011-2018 period using the partial least squares (PLS) regression. The causality within and between mobile money development, which include the continuous surge in registered mobile money agents, rapid growth of annual of transactions as well as the overall yearly capitalization of mobile money transactions on the sub-Saharan African

financial sector development and economy. It was established that mobile money development has significant impact on economic growth, where GDP per capita was employed as the dependent variable, but the model results may largely depend on the variable used to proxy for economic growth. Also, a significant positive Pearson correlations was found between mobile money activities and financial development as well as GDP, and hence proving that the rise of mobile money activities like number of agents and volume of transactions has an effect on economic development in sub-Saharan African economies per our study model. Mobile money is an alternative mode of banking for the unbanked population; thus, it is not surprising that its expansion and easy access positively affects financial sector growth in the region. Hence, the adoption and development of electronic banking and payment affect the economy through various ways like trade, household consumption and remittances. Although, any policy initiative implemented to encourage and boost this type payment and banking method may not immediately affect the economy, however, the mobile money system facilitates the pooling of capital and it onward effective allocation to productive sectors, thus promoting and enhancing innovative development in the region.

Simon and Elias (2021) studied effect of electronic banking on commercial bank performance in Nigeria. The study adopted the ex post facto research design and covered the period from 2013 to 2017. E-views statistical tool was used for the analysis of the data obtained. The results of the study reveal that automated teller machine transactions have positive and significant effect on the performance of commercial banks in Nigeria while both point of sale terminal transaction and mobile banking transactions have negative and weak effects on the performance of the commercial banks in Nigeria. The study recommends that the management of banks should adopt such innovations in their operations as would shore up their profitability.

Ejinkonye and Okonkwo (2021) studied nexus between financial innovation and financial intermediation in Nigeria's banking sector. The specific objectives of this study were to examine the relationship between financial innovation (value of the automated teller machine, internet banking, mobile banking, point of sale transactions) and financial intermediation (commercial banks deposit mobilization) in Nigeria for the period 2009– 2018. This study was anchored on the financial innovation theory of Joseph Schumpeter, which states that technology creates opportunities for new profits and super profits as a result of increased investment by banks or financial institutions on products of innovation. The ordinary least square was used to estimate the parameters. The data used were extracted from the Central Bank of Nigeria statistical bulletin. The results showed that there is a positive and significant relationship between financial innovation (value of Automated Teller Machine) and financial intermediation (commercial banks deposit mobilization) in Nigeria; there is a positive but no significant relationship between financial innovation (internet banking) and financial intermediation (commercial banks deposit mobilization) in Nigeria; there is a positive but no significant relationship between financial innovation (mobile banking) and financial intermediation (commercial banks deposit mobilization) in Nigeria; and there is no positive and significant relationship between financial

innovation (point of sale transactions) and financial intermediation (commercial banks deposit mobilization) in Nigeria. The f-test result showed that financial innovations proxies jointly related significantly to commercial banks' deposits. The work concludes that financial innovations contributed to commercial banks' deposits in Nigeria.

Abiola et'al (2021) evaluated financial sector reform and economic development in Nigeria. The study employed several variables as a proxy for financial reforms and adopted the Granger causality test and vector error correction model to analyse the impact of the relationship for the period between 1980 and 2017. The findings revealed a negative long-run relationship between financial sector reform variables and HDI, except for owners' equity. The study also showed positive short-run dynamics between total savings to GDP and HDI. The study concluded that the recent improvements in HDI, which is the proxy for economic development, are not due to the financial sector's reforms; rather, some other influences in the economy could be responsible.

Emilio et 'al (2020) studied financial technology: review of trends, approaches and management. The aim of the study is to analyse this research subject worldwide during the period 1975– 2019. To this end, bibliometric techniques were applied to 2012 articles, obtaining findings of the productivity of scientific research, of the main thematic axes and their evolution. Scientific activity increased, mainly in the past decade, with 45% of publications. The main thematic areas were Business, Management and Accounting, Engineering, Social Sciences and Computer Science. Seven research lines were identified, aimed at analysing the aspects financial, economic, technology transfer, investment, innovation, partnerships and institutions and commercial. Future research lines should develop analyses on banking, financial services trade, territorial development, legal, management, research methodologies and the sustainability of financial technologies. It was verified that there is a growing and dynamic interest in scientific activity on financial technologies at an international level. The findings obtained are a complement to the knowledge of financial technologies and allow the relationship between science and technology to be established, and to inform the decision-making process.

Mardiana et'al (2020) evaluated analysis of point of sales (POS) information systems in SMEs with The black box testing and PIECES Method. The research objective was to test the functional level of the Point of Sales (POS) information system and to analyze the effectiveness of the POS information system. The research method tested the functional level of the system using the black box testing method and testing using the equivalent partitioning. The analysis of the effectiveness of the POS information system use the PIECES method. The analysis process was carried out by distributing questionnaires to 183 respondents about the effectiveness of the POS information system using six variables and testing the validity. The results of functional test research using the black box testing method are very satisfying because the test cases that have been tested show that there is no interface that is functionally invalid or error. The results of measuring the effectiveness of the POS information system using the PIECES method on the aspects of performance, information, economy, control, efficiency, and service are effective. The study concluded that POS

information system is in line with SMEs needs because it provides faster services in obtaining transaction receipts and sales report.

Agu et'al (2019) studied point of sale (POS) - adoption and challenges in Nigeria. This study examines some relevant standards and protocols for Point of Sale (POS) terminals and discusses POS services and their adoption within a conceptual framework. Data for the study were collected from general merchants (traders) business centers, restaurants/ eatery, supermarkets and others. The finding of this study showed that in spite of having POS terminals, most merchants still accept cash above POS. This is because according to the finding, POS deployment was involuntary as they were deployed by banks unsolicited. There should be increased awareness of consumers which will accelerate adoption of the POS terminals and card payment system.

Emeka et'al (2019) studied impact of electronic banking on financial inclusion in Nigeria. The study used the total number of automated teller machines and point-of-sale devices in Nigeria as proxies for electronic banking and the proportion of banked adult population to total bankable adult population in Nigeria as proxy for financial inclusion. The study adopted correlational and ex-post facto research designs with the aid of computer-based multiple regression analysis. It was observed that automated teller machines do not significantly impact financial inclusion while point-of-sale devices significantly impact financial inclusion in Nigeria. In line with the findings of the study, it is recommended that deposit money banks should remove the bottlenecks associated with the use of their automated teller machines and strive to meet international best practice. Also, more point-of-sale devices should be readily available and easily accessible by customers.

Al Ajlouni and Al-hakim (2018) evaluated financial technology in banking industry: challenges and opportunities. The paper focused at first place to shed light on this wave of development in financial industry that combined with high technology, it aims also to clarify the role of FinTech in the financial industry in general and banking sector in particular. The paper obtained its goals in two main phases, firstly; background and definition of the FiTech, in addition to outlining the current FinTech market segments and landscape and some alternative financing FinTech platforms will be discussed. In the second phase, we will identify the influence of FinTech on banking industry and the required response to face it. The paper suggested also some future research proposals about the effect of FinTech on the financial industry and banking sector in the Arab countries.

Mugdha and Neeraj (2018) studied Internet banking: a review (2002–2016). The study provides an overview of the changes as well as the ongoing research on internet banking. To identify relevant works, research databases were searched using 11 keywords. Only research papers on internet banking published in the last 15 years (2002–2016) were selected. The selected articles were further refined on the basis of country of origin, journal type, and research methods used for data analysis. Finally, 51 papers were selected on the basis of specific inclusion criteria for further analysis. These papers were grouped by research themes, and customer satisfaction with internet banking was identified as the most common theme.

Iriobe and Akinyede (2017) investigated effect of financial technology services on banks customers' satisfaction in Nigeria. The study adopted explanatory and casual research design. The population of the study comprised universities students in Nigeria out of which 5 universities were randomly selected. The primary data was collected through the administration of 250 structured questionnaires to the universities. Out of the 250 questionnaires administered, two hundred and forty-three (243) was properly filled and returned. SPSS (Statistical package of social sciences) was used to analyze and present the data collected. The result of the study revealed that accessibility of financial technology services, transaction cost, availability of technology service, operations of technology services and business effect bank's customer satisfaction and finally convenience and security effect bank's customer satisfaction It can however be concluded that the quality of financial technology have a positive significant effect on bank's customer satisfaction More so, the result from the questionnaires distributed showed that effective financial technology services helps to satisfy and retain customers and continual satisfaction leads to increase in the income generated by the banks.

Ranasinghe and Kosala (2017) evaluated impact of automated teller machines (ATMS) service on customer satisfaction: a study based on state banks in Sri Lanka. This research bridges the gap that exists in the current body of knowledge by investigating the ATM service qualities and their impact on customer satisfaction. It also examines the impact of demographic factors for the relationship between ATM service quality and customer satisfaction. Given these gaps in the literature, the research problem in this research is: The factors which influence on customer satisfaction with relation to the ATM service. To investigate the research problem, a pilot study involving 30 state bank customers was used to check the initial reliability and validity of the constructs in the questionnaire. The factor analysis was employed to refine the measurement items and test for reliability and validity. The study has used the primary data of customer satisfaction survey (N=385). The data was collected using a structured questionnaire designed to ascertain the satisfaction levels. Regression, ANOVA and T-test were used to identify significant factors and frequency analysis was used to analyze customer satisfaction. The ATM service qualities have a positive impact on the customer satisfaction and the demographic factors like age and educational qualification moderate the relationship between ATM service quality and customer satisfaction. This paper identified the significant factors which the banks may take care to enhance the customer satisfaction.

Carlos and Tiago (2017) studied literature review of mobile banking and individual performance. This study focus on analysing and synthesising existing studies and make recommendations to researchers and practitioners. This research examines 64 journal articles published between 2002 and 2016 in top journals. Following a comprehensive review of the literature, the authors propose a research agenda. The importance of use and individual performance has long been recognized by academics and practitioners in a variety of functional disciplines. The present review indicates that the topics of m-banking adoption and behavioural intention dominate the majority of research, but finds very few studies on post-adoption. The two most significant drivers of intentions to adopt m-banking are perceived ease of use and perceived usefulness. Considering several m-banking

definitions, the authors propose a new, broader definition that takes into account the technological changes that have occurred over time. M-banking is a service or product offered by financial institutions that makes use of portable technologies. This study assembles this diverse body of knowledge into a coherent whole. The authors expect that this review will be of benefit to anyone interested in m-banking research and that it will help to stimulate further interest. In order to advance research in m-banking, future research should consider other theories uncovered in our findings.

3.0   Methodology

The study's research design is based on an ex-post facto experimental research design. This study make use of *ex-post facto* research design. According to Ofor (2022) an *ex-post facto* research design is a quasi-experimental research design that occurs where the variable under study cannot be manipulated or controlled by the researcher but rather the data about on the variables under study already exist in records. We employ *ex-post facto* research design due to its special characteristics which are the event that has already occurred hence there is no need for manipulation or alteration and it is also less costly and less time consuming. This design was utilized due to the nature of data involved. The population of the study is the 14 quoted deposit money banks in Nigeria, while the sample size of the company is 10 deposit money banks in Nigeria. The study adopted purposive sampling technique in selecting the sample size. The data for this study were collected from the Statistical Bulletins of the Central Bank of Nigeria. Furthermore, the study's time frame is from 2012 to 2023.

Model Specification
This study intend to adapt the model in the study of Ejinkonye and Okonkwo (2021) which used the function CBD = f(ATM, IB, MB, POS)

Where:

 CBD   = Commercial banks deposit

ATM   = Automated teller machine

IB   = Internet banking

MB   = Mobile banking

POS   = Point of sale

μ   = error term

The model was modified to suit the variables used. Hence the model for the study is anchored on the specific objectives.

NAPS$_t$ = f(VPOST, VIBT,VATMT,) …………………………………..…..1

This can be econometrically expressed as

$$\text{NAPS}_{it} = \beta_0 + \beta_1 \text{VPOST}_{it} + \beta_2 \text{VIBT}_{it} + \beta_3 \text{VATMT}_{it} + \mu \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2$$

Equation 1 and 2 are the linear regression model used in testing the null hypotheses.
Where:
NAPS = Net Asset Per Share
VPOST = Value of Point of Sale Transactions
VIBT = Value of Internal Banking Transactions
VATMT = Value of Automated Teller Machine Transactions
β_0 = Constant
β_1 - β_4, = are the coefficient of the regression equation
μ = Error term
t = is the year (time series)

Apriori Expectation: The apriori expectation is that increase in the value of the independent variables should lead to increase in the dependent variable.

Decision Rule

Accept Null if P-Value is greater than 5% and reject Alternate

Accept Alternate if P- Value is less than 5% and reject Null

Analysis and Discussion

Descriptive Analysis of Data

The descriptive analysis fi the data is shown below in Table 4.1.

Table 4.1 Descriptive Analysis

	NAPS	VPOST	VIBT	VATMT
Mean	12.38052	9.243000	9.292185	9.866435
Median	10.78775	9.263153	8.436625	9.810152
Maximum	66.75347	10.61316	11.89413	10.51386
Minimum	-23.85558	7.685400	7.499238	9.297758
Std. Dev.	14.96209	0.892824	1.748020	0.376754
Skewness	0.487050	0.070945	0.615520	0.396676
Kurtosis	5.125058	2.048616	1.533584	1.985553
Jarque-Bera	27.32370	4.626326	18.32917	8.292550
Probability	0.000001	0.098948	0.000105	0.015823
Sum	1485.663	1109.160	1115.062	1183.972

| Sum Sq. Dev. | 26639.85 | 94.85892 | 363.6134 | 16.89128 |
| Observations | 120 | 120 | 120 | 120 |

Source: Eviews 10 Output (2023)

The descriptive analysis for NAPS, which represents point of sales transactions, shows a mean value of 12.38052, indicating that, on average, point of sales transactions significantly contribute to the firm survival of deposit money banks in Nigeria. The maximum value of 66.75347 suggests that there are periods of exceptionally high contributions, while the minimum value of -23.85558 reveals instances where point of sales transactions negatively impacted firm survival. The standard deviation of 14.96209 reflects a high level of variability in point of sales transaction data, indicating inconsistent contributions to firm survival over time. The skewness of 0.487050 suggests that the distribution of NAPS is moderately skewed to the right, indicating a longer tail on the right side of the distribution. The kurtosis of 5.125058 suggests that the distribution is leptokurtic, meaning it has a sharper peak and heavier tails than a normal distribution, indicating occasional extreme variations in point of sales transactions.

For VPOST, which represents internet banking transactions, the mean value of 9.243000 suggests a moderate contribution of internet banking transactions to the firm survival of deposit money banks. The maximum value of 10.61316 and minimum value of 7.685400 indicate a narrower range of variation compared to NAPS, with internet banking transactions consistently contributing positively to firm survival. The standard deviation of 0.892824 indicates relatively low variability, suggesting that the contributions of internet banking transactions to firm survival are more stable. The skewness of 0.070945 shows that the distribution is nearly symmetrical, indicating a balanced distribution of values around the mean. The kurtosis of 2.048616 suggests that the distribution is close to normal, indicating a moderate peak and typical tails, which implies a consistent impact of internet banking transactions on firm survival.

Regarding VIBT, representing automated teller machine (ATM) transactions, the mean value of 9.292185 suggests a positive average contribution of ATM transactions to the firm survival of deposit money banks. The maximum value of 11.89413 and minimum value of 7.499238 indicate that ATM transactions vary but generally have a positive influence on firm survival. The standard deviation of 1.748020 shows moderate variability, suggesting that the impact of ATM transactions on firm survival fluctuates but remains generally positive. The skewness of 0.615520 indicates that the distribution is moderately skewed to the right, with a tendency towards higher values, while the kurtosis of 1.533584 suggests a platykurtic distribution, indicating a flatter peak and thinner tails than a normal distribution, which may suggest a more even distribution of ATM transaction impacts.

For VATMT (automated teller machine transactions), the mean is 9.866435, reflecting a moderate and stable contribution of ATM transactions to firm survival. The maximum value is 10.51386, and the minimum is 9.297758, indicating a very narrow range of ATM transaction effects. The

standard deviation of 0.376754 is the lowest among the variables, showing minimal dispersion around the mean and suggesting that ATM transactions are very consistent across the banks. The skewness of 0.396676 indicates a slight right-skew, where most banks have ATM transaction volumes slightly below the mean. The kurtosis of 1.985553 is slightly below 3, indicating a distribution close to normal, with data points moderately concentrated around the mean and fewer outliers.

Test of Hypotheses

The hypotheses in the study were analysed using Panel Least Square Regression with cross-sectional Seemingly Unrelated Regression. The technique was employed because the analysis involved multiple regression models estimated simultaneously, with consideration for the potential correlation between the residuals (errors) of these equations.

Table 4.2 Test of Hypotheses using Panel Least Square Regression
Dependent Variable: NAPS
Method: Panel EGLS (Cross-section SUR)
Date: 09/06/24   Time: 02:51
Sample: 2012 2023
Periods included: 12
Cross-sections included: 10
Total panel (balanced) observations: 120
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
VPOST	-4.222911	0.959616	-4.400627	0.0000
VIBT	0.310845	0.333834	0.931136	0.3537
VATMT	22.78946	3.416221	6.670955	0.0000
C	-176.3192	22.72509	-7.758791	0.0000

Weighted Statistics

R-squared	0.937712	Mean dependent var		2.376828
Adjusted R-squared	0.936101	S.D. dependent var		9.383202
S.E. of regression	1.014216	Sum squared resid		119.3215
F-statistic	582.1014	Durbin-Watson stat		1.749233
Prob(F-statistic)	0.000000			

Source: Eviews 10 Output (2023)

The results presented in Table 4.2 reflect the output of a Panel Least Square Regression analysis

examining the effects of different types of financial innovations—point of sales transactions (VPOST), internet banking transactions (VIBT), and automated teller machine transactions (VATMT)—on the survival of deposit money banks in Nigeria. The dependent variable, NAPS, represents firm survival, and the adjusted R-squared value of 0.936101 indicates that approximately 93.61% of the variability in firm survival can be explained by the independent variables included in the model. This high adjusted R-squared value suggests a strong explanatory power of the model. The Prob(F-statistic) = 0.000000 is less than 0.05, indicating that the overall model is statistically significant at 5% level of significance, implying that the financial innovations considered jointly have a significant impact on firm survival.

Test of Hypothesis I
H01: Point of sales transactions have no significant effect on firm survival of deposit money banks in Nigeria.

The coefficient for VPOST is -4.222911, which is statistically significant at the 5% level, with a p-value of 0.0000. The negative coefficient suggests that an increase in point of sales transactions is associated with a decrease in firm survival among deposit money banks in Nigeria. This result leads to the rejection of the null hypothesis (H01), which posits that point of sales transactions have no significant effect on firm survival. Instead, the findings indicate that point of sales transactions have a significant and negative effect on the survival of deposit money banks, implying that relying heavily on POS transactions could potentially undermine the sustainability of these banks. This negative effect may be attributed to increased operational costs, lower profit margins, or heightened competition in the market, which could erode the profitability and longevity of these banks. Since the p-value (0.000) is less than 0.05, we accepted the alternate hypothesis that Point of sales transactions have a significant and negative effect on firm survival of deposit money banks in Nigeria (β = -4.222911, p = 0.0000).

Test of Hypothesis II
H02: Internet banking transactions have no significant effect on the firm survival of deposit money banks in Nigeria.

The coefficient for VIBT is 0.310845, with a p-value of 0.3537, indicating that internet banking transactions do not have a statistically significant effect on firm survival at conventional significance levels. The positive coefficient suggests that an increase in internet banking transactions might be associated with an increase in firm survival, but this relationship is not strong enough to be considered statistically significant. Consequently, the null hypothesis (H02), which states that internet banking transactions have no significant effect on firm survival, cannot be rejected. This result suggests that internet banking transactions do not significantly influence the survival of deposit money banks in Nigeria. It is possible that while internet banking offers some benefits, such as convenience and reduced transaction costs, these benefits may not be substantial enough to impact the overall survival of the banks, or other unobserved factors may be at play.

Since the p-value (0.3537) is greater than 0.05, we accepted the null hypothesis that Internet banking transactions have a positive but non-significant effect on firm survival of deposit money banks in Nigeria ($\beta = 0.310845$, $p = 0.3537$).

Test of Hypothesis III

H03: Automated teller machine transactions have no significant effect on firm survival of deposit money banks in Nigeria.

The coefficient for VATMT is 22.78946, which is highly statistically significant with a p-value of 0.0000. The positive and significant coefficient indicates that an increase in automated teller machine transactions is strongly associated with an increase in firm survival. This result leads to the rejection of the null hypothesis (H03), which posits that automated teller machine transactions have no significant effect on firm survival. Instead, the findings reveal that ATM transactions have a significant and positive effect on the survival of deposit money banks in Nigeria. This positive impact could be due to the widespread adoption and use of ATMs, which provide customers with easy access to banking services, thereby enhancing customer satisfaction, loyalty, and ultimately contributing to the long-term viability of the banks. Since the p-value (0.0000) is less than 0.05, we accepted the alternate hypothesis that automated teller machine transactions have a significant and positive effect on firm survival of deposit money banks in Nigeria ($\beta = 22.78946$, $p = 0.0000$).

Discussion of Findings

The finding that point of sale (POS) transactions have a significant and negative effect on the survival of deposit money banks in Nigeria aligns with research from Ejinkonye and Okonkwo (2021), who found that POS transactions had an insignificant impact on deposit mobilization in Nigerian banks. Similarly, Simon and Elias (2021) observed weak effects of POS terminals on the performance of commercial banks in Nigeria, emphasizing the low contribution of POS systems to profitability. This contrasts with studies by Nasution et al. (2022) and Alhassan et al. (2021), which highlighted the role of financial technologies, including POS, in enhancing financial inclusion and economic development in ASEAN and Sub-Saharan Africa, suggesting that the effectiveness of POS systems may vary depending on regional financial infrastructure and user adoption levels.

The finding that internet banking transactions do not have a significant effect on firm survival contradicts research by Misati et al. (2022), who found that internet banking positively influences financial deepening and economic growth, particularly in Kenya. However, Mbizi et al. (2022) noted that, although internet banking has a positive relationship with financial performance, the effect was not as strong as that of other financial technologies like ATMs. Additionally, Domeher et al. (2022) found that financial inclusion, partially driven by internet banking, mediated the relationship between banking innovations and economic growth in sub-Saharan Africa. Adiga et al. (2022) also pointed out that fintech, including internet banking, significantly impacts return on

assets (ROA) and return on equity (ROE) of deposit money banks in Nigeria, suggesting that the findings might depend on which financial metrics are being considered.

In contrast, the finding that automated teller machine (ATM) transactions have a significant and positive effect on firm survival aligns with studies by Mbizi et al. (2022) and Simon and Elias (2021), who both found that ATM transactions significantly improved the financial performance of commercial banks in Zimbabwe and Nigeria, respectively. These findings are supported by Ejinkonye and Okonkwo (2021), who noted that ATM usage was positively related to deposit mobilization in Nigeria, reflecting its importance in enhancing customer access to banking services. Similarly, Nasution et al. (2022) observed that ATMs were a significant contributor to financial inclusion and economic growth in ASEAN-5 countries, reinforcing the notion that widespread access to ATM services can improve the sustainability of financial institutions by increasing customer transactions and enhancing liquidity management.

Conclusion and Recommendations

The survival of deposit money banks in Nigeria is heavily influenced by the adoption and integration of various financial innovations, which are increasingly becoming crucial in the competitive banking sector. This study investigated the effects of point of sales transactions, internet banking transactions, and automated teller machine transactions on the firm survival of deposit money banks in Nigeria. The findings revealed distinct impacts of these financial innovations on bank survival, reflecting the complex dynamics of the financial landscape.

The study found that point of sales (POS) transactions have a significant and negative effect on the survival of deposit money banks in Nigeria. This negative relationship suggests that an increase in POS transactions is associated with a decrease in firm survival among these banks. This result may be due to the operational challenges and costs associated with maintaining POS systems, including transaction fees, hardware costs, and potential fraud risks. Additionally, POS transactions typically involve lower margins compared to other banking services, which might lead to reduced profitability for banks that rely heavily on this mode of transaction. Moreover, the competitive pressure to provide extensive POS services at low or no cost to merchants could further strain the financial health of these institutions, potentially leading to their decreased survival chances.

In contrast, internet banking transactions were found to have no significant effect on the survival of deposit money banks in Nigeria. Despite the widespread adoption of internet banking and its potential benefits, such as reduced operational costs and enhanced customer convenience, the study indicates that these advantages are not substantial enough to significantly influence the overall survival of the banks. One possible explanation is that internet banking, while offering convenience, may not generate enough revenue or customer loyalty to offset the costs of developing and maintaining these platforms. Additionally, the high level of competition in the

digital banking space might dilute the potential positive effects of internet banking on bank survival, as customers can easily switch between banks offering similar online services.

On the other hand, automated teller machine (ATM) transactions were found to have a significant and positive effect on the survival of deposit money banks in Nigeria. The strong positive impact of ATM transactions on bank survival can be attributed to the widespread and consistent use of ATMs across the country. ATMs provide customers with easy and round-the-clock access to cash and other banking services, which enhances customer satisfaction and loyalty. Furthermore, ATMs serve as a significant revenue stream for banks through transaction fees, especially from non-customers. The convenience and reliability of ATMs likely contribute to increased customer retention and, consequently, the long-term viability of the banks that invest in this technology.

In conclusion, the findings from this study underscore the varied impact of different financial innovations on the survival of deposit money banks in Nigeria. While POS transactions may pose a risk to bank survival due to their associated costs and competitive pressures, ATMs appear to play a crucial role in sustaining banks by enhancing customer access and generating revenue. Internet banking, despite its benefits, does not significantly impact bank survival, possibly due to its limited revenue generation or the high level of competition in the digital banking space. These insights highlight the importance of strategic investment in financial innovations that not only meet customer needs but also contribute positively to the financial health and longevity of deposit money banks in Nigeria.

Based on the findings of the study, the study recommends that:

1) To Bank Executives: Reduce the reliance on point of sales (POS) transactions as a primary service offering. Instead, focus on optimizing and diversifying revenue streams to mitigate the negative impact on bank survival.

2) To Digital Banking Teams: Enhance the revenue-generating potential of internet banking platforms by introducing value-added services and loyalty programs that can differentiate the bank from competitors and improve customer retention.

3) To ATM Operations Managers: Continue to expand and maintain a robust network of automated teller machines (ATMs) to capitalize on their significant positive effect on bank survival, ensuring that ATMs are accessible, reliable, and meet customer demand efficiently.

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