FINANCIAL INNOVATION AND FINANCIAL PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

This study assessed the effects of automated teller machines, points of sale, and NIBSS quick payment settlement on bank performance in Nigeria for the period 2012 to 2020. It cut across 36 quarters, as well as the degree of connection between these factors and bank performance in Nigeria. Two primary estimation techniques were employed in the study, the unit root test and the autoregressive distributed lag model. Moreover, descriptive and inferential statistics were used. The quarterly time series data for the study on ATM, POS, NIBSS, and ROI were sourced from the Central Bank of Nigeria and the Statistical Bulletin of the Nigeria Deposit Insurance Corporation. Point of sale and the Nigerian Integrated Banking System (NIBSS) have positive and significant influence on bank performance, while automated teller machines and point of sale have a negative and little impact. The study's findings indicate that financial innovation improves bank performance.

Keywords: *Financial Innovation; Financial Performance; Automated Teller Machine; Point of Sales; NIBSS*

Introduction

Banks and non-bank financial institutions are both a part of the financial sector in every economy. For there to be ongoing economic growth and advancement, these sectors must be dependable, powerful, capable, and viable. The Nigerian banking sector has undergone a few modifications that would eventually result in a more robust financial framework. The use of data and correspondence innovation (ICT), which is crucial to the expansion and profitability of the financial sector, is the main component of the improvements (Omotoso, Dada, Adelowo, and Siyanbola, 2012). The financial market has successfully assisted the financial sector's long-term growth by making cutting-edge products and services widely accessible. These include things like charge cards, Visas, ATM cards, POS systems, mobile banking, NIBSS quick payment payback, and other products that interact with electronic payment methods and occasionally take the place of using actual money. Also, these products draw a larger user base from the banking sector, which restrains the growth of actual money (Ibekwe, 2021).

The creation of new financial products including securitized resources, subordinates, climate subsidiaries, strange money contracts, multidimensional investments, trade-exchanged assets,

privately valued, retail-organized goods, and others is referred to as "item innovation." The approach that is most usually utilized to develop new types of financial organizations, such as discount broking firms, internet banking, speciality Visa corporations, and so forth, is institutional innovation. Its broad spectrum of technologies helps to advance loan repayment and asset acquisition strategies, which, at long last, enables quick customer service. They also take into account innovations that give borrowers access to more credit and give financial institutions a creative, affordable way to raise money (Tahir, Shah, Arif, Ahmad, Aziz and Ullah, 2018). The ability to pay is vital to the efficient running of an economy's banking and real estate sectors. A successful payment system facilitates both the speedy and secure exchange of goods and services, as well as the prompt settlement of financial transactions. These financial innovations have gained increased global recognition over the past few years, which has resulted in the development of new financial instruments, measurements, services, institutions, market sectors, and other things (Tahir, Shah, Arif, Ahmad, Aziz and Ullah, 2018).

According to the World Bank Global Payments Systems Study, there were 4.7 million charge and Visa cards in use in 2010, and there were approximately 34 million by 2015. There were 10 million flexible money accounts in the country during the same time period, with a CAGR of 49% and 27%, respectively. Electronic banking, also known as web banking or e-banking, which has rapidly expanded in recent years, offers a variety of banking services, including direct deposits, automated teller machine (ATM) services, electronic asset transfers (EFT), pre-programmed charge payments, and point-of-sale transactions (POS). The Nigerian banking industry has seen significant development, especially in recent years. Banks now provide their customers better, speedier services. Consumers can access financial services from the comfort of their homes thanks to automated teller machines (ATMs), the internet, and mobile banking offices, which have eliminated the majority of the banking lobby spaces in Nigerian banks and saved a significant amount of employee hours. This is a result of the enormous strain that shifting economic conditions, technological advancements, and customer demands for high-quality products are putting on firms. This trend benefits the banks' financial status as many of their web-based products generate significant revenue from the services they provide to customers (Ibanichuka and Oko, 2018).

Because to the yearly billions of transactions, a significant amount of electronic information and sophisticated money move via this financial innovation payment network. The payments infrastructure is a particularly popular target for programmers because to the availability of private information that enables the exchange of billions of naira in transactions every year. This article focuses on determining the impact that financial innovations have on the financial performance of Nigerian deposit money institutions.

Literature Review

Financial Innovation

As a strategy to reduce system costs and the volume of money flowing throughout the country, financial innovation inevitably arose. The usage of electronic payment systems like NIBSS, ATM, POS, and others is a vital vehicle or gateway for the spread of financial innovation. The CBN seeks

to help banks with ordinary financial operations and satisfy customer needs without really having to be in the banking lobby by encouraging financial innovation.

According to Lerner and Tufano, the process of demonstrating new financial instruments, developments, institutions, markets, cycles, and plans of action before endorsing them is known as financial innovation. This is done while keeping in mind the innovative application of preexisting concepts in a different market environment (2011). Reviving something that was either new or previously existent is the process of innovation. A corporate visionary views creativity as a crucial component of innovation (Gartner as referred to in Chukwunulu, 2019). Innovations are changes that are made throughout the ideation, assessment, decision-making, and implementation of new or improved goods, services, or projects. They are created with the full intention of boosting the quantity, emphasizing the nature, and enhancing the application of value principles (Ajide, 2016). For innovation to succeed, both manufacturer revenue and customer value must increase (Hussain, Asif, Ahmad and Bilal, 2011). Findings from data innovation often lead to innovations with major economic effects (Arnoud and Matej, 2010). So, it is possible that changes to the banking sector influenced Nigeria's financial innovations. Ajide (2016) asserts that the expansion of financial innovation is being fueled by a sizable convergence of financial innovations.

Frame and White's definition of financial innovation as cited by Melnik and Eran, (1994) define financial innovation as "technology improvement in banking that results in the introduction of new goods, services, cycles, or instruments that considerably reduce cost and risk while also better serving members' interests within a financial system" (A financial innovation has to be deeply rooted in the past, provide significant administrative delivery improvements, and boost profitability. Financial innovation is seen as the emergence of new liquid assets that partly replace conventional money in experts' portfolios. Financial innovations often evoke thoughts of numerous modifications to the financial system that add to its complexity, globalization, growth, and enlargement.

Innovative PC-based, non-paper payment techniques are used in Nigerian finance. The e-payments system includes automated teller machines (ATM), point-of-sale (PoS) terminals, online banking, e-wallets, portable payment wire transfers, and other technologies. Banks have come to the conclusion that in order to remain internationally competitive, they must embrace innovation, repackage goods in ways that appeal to consumers, and utilize it as a competitive advantage for their core competencies. Some of the important advantages of electronic banking in Nigeria include electronic asset move (EFT), brilliant card or electronic tote (using a point-of-sale system), internet banking, ATM, phone banking, and PC banking (Idowu, 2013).

Bank Performance

The language used reflects its capacity to generate revenue. The decision-makers at a bank must balance the challenging trade-offs between growth, return, and risk, preferring the use of risk-averse strategies in order for the organization to succeed (Kimball, 1998). The three sorts of bank presentations are conventional, economic, and market-based measures (Agbeja, Adelakun, and Olufemi, 2015). Stern and Stewart's Economic Value Added (EVA) model, for instance, assesses whether a business generates an economic rate of return higher than the cost of borrowing money

to increase its market value while accepting the open door cost for investors to keep wealth in a bank (Worthington and West, 2001). There have been a lot of observational studies on bank performance across the world, especially in corporate banks, but not much has been done in Nigeria.

Determinants of Bank Performance

Bank execution, in terms of profitability, refers to a bank's capacity to produce more income than it spends on speculative operations. Positive shocks ought to be readily managed with the aid of a strong and active banking sector. The internal and external variables that impact bank profitability are often discussed. These internal determinants are referred to as explicit bank factors, and they have an impact on a bank's profitability. Those who have financial reasons may be divided into two groups: those with and those without. Financial statement components that impact bank profitability include the cost of the executives, advance organization and bank credit, bank deposit synthesis, market loan fees, bank procurement and working productivity, changes in capital, and liquidity the board. The quantity of bank offices, bank size, and bank area are a few of the non-financial statement features that influence bank profitability, according to Tarawneh (2008), who looked at the presentation of Oman business banks as a financial ratio. The factors in the external determinants describe the economic and regulatory conditions that have an impact on the operations and performance of financial institutions, not bank executives. They consist of a limited budget, a dire circumstance, and concentration, a stake in the activity, market growth, and ownership. Petriaa, Caprarub and Ihnatovc, (2015) concentrated their study on the key variables affecting bank profitability in the EU27 from 2004 to 2011. They used ROA and ROAE as mediators for bank profitability and separated the review into two key groups: explicit bank (inward) and explicit industry and macroeconomic (outward) components. The findings demonstrated that a variety of elements, such as executive productivity, credit and liquidity issues, market focus and competitiveness, and economic growth, all had an effect on bank profitability, including ROAA and ROAE.

Theoretical Review

This study used the task technology fit and Schumpeter theory of innovations. Task Technology Fit (TTF) is an idea that Goodhue and Thompson developed in 1995. If the capabilities of data communication and innovation (ICT) fit the tasks that the client must do, it is believed that information technology will surely have a substantial influence on individual performance (Goodhue and Thompson, 1995). This implies that the value of financial innovation is concentrated on the customer's potential and how well it may assist the client in achieving a certain objective. A few factors, including task-innovation fit, may be impacted by quality, findability, approval, similarity, usability/preparation, creation practicability, system dependability, and client interactions, according to the theory. This model is helpful for this assessment given the diversity of data systems, including electronic trading systems, and when combined with or utilized in addition to other models found utilizing data systems discoveries. The fundamental tenet is that successful data systems need collaboration between business operations and data innovation (Zigurs and Buckland, 1998). Some of the innovations in the banking sector include point-of-sale systems, automated teller machines, and mobile banking services. This theory holds that in order

to satisfy the goals of the banking industry, e-payment channels must be simple to use and able to cater to the specific requirements of each individual customer. The study backs up this claim since using the ATM, portable banking, or, surprisingly, point-of-sale (POS) services offered by Nigeria's banking system does not need the usage of new credentials.

Schumpeter is credited for creating the innovation hypothesis in 1934. Entrepreneurs who run their own businesses have a possibility of succeeding, according to the author. This, according to Schumpeter, is especially clear among independent thinkers or those involved in research and development design. Due of the tremendous earnings, other groups of copycats would emerge and lower the invention's profits.
However Schumpeter noted that before equilibrium could be reached, a new economic cycle formed as a consequence of a fresh arrangement. In this manner, the economy grows on every sixteenth day of the year, and the financial industry is no exception. The basic tenet of this strategy is that entrepreneurial endeavors aid in the search of new freedoms and monetary gain. The author also contends that innovation and advancement are unconnected. In contrast to innovations, which are generally considered as the variables fostering growths in a self-spreading system, Schumpeter (1934) described development as the hunt for novel techniques that entrepreneurs may employ to achieve this. This hypothesis holds that creative individuals are ready and willing to take on activities alone. According to Schumpeter (1934), innovations are always occurring in business, thus institutions need to be aware of them.

Empirical Review

Akani and Obiosa (2020) examined the impact of financial innovation on the profitability of deposit money banks in Nigeria. The review's overall goal was to evaluate how financial innovation affects profitability, but its particular goals were to examine how advancements like automated teller machines, electronic asset transfers, web banking, mobile banking, and data communication initiatives affect return on investment for banks that accept deposits. Four hypotheses were developed for the study, which used board information regression to evaluate auxiliary data taken from the fourteen companies' annual reports and records between 2009 and 2017. The free elements were ATDs, electronic asset transfers, online and mobile banking, data correspondence speculation, and return on value innovation; return on value was the determining factor. The review's findings revealed that while internet banking, mobile banking, and data correspondence innovation initiatives have good links with return on value, automated teller machines and electronic asset transfers had negative associations. Deposit money banks should make investments in technological improvements, accept financial innovations, and update their banking procedures by moving to organization banking and portable banking in order to increase their market share and solidify their positions.

Siano, Raimi, Palazzo, and Panait (2020) examined new trends in financial incorporation, impediments, and variables affecting portable banking with a focus on Nigeria as part of an innovative initiative to increase financial consideration in sub-Saharan Africa (SSA). The authors combine a subjective meta-combination (QMS), an interpretivist research perspective, and pertinent information from publications of the Central Bank of Nigeria on new financial consideration patterns to offer a logical tool for comprehending the subject of the request.

According to the research, three significant elements have emerged as mobile banking's main proponents in Nigeria: the simplicity of using mobile devices for personal banking activities, such as getting timely SMS (short message service) alerts of clients' financial activities (including deposits and withdrawals);

In 2019, Ibrahim and Daniel carried out research on the impact of electronic banking on the expansion of the Nigerian banking sector. Instruments for data collection, analysis, and polling were used in philosophy. Regression and relationship studies were used after a thorough investigation, and it was determined that electronic banking had both positive and negative effects on the Nigerian banking industry. On the plus side, it has greatly enhanced the way assistance is delivered; yet, it is susceptible to electronic fraud and unauthorized data access.

Between 2009 and 2018, Okafor (2019) analyzes the development of financial innovation in the Nigerian banking sector. The automated teller machines (ATM), point of sale terminals (POS), web/internet payment (WEBP), and mobile compensation (MBP) channels were specifically evaluated in the study using pattern analysis and illuminating metrics. The findings showed that, from 2009 to 2018, the four innovation channels together advanced at an average rate of 112.63% in volume and 296.47% in value. The amount and frequency of check exchanges, on the other hand, decreased over time, with patterns showing drops of 82.89% and 69.08%, respectively. The quantity and volume of check transactions decreased by 13.73% and 7.13%, respectively, on an annual average basis. In the study, fraud and fakery case studies from both before and after financial innovation were examined (2000–2008 and 2009-2018).

From 1,127.67 (pre-innovation) to 8,735.22 cases, we discovered that there were, on average, 674.63% more occurrences of fraud and imitation (post-innovation). In summary, from before to after financial innovation, the amount of money involved and the overall hardship anticipated in fraud increased by 53.43% and 34.20%, respectively. The paper claims that financial innovation, which already dominates the Nigerian banking industry, has the potential to quickly displace traditional exchange media.

The investigation of Ibanichuka and Oko (2019) investigates how financial performance of the specified banks on the Nigerian Stock Exchange and electronic scams are related Profit from venture served as the financial execution middleman, despite point of sale fraud serving as the technological fraud middleman. For the review, ex post facto research was used. The research employed extensive supplemental data that were provided between 2013 and 2017 by the Central Bank of Nigeria (CBN), the Nigeria Deposit Insurance Corporation, and the Nigerian Electronic Fraud Forum. Image of importance, Pearson Highlight Moment Correlation, multivariate regression, and econometric tests including unit roots, granger causality test, and cointegrated test were used to assess the data in a board information situation. The findings show that there is a weak and negative link between the traits of financial execution and the channels of electronic fraud. The analysis reveals no unambiguous link between electronic fraud and the specified business banks and Nigeria's current financial situation.

In the UK, Mainelli and Mills (2018) looked at financial innovation and sensible growth. The examination was structured using a content analysis and a theoretical audit. It argues that financial

systems can be tools for advancing the Sustainable Development Goals, but they must also demonstrate their independence. Particularly, the advancements of financial estimations and financial construction could provide maintainability with excessively large benefits.

According to Muoghalu, Okonkwo, and Ananwude's (2018) study, electronic banking fraud has a considerable negative impact on the financial performance of Nigerian deposit money institutions. The study focuses primarily on how electronic banking fraud affects banks' return on resources, return on value, premium pay, and non-premium pay when depositing money via automated teller machines, flexible banking, point-of-sale terminals, and the internet. The primary administrative office of the financial system has complete information about fraud on the various electronic banking channels: Nevertheless, when it began doing so in 2013, the Central Bank of Nigeria only allowed evaluations to go back four years. Using Granger causality analysis, the influence of fraud on numerous digital banking and financial implementation channels was investigated, and the regression condition was evaluated using the Ordinary Least Square (OLS) method. According to the review's findings, although fraud on automated teller machines, mobile banking, and the web had minimal influence on banks' return on resources, return on value, and non-premium pay, it had a significant negative impact on premium pay for point-of-sale terminals.

Taiwo and Agwu (2017) examined how e-banking impacted the productivity of Nigerian commercial banks. By conducting surveys among a workforce of four carefully vetted banks, significant data was acquired (Ecobank, UBA, GTB and First bank). When the data was analyzed using Pearson connections, it was shown that the introduction of electronic banking in Nigeria has improved banks' functional competency when compared to the era of conventional banking. Customer loyalty, bank strength, revenue, and capital bases have all increased. Because banks are more profitable when their customers are actively participating in their electronic exchanges, it was claimed that the addition of new channels to their e-banking operations significantly improved bank exhibitions.

Ibenta and Anyanwu (2017) investigated the relationship between financial innovation and the competence of Nigeria's banking sub-sector using one of the country's four main e-payment methods -
ATM, Point of Sale, Internet, or Mobile Banking. The analysis revealed that the proficiency ratios of Nigerian deposit money institutions were significantly impacted by financial innovation items.

From 2006 to 2014, Nkem and Akujinma (2017) explored the influence of financial innovation on deposit money bank efficiency in Nigeria, as well as the relationship between financial innovation and bank competence. The Central Bank of Nigeria's formal notification included the review's optional period. The factors were put through the unit root test to examine whether they had any stationarity deformities induced by previously unknown series information. To study the link between the relevant components, a multivariate regression model was developed and evaluated. Although web/web and mobile banking are strongly connected, only web/web has been proved to be fundamentally related, while the value of exchange on ATMs and POSs is inconsistent in its relationship to productivity%. The value of exchange on ATMs, the online, Pos machines, and m - banking all have an impact on the effectiveness% of Nigerian deposit money banks, according

to the Granger Sway Analysis. Yet, the investigation's findings demonstrated that bank proficiency ratios had a considerable impact on the value of ATM transactions.

Njenga, Kiragu, and Opiyo (2015) evaluated the impact of financial innovation on Kenyan Savings and Credit Co-operative Societies' financial performance (SACCOs). A cross-sectional study research design and defined inspection approach on a semi-organized poll were utilized to collect information for the review, with 30 of the 56 dynamic SACCOs operating in Nyeri, Kenya, as of 2013. Total financial execution was linked to phone banking (62%), internet banking (83%), and electronic assets transfer (78%), according to rate recurrence, model wellness (R2), ANOVA, and relapse coefficients. According to theoretical testing, 95% of people use phone banking, whereas just 0.032 percent use internet banking. The study showed a significant association between financial trends and the financial viability of SACCOs. According to similar surveys, phone banking and online banking were the primary drivers of SACCO financial success.

Methodology

This study employed *ex-post* facto research methods and focused on financial institutions in Nigeria. The study adapts the model used by Ibanichuka and Oko (2019) which is stated as follow:

$$ROI = f\ (POS) ---------------------------1$$

The model was adjusted by adding additional explanatory factors to create a complete model capable of capturing the study's purpose. As a result, the study includes NIBSS quick payment and ATM factors.

The proposed model for the study is therefore stated as:

$$ROI = f\ (NIBSS, ATM, POS) ------------------------- 2$$

ROI is the Return on investment

NIBSS is the Nigeria Inter-bank Settlement System,

ATM is the Automated teller machine,

POS is the Point of Sale,

f = functional term

To express econometrically, equation 1 is represented as follows:

$$ROI = \alpha_0 + \alpha_1 NIBSS_t + \alpha_2 ATM_t + \alpha_3 POS_t + \mu_t --------------3$$

Where:

α_0 is a constant which is the value of dependent variable when all the independent variables are held constant.

$\alpha_1 - \alpha_3$ is the regression coefficients of $NIBSS, ATM, POS$. It determines how much each of the explanatory variables (i.e. $NIBSS,\ ATM,\ POS$) contribute to Financial performance of DMBs
μ_t is the stochastic error term.

The primary estimate approach in this study will be regression analysis in the form of a co-integration test using the auto-regressive distributional lag (ARDL). The issue of erroneous regression must be addressed by utilizing the time series characteristics of the data set. The Augmented Dickey-Fuller (ADF) unit root test was used to determine if the data satisfied the time series attribute of stationarity.

Data Analysis and Discussion

The descriptive statistics for the data series used in the investigation were shown in table 1.

Table 1: Descriptive Result

	ROI	ATM	POS	NIBS
Mean	-0.036689	2.772534	1.684387	3.773309
Median	-0.034373	2.846112	1.562740	3.695303
Minimum	-0.823909	1.796505	0.270764	2.486738
Maximum	0.673021	3.332994	3.473136	4.472618
Std. Dev.	0.405387	0.457864	1.051927	0.476911
Skewness	0.045388	-0.560800	0.219294	-0.393755
Kurtosis	2.185083	2.154674	1.593997	2.958100
Jarque-Bera	1.008494	2.958848	3.253806	0.932891
Probability	0.603960	0.227769	0.196537	0.627228
Observations	36	36	36	36

Source: Author's Computation (2023), E-view 9 Statistical Package

ROI has a probability value of 0.603960, a mean of -0.036689, a range of -0.823909 to 0.673021, a standard deviation of 0.405387, and a range of -0.823909 to 0.673021. Additionally, automated teller machines (ATM), points of sale (POS), and the Nigeria Inter-bank Settlement System (NIBSS) have mean values of 2.772534, 1.684387, and 3.773309, respectively, and range from a minimum of 1.796505, 1.796505, and 0.270764 to a maximum of 3.332994, 3.473136, and 4.472618. They also have standard deviation values of 0.457864, 1.051927, and as a result, ROI and POS variables were positively skewed, suggesting a long right tail, whereas ATM and NIBSS variables were negatively skewed, suggesting a long left tail. Table 1 also showed that the ROI, ATM, POS, and NIBSS had kurtosis values that are not larger than 3, which suggests that the distribution is flat or platykurtic, which is flatter than a normal distribution with a broad peak.

Table 2 displays the outcomes of the Augmented Dickey-Fuller unit root test.

Table 2: Unit Root Test

Variables	Test statistics	Critical value			Order of Integration
		1%	5%	10%	
ROI	-5.105864	-4.252879	-3.548490	-3.207094	I(0)**
ATM	-4.925770	-4.252879	-3.548490	-3.207094	I(0)**
POS	-3.777525	-4.252879	-3.548490	-3.207094	I(0)**
NIBSS	-3.621405	-4.252879	-3.548490	-3.207094	I(0)**

Note: * (**) (***) denotes null hypothesis at 10%, 5% and 1% level of significant respectively

Source: **Author's Computation (2023), Eview 9 Statistical Package**

According to data from the result, return on investment (ROI), point of sale (POS), NIBSS quick payment settlement (NIBSS), and Number/Value of fraud cases (NFC) all achieved stationarity at level and at 5% and 1% level of significance. Also, the VFC variable's stationarity at the 1% level of significance and first difference was achieved. As a result, any shock or disturbance to the variables (such a change in governmental policy) will not be sustained for a long period and will instead fade fast, which has implications for the economy. As a general rule, if all the variables achieved stationarity at the same order of integration, Johansen cointegration should be employed; otherwise, the Autoregressive Distributed Lag model (ADRL) should be applied. It is significant because the model includes mixtures of I(0) and I(1), eliminating the need for Johansen cointegration and substituting an Autoregressive Distributed Lag model in its place (ADRL). Hence, the presence of cointegration will be assessed using the bound test.

Table 3: ARDL Bound test

Table 3 demonstrated that the computed F-stat of 7.069798 is greater than the Lower and Upper Limit table value, regardless of the degree of significance.

NULL HYPOTHESIS	**F - STATISTIC**	**CRITICAL VALUES BOUNDS**		
No long-run relationships exist	7.069798	SIGNIFICANCE	LOWER BOUND	UPPER BOUND
		10%	2.75	3.79
		5%	3.12	4.25
		2.5%	3.49	4.67
		1%	3.93	5.23

Source: **Author's Computation (2023), E-view 9 Statistical Package**

The investigation disproves the null hypothesis. This is interpreted to suggest that the variables have a long-term relationship, which implies that they move through time together. This means that the analysis might move on to include both the long run analysis and the short run dynamic and error-correction analysis.

Table 4: Long Run Co-Integrating Coefficients

Table 4's findings revealed a positive, statistically insignificant long-term association between automated teller machines and return on investment in Nigeria, with the coefficient showing a positive, insignificant relationship between automated teller machines and return on investment.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.311923	0.869214	-2.659787	0.0178
ATM	0.234787	0.183291	1.280950	0.2197
POS	-0.089298	0.225998	-0.395126	0.6983
NIBSS	1.297148	0.533692	2.430519	0.0281

Source: **Author's Computation (2023), E-view 9 Statistical Package**

Every percentage adjustment in the ATM will increase the return on investment in Nigeria by 23.4%. The coefficient of point of sale indicated a long-term negative and negligible association with return on investment, inferring that point of sale insignificantly and negatively affects bank performance by around 8.9%. Not least, NIBSS swift payment settlement indicated a positive and statistically significant association between that number and the return on investment of Nigerian banks. According to research, there is a positive and strong long-term correlation between the NIBSS and bank performance in Nigeria. Every percentage point improvement in the NIBSS will result in a 129.7% change in the level of bank performance in Nigeria.

Table 5: The Short-run Dynamics and Error Correction Model

Table 5 demonstrates that the ECM (-1coefficient) error correction term has the right sign and is significant at the 5% level.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(ROI(-1))	0.288720	0.266923	1.081661	0.2965
D(ATM)	-0.535207	0.568968	-0.940664	0.3618
D(ATM(-1))	2.277805	0.583146	3.906062	0.0014
D(POS)	-0.355669	0.405916	-0.876213	0.3947
D(POS(-1))	-0.143986	0.233643	-0.616265	0.5470
D(NIBSS)	1.543824	0.865242	1.784267	0.0946
D(NIBSS(-1))	1.083500	0.512145	2.115611	0.0515
ECM(-1)	-1.801506	0.331721	-5.430781	0.0001

Source: **Author's Computation (2023), E-view 9 Statistical Package**

The correlation is 1.801506, and the findings suggest that short-run variations are frequently stabilized and incorporated into the long-run equilibrium relationship by roughly 180.15%. In other words, it could be argued that 180.15% represented the equilibrium level of financial innovation. This suggested that adjustments and absorptions were made every year to account for Nigeria's long-term and short-term financial innovation levels' 180.15% discrepancy. The automated teller machine coefficient reversed its initial negative and negligible impact at lag one, or D (ATM (-1)), becoming positive and substantial at 5%. This suggests that, at 5%, the association between bank performance and automated teller machines is both favorable and substantial. Hence, a change in the percentage level of ATMs will result in a roughly 22.77% rise in the return on investment for banks. Despite a long-term, negligible, and inconsequential link between them, the point of sale variable and return on investment did not show a positive association after lag one. Hence, a hypothetical 1% increase in POS value will lead to a -3.55% decline in bank performance. Further data from the results show that for the country under the

analyzed time, the NIBSS and return on investment relationship remained favorable and substantial at 5%, with a matching coefficient value of 1.083500 at lag one. Nigeria's return on investment will therefore increase by 108.35% with every 1% increase in NIBSS. Return on investment is significantly and positively impacted by the outcome over the long run.

Summary of Findings

The ARDL indicates that the computed F-stat is larger than both the upper and lower bound table values, demonstrating the long-term relationship and co-movement of the variables. This finding supported empirical studies by Qamruzzaman and Wei (2018) and Dipo-Ojo and Alao (2020) that showed long-term cointegration between fraud, financial innovation, and bank performance. Whereas ATM factors, NIBSS, and ATM variables all have positive and significant influence on bank performance over the long term, POS has a negative and minimal impact.

The performance of Nigerian banks will soon be positively and significantly impacted by ATM and NIBSS. The finding that ATM and NIBSS have a favorable and significant impact on firm performance in Nigeria was anticipated based on Effiom and Edet's empirical research (2020). The findings, however, contradict Akani and Obiosa's (2020) claim that quick payment choices like ATMs don't improve a bank's performance. As a result, during the research period, the impact of POS on bank performance in Nigeria was negligible and negative. That is consistent with the findings of Nkem and Akujinma (2017), who discovered that the performance of Nigerian banks was negatively and insignificantly impacted by point-of-sale systems.

Conclusion

This study examined the connection between financial innovation and bank performance in Nigeria during a nine-year period, or from Q1 2012 to Q4 2020, or 36 quarters. The study employed inferential statistics to ascertain the relationship between financial innovation and the financial performance of Nigerian banks across the research period. Financial innovation has a favorable and significant impact on bank performance in Nigeria as assessed by ATM and NIBSS, according to this study's investigation of its effects on bank performance. Yet the POS presents a terrible relationship, therefore it's urgently necessary to look into the prices and workings of POS in Nigeria in order to make it friendly and more accessible. Hence, in order for banks to do this, it is essential that an apex bank framework policy on POS charges be guaranteed.

The study recommends that the deposit money institutions should make technological investments to support financial innovations, and organizations should change banking services by implementing agency banking and mobile banking to increase market share while also creating jobs. In addition, in order to achieve the objective of the financial innovation effort, banks should routinely provide more cash to ATMs and fix transaction problems and claims on paper. Also, in order to satisfy the public with cheaper transaction fees and enhance bank performance countrywide, deposit money banks are advised to provide as many POS and ATM channels as possible.

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