Financial Innovations and Financial Performance of Listed Deposit Money Banks in Nigeria

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ABSTRACT: *This study examines the relationship between financial innovations and financial performance of listed deposit money banks in Nigeria. This study adopted expost-facto research design. Census sampling techniques was used to adopt all the 25 deposit money banks quoted in the Nigerian stock exchange. Secondary data was collected from all listed Deposit Money Banks in Nigeria between the period 2010 to 2021. The data was extracted from the annual reports of the listed Deposit Money Banks in Nigeria. Correlation analysis was used to measure the relationship between variables. Specifically, the researcher used multiple regression analysis to establish if there is relationship between the independent variables and the dependent variable. The study revealed that Automated Teller Machine (ATM) has a negative but significant relationship with Financial Performance (FP), Point of Sales(POS) has a positive and significant relationship with FP, electronic mobile transaction (MOBILE) has a positive but non-significant relationship with FP and internet web transaction (WEB) has a negative and non-significant relationship with FP. Based on the findings, the research recommends that banks and ATMs manufacturers should be more concerned about the security of banking machines and that they should collaborate with telecommunication network providers and security agents to checkmate and prosecute hackers and other internet fraud stars so as to reverse the negative effect of ATM and internet web transactions on deposit money banks' financial performance in Nigeria. Banks should also improve service quality and customer responsiveness in cases of lost or stolen cards, frauds, and other customer complaints in relation to point of sale to enhance the performance of deposit money banks in Nigeria.*
KEYWORDS: financial performance, financial innovations, automated teller machines (ATM), point of sales (POS), electronic mobile transaction, internet Web transaction

INTRODUCTION

Banks that accept deposits have a significant role in any nation's economic growth. They supervise the transfer of money from depositors to investors. If they generate enough revenue

to pay for the operating expenses they incur while conducting their business, they may do this. Put another way, banks must be profitable in order to perform this role effectively. Countries' economic growth is significantly impacted by the financial performance of their commercial banks. Strong financial results provide a return on investment for the shareholders. Thus, more investment is drawn in and economic growth results (Abba et al., 2023). Financial innovations are one of our banking institution's pillars that can increase profitability.

Financial innovations encompass the creation of novel financial products, the introduction of innovative delivery methods for existing financial services, or the establishment of entirely new financial services with innovative processes (Akani & Tony-Obiosa, 2020). Banks strategically leverage financial innovations as potent tools to sustain competitiveness within the industry, serving as effective means for enhancing financial performance while upholding marketing efficiency (Chauhan et al., 2022). The adoption of financial innovations, such as Mobile Banking, Automated Teller Machines (ATM), Point of Sale (POS), among others, is reshaping the payment systems within the banking sector (Del-Gaudio et al., 2021).

Over time, banks have incorporated many financial innovations in an attempt to maximize operational efficiency and effectiveness, which has led to improved financial performance. All banks continually do research to find ways to increase client accessibility and profitability for the purpose of keeping their market share, given the intense rivalry and continuous developments in the financial system. Nigeria has implemented a series of reforms, including financial deregulation, cashless policy, electronic banking, capitalization, consolidation, and, most recently, bank verification number in recognition of the need to revive the financial industry. The goals of these reforms are to strengthen public trust in the banking industry, eradicate fraud, and stabilize the financial system.

Financial institutions, particularly deposit money banks, are forced to implement these new financial innovations in this changing environment in order to handle the significant number of daily transactions they handle. The full influence of innovations on the expansion of financial institutions in the industry is still not fully understood, despite continuous innovation, enhanced consumer services, the launch of new goods and functions, and requests for changes to regulatory agency strategy.

In light of this difficulty, the current study looks on the relationship that exist between financial innovations and the financial performance of deposit money banks in Nigeria. Automated Teller Machines (ATMs), Point of Sale (POS) Terminals, Electronic Mobile Banking (MOBILE), and Web Banking transactions are all taken into consideration as indications of financial advancements. The main objective of the study is to examine the relationship between financial innovations and financial performance of deposit money banks in Nigeria. The specific objectives are to:

i.   Analyze the relationship between Automated Teller Machine (ATM) and financial performance of deposit money banks in Nigeria.
ii.   Examine the relationship between Point of Sales (POS) and financial performance of deposit money banks in Nigeria.

iii.   Evaluate the relationship between Electronic Mobile Banking (MOBILE) and financial performance of deposit money banks in Nigeria.

iv.   Determine the relationship between Internet (WEB) Banking transactions and financial performance of deposit money banks in Nigeria.

Based on the objectives of the study, the following null hypotheses were raised:

H_{01} Automated Teller Machine (ATM) has no significant relationship with financial performance of deposit money banks in Nigeria.

H_{02} Point of Sales (POS) has no significant relationship with financial performance of deposit money banks in Nigeria.

H_{03} Electronic Mobile Banking (MOBILE) has no significant relationship with financial performance of deposit money banks in Nigeria.

H_{04} Internet (WEB) Banking transactions has no significant relationship with financial performance of deposit money banks in Nigeria.

LITERATURE REVIEW

Financial Innovation

Ibekwe (2021) defines financial innovation as the creation and widespread use of new financial instruments, technology, institutions, and markets. Akani and Tony-Obiosa, (2020) complement this definition. Innovations are divided into two categories by the latter researchers: process innovations and product innovations. New financial instruments are considered product innovations, whereas creative approaches to the distribution, trade, or pricing of financial products are considered process innovations. According to Daniel (2021), the development of information and communication technology (ICT) has drastically changed conventional payment methods, resulting in cashless transactions known as financial innovations.

A viewpoint on financial innovations is offered by Osinubi et al. (2022), who concentrate on cutting-edge payment methods that fall into four categories: electronic cards, phone banking, internet banking, and mobile banking. According to Gbanador et al. (2022), financial innovations have a significant impact on banking organizations by opening up new prospects for shareholders and making it easier to generate goods and services that may be used to enter emerging markets. Prominent financial technologies that have been extensively implemented by Nigerian banks include internet banking, automated teller machines, mobile banking, and point-of-sale terminals. Expanding upon these ideas, this research uses the indicators—mobile banking, point-of-sale terminals, automated teller machines, and online banking—that Gbanador et al. (2022) suggested. In the sections that follow, each of these indications will be covered in more detail.

Mobile Banking

Bank customers can use their mobile phones to perform financial transactions thanks to this payment mechanism. Customers must install the bank's mobile software before they can begin

such transactions. Customers can check their account balance, make transfers, and pay bills using this payment method, among other functions (Gbanador et al., 2022).

To elaborate, mobile banking is described by Aigbovo et al. (2022) as an adaptation of online banking that uses cell phones to conduct transactions. During this procedure, voice or short messaging service (SMS) messages are generated and sent to the bank's computer. Through a highly coded gadget, the computer decrypts the message and carries out the instructions. The response is then sent back to the customer via electronic means. Transactions that are made possible via mobile banking include things like PIN changes, small-scale financial transfers, and cell phone recharges.

Point of Sales Terminal
Portable point-of-sale (POS) machines are useful in a variety of locations, such as grocery stores, shops, restaurants, gas stations, and lodging facilities. They enable digital payments using debit or credit cards. Interestingly, they have recently expanded to include cash withdrawals, which has aided in the development of agency banking (Gbanador et al., 2022). The use of POS terminals has significantly decreased reliance on cash transactions. Osinubi et al. (2022) state that this technique entails carrying out financial transactions with electronic cards, such as debit and credit cards, in addition to smart cards that are placed in strategic locations throughout cities, such as airports, shopping centers, hotels, transport terminals, and supermarkets. These cards are used to identify cardholders and are replaceable when they expire, are lost, or are stolen. For bank customers, the smart card system adds ease by enabling cash access, transfers, payments, and account queries without requiring them to visit a real banking hall.

Automated Teller Machine (ATM)
A computerized communications tool known as an automated teller machine (ATM) allows bank customers to obtain basic teller services without having to deal with a bank teller in person. Cash withdrawal, cash deposit, fund transfer, bill payment, account balance query, and account opening are among the services provided by ATMs (Gbanador et al., 2022). Aigbovo et al. (2022) define an ATM as a computer terminal that functions as both a cash vault and a recordkeeping system in one unit. Customers can access the bookkeeping system by using an ATM card—which comes with a Personal Identification Number (PIN)—or by entering a special code into a computer terminal that is linked to the bank's records. ATMs are accessible and convenient for users, operating around the clock. The name, account information, card number, card limit, and associated bank are just a few of the vital characteristics that are stored on ATM cards, which are usually made of plastic with a magnetic stripe.

Internet Banking
Online Money Transfers Bank customers can use the bank's website to perform financial transactions by using internet banking as a payment channel. With a personal computer or comparable device, clients can use this way to access financial services online. After biometrics and enrollment are completed, there is no need for bank tellers to physically engage with customers (Gbanador et al., 2022). Internet banking, as defined by Osinubi et al. (2022), is a type of financial innovation that allows clients to use the bank's website to perform tasks like bill payments, transfers, and bank statement viewing from the convenience of their homes or

offices, doing away with the need to physically visit a banking hall. Customers can use this method to order goods and services, pay for them online, direct their banks to pay vendors, and have deliveries sent to specific addresses.

Financial Performance

The phrase "financial performance" basically refers to a thorough assessment of a business's total financial health over a given period of time. It can be used to contrast and compare companies in different industries or sectors as well as to contrast businesses in the same sector. In the banking sector, a bank's ability to make money from its assets and sustain itself through core business operations is measured by its financial performance. Apart from being the subject of several theoretical and empirical research endeavors, the analysis of financial performance in financial institutions has been extensively scrutinized in scholarly publications. According to Tauhid et al. (2020), a company's financial performance has a major impact on how it develops and is shaped, and it is essential in determining how profitable it is and how well it performs overall. In discussing the connection between bank performance and liquidity state, Oke et al. (2022) claim that measurements including loan-to-deposit ratios, cash reserve ratios, and liquidity ratios are inferior indicators of a bank's success compared to return on equity (ROE). While acknowledging the difficulties in defining it, Akani and Ordu (2022) believe that improving financial performance should be the main goal of any firm. Return on equity (ROE) and return on assets (ROA) are emphasized as the most well-known accounting-based performance numbers. Hacini et al. (2021) assert that a bank's financial performance serves as its first line of defense against unforeseen circumstances. By retaining profits surplus, it improves the bank's cash position and profitability. Furthermore, according to Adeyemi et al. (2022), a number of financial ratios, including Return on Equity (ROE), Quick Ratio, Current Ratio, Net Interest Margin (NIM), and Return on Assets, can be used to evaluate a bank's performance (ROA). According to Oke et al. (2022), return on equity (ROE), which will be discussed in more detail in the ensuing sections, was chosen as the study's financial performance metric.

Return on Equity (ROE)

Return on Equity (ROE), also known as business profitability, measures how profitable own capital is. ROE is a profitability ratio that is used to measure the level of return the company or the effectiveness of the company in generating profits that are the rights of capital owners (Abdullahi et al., 2019). ROE is calculated as net profit after tax divided by the total shareholder's equity i.e., ROE = $\frac{\text{Earnings after interest expenses and taxes}}{\text{Shareholders equity}}$

Conceptual Framework

The conceptual framework, which serves as a bridge between the concepts used in this study, is depicted in Figure 1. It shows how Nigeria's listed deposit money banks' financial performance is correlated with financial innovations. The independent variable is represented by Cash Automated Teller Machines (ATMs), Points of Sale (POS) Terminals, Electronic Mobile Banking (MOBILE), and Online Banking Transactions; the dependent variable is Return on Equity (ROE).
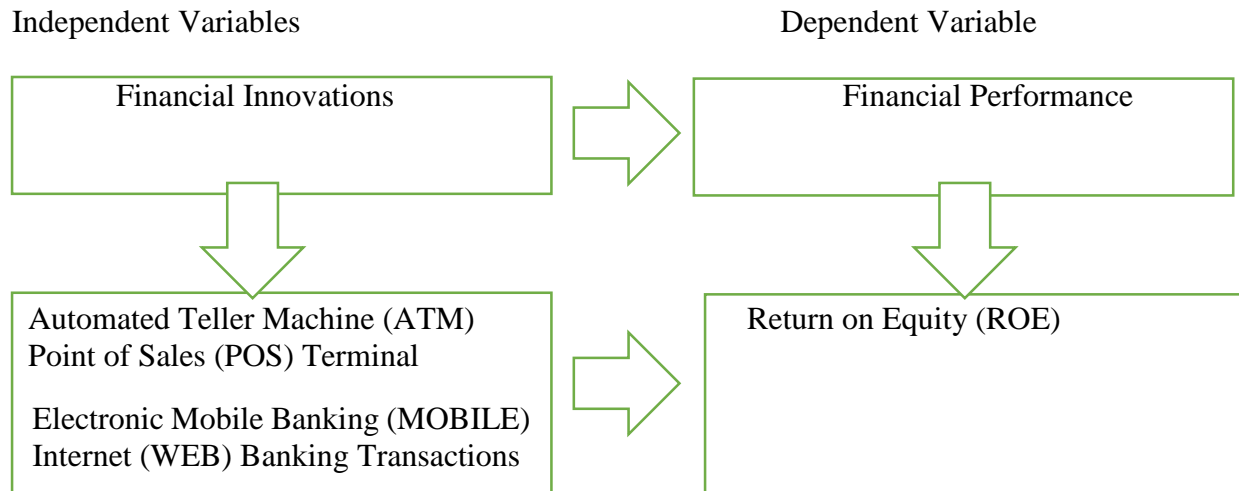
Independent Variables   Dependent Variable

Figure 1: Author's Conceptual Framework 2023

Theoretical Review

To create the theoretical framework for the research, this study incorporates the Transaction Cost Innovation Theory, the Innovation Diffusion Theory, and the Technology Acceptance Model. Innovation Diffusion Theory, which was created by E.M. Rogers in 1962, identifies five criteria that affect the acceptance of innovations: trialability, observability, compatibility, relative advantage, and simplicity of use. It makes the argument that creativity, social structures, time, and communication channels are all necessary for the spread of new ideas.

The Transaction Cost Innovation Theory was introduced by Niehans (1983) and postulates that, in reaction to technology improvements, financial innovation aims to lower transaction costs above all else. According to the notion, lowering costs through agency, online, and mobile banking encourages financial innovation, which enhances financial services and eventually affects bank profitability. It is preferable to arrange corporate operations within an organizational hierarchy, according to Ireri and Kimutai (2020), who suggest that firms survive because of institutional transaction costs. In 1989, Davis, Bagozzi, and Warshaw developed the Technology Acceptance Model (TAM). It emphasizes perceived utility and ease of use as elements influencing people's intention to adopt technologies. Researchers frequently utilize TAM to investigate user acceptability and adoption factors, which helps to pinpoint reasons for non-acceptance.

Because it highlights the elements of innovation that have been identified—time, communication channels, and the social context driving the spread of technological innovations—the Innovation Diffusion Theory is especially intriguing. However, any of the three theories may be applicable to the study. Hussein and Ibrahim (2019) emphasized that these components are essential to the effective execution of financial innovation projects by deposit money institutions.

Empirical Review

The study focused on the effect of financial innovations on the financial performance of deposit money banks in Nigeria and critically reviewed a number of publications by other experts. Suleymanov et al. (2019) examined the impact of innovations in electronic payments on bank performance in 23 developed and developing nations between 2008 and 2018, using a cross-country panel data study. Except for point-of-sale (POS) and internet services, which had an adverse influence on profitability, the study found that all payment system channels affected profitability.

Using Vector Auto-Regression impulse modeling, Yao et al. (2018) investigated how payment technology affected the financial performance of China's banking industry. The study discovered that Third-Party Payment (TPP) enhances industry synergy in China's financial evolution by raising money turnover and positively impacting the financial sector's earning growth, based on TPP data from 2007 to 2014. Dong et al. (2020) investigated the impact of web finance on the performance of Chinese commercial banks by compiling data from various sources to generate a list of web accounts. The results showed that although Internet finance had a detrimental effect on liquidity, it had a positive effect on banks' growth, security, and profitability, which eventually enhanced overall business performance in China.

Furthermore, Nwakoby et al. (2020) investigated the performance of nine specific banks listed on the Nigerian stock exchange in relation to the influence of electronic payments. The study employed Ordinary Least Squares (OLS) regression analysis with ATM, POS, and mobile payment transactions as indicators of electronic banking to calculate return on equity as a measure of banks' profitability. The findings demonstrated that while POS and mobile payments had good effects on return on equity, ATM transactions had a negative impact on Deposit Money Banks' (DMBs) ROE.

In a related study, Akwam and Yua (2021) examined the effect of e-money products on the financial performance of commercial banks in Nigeria. In their analysis, the amount of POS, mobile, and ATM transactions served as a proxy for financial products, while return on equity, earnings per share, and return on assets served as stand-ins for banks' performance. The study discovered a strong positive correlation between mobile payments and point-of-sale transactions (POS) on return on assets (ROE) and return on assets (ROA), after analyzing time series annual data from 2005 to 2019. Furthermore, earnings per share was significantly positively impacted by ATM transactions.

Although the aforementioned empirical studies on financial innovations and the financial performance of deposit money banks provide insightful information, the results exhibit conflict and inconsistency at times. This is mostly due to the different approaches used and insufficient data. Thus, using data from 2010 to 2021 from economic reports and the Central Bank of Nigeria's statistical bulletin, this study aims to ascertain the effect of financial innovations on the financial performance of deposit money banks in Nigeria.

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METHODOLOGY

The research methodology employed in this study, which gathered data from 2010 to 2021, was ex post facto. The target audience as of December 31, 2021, included each of the 25 deposit money banks listed on the Nigeria Stock Exchange. The study used a census sampling technique, meaning that the sample size included every member of the population. The four independent variables under investigation were the Point of Sale (POS) Terminal, Internet (WEB) Banking Transactions, Electronic Mobile Banking (MOBILE), and Automated Teller Machine (ATM). The value of mobile transactions was used to evaluate Electronic Mobile Banking (EMB), the value of web transactions was used to evaluate WEB, and the value of payments made through ATMs of Nigeria's listed deposit money banks was used to evaluate ATMs. Ex post facto research methodology was used in this study, which collected data between 2010 and 2021. All 25 deposit money banks listed on the Nigeria Stock Exchange as of December 31, 2021, were part of the target demographic. Because the study employed a census sampling technique, all members of the population were included in the sample size.

The Point of Sale (POS) Terminal, Internet Banking Transactions, Electronic Mobile Banking (MOBILE), and Automated Teller Machine (ATM) were the four independent variables that were the subject of the inquiry (ATM). The evaluation of Online was based on the value of web transactions, the evaluation of ATMs was based on the value of payments made through the ATMs of Nigeria's listed deposit money banks, and the evaluation of Electronic Mobile Banking (EMB) was based on the value of mobile transactions. The dependent variable was the financial performance of banks, measured through return on equity.

The Central Bank of Nigeria and the annual reports of Nigeria's listed deposit money banks provided secondary data that the researcher used (CBN). Multiple regression analysis was used to determine the statistical significance of the associations between the independent and dependent variables. Regression analysis was used to investigate the relationship between variables. The functional model specification for the study is stated below:

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$
$FP_{i,t} = \alpha + \beta_1 ATM_{i,t} + \beta_2 POS_{i,t} + \beta_3 MOBILE_{i,t} + \beta_3 WEB_{i,t} + \varepsilon_{i,t}$
Where:
FP = Financial Performance
ATM = Automatic Teller Machine
POS = Point of Sales Terminal
MOBILE = Electronic Mobile Banking
WEB = Internet (WEB) Banking
$\beta_1 - \beta_3$ = Coefficient of independent variable.
i = bank identifier
t = time
ε = Stochastic Error term (Disturbance term).

RESULTS AND DISCUSSIONS

This section offers an analytical viewpoint on the data utilized in this specific investigation and how the findings will impact the general viewpoint on the accomplishment of the research goals.

Descriptive Statistics

A comprehensive statistical summary of this empirical investigation may be found in Table 1 below. The table shows that Internet (WEB) banking has the highest mean value, while Turnover on Asset (ROE) has the lowest mean value (29.24583). (1419.092). Meanwhile, the mean values for point of sale terminals (POS), automated tellers (ATM), and mobile banking (MOBILE) are 721.483, 367.7967, and 157.8533, respectively. For ROE, ATM, POS, Mobile, and Web, the standard deviations are 42.82897, 536.018, 776.9965, 255.6809, and 3362.659. These standard deviation data show that financial innovations are widely used in Nigeria due to the significant disparity between the highest and minimum values. For instance, the difference between the lowest and maximum ROE values is -0.280000 and 162.9800, respectively. Skewness, kurtosis, and Jarque-Bera (JB) statistics were evaluated by the researcher in order to evaluate the dataset's normal distribution. The JB results show that all variables have a normal distribution, as shown by the JB probability ratios (Prob>0.05) for each variable.

Table 1 Summary Statistics of the variables used in Model

	ROE	ATM	POS	MOBILE	WEB
Mean	29.24583	721.4833	367.7967	157.8533	1419.092
Median	20.52500	511.9000	48.70000	45.50000	11.00000
Maximum	162.9800	1914.200	2743.560	831.5400	10321.60
Minimum	-0.280000	186.2000	1.100000	1.200000	2.300000
Std. Dev.	42.82897	536.018	776.9965	255.6809	3362.659
Skewness	2.830221	1.225583	2.656153	1.769962	2.017655
Kurtosis	9.464679	3.329715	8.699585	4.998918	5.410728
Jarque-Bera	36.91633	3.058466	30.35293	8.263369	11.04767
Probability	0.000000	0.216702	0.000000	0.16056	1.003991
Sum	350.9500	8657.800	4413.560	1894.240	17029.10
Sum Sq. Dev.	20177.53	3167992	6640960	719099.9	1.24E+08
Observations	12	12	12	12	12

Source: Computed by the Researcher, (2023)

Result of Unit Root Test

The Augmented Dickey Fuller (ADF) tests are used to determine the order of integration. In other words, how many differences a variable must have before it becomes stationary.

Table 2 Augmented Dickey Fuller (ADF) Unit Root Test Result for Volume of Transaction

VARIABLES	LEVEL		FIRST DIFFERENCE		ORDER IN INTEGRATION
	ADF Values	Mackinnon Critical Values	ADF Values	Mackinnon Critical Values	
ROE	-25.45391*	-4.200056*	-	-	1(0)
ATM	-	-	-4.618616*	-4.297073*	1(1)
POS	-	-	24.95664*	-4.420595*	1(1)
MOBILE	-	-	-1.763404*	--4.420595*	1(1)
WEB	-	-	2.858818*	-4.420595*	1(1)

Source: Computed by the Researcher, (2023)

Note: One, two and three asterisk denotes rejection of the null hypothesis at 1%, 5% and 10% respectively based on Mackinnon critical values.

Based on the aforementioned Augmented Dickey Fuller unit root table 2, it could be seen that return on equity (ROE) is non stationary series at level form. Also Automated teller machine (ATM) is non-stationary at first difference. While point of sales (POS), Electronic Mobile Banking (MOBILE) and internet (WEB) banking are all stationary series at first difference. Meaning that variables such as ROE is of order 0 while other variables such as ATM, POS, MOBILE and WEB are of order 1. This explains why starting the ARDL estimation was necessary.

Table 3 Cointegrating Bound Testing for ARDL ECOG Model

F-Statistics	586.2274	
Critical Bounds value	I(0) Bound	I (1) Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: Authors computation (2023).

The impact of the boundaries check for the presence of long-run relationships are as indicated in Table 3 and shows that the calculated F-statistic is 586.2274, which is appreciably higher than the critical values for the upper and lower bound values of test statistic at 10% degree of significance. This is an indication that there is a relationship among ATM, POS, MOBILE,

WEB and ROE for deposit money banks in Nigeria from 2010 to 2021. The research alongside those strains advances to the evaluation of the short-run and long-run situations as demonstrated in the tables to pursue.

Table 4 Short-run Estimates for ARDL Model

Model	Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDP Model	CointEq(-1)	- 1.191807	0.020427	-58.345256	0.0003

Source : Authors computation (2023)

Table 4 presents the coefficients of the error correction model and indicates the short-run cointegrating form of the models. As anticipated, the Error Correction Mechanism's (speed of adjustment) coefficient is negative and significant at the 5%. In all three formulations, the long-run equilibrium corrects 119% of the short-run disequilibrium, according to the ECM term..

Table 4.5 Long-run Estimates for ARDL Model

Coefficients in the long run				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
ATM	-0.123446	0.018832	-6.555130	0.0225
POS	0.434933	0.055424	7.847430	0.0159
MOBILE	0.110315	0.066358	1.662436	0.2383
WEB	-0.010753	0.003430	-3.134667	0.0885
C	62.869177	6.279098	10.012454	0.0098

Source: Author's computation (2023)

According to the findings in Table 4.5, the results of the long-term cointegration analysis reveal a negative (-0.123446) and statistically significant (P(t) = 0.0225) relationship between Automated Teller Machine (ATM) and financial performance. This suggests that an increase in ATM volume tends to decrease Return on Equity (ROE) in the long run. Conversely, Point of Sales Terminal (POS) exhibits a positive coefficient of 0.434933 and a statistically significant Probability value of 0.0159. This suggests that a rise in the volume of point-of-sale transactions tends to enhance Return on Equity (ROE) in the long run for deposit money banks. Similarly, Electronic Mobile Transaction (MOBILE) shows a positive (0.110315) relationship with financial performance, although it is not statistically significant (P(t) = 0.2383). This indicates that an increase in electronic mobile banking tends to boost Return on Equity (ROE) for deposit money banks in the long run.

In contrast, Internet Web Transaction (WEB) displays a negative coefficient of -0.010753 and is not statistically significant (P(t) = 0.0885). This implies that an increase in internet web transactions tends to decrease Return on Equity (ROE) for deposit money banks in the long run, although the relationship is not statistically significant.

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Residual Diagnostic Test

Table 6: Residual Diagnostic procedure

Breusch-Godfrey Serial Correlation Test:			
F-statistic	0.749584	Prob. F(1,1)	0.5457
Obs*R-squared	4.712792	Prob. Chi-Square(1)	0.0299
Heteroskedasticity experiment			
F-statistic	2.427242	Prob. F(8,2)	0.3244
Obs*R-squared	9.972824	Prob. ChiSquare(8)	0.2669

Source: Author's computation (2023)

The Breusch-Godfrey Serial Correlation LM Test was used to verify the serial correlation based on the aforementioned table. The probability value of (0.5457) is more likely to be greater than the critical value of 0.05 at the 5% level of significance, as can be seen in the graph above. This indicates that there is no serial correlation in the residual of the short-run ADRL model. The heteroskedasticity test also establishes if the variance of the regression remains consistent over time. If the variance is not constant, the standard error will be high, which will lead to a poor analytical use of the data. The test discloses that there is no heteroskedasticity problem from the F-Statistics which is greater than 0.05.

Ramsey RESET Test

Table 7 : Ramsey Reset Test

	Rate	df	Probability
t-statistic	2.981199	6	0.0246
F-statistic	8.887550	(1, 6)	0.0246
F-test summary:			
	Sum of Sq.	df	Mean Squares
Test SSR	9699.931	1	9699.931
Restricted SSR	16248.37	7	2321.196
Unrestricted SSR	6548.439	6	1091.407

Source: Author's computation (2023)

The Ramsey RESET test is the projected version which is efficiently distinctive. It examines the null speculation that the version is unique efficiently. This speculation is rejected if the p-fee of F- statistic is lower than the essential fee of 0.05. As shown in Table 7, the p-fee of 0.0246 is lower than the essential fee of 0.05. This demonstrates that the predicted ARDL version on this takes a look to become efficiently unique.

Regression analysis was utilized in this study to assess the relationship between the independent variables and the dependent variables of hypotheses 1, 2, 3, and 4, and appropriate interpretation and analysis methods were applied to provide an explanation for the testing of the hypotheses.

H_{01} Automated Teller Machine (ATM) has no significant relationship with financial performance of deposit money banks in Nigeria.

Test of Hypothesis: Table 4.5 makes clear that the automated teller machine (ATM) and return on asset (-0.123446) had a negative association that was statistically significant at the 5% significance level, with a P-value of 0.0225. This finding indicates a statistically substantial negative correlation between ATM performance and the listed deposited money's financial performance in Nigeria. Consequently, we accept the alternative and reject the null hypothesis.

H_{02} Point of Sales (POS) has no significant relationship with financial performance of deposit money banks in Nigeria.

Test of Hypothesis: Point of sale terminals (POS) and return on asset (0.434933) showed a positive correlation that was statistically significant at the 5% significance level, with a P-value of 0.0159, according to Table 4.5. This finding indicates a statistically substantial positive correlation between POS and the financial performance of the mentioned deposited money in Nigeria. Consequently, we accept the alternative and reject the null hypothesis.

H_{03} Electronic Mobile Banking (MOBILE) has no significant relationship with financial performance of deposit money banks in Nigeria.

Test of Hypothesis: Table 4.5 shows that although there was a positive correlation between electronic mobile transactions (MOBILE) and return on equity (0.110315), the association was not statistically significant (P-value of 0.2383 at the 5% significance level). This finding, which is statistically not significant, indicates that MOBILE and the financial performance of the mentioned deposited money in Nigeria have a positive association. As a result, we reject the alternative and accept the null hypothesis.

H_{04} Internet (WEB) Banking transactions has no significant relationship with financial performance of deposit money banks in Nigeria.

Test of Hypothesis: Table 4.5's result makes it evident that there was a negative correlation between internet web transactions (WEB) and return on equity (-0.010753), however this association was not statistically significant (P-value of 0.0885 at the 5% significance level).

This finding, which is statistically not significant, implies that WEB has a negative link with the mentioned deposited money in Nigeria's financial performance. As a result, we reject the alternative and accept the null hypothesis.

DISCUSSIONS

This study investigates the connection between financial innovations and the listed deposit money banks' financial performance in Nigeria. Return on equity is observed to be stationary at level I(0), while automated teller machine (ATM) is non-stationary at the first difference I(1). Conversely, point of sales (POS), electronic mobile banking (MOBILE), and internet web transactions all exhibit stationarity at the first difference I, as indicated by the Augmented Dickey-Fuller (ADF) unit root test (1). Given the mixed request for integration, the decision challenges the acceptance of Johansen cointegration and favors adherence to the ARDL norm. Consequently, the Pesaran ARDL bound test is employed to assess the availability of cointegration between the variables, confirming a long-term relationship between the factors.

The examination of the long-term relationship between financial innovations and bank financial performance reveals that the F-statistics of 586.2274 surpasses the lower bound values at any level of significance. This study delves into the relationship between financial innovations and bank financial performance in Nigeria, examining how financial innovations affect bank financial performance through time. Consequently, it is concluded that there exists a connection between financial innovations and the financial performance of deposit money banks in Nigeria. A clearly negative short-term trend can be seen in the cointegrating form of the models through the coefficient of the error correcting mechanism (speed of adjustment). The coefficients show that in each of the four parameters, the long-run equilibrium addresses 19% of the short-run imbalance.

An analysis of the long-term results shows that there is a statistically significant negative correlation between automated teller machines (ATMs) and financial performance. This suggests that an increase in the number of ATM transactions tends to lower return on equity (ROE) over time, which is consistent with the findings of Anselm Ngwa (2020) regarding the detrimental effects of financial innovations on financial performance. Conversely, there is a statistically significant positive correlation between point of sale (POS) and financial performance, indicating that as POS transactions rise over time, return on equity tends to grow (ROE). This result confirms the observation made by Nwakoby et al. (2020) that there is a positive relationship between point-of-sale terminal performance and deposit money institutions' financial performance.

Comparably, albeit not statistically significant, electronic mobile transactions (MOBILE) exhibit a favorable correlation with financial performance. This supports Akwam and Yua's (2021) finding that there is a positive correlation between electronic mobile transactions and financial performance by indicating that an increase in the volume of electronic mobile transactions tends to increase return on equity (ROE) for deposit money banks over the long term. Conversely, although not statistically significant, there is a negative correlation between online web transactions (WEB) and financial performance. According to this, there is a negative correlation between electronic mobile transactions and financial performance, which

is consistent with Suleymanov et al(2019) finding that an increase in the volume of internet web transactions tends to decrease return on equity (ROE) for deposit money banks over time..

CONCLUSION AND RECOMMENDATIONS

The study examined the financial performance and innovations in the financial sector of Nigerian deposit money banks. It specifically examined the relationship between the return on equity of Nigerian deposit money banks and online transactions, ATMs, point-of-sale systems, and electronic mobile banking in order to accomplish this goal. The results demonstrated that although there is a strong and positive correlation between return on equity and point of sale, there is a strong and negative correlation between ATM and equity. However, whereas electronic mobile banking has a small but positive correlation with return on equity, internet online transactions have a negative but negligible impact on deposit money banks' return on assets in Nigeria.

In light of the study's conclusions, the study suggest that:

1. Banks and ATM manufacturers should place a higher premium on the security of their equipment. They must reevaluate hardware and software security controls, create a more secure network architecture, and take other necessary steps. Additionally, it's critical that banks and manufacturers respond to threats quickly and actively work with security firms and law enforcement.
2. To increase the performance of deposit money banks in Nigeria, managers should provide better customer service and be more responsive to complaints from customers regarding lost or stolen cards, fraud, and other issues pertaining to points of sale.
3. To offset the detrimental effect of internet web transactions on deposit money banks' financial performance in Nigeria, deposit money banks should partner with telecommunication network providers and security agents to checkmate and prosecute hackers and other internet fraud stars.

CONTRIBUTION TO KNOWLEDGE

By offering extra data to support or refute the findings of earlier research and advance our understanding of the field, the study advances the theory already in place. It strengthens the connection between financial innovations and deposit money banks' financial performance. It has further enriched the existing information that supports the idea that financial innovations have made banking transactions easier by bringing services closer to its customers hence improving banking industry performance (Simon and Elias 2021). This study empirically highlighted important antecedents to understand the financial innovations adoption in Nigeria. It looked into the connection between banks' financial performance and financial innovations.

SUGGESTIONS AND FUTHER STUDIES

The association between financial innovations and the financial performance of deposit money banks in Nigeria was successfully established by the study utilizing indicators such as ATM, POS, MOBILE and WEB and return on equity. Because there are so many different measures

of financial innovations and financial performance, there is a growing need for greater study to develop financial innovations measure that would encompass all of the current ones and produce even more reliable empirical findings.

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