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ELECTRONIC BANKING AND FINANCIAL PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA.

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Abstract

This study examined the effect of electronic banking on financial performance of deposit money banks in Nigeria. The specific objective of the study is to examine the effect of mobile banking point of sales, and automated teller machine on return on equity of selected deposit money banks in Nigeria. The study adopted ex post facto research design. A sample size of 10 deposit money banks was selected from a population of 23 deposit money banks listed on the Nigeria Exchange Group. Secondary method of data collection was used to extract data from the annual reports of selected deposit money banks and CBN statistical bulletin for a period of 10 years spanning from 2015-2024. Findings of the study revealed that Mobile Banking, Automated Teller Machine and Point of Sales has a coefficient of -0.008011, -0.028659 and 0.037674 with a p-value of 0.0072, 0.0000 and 0.0000 respectively, which is lesser than the 5% significance level. R-Square has a value of 0.801617 implies that 80% of the variation of Return on Equity is influence by the explanatory variables. The study concluded that Mobile Banking and Automated Teller Machine has a negative and significant effect on the Return on Equity, while Point of Sales has a positive and significant effect on the Return on Equity of selected Deposit Money Banks in Nigeria. The study recommended that monetary authorities and commercial banks should enlighten their customer on the convenience and importance of adopting e-banking channels in completing their transactions.

Keywords: Electronic Banking, Point of Sales, Automated Teller Machine, Mobile Banking, and Return on Equity

1.0 INTRODUCTION

Conventional banking system started in Nigeria in 1952. Since then, the industry has witnessed a lot of regulatory and institutional advances. The industry was being controlled by at most five out of the 89 banks in existence before the commencement of the ongoing banking industry reformation in the country. Multiple branch systems is also one of the notable features of Nigerian banks, with a total of 89 banks accounting for about 3017 bank branches nationwide as at 2004. As well, the industry is faced with heavy challenges, including the overbearing impact of fraud and corruption, erosion in public confidence, a poor capital base, persistent cases of distress and failure, poor asset quality, and so on. Part of the moves to resolve these lingering problems include the banking reform initiated by the Central Bank of Nigeria in June 2004, which is largely targeted at reducing the number of banks in the country and making the emerging banks much stronger and reliable.

The Nigerian banking system has undergone significant changes in recent years, transitioning from a manual system to electronic banking, or E-Banking. Electronic Banking is an electronic payment system supported by a website that offers an array of products and services of any bank that is possible to work electronically, like payments, transfers, deposits and more. It

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allows for more convenient and efficient banking services for individuals and businesses, including Internet banking, Mobile banking, Automated Teller Machine (ATMs), Point of Sales (POS) terminals, and Electronic Funds Transfer (ETF) systems. This evolution has empowered consumers and transformed traditional business practices, which almost all banks in Nigeria now offering these types of electronic banking services.

However, the growth of electronic banking has led to a significant increase in volume of financial institutions, which has also brought new risks and challenges for the banking sector in Nigeria. There has been a serious and uncontrollable lamentation from members of the public and bankers about its shortcomings that hinders banking operations in that if nothing is done to curtail the excesses, it might hinder the progress of banks. Besides poor networking condition, lack of accessibility to rural dwellers, incessant and unregulated charged by bank, banks have also experienced an increase in fraudulent activities and cyber attacks, posing a significant threat to the security of the financial systems (Ezie, Joshua & Musa, 2023).

Statement of the Problem

Numerous prior studies on the impact of electronic banking on the performance of banks in Nigeria have produced disparate and questionable results, leading to an incomplete understanding on this phenomenon. The variability in findings across prior studies can be attributed to a number of factors, such as the nature of data, the sector of banking under examination, or the methodology adopted to analyze the data. For instance, the nature of data could be a limiting factor if it lacks accuracy, completeness, or coverage. Moreover, the analysis technique employed may lead to different conclusions depending on its assumptions, limitations, and the degree to which it can account for confounding variables.

This study presents an alternative approach to examine the effect of electronic banking on financial performance of Deposit Money Banks (DMBs) in Nigeria. To achieve this objective, the following are the specific objectives:

- i. To investigate the effect of mobile banking on Return on Equity of selected Deposit money banks in Nigeria.
- ii. To examine the effect of Automated Teller Machine on Return on Equity of selected Deposit money banks in Nigeria.
- iii. To determine the effect of point of sales terminals on Return on Equity of selected deposit money banks in Nigeria.

Scope of the Study

The scope of this study is to determine the relationship between electronic banking, as represented by mobile banking, ATMs and POS terminals, and the financial performance of DMBs in Nigeria, specifically in the area of Return on Equity (ROE). The research is limited to 10 selected deposit money banks in Nigeria, because the banks are well known and have adequate reports. This study covers the period spanned for a period of 10 years, which is from 2014 to 2023, this period is considered long enough to provide useful result to ascertain the effect of electronic banking on profitability.

2.0 LITERATURE REVIEW

2.1 Conceptual Framework

Concept of Electronic Banking

Electronic banking (E-banking) refers to the use of electronic means to perform banking and financial transaction. This includes online banking, mobile banking, ATMs, POS and other electronic channels that allow customer to access banking services from anywhere at any time. The rapid advancement of information technology has influenced almost every sphere of life



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including the banking sector. Globally, electronic banking has witnessed tremendous expansion and development in recent years, due to information technology engagement as documented by Ezie et al. (2023). The advent of electronic banking has disrupted the traditional banking model and revolutionized the way banking operate, transforming the financial landscape in unprecedented ways. Likewise, as the global economy continues to evolve, e-business is becoming more essential in business strategies, serving as a significant driver for growth and development. This digital revolution in the banking sector has enabled banks to improve their profitability, lessen communication hurdles, and facilitate swift product transfers. In addition to these advantages, e-banking also allows banks to acquire valuable information about individual customers and their foreign transactions on a round-the-clock basis, enabling them to tailor their offerings to meet these customers' unique needs.

Concept of Financial Performance

The financial performance of deposit money banks (DMBs) is a critical indicator of their health, efficiency, and stability within the financial system. These banks, also known as commercial banks, accept deposits from the public, provide loans, and offer a wide range of financial services. Evaluating their financial performance involves analyzing various financial metrics, regulatory compliance, and market dynamics. Below are the key factors influencing the financial performance of DMBs:

Return on Equity (ROE): This ratio measures the return generated on shareholders' equity. It indicates how well the bank is using shareholders' funds to generate profits.

2.2 Theoretical Framework

This section of the paper provides an overview of the theoretical underpinning of financial and information system adoption, factors determining customers' acceptance of e-banking, and presents the theory of customer loyalty. The study employed financial intermediation theory. According to Matthews and Thompson (2008), financial intermediation is a process where the surplus units in the economy, deposit their excess funds with the financial institutions, which in turn lend to the deficit units of the economy. The financial intermediation theory is, thus, based on information asymmetry, agency theory, and cost of transaction. Financial intermediation affects the economy as a whole and brings to the fore the effect of government policies on the economy. However, the presence of information asymmetry between the lender and the borrower makes the bank intermediate even when the bank has to face the issue of moral hazard and adverse selection. Financial intermediation can be done through the opening of bank branches, which paves the way for varieties of financial services to be offered to households and firms in accordance with their needs and status (mishkin, 2007). This is in line with the positions of Chandan and Mishra (2010). However, financial intermediation faces the problem of information asymmetry during the intermediation process. A major drawback of this theory is that it ignores the moderating role of the financial system, which guides contract enforcement and information sharing, which can reduce transaction costs in the intermediation process. They also found a significant positive relationship between financial inclusion and financial intermediation; though in some developing countries, the unbanked poor population is hardly reached by financial institutions due to a lack of collaterals thereby discouraging financial inclusion. Financial intermediation thrives because of market imperfections as the deficit and surplus units lack the basic information (information asymmetry) to deal with intermediation. The financial institution acts in the interest of both parties by screening investors on behalf of savers and providing funds for prospective investors due to the fact that these institutions have a comparative information advantage on the deficit and surplus units which justifies the transaction cost usually imposed.



2.3 Empirical Review

Ezie et. al (2023) investigated the empirical effect of electronic banking on deposit money banks performance in Nigeria from 2009Q1 and 2023Q1. The paper adopted Dynamic Ordinary Least Square (DOLS) techniques and the variables include the dependent variable, Return on Equities (ROA) while the independent variables include point of sales (POS) and cheque (CHQS). The coefficient of the total number of point of sales transactions (POS) coefficient is directly related to electronic banking on bank performance long-run in Nigeria. The overall significance of the paper was measured by F-statistics which was observed to be 2.131201 (0.0638) variation in e-banking on bank performance due to the variation in the regressors; DW statistics was found to be 2.1. This suggests that there is no serial correlation in the study. However, the overall performance implied that there is a positive impact of electronic banking on banks' performance in Nigeria and thus can contribute to the economic performance and acceleration process.

Andrew (2018) explores the adoption of electronic banking [e-banking] in Nigeria. It examines the problems and prospects of e-banking in Nigeria from the consumer's perspective. However, the results from the study have also revealed that despite these problems, the rate of adoption of e-banking services in Nigeria is phenomenal as banks have recorded outstanding successes in some areas. Nigeria is a consuming nation and based on the experience from other sectors of the economy that over depend on foreign technologies, [e.g energy sector], sustainability of the successes recorded is threatened considering the huge cost of acquisition and of replacing ageing infrastructures such as the ATM machines and the poor maintenance culture prevalent in all organizations in the country.

Orji, Ogbuador, Okon and Anthony-Orji(2018) researched on the nexus between electronic banking innovations and the overall banking performance from the period of 2012 to 2017 in Nigeria. The researchers employed descriptive data analysis and multiple regression analysis techniques in order to unravel the relationship between each of the independent variables on the dependent variable. The major influencers of banks performance among the variables captured in the study are automated teller machine, bank size, point of sale, mobile banking. The researchers found out that electronic banking innovation impact overall banking performance and the impact are significant.

3.0 METHODOLOGY

This study adopted ex post facto research design. The design was adopted considering the nature of the study which requires the collection of data on events that had already taken place. The population of this study consists of all the twenty three (23) deposit money banks in Nigeria as at 31st December, 2025. 10 selected deposit money banks was considered as a sample of the study. The study adopted simple sampling technique. Secondary data sources were used for the purpose of this study in order to present the reality of the situation. These data were generated from 10 selected deposit money banks annual report and the CBN statistical bulletin. Data collection on this topic spans a ten-year period (2015-2024). The annual report of selected firms and the Central Bank of Nigeria's (CBN) website were used to download the 2015 to 2024 bulletin. The study will employ multiple regression technique to inspect the relationship between Board characteristics and Financial performance of listed manufacturing firms in Nigeria. The E-View version 7 was applied to code, enter and compute the measurements of the regression of the study.

Model Specification

The study adopts this model to show the effect of the independent variable on the dependent variable.



$$ROE = f(ATM, POS, MB)$$

$$ROE = \alpha + \beta_1 ATM + \beta_2 POS + \beta_3 MB + e$$

Where;

ROE represents Return on Equity

ATM represents Automated Teller Machine

POS represents Point of Sales

MB represents Mobile Banking

α represents the constant term

β represents the coefficient of the function

e represents error term

4.0 RESULTS AND DISCUSSION

4.1 Presentation of Result

Table 4.1.1: Descriptive Table

	ROE	ATM	POS	MB
Mean	0.163495	9.214176	8.767931	7.324315
Median	0.149900	9.295350	8.266750	7.587900
Maximum	0.375300	10.39350	12.31610	12.88080
Minimum	0.005800	0.000000	0.000000	0.000000
Std. Dev.	0.083310	1.533428	2.370287	4.430294
Skewness	0.502635	-4.312093	-0.678200	-0.606805
Kurtosis	2.548461	26.71003	4.820532	2.121470
Jarque-Bera	5.060234	2652.259	21.47565	9.352769
Probability	0.079650	0.000000	0.000022	0.009313
Sum	16.34950	921.4176	876.7931	732.4315
Sum Sq. Dev.	0.687107	232.7886	556.2080	1943.123
Observations	100	100	100	100

Source: E-View Output, 2026

Table 4.1.1 reports the descriptive statistic of the variables employed, it was shown that Return on Equity has an average mean of 0.163495, with standard deviation of 0.083310. Point of Sales has an average mean of 8.767931, with standard deviation of 2.370287, Mobile Banking has an average means of 7.324315, with the standard deviation of 4.430294 and Automated Teller Machine has an average means of 9.214176, with the standard deviation of 1.533428. The JarqueBera normality test indicates that all the variables are normally distributed.



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Table 4.1.2 Fixed Test Analysis

Dependent Variable: ROE

Method: Panel Least Squares

Date: 06/08/26 Time: 22:46

Sample: 2015 2024

Periods included: 10

Cross-sections included: 10

Total panel (balanced) observations: 100

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.118449	0.030221	3.919398	0.0002
ATM	-0.023461	0.005501	-4.264666	0.0001
POS	0.046824	0.004574	10.23725	0.0000
MB	-0.020389	0.004013	-5.080344	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.807747	Mean dependent var	0.163495
Adjusted R-squared	0.781229	S.D. dependent var	0.083310
S.E. of regression	0.038966	Akaike info criterion	-3.531499
Sum squared resid	0.132099	Schwarz criterion	-3.192827
Log likelihood	189.5749	Hannan-Quinn criter.	-3.394432
F-statistic	30.46065	Durbin-Watson stat	1.704673
Prob(F-statistic)	0.000000		

Source: E-View Output, 2026

Table 4.1.3 Random Test Analysis

Dependent Variable: ROE

Method: Panel EGLS (Cross-section random effects)

Date: 06/08/26 Time: 22:47

Sample: 2015 2024

Periods included: 10

Cross-sections included: 10

Total panel (balanced) observations: 100

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.155916	0.033043	4.718651	0.0000
ATM	-0.028659	0.005397	-5.310095	0.0000
POS	0.037674	0.004040	9.325700	0.0000
MB	-0.008011	0.002917	-2.746660	0.0072

Effects Specification

S.D. Rho



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Cross-section random	0.048658	0.6093
Idiosyncratic random	0.038966	0.3907

Weighted Statistics

R-squared	0.801617	Mean dependent var	0.040137
Adjusted R-squared	0.786042	S.D. dependent var	0.060284
S.E. of regression	0.043218	Sum squared resid	0.179310
F-statistic	32.20762	Durbin-Watson stat	1.271523
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	-0.001950	Mean dependent var	0.163495
Sum squared resid	0.688447	Durbin-Watson stat	0.331175

Source: E-View Output, 2026

4.1.4 Hausman Test Analysis

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	3	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

Source: E-View Output, 2026

In this analysis, Hausman Test was performed to determine the model that is more efficient. The results of Hausman test is 1.0000 which is higher than 5%. This implies that Random Effect (RE) is more efficient than Fixed Effect (FE).

Interpretation of Results

In Table 4.1.3, the result of random test shows the constant value stands at 0.155916, which equally mean that while all other variables remain constant, Return on Equity will increase by the same amount. Coefficient of Point of Sales with 0.037674 reveals that for every unit increase in Point of Sales, there will be same amount increase in Return on Equity. The coefficient of Mobile Banking stands at -0.008011, which mean that for every unit increase in Mobile Banking, there will be the amount decrease in Return on Equity. Lastly, Automated Teller Machine with the coefficient value -0.028659, means that for every unit increase in Automated Teller Machine, there will be the amount decrease on Return on Equity.

The random test table also reveals the significance of the variable, it was found that Mobile Banking, Automated Teller Machine and Point of Sales has a p-value of 0.0072, 0.0000 and 0.0000 respectively, which shows that all the proxies of electronic banking have a significant effect on the Return on Equity of selected Deposit Money Banks in Nigeria. The coefficient of determination R^2 with value of 0.801617 implies that 80% of the variation of Return on Equity is influence by the explanatory variables while the remaining 20% is being explained by other variables outside the model but captured by the error term. Also, the adjusted R^2 explain fitness of the regression is high by 79% after adjusting for the degree of freedom. The Durbin Watson



statistics in the model is 1.271523, this shows that there is presence of autocorrelation among the variables.

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

Based on the findings of this study, the researcher concluded as thus:

The findings from the regression random test analysis table 4.1.3 revealed Mobile Banking, Automated Teller Machine and Point of Sales has a coefficient of -0.008011, -0.028659 and 0.037674 with a p-value of 0.0072, 0.0000 and 0.0000 respectively, which is lesser than the 5% significance level. Therefore, it was concluded that Mobile Banking and Automated Teller Machine has a negative and significant effect on the Return on Equity of selected Deposit Money Banks in Nigeria, while Point of Sales has a positive and significant effect on the Return on Equity of selected Deposit Money Banks in Nigeria.

5.2 Recommendation

Based on the findings, the following recommendations were made:

- i. Monetary authorities and commercial banks should enlighten their customer on the convenience and importance of adopting e-banking channels in completing their transactions.
- ii. Customers should be encouraged to use the mobile banking platform through the giving of gifts or promotions to stimulate the use of the platforms by bank customers.
- iii. The banking industry should adjust to full and effective deployment of information technology due to its sophistication since the technology is irreversible with relative perceived advantage.

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