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ELECTRONIC BANKING AND PERFORMANCE OF BANKING SECTOR IN NIGERIA

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Abstract

Electronic banking has become an important issue in gaining a competitive advantage while maintaining and growing overall effectiveness of banking sector. Despite the importance of electronic banking, the banking sector has continued to face challenges, such as long queues in certain banking halls, excessive cash handling by customers, and frequent network failures. Hence this research examined electronic banking and performance of banking sector in Nigeria. The financial reports of the chosen Nigerian deposit-taking banks provided the secondary data used in this investigation. The acquired data was analyzed using static panel data regression. With a coefficient value of 0.0080 and at the 5% significant level, the regression analysis's findings showed that online banking has a major impact on Nigerian deposit money banks' net interest revenue. The study's findings also showed that, at the 5% significant level, automated teller machines have an effect on the net interest revenue of deposit money institutions in Nigeria, with a coefficient value of 0.0063. With a coefficient value of 0.0056 and at the 5% significant level, the study also showed that mobile banking significantly affects the net interest revenue of deposit-taking institutions in Nigeria. The research concludes that Nigerian deposit money banks' performance is greatly impacted by electronic banking. The study recommends that in order for banks to truly gain from electronic banking, more customer orientation should be undertaken to raise awareness and encourage users to use the services.

Keywords: Electronic Banking, Performance, Deposit Money Banks

1.0 Introduction

The evolution of banking worldwide has seen significant improvements, particularly with the integration of electronic banking systems. This development has democratized access to financial services, allowing individuals to conduct transactions conveniently using mobile phones, computers, and other electronic gadgets (Dzombo, Kilika & Maingi 2018). The banking sector's dynamic and fiercely competitive environment has spurred banks to be at the forefront of technological adoption, continually striving to improve their services. This strategic use of technology not only ensures financial viability but also serves as a cornerstone for sustaining economic stability amid the sector's intricate challenges and unpredictability (Ugbede, Yahaya & Edicha, 2019).

Deposit money banks (DMBs) have aimed to enhance their performance by creating and embracing new products that align with technological advancements, commonly referred to as 'electronic banking' (Demaki, Eromafuru & Imasuen, 2021). Other countries around the world embraces the use of electronic banking like United Kingdom, India and so. For instance, once the financial sector underwent reforms in the early 1990s, the Indian banking sector started to invest more in technology advancements (Roy, 2018). However, banks in Nigeria face challenges related to poor platform performance, including malfunctioning ATMs, online theft, network downtime, and service unavailability (Joseph et al,2021). In addition, customers express dissatisfaction with hidden costs associated with e-banking features like SMS notifications. Unrelenting and unregulated costs from banks have deterred customers and made it harder for

them to willingly utilize other channels. Because one kobo today could be worth billions in the future, it is particularly disheartening when both the paying bank and the receiving bank impose charges on a customer for the same transaction. As a result, customers tend to favor cash transactions. Therefore, bank financial performance has decreased as a result of this (Joseph et al., 2021).

A surge in fraudulent activities targeting Nigerian banks is raising serious concerns. Hackers are stealing data and using it to threaten individuals, while others are tricked into revealing confidential information under the guise of bank upgrades (Adedeji & Adedokun 2020). Data insecurity, whether resulting from negligence or cyber intrusion, has wreaked havoc on numerous customers, leading to the loss of all or part of their savings due to cyber theft. Statistics indicated that, the number of customers affected by theft and fraud has surged exponentially, primarily due to the absence of electronic banking systems and resistance from some customers who perceive it as a way for banks to charge more without offering substantial services. Additionally, instances of data insecurity and the loss of critical information from customer databases occurred in several banks during this period, mainly because these banks failed to incorporate the newly adopted systems into their strategic managerial decision-making processes. Instead, they viewed it solely as a means of enhancing customer service rather than improving overall performance (Adedeji & Adedokun 2020).

Furthermore, rural households' restricted access to the computerized banking system presents a barrier because Nigerian banks are rarely situated in rural communities, thereby denying the dwellers of rural community access to electronic banking, which impacts the banks' operating efficiency (Joseph et al., 2021). Successful e-payments systems have also been seriously threatened by unfavorable networking conditions. Businessmen now prefer cash transactions over electronic payments because the latter do not immediately appear in their accounts and so do not adhere to the cash-and-carry business model, which has exposed customers to serious risks such as armed robbery (Joseph et al., 2021).

Since scammers have taken advantage of the nation's internet infrastructure, legitimate international and domestic financial transactions are less likely to take place there. There is already a natural skepticism about utilizing internet banking services in Nigeria, and a growing body of evidence indicates that dishonest Nigerians use fake websites to steal money from unwary victims worldwide (Victory et al, 2022).

Hence, this research explored the relationship between electronic banking and the performance of deposit-money banks in Nigeria. The next section will be literature while the third section will be methodology. This will be followed with data analysis and interpretation. Finally, the last section will be conclusion and recommendations.

2.0 Literature Review

Electronic Banking

The concept electronic banking (e-banking) is complex to define as it may be interpreted differently from different views (Nwakoby et al, 2020). The complexity of being precisely specified in the literature grows due to the adaptability of electronic banking as a multichannel

distribution method (Okolie & Eze, 2023). The term "electronic banking" is technically difficult to define because attempts to define it have led to a variety of interpretations. Perry-Quartey (2018) asserted that different researchers have defined electronic banking in a variety of ways, primarily because it refers to a number of channels that allow customers to conduct transactions and make enquiries via telephone, digital television, computer, or mobile device (Odumusor & Ewa, 2022).

Regulatory reform, intensified competition, rising costs for new product development, and swift technological advancements are some of the major changes that electronic banking has brought about in the financial sector (Demaki, Eromafuru & Imasuen, 2021). Additionally, the advent of internet banking has created convenient banking channels, reducing the problems associated with traditional banking, including administrative costs and client lines in banking halls (Perry-Quartey 2018; Harelimana 2018). The implementation of electronic banking has resulted in the gradual phase-out of traditional banking methods like cash payments, checks, and payment orders, which have always been time-consuming. This has improved the efficiency of banking operations, making electronic banking a crucial component of the banking sector and boosting bank profitability (Harelimana, 2018). Nonetheless, in the instance of Nigeria, all Nigerian banks have embraced electronic banking from its introduction by Societe Generale Bank of Nigeria (SGBN), which is currently recognized as Heritage Bank Plc., in 1986, despite the difficulties that come with it, as reported by Nwakoby et al. (2020). Even though banks' net interest margins stayed in respectable ranges, statistics from the CBN (2019) and NDIC (2019) showed a consistent rise in the use of electronic banking channels, including automated teller machines (ATMs), point of sale (POS), internet banking, mobile banking, etc. The preference for electronic payment channels over cash transactions can be attributed to a number of reforms that have been implemented, such as the expansion of the internet and the increasing global reliance on e-business, which has forced the banking sector to position itself for innovations to improve service delivery and profitability (Onyike, Ekeagwu & Sunday, 2019). The COVID-19 pandemic era in Nigeria also increased the rate of participation in online banking, agency banking and lot more since the people can't go to the banking hall to perform their daily financial transactions (Okunbanjo & Fakunmoju, 2023). Furthermore, the Central Bank of Nigeria (CBN) naira revamp and cashless policy implementation in January 2023 created a great movement from cash-based payment to electronic-payment system, when limit was placed on the amount of cash (paper money) individual can withdraw from their account. People had to turn to the electronic payment systems since the cash-based payment cannot be utilized in payment of large amount of money (CBN, 2022).

Financial Performance

Financial performance is typically expressed as the overall earnings or losses incurred throughout the given time period (Obasa, 2023). How effectively a corporation uses its resources in its main business to generate income can be determined by looking at its financial performance (Okolie & Eze, 2023). According to Ateke and Akani (2018), performance in business refers to the state of a company as a result of its programs and activities, evaluated against predetermined goals or in comparison to the status of rival companies. It is a gauge of how well the company accomplishes its stated goals (Gbanador, 2023). Profitability, deposit size, and bank size could all be regarded as a measure of a bank's performance (Ibekwe, 2021). A frequent premise that guides a lot of financial performance research and discussion is that better financial performance

would result in better organizational operations and activities (Odumisor & Ewa, 2022). The domains of finance and management have witnessed significant progress in measuring financial performance and e-banking (Odumisor & Ewa, 2022). However, depending on a bank's performance throughout a given time period, many perspectives may be used to evaluate DMB performance (Gbanador, 2023). Financial institutions' size, asset management, and operational efficiency can all be considered key components in enhancing their financial success (Odumisor & Ewa, 2022). Profitability, total assets, client base, and deposit volume are the most often used performance metrics (Gbanador, 2023). The Return on Equity (ROE), Return on Assets (ROA), and Net Profit Margin (NPM) are three profitability metrics that are employed to assess bank performance (Okolie & Eze, 2023). A financial performance metric known as net interest income (NII) represents the distinction between the money received from a bank's interest-generating assets and the costs borne in servicing those assets.

Theoretical Review

Technology Acceptance Model (TAM)

Researchers frequently employ the technology acceptance model (TAM), which was first presented by Davis, Bagozzi, and Warshaw (1989), to assess the basic elements that impact users' acceptance and adoption of new information systems (Aigbovo & Orobator, 2022). According to Demaki, Eromafuru, and Imasuen (2021), TAM focusses on perceptions rather than actual usage and contends that consumers are the primary determinants of how, where, and when they would utilize such technology. Adopters who plan to or have already adopted technology are assumed to make logical decisions according to the technology adoption model (Awoniyi, 2022). Because it explains users' adoption and application of electronic banking within the framework of enhancing organizational effectiveness, TAM is relevant (Demaki, Eromafuru & Imasuen, 2021). According to Obi-Nwosu, Onuoha, and Okoye (2021), the theory's principal proponent maintained that enhancing technological acceptance was the most effective strategy for boosting its use.

According to the theory, rational users take into account two fundamental elements before embracing a technology: perceived usefulness and simplicity of use (Nwankwo & Agbo, 2021). Perceived usefulness refers to how much an individual believes that adopting a specific technology enhances their work performance (Oniore & Okoli, 2019); on the other hand, perceived ease of use describes the extent to which they feel that employing a certain innovation doesn't require more personal effort (Amaduche, Adesanya & Adediji, 2020). According to Olaiya and Adeleke (2019), the perceived ease of use measures includes if the innovation is simple to use, controlled, simple, and intelligible. The approach focusses more on the strong connection between perceived utility and perceived ease of use (Okolie & Eze, 2023). Explaining the elements influencing the acceptability of computer programs generally is the main objective of TAM (Aigbovo & Orobator, 2022).

According to Osakwe and Akunna (2023), the main critique of technology acceptance theory is that it neglected to account for the expenses associated with purchasing new technology. This is due to the possibility that users who would be open to embracing a new technology are unaware of the associated costs and lack the finances to do so (Asidok & Michael, 2018).

Empirical Review

Using Equity Bank Ltd. as a case study, Harelimana (2018) assessed the influence of electronic payment systems on Rwandan financial organizations' financial performance from 2012 to 2016. Of the 253 people in the population, 155 respondents were selected as a sample for the research, which employed both primary and secondary data. Using multiple regression analysis and descriptive statistics, the acquired data was examined. Customers' access to electronic payments was influenced by a number of factors, including recommendations for straightforward loan application processes, minimal collateral requirements, cheap financing costs, low interest rates, and government guarantees. Additionally, the study found that online remittance, internet banking, mobile banking, and electronic card banking all had a favorable and noteworthy effect on Equity Bank Ltd.'s profitability.

The impact of electronic banking on the financial performance of Kenyan listed commercial banks was studied by Ogutu and Fatokio (2019), who discovered a strong connection between the financial performance of Kenyan listed commercial banks and online, agency, ATM, and mobile banking. Nazaritehrani and Mashali (2020) conducted an analysis that focused on the growth of e-banking channels and their impact on developing countries' market shares. This study examined a number of variables, including POS system, mobile, internet, and ATM banking, all of which were found to positively impact the banks' market share.

The impact of electronic banking on the profitability of Nigerian deposit-taking institutions was assessed by Nwakoby et al. (2020). The research employed an ex post facto research design, and data was sourced from the nine Nigerian deposit money banks that were sampled from the total number of fifteen quoted banks on the Nigerian Stock Exchange. This information was gathered from the banks' various annual reports and accounts as well as from CBN Statistical bulletins for the years 2009 to 2018. The study used the ordinary least squares framework of panel regression analysis, and the results indicated that the return on equity of Nigerian deposit-taking banks was negatively but not significantly impacted by ATMs and POS.

Ihediwa (2020) looked into the link between Nigerian deposit money banks' profitability and electronic banking. This research employed an ex post facto research design. Nine Nigerian deposit money institutions were picked as a sample from a population of fifteen Banks listed on the Nigerian Stock Exchange. The CBN Statistical Bulletins and the yearly reports and accounts of the selected banks provided the data for the years 2009 through 2018. The study examined the hypotheses using regression analysis with the use of E-View 9.0. According to the report, the return on equity of Nigerian deposit-taking banks is negatively affected through the use of Automated Teller Machines (ATMs) as a payment method.

Deekor (2021) used quarterly data from 2010 to 2018 to evaluate the effectiveness of deposit-taking banks and e-banking in Nigeria. Bank performance was indicated by net interest margin, while e-banking was indicated by ATM, POS, mobile banking, and web pay. According to the study, mobile banking has a favorable and significant link with net interest margin, but POS, web pay, and ATMs have no discernible effect on it.

Okonkwo and Ekwueme (2022) used time series data from 2009 to 2019 to investigate how e-payments affected the financial results of deposit money banks in Nigeria. ATM and POS served as stand-ins for the independent variable, and ROA as a stand-in for the dependent variable. The

results showed that whereas the POS has a negative but negligible link with ROA, the ATM has a positive but negligible effect on ROA.

The influence of payments system innovation on the financial outcomes of Nigerian commercial banks was ascertained by Zayyanu and Taiwo (2022). According to the report, Real Time Gross Settlement (RTGS) has an adverse effect on the return on assets of Nigerian commercial banks, while Internet, POS, and mobile payments have a favorable and significant influence.

With numerous studies focusing on the influence of electronic banking on financial performance, such as Deekor (2021), Ihediwa (2020), Nwakoby et al. (2020), Enoruwa, Ezuem, and Nwani (2019), and Oyewole, El-maude, Gambo, and Arikpo (2013), have increased recently. Although Return on Equity (ROE) and Return on Assets (ROA), were used in the aforementioned studies, Net Interest Income (NII), a critical assessment of a bank's profitability derived from its core banking operations, was not taken into consideration. The difference between interest paid on deposits as well as other interest-bearing debts and interest received from loans, securities, and other interest-earning assets is known as net interest income.

These studies might have overlooked a key component of the influence of electronic banking on the financial outcomes of deposit-taking banks in Nigeria by failing to take Net Interest Income (NII) into account because it shows how effectively banks are using their digital platforms to draw deposits, control interest rates, and produce revenue from interest-earning assets, net interest income is especially pertinent in the context of electronic banking. Thus, the lack of Net Interest Income (NII) analysis in evaluating the financial outcomes of deposit-taking banks in Nigeria's electronic banking environment represents a research need. A more thorough grasp of how electronic banking initiatives affect the sustainability and profitability of DMBs in the Nigerian financial industry may be possible by investigating Net Interest Income (NII). The usefulness of electronic banking tactics in boosting Net Interest Income (NII) growth, improving interest rate management, and eventually improving DMBs' overall financial performance may be revealed via this line of inquiry. The reason for the choice of NII is because it enables the need to seek clarification on specific possible direction towards interest income generated by banks unlike ROA, ROE and profit after tax that addresses the generality of revenue of banks.

3.0 Methodology

Secondary data utilized in the research were obtained from the 2013–2023 annual reports of a few chosen banks. United Bank for Africa, Zenith Bank PLC, Guarantee Trust Holding Company PLC, First Bank of Nigeria Holdings, Access Bank PLC, ECO Bank, and Stanbic IBTC are some of these banks. Based on their market capitalization as reported by the Nigeria Stock Exchange (NSE), these banks rank among the top seven banks in Nigeria. Three models of estimation were used: Random Effect, Fixed Effect, and Pooled OLS. The Breusch Pagan (BP) Lagrangian multiple test aids in choosing the most suitable model from both fixed effect and pooling OLS. A Hausman test aids in choosing the most suitable model among both fixed effect and random effect models.

Model specification

The functional specification of the model is presented as:

$$DMBTA = f(ATM, POS, MB, IB) \dots\dots\dots Eq (1)$$

The model is expressed econometrically as:

$$DMBTA = \beta_0 + \beta_1ATM + \beta_2POS + \beta_3MB + \beta_4IB + \mu_t \dots\dots\dots \text{Eq (2)}$$

Where:

DMBTA= Deposit Money Bank Total Assets

ATM= Automated Teller Machine

POS=Point of Sales

MB= Mobile Banking

IB= Internet Banking

β_0 =Regression Constant

$\beta_1, \beta_2, \beta_3$ and β_4 = Regression coefficient.

μ_t =Stochastic Error Term

However, this study research gap made use of NII which is the dependent variable because it has been overlooked by previous researchers, unlike Gbanador (2023) who made use of DMBTA.

The functional specification of the model is presented as:

$$NII = f(ATM, POS, MB, IB) \dots\dots\dots \text{Eq (3)}$$

The model is expressed econometrically as:

$$NII = \beta_0 + \beta_1ATM + \beta_2POS + \beta_3MB + \beta_4IB + \mu_t \dots\dots\dots \text{Eq (4)}$$

Where:

NII= Net Interest Income

While others are as stated earlier

Table 1

Measurement of the Variables

S/N	Variables	Description
1	Net Interest Income (NII)	Bank financial performance will be indicated with NII which is Net Interest Income and measured as the distinction between interest earned from loans, securities, and other interest-generating assets as well as the interest expenses associated with deposits and other interest-bearing debts.
2	Internet Banking (IB)	Internet banking is measured aggregate value of mobile banking transactions conducted within a specific year.
3	Automated Teller Machine (ATM)	Automated Teller Machine is measured by the total value of ATM transactions conducted within a specific year.
4	Point of Sales (POS)	Point of Sale is measured by the total value of POS transactions conducted within a specific year.

4.0 Data Presentation and Interpretation of Result

This chapter outlines the outcomes following the methodology explained in chapter three. The chapter covers data presentation, analysis, and the interpretation of the collected data.

Table 2: Correlation Coefficients

Correlation	ATM	POS	INTB	MB
ATM	1.00			
POS	0.06	1.00		
INTB	0.08	-0.03	1.00	
MB	0.03	0.07	0.04	1.00

Source: Author’s Computation, (2024).

Correlation Coefficients

A significant issue with multiple regression models is multicollinearity, or the interdependence of independent variables, which can result in biased coefficient estimations and, ultimately, inaccurate regression results. This study used a pair-wise correlation test to investigate the existence of multicollinearity. Only the independent variables were examined in the test to eliminate needless complications. Every correlation coefficient between the independent variables is less than 0.5, according to the correlation analysis's findings. Consequently, they are not multicollinear.

Table 3: Findings from the Hausman test across all models

Model	Hausman test	
	Chi-Statistics	P-value
FIXDMBTA	23.56	0.0027
RANDOMDMTA		
FIXNII	6.40	0.6025
RANDOMNII		

Source: Author’s Computation, (2024).

The aforementioned Hausman test result indicates that the fixed effect and random effect models adopted in this investigation are both statistically feasible and have a decent fit. To compare the fixed and random effect models and ultimately choose between them, the Hausman test must be adopted. According to the null hypothesis for the Hausman test, choose the random effect model if the null hypothesis is not accepted, or the fixed effect model if it is accepted.

The findings of the Hausman test used in this investigation are shown in table 3, Between FIXEDMBTA and RANDOMDMBTA, the Hausman test's chi-square statistics are 23.56 and the p-value is 0.0027. This reflects the superiority of the fixed effect model for models with DMBTA as the dependent variable. The p-value is 0.625 and the Hausman test's chi-square statistics between FIXEDNII and RANDOMNII are 6.40. The null hypotheses cannot be ruled

out because the P-value is higher than the 5% level of significance, and the outcomes of the random effect models are better for the models that use NII.

Table 4.

Result from the Breusch-Pagan Lagrange Multiplier (LM) Test

MODEL	TEST	Goodness of fit		Overall significance	
		Fit-Statistics	P-value	F-Statistics	P-value
Fix DMBTA		3.28	0.0000	3.17	0.0012
Random DMBTA		8.10	0.0000	45.82	0.0000
Fix NII		1.48	0.0026	13.30	0.0000
Random NII		11.38	0.0013	51.07	0.0000

Source: Author’s Computation, (2024).

Overall Significance

For the fixed effect and random effect models, respectively, the F-test and the Breusch-Pagan Lagrange Multiplier (LM) test were used to assess the general significance of the coefficient of the panel regression models used in this investigation. If the statistics' P-Value is less than the standard threshold of significance (10%, 5%, or 1%), the model is considered to fit well; if not, it does not. The findings from the overall significance and goodness of fit tests are shown in Table 4, P-values for the F-statistics of every fixed effect and random effect model are less than 5%. For all models, the dependent variables are significantly impacted by the independently significant independent factors taken into account together. This indicates that all the models are statistically significant.

Table 5

Results of Fixed and Random Effect Regressions for DMBTA

INDEPENDENT VARIABLES	Dependent variable: Deposit Money Bank Total Assets	
	(1) fixed effect	(2) Random effect
ATM	0.0053** (0.0017)	0.0065** (0.0016)
POS	0.0055** (0.0012)	0.0073** (0.0014)
IB	0.00051** (0.00007)	0.0086*** (0.00028)
MB	0.040*** (0.011)	0.034** (0.016)
CONSTANT	-0.042 (0.046)	-0.10 (0.057)
OBSERVATIONS	77	77
R-SQUARED	0.69	0.85
NUMBER OF BANKS	7	7

*Significant at 10%, **significant at 5%, ***significant at 1%, Robust standard errors in

parentheses

Source: Author’s Computation, (2024).

Interpretation of Results of fixed and random effect regressions for DMBTA

The F-test and the Breusch-Pagan Lagrange Multiplier (LM) test were used for the fixed effect and random effect models, respectively, to assess the overall significance of the coefficient of the panel regression models used in this investigation. The model is deemed to have an adequate fit when the statistics' P-Value is less than the traditional level of significance (10%, 5%, or 1%); otherwise, the fit is considered poor. Table 4.3 presents the findings from the overall significance and goodness of fit tests. All fixed effect and random effect models have F-statistics with P-values below 5%. Therefore, for all models, the independently significant variables taken into consideration together have a substantial influence on the corresponding dependent variables.

This implies that the more ATM, POS, INTB, and MB used, the higher the DMBTA. Similarly, all of the variables are significant at a 5% significance level, as shown by the fixed effect model in paragraph 1. Stated differently, each variable has a significant influence on DMBTA. The variables' statistical importance is demonstrated by the robust standard errors. Less than half of the variables' coefficients are the robust standard error of the coefficient (in parenthesis). The coefficient magnitudes in the fixed effect model show that DMBTA rises by 0.0053, 0.0055, and 0.0051 units for every unit increase in ATM, POS, IB, and MB usage. On the other hand, the extent of the impact demonstrated by the random effect model suggests that a unit increase in usage of ATM, POS, IB and MB will lead to 0.0065, 0.0073, 0.0086 and 0.034 increase in DMBTA.

Table 6
Result of Fixed and Random Effect Regressions for NII

INDEPENDENT VARIABLES	Dependent variable: Net Interest Income (NII)	
	(1) fixed effect	(2) Random effect
ATM	0.0091** (0.0045)	0.0063** (0.0026)
POS	0.0070** (0.0031)	0.0056** (0.0021)
IB	0.054*** (0.0060)	0.0080** (0.0030)
MB	0.0070** (0.0031)	0.0056** (0.0021)
CONSTANT	0.10 (0.16)	0.16 (0.15)
OBSERVATIONS	77	77
R-SQUARED	0.72	0.77
NUMBER OF BANKS	7	7

*significant at 10%, **significant at 5%, ***significant at 1%, Robust standard errors in

parentheses

Source: Author's Computation, (2024).

With Net Interest Income (NII) as the dependent variable, Table 6 displays the regression results for the study of how electronic banking influence the performance of deposit-taking banks in Nigeria. The ATM, POS, IB, and MB are the independent variables. Column 1 shows the fixed effect model, and Column 2 shows the random effect model. Both findings demonstrate a positive correlation between NII and every other variable. The NII increases with the number of independent variables (ATM, POS, IB, and MB). In a similar vein, column 1's results show that every variable is statistically significant at 5%. Therefore, the fixed effect model shows that POS, ATM, IB, and MB are important factors that affect net interest income. Additionally, an increase of one unit in ATM, POS, IB, and MB results in an increase of around 0.0091, 0.070, 0.054, and 0.0054 units in NII, respectively. The random effect model also indicates that all of the independent variables in column 2 have a positive relationship with NII. Additionally, the outcome demonstrates that, at 5%, every variable is statistically significant. It indicates that an increase of one unit in the use of ATM, POS, IB, and MB will result in increases of 0.0063, 0.0056, 0.080, and 0.0075 in net interest income, respectively.

Discussion of Findings

To examine how electronic banking affected the total assets of Nigerian deposit-taking banks, panel data analysis was adopted. According to the study's findings, electronic banking significantly influences the total assets of deposit money banks in the Nigerian banking industry. In accordance with the findings of Gbanador's 2023 research, the study discovered a positive association between electronic banking and the total assets of deposit-taking banks in Nigeria. thus, the hypothesis that electronic banking has no discernible effect on the total assets of deposit money banks in the Nigerian banking system should be disproved.

This study supports the diffusion of innovation theory, which holds that organizations who adopt innovations like electronic banking would be able to provide financial services more quickly than those that do not. The effect of electronic banking on net interest income in the Nigerian banking system was investigated using panel data analysis. Additionally, this study found that electronic banking significantly affects banks' net interest income in the Nigerian banking system, indicating a favourable correlation between digital banking and net interest income. Nonetheless, the research aligns with the findings of Olanipekun, Brimah, and Suraj (2013) and Gbadeyan and Akinyosoye (2011).

The fact that internet-connected information technology (IT) can significantly facilitate effective coordination, management, and use of information by banking sector customers and thereby lower a firm's transaction costs makes this study additionally consistent with transaction costs innovation theory.

5.0 Conclusion and Recommendations

According to the study's findings, Nigerian deposit money institutions' total assets are greatly impacted by electronic banking. The study also finds that net interest income is significantly impacted by electronic banking. The study's final conclusion was that Nigerian deposit money banks' profitability and electronic banking have a beneficial association. The majority of deposit

money banks' clients still underuse electronic banking, thus in order for banks to truly benefit from it, additional consumer education and awareness efforts need be launched to encourage them to use the services. For e-banking to succeed, better internet connectivity is crucial. For this objective to be accomplished, the banking sector, together with internet service providers, must guarantee consistent internet connectivity. Customers and the banking industry are both very concerned about the security of their money. A number of steps should be taken to increase the security of funds when using e-banking services, including installing encrypted software, implementing a system for verifying customers' identification cards, changing passwords frequently, reviewing test questions, and using mixed passwords, such as alphanumeric ones. Policymakers should also re-examine laws pertaining to the adoption, transfer, and encouragement of innovation. Innovations that increase an organization's profitability should be promoted by the government.

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