

EFFECT OF ELECTRONIC BANKING ON THE PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

The study investigates how automated teller machines (ATM) and mobile banking affects performance of deposit money banks in the Nigerian economy. The study made use of time series data which were obtained from the Central Bank of Nigeria Statistical Bulletin from 2009 to 2021. The Central Bank of Nigeria (CBN) data on automated teller machine and mobile phones banking were used to proxy electronic banking while total deposits in banks proxied the performance of deposit money banks. The analysis was done using ordinary least square econometric technique with the aid of E-views statistical package. The results show that the automated teller machine has a positive and significant effect on the performance of deposit money banks and mobile banking has a positive effect on the performance of deposit money banks in Nigeria. It was concluded in the study that e-banking has equally increased banking access to customers and also created room for banks to expand their operations to more customers. The study recommends that banks in Nigeria should prioritize the expansion and maintenance of ATM networks as well as continue to invest in and develop more mobile banking services.

Keywords: *Electronic, banking, automated teller machines, mobile, deposit*

Introduction

Electronic banking is when electronic and telecommunication networks are employed to deliver a wide range of value-added products and services to bank customers (Osang, 2017). Electronic banking is the engagement of information technology in banking operations. Electronic banking, stemming from the realm of e-commerce within banking and financial sectors, enables banks to provide payment services for their customers engaging in online shopping. This platform allows customers to conduct banking transactions electronically, eliminating the need for physical visits to traditional bank branches (Obi-Nwosu, Onuoha, and Okoye, 2021). Electronic banking may be described as a means by which banking products and services are provided through electronic devices such as phones, iPods, etc. The nascent advances in technology seen around the world

have eliminated the traditional manual banking system and brought about a paradigm shift in banking to the extent that banks are using internet technologies to improve efficiency and scale up the provision of a wide range of value-added products and services. Consequently, Nigerian banks, especially commercial ones, now identify electronic banking as a unique means of differentiating themselves from their rivalries by investing in complicated expertise in order to sustain their bank growth (Amaduche, Adesanya, and Adediji, 2020). Banks provide financial intermediation, transmit instrument of monetary policy and maintain economic stability. A financial system is sound when it is filled with large banks that has enough capital to absorb apparent adverse shocks (Nwankwo and Agbo, 2021). Hence, bank growth brings about stakeholders' confidence in banks. A favorable bank financial performance engenders creditors' confidence in terms of the ability of the banks to meet their obligations, gives assurance to depositors about the safety of their deposits, rewards shareholders with return for their invested funds, to managers it is an assurance of their job's security and to the state, it shows bank's ability to pay tax (Nwankwo and Agbo, 2021).

Business environment is to a large extent is dynamic and had experienced great changes due to technological advancement, increased awareness and demands that banks serve their customers electronically (Osang, 2017). In an era marked by rapid technological advancements and a constantly evolving economic landscape, banks have been at the forefront of leveraging technology to enhance their offerings and customer experiences (Oniore and Okoli, 2019). The modern banking industry navigates through a dynamic and fiercely competitive environment, adapting to fluctuating conditions and an unpredictable economic climate. The advantages of an electronic mode of transfer over and above the conventional clearing house are numerous and conspicuous as banks are increasingly turning to technology for managing their payments. Some of the value attributes include secure payments, cost cutting, payment on due date and easier cash management compared to conventional systems.

Thus, Nigerian banks today have embraced the future by delivering banking products and services electronically for an efficient and effective services to their customers. Not been able to deliver these kinds of services are making banks lose their customers (Okonkwu and Ekwueme, 2022). Most studies shows that e-banking is been used by Banks in Nigerian but at a slow pace. Before the commencement of the e-banking, Nigeria had 89 commercial banks. Due to the

consolidation (i.e., mergers and acquisition) program, the number reduced to 24 banks. With the commencement of consolidation, banks started becoming innovative and started employing the use of electronic banking system, such as global system for mobile communication (GSM) phones, ATM, Internet facilities, optical character recognition (OCR), smart cards, funds transfer, e-banking, electronic mail, and bankers automated clearing services, and so on.

The challenges facing Electronics banking in Nigeria is the lack of accessibility for rural dwellers. Banks are not typically located close to rural areas, which hinders access to electronic banking and impacts the operational performance of banks and the government (Obi-Nwosu, Onuoha, & Okoye, 2021). Also, banks imposing incessant and unregulated charges has discouraged members of the public from using electronic channels, leading to a decline in total deposits to banks. The situation is worsened when both the paying and receiving banks charge the customer for the same transaction. This discourages customers from using electronic channels and preferring cash transactions (Zeker, Kadiri and Kowo, 2018). The maintenance and cost of internet banking are also too high for some banks and customers. Additionally, the activities of hackers and issues of insecurity and lack of privacy have caused financial and capital losses to customers due to .inaccurate processing of transactions, unauthorized access, and intrusion to financial institutions' systems, which impact negatively to the profitability and overall performance of DMBs. This study therefore aims to examine the effect of Automated Teller Machine and Mobile banking on Deposit Money Banks in Nigeria. In the light of these, the researchers formulated the following hypotheses in their null form:

1. H₀₁: Automated Teller Machine banking has no significant effect on the performance of deposit money banks in Nigeria?
2. H₀₂: Mobile Banking has no significant effect on the performance of deposit money banks in Nigeria.

The remaining parts of this study was therefore arranged as follows; Review of related literature, Theoretical framework, Empirical reviews, Methodology, Results and Discussions and finally Conclusion and Recommendation.

Review of Related Literature

Conceptual Reviews

Electronic Banking

Electronic banking is a secure platform that protects customers' personal and financial information from unauthorized access or fraud (Zayyanu, Umar and Taiwo, 2022). Financial institutions use advanced encryption and security measures to ensure that customers' information is safe and secure. Another advantage of internet banking is that it provides customers with a variety of banking services at their fingertips (Amaduche, Adesanya, and Adediji, 2020). Customers can perform various transactions such as fund transfers, bill payments, loan applications, and account opening and closing, among others. Electronic banking also offers customers access to other financial services such as investment and insurance products, providing a comprehensive financial solution. Electronic banking has also benefited financial institutions by reducing the cost of providing banking services.

Electronic banking, financial institutions can reduce their operating costs by eliminating the need for physical branches and staff. This cost reduction can be passed on to customers in the form of lower fees and better interest rates. Additionally, internet banking has helped financial institutions to expand their customer base beyond their physical location, reaching customers who live in remote areas or overseas (Oniore and Okoli, 2019). Thus, internet banking has become an essential service in the banking industry. It offers customers a convenient and flexible way to manage their finances and provides financial institutions with a cost-effective way to provide banking services (Zayyanu, Umar and Taiwo, 2022). As technology continues to evolve, internet banking will likely become even more advanced and sophisticated, offering customers and financial institutions even greater benefits.

Automated Teller Machine

Automated Teller Machine consists of a computer-controlled device that can be instructed to dispense cash and equally provide other services to customers who are identified with a personal identification number (PIN). The introduction of this service has greatly reduced the physical carriage of cash and frequent visits to the banks. With ATM, cash is dispensed at any time of the day and it must not necessarily be located within the banking premises (Gambo, 2020). It could be located even in stores, shopping malls, and fuel stations etc. This is different from the

customary method where customers queue, and sometimes, for a very long period to withdraw cash or transfer funds. The ATM is one of the most popular e-transaction solution in Nigeria (Nwakoby *et al.*, 2020). Its popularity stems from its convenience as it has rendered withdrawing cash, or checking of account balance a lot easier (Ighoreje and Okoroyibo, 2020). However, despite its popularity, the effect of ATM has not been as expected as there is still huge amount of cash in circulation in the economy.

Apparently, its introduction has done very little in reducing the amount of cash in the economy. This could be attributable to the fact that most Nigerians use ATM only for cash withdrawal. The vast majority of customers ignore the fact that ATM machines can perform other functions like fund/cash transfer, mobile phone credit recharge and bills payment. Automated Teller Machine (ATM) is an electronic device that provides a range of banking services to customers without the need for face-to-face interaction with a bank teller. It is designed to operate with the use of a plastic ATM card, which is linked to the customer's bank account. This card is placed in the card slot of the machine, and the customer is asked to input their personal identification number (PIN), which is a security measure to make sure that the account is only accessed by the account holder.

Once the customer is authenticated, the ATM provides a range of services, including cash withdrawals, balance inquiries, and funds transfers between accounts. Some ATMs also allow customers to deposit cash and checks directly into their accounts, and some offer additional services such as bill payment and prepaid card purchases.

The introduction of ATMs has greatly revolutionized the banking industry by providing customers with easy access to their funds and reducing the need for frequent visits to the bank. Prior to the widespread adoption of ATMs, customers had to physically visit their bank to carry out basic banking transactions such as cash withdrawals and balance inquiries. With the introduction of ATMs, customers can now conveniently carry out these transactions at any time of the day, even outside banking hours.

Furthermore, ATMs have greatly reduced the physical carriage of cash, which was previously a major security risk for both customers and banks (Nwakoby *et al.*, 2020). Instead of carrying large sums of cash, customers can now withdraw smaller amounts as and when they need it,

without the risk of being robbed. In summary, the ATM is an important innovation in the banking industry, providing customers with convenient access to their funds and a range of other banking services. It has significantly reduced the need for physical visits to the bank and the risk associated with carrying cash, making banking more accessible and secure for customers.

Mobile Banking

Mobile banking is the process of making financial transaction with the aid of a mobile phone. Asidok and Michael (2018) opined that mobile banking involves the use of banking and financial services with the help of a mobile telecommunication devices. This is more or less fund transfer process between customers with funds available immediately for the beneficiary (Zayyanu, Umar and Taiwo, 2022). Card infrastructure is used for movement of payment instructions equally as secure SMS messaging to beneficiaries intended for confirmation of receipts. It has become a very popular as well as exciting innovation to the customers given that it requires low infrastructure to function and the speedy mobile phone penetration in the country (Adewoye, 2013). The following are some of the services under this product; funds transfer; recharge phones; changing passwords, bill payments (Asidok and Michael, 2018).

Although the product may appear exciting, it is surprising to note that most customers are yet to fully buy into it in Nigeria. To achieve this, the Central Bank and the other banks are tasked to increase awareness of the product to majority of savers in the economy (Siyanbola, 2013). The array of services provided may include the ability to perform banking and stock market transactions, manage accounts, and access tailored information (Kennedy and Jacky, 2013). Mobile banking is an electronic banking product that allows customers to access banking services through a dedicated telephone line from the comfort of their homes, offices etc. Services rendered here include; balance transfer, change of pin, authorization of inter-branch money transfer, transaction alert (withdrawal or deposit) and enquiry (Adewoye, 2013). Through this platform, customers can access their accounts using telephone lines as a conduit to connect to the financial institution's computer center. Some of the services rendered here include account balance, transfer, and change of pin. This product has also experienced low patronage as a result of inadequate awareness and education of the customer on how to maximize the use of their phones to transact simple banking operations (Siyanbola, 2013).

Growth of Deposit Money Banks in Nigeria

Bank growth is an essential metric because it reflects the bank's ability to attract new customers, increase its loan portfolio, and expand its operations. Banks that experience significant growth are generally considered healthy and profitable, while those that experience a decline in growth may be facing financial difficulties. There are several factors that can influence a bank's growth, including market conditions, economic trends, and competition (Oniore and Okoli, 2019). In a booming economy, banks are likely to experience robust growth as individuals and businesses seek credit to fund their operations. Conversely, during a recession, banks may experience a decline in growth as customers become more cautious and credit becomes less available. Banks can also promote growth through strategic initiatives such as expanding their product offerings, increasing their geographic reach, and improving customer service. For example, a bank that introduces new products such as mobile banking or invests in digital infrastructure may attract new customers and drive growth (Oniore and Okoli, 2019).

Thus, bank growth is a vital metric for evaluating the financial performance and stability of a bank. It reflects the bank's ability to attract new customers, increase its loan portfolio, and expand its operations (Amaduche, Adesanya, and Adediji, 2020). Various factors can influence bank growth, including market conditions, economic trends, competition, and strategic initiatives. Banks that experience significant growth are generally considered healthy and profitable, while those that experience a decline in growth may face financial difficulties.

Effect of Electronic Banking on Bank Growth

To bridge this gap, banks need to find ways to make electronic services more accessible to customers. This can be achieved through the use of user-friendly interfaces, mobile banking applications, and round-the-clock customer support. It is also important for banks to ensure the accuracy of e-banking transactions, as this helps to build trust with customers and increases their satisfaction levels. Electronic banking has brought about significant changes to the banking industry in Nigeria. One of the most significant benefits of internet banking is its ability to reduce transaction costs. Transactions can be carried out electronically, which means that there is no need for customers to visit a physical branch, reducing the cost of staff and infrastructure.

Furthermore, Electronic banking has improved payment efficiency by enabling customers to make payments with ease, without the need to wait in long queues or fill out paper-based forms. This has helped to save time for both customers and banks, resulting in improved efficiency in

the banking system (Amaduche, Adesanya, and Adediji, 2020). Another advantage of internet banking is that it has enabled banks to offer a wider range of financial services to their customers. Customers can access a range of services, such as online account opening, loan applications, and investment management, from the comfort of their own homes or offices. This has not only increased convenience for customers but has also helped to attract more customers to banks.

Electronic banking has also helped to improve the bank-customer relationship. Banks can now offer personalized services to their customers based on their individual needs and preferences. For instance, banks can use customer data to offer tailored financial advice and services to customers. The use of technology in banking has also made it easier for customers to monitor their account activity and ensure the accuracy of their transactions. Customers can view their account balances, transaction history, and receive notifications of any activity on their accounts through mobile banking applications.

Theoretical Review

Innovation Diffusion Theory

Innovation Diffusion Theory was propounded by Everett M. Rogers in 1983. The theory is coined from the combination of two words: innovation and diffusion. Innovation refers to an idea, practice or project which is perceived as new for adoption by an individual (Ekechukwu, 2016). Diffusion entails the process with which innovation is passed on through channels over a period of time between the participants in a social system. The four main elements that work together in this process of diffusion of spreading new idea are communication, innovation, time channels & social system (Oniore and Okoli, 2019). These four elements go through the following five major steps: Knowledge, Persuasion, Decision, Implementation & confirmation.

The main proposition of this theory is that innovation adoption is a process aimed at reducing the uncertainty about the latest technology. Individuals to adopt the new technology need to gather and synthesize information about the technology. Thus, the adopters of an innovation will need to first have the knowledge of the innovation, be persuaded to adopt the innovation, make a decision to either adopt or not, implement the decision and confirm whether the decision made to adopt the technology meets the criteria of compatibility, relative advantage, trial ability, complexity and observability (Rogers, 1983).

The study is related to the Innovation Diffusion Theory based on the criteria of relative advantage and compatibility. The standard of compatibility is to what level is innovation is seen as been consistent with the existing values, experiences and the needs of potential adopters (Ekechukwu, 2016). Relative advantage is the extent to which an innovation is seen as being more superior to technology before it (Oniore and Okoli, 2019); it requires the adopter to analyze the costs and benefits of adopting a technological change, which can be expressed economically or socially. Thus, it can be argued from the postulations of the theory that electronic banking is adopted because they help banks keep and enhance the loyalty of their customers, provide opportunity to the banks to increase market share and increase customer satisfaction. Finally, the criterion of relative advantage supposes that e-payment systems are adopted for the reason that they reduce operational and administrative cost of the bank which helps to improve banks' competitive positions in the banking industry. This study theoretically supports the Innovation Diffusion Theory.

Empirical Review

Ighoroje and Okoroyibo (2020) examined the effect of cashless policy on the performance of Deposit Money Banks in Nigeria using ex-post facto research design and relies on historical time series quarterly data collected from the Central Bank of Nigeria (CBN) data browser website and the GlobalEconomy.com. The study covers the period of eleven (11) years (1989-2019). It was found that ATM and Internet banking ach has a positive and significant effects on return on equity (ROE), Point of sales (POS) has a positive but insignificant effect on (return on equity, while mobile banking (MB) has a negative and statistically effect on return on equity (ROE).

Okafor (2020) explored cashless policy for business purpose and the performance of deposit banks in Nigeria. Descriptive statistics, ex-post facto research design, and secondary data, source from Central Bank of Nigeria (CBN), Statistical Bulletin and Financial Statement for the period under review. The findings showed that automated teller machine (ATM), Point of Sales (POS), Mobile Banking (MB), and Internet Banking has positive and significant effects on return on assets (ROA) (Okafor, 2020).

Gambo (2020) examined the effect of technology innovation on financial performance of commercial banks in Nigeria. The study adopted correlational research design, secondary data

was collected from all listed Commercial Banks in Nigeria between the period of 2008 to 2019, also used multiple regression analysis. It was found that ATM has a significant impact on FP, IB has a significant impact on the FB.

Nwakoby, Okoye, Ezejiofor, Anukwu and Ihediwa (2020) examined the effect of electronic banking on profitability of banks in Nigeria. The study utilised ex-post facto research design. From a pool comprising 9 deposit money banks in Nigeria and a total of 15 banks listed on the Nigerian Stock Exchange, data spanning from 2009 to 2018 was gathered from the annual reports and accounts of the aforementioned 9 banks, as well as from the CBN Statistical bulletins. The researchers made use of regression analysis to test the hypotheses. The study revealed that the Automated Teller Machine (ATM) payment method has a detrimental impact on the return on equity of deposit money banks in Nigeria, albeit not statistically significant. Conversely, the Point of Sales (POS) payment method was found to have a positive effect on the return on equity of these banks, with no statistical significance observed. Additionally, the Mobile Banking Payment (MPAY) method was identified as having a positive and statistically significant effect on the return on equity of deposit money banks in Nigeria.

Muotolu and Nwadialo (2019) examined the effect of cashless policy on financial performance of deposit money banks in Nigeria. Ex-post facto research design was used with the aids of secondary data covering all listed Deposit Money Banks for six (6) years (2012-2017). The period was chosen as the cashless policy took effect in Nigeria in 2012. The data on the e-banking products (ATM transactions, POS transactions, Internet banking transactions, NEFT, and NIP transactions) were subjected to analysis through Descriptive Statistical Analysis, Multicollinearity testing, Correlation, and Heteroskedasticity testing. The results indicated that ATM transactions had a positive and noteworthy impact on the return on assets (ROA) of banks in Nigeria. On the other hand, POS transactions (POSV), web transactions (WEBV), NIP transactions (NIPV), and NEFT transactions (NEFV) were observed to have a positive effect on ROA, albeit not statistically significant, among quoted banks in Nigeria (Muotolu and Nwadiolor, 2019).

Jumba and Wepukhulu (2019) conducted a study examining the impact of cashless payments on the financial performance of supermarkets in Nairobi County, Kenya. The study used descriptive

research on the finance managers of the supermarkets in Nairobi County. The target population comprised of 147 supermarket branches in Nairobi County, for a period of three (3) years (January 2015-December 2017), using Systematic random sampling was used to calculate a sample size of 66 respondents. Linear regression analysis. The results of the analysis were presented in form of tables, graphs and charts, which reveals that financial accessibility, financial innovations, cash handling practices and transactions costs significantly influences financial performance (Jumba and Wepukhulu, 2019).

In 2019, Ogbeide explored the impacts of the cashless policy on financial inclusion within the emerging economy of Nigeria. The ordinary least squares method was employed to analyze the data and correlation matrix as estimation methods. The study revealed that the cashless policy exhibited a non-significant correlation with financial inclusion in both urban and rural areas of Nigeria. However, it was found to have a significant impact on the increase of customers' deposits in commercial banks across the country (Ogbeide, 2019).

Shehu and Idris (2019) examined the performance of cashless economic policy in Nigeria using descriptive Statistics (frequency, percentage, mean and standard deviation) were used to analyze the data using SPSS. Also, Cronbach's' Alpha reliability test was used. It can be concluded that even though cashless policy in Nigeria has not been fully achieved its designed objectives but it is gaining positive outcome as most Nigerians are much aware of the existence of cashless policy tools (Shehu, and Idris, 2019).

Okon and Amaegberi (2018) examined the effect of Mobile banking transactions on bank profitability in Nigeria. Panel unit root and sure model estimation technique were used to conduct quantitative analysis for four selected old and new generation banks. Presented significant progress toward understanding the nature of mobile banking and its perceived impact on commercial in Nigeria. Also revealed that in sum, Automated teller machine, point of sale, mobile banking and bank size were positive and statistically significant factors contributing to old and new generation banks performance in Nigeria compared to other mobile banking indicators (Okon and Amaegberi, 2018).

Methodology

This study uses ex-post-facto research design and the data used in the study was sourced from secondary sources. The secondary time series data for this study were obtained from the Central Bank of Nigeria Statistical Bulletin from 2009 to 2021. The data that were generated from the fact book and statistical annual bulletin reports were the volume of transactions carried out using automated teller machine and mobile banking to proxy electronic banking while total deposit in banks was also sourced from the CBN statistical bulletin, it proxied the performance of deposit money banks. The analysis for the study was done with Ordinary Least Square econometric technique with the aid of Economic view statistical package.

Model Specification

The study adopted the model by Ogbeide (2019). However, the researcher modified the model in order to accommodate the variables for the study. The model employed was estimated using Ordinary Least Squares (OLS). The relationship between the independent and dependent variables were analyzed with the model below;

$$Y_{it} = \alpha_0 + \beta_1 X_{it} + \varepsilon_{it} \text{ --- (1)}$$

Where Y_{it} = Dependent Variable of bank i for time period t;

α_0 = Constant;

β_1 = Coefficient of explanatory variables;

X_{it} = Explanatory variables of bank i for time period t; and

ε_{it} = Error term of bank i for time period t.

From equation 1 above, the following models were developed:

$$Y_{it} = f(TOD) \text{ --- (2)}$$

$$X_{it} = f(ATM \text{ and } MOB) \text{ --- (3)}$$

Substituting models 2 and 3 into model 1, the following model is formulated.

$$TOD_{it} = \alpha_0 + \beta_1 ATM_{it} + \beta_2 MOB_{it} + e_{it} \text{ --- (4)}$$

Where;

TOD= Total Deposit

ATM = Automated Teller Machine measured as number of ATM transactions

MOB = Mobile Banking measured as number of Mobile Banking transactions

β_1 and β_2 = Coefficient of ATM and MOB, respectively.

a_0 = Constant

e_{it} = Error term

Results and Discussion of Findings

Ordinary Least Square Regression (OLS)

The OLS regression approach was used to estimate the regression parameters. Table 2 shows the output of the regression analysis.

Table 2: Ordinary Least Square Regression Estimates

Dependent Variable: TOD

Method: Least Squares

Date: 04/27/23 Time: 21:59

Sample: 2009 2021

Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ATM	0.517488	0.065184	7.938845	0.0000
MOB	0.259424	0.151935	1.707463	0.1261
C	3724807.	228191.1	16.32319	0.0000

R-squared	0.986905	Mean dependent var	6455334.
Adjusted R-squared	0.980357	S.D. dependent var	2722653.
S.E. of regression	381590.6	Akaike info criterion	28.82581
Sum squared resid	1.16E+12	Schwarz criterion	29.04310
Log likelihood	-182.3677	Hannan-Quinn criter.	28.78114
F-statistic	150.7252	Durbin-Watson stat	1.707947
Prob(F-statistic)	0.000000		

Source: Authors' Computations using E-Views 10.0

Table 2 shows the results of a regression analysis that examines the effect of Automated Teller Machine banking and Mobile Banking on the total deposits of deposit money banks in Nigeria. The coefficients for each independent variable represent the change in the dependent variable (total deposits) associated with a one-unit increase in the independent variable, holding other variables constant. The coefficients of the independent variables (ATM and MOB) represent the estimated impact of each type of internet banking on the performance of deposit money banks in Nigeria, holding all other factors constant.

The R-squared value (0.986905) indicates that the model explains a high proportion of the variation in the dependent variable (performance of deposit money banks in Nigeria), with the independent variables collectively accounting for 98.7% of the variation. The Adjusted R-squared value (0.980357) is a modified version of R-squared that adjusts for the number of independent variables in the model.

The F-statistic tests the overall significance of the model by comparing the explained variation (i.e., the variation explained by the independent variables) to the unexplained variation (i.e., the variation not explained by the independent variables). The F-statistic is large (150.7252), indicating that the explained variation is much larger than the unexplained variation, and the p-value (0.000000) is very small, indicating that the model is statistically significant overall.

Finally, the Durbin-Watson statistic (1.707947) tests for autocorrelation in the residuals, which is a violation of the assumption of independence of observations. A value close to 2 suggests no significant autocorrelation in the residuals, which is the case in this model.

The intercept term (C) has a coefficient of 3724807, which represents the expected value of the dependent variable (performance) when all independent variables are equal to zero. The intercept term is statistically significant, as the t-statistic is 16.32319, and the probability value is 0.0000, which is less than the conventional level of significance (0.05).

Test of Hypothesis

Hypothesis one

H0₁: Automated Teller Machine banking has no significant effect on the performance of deposit money banks in Nigeria?

The coefficient for Automated Teller Machine (ATM) banking is 0.517488, which indicates that there is a positive relationship between ATM banking and performance. This relationship is statistically significant, as the t-statistic is 7.938845, and the probability value is 0.0000, which is less than the conventional level of significance (0.05). Thus, Automated Teller Machine banking has a positive and significant effect on the performance of deposit money banks in Nigeria (p -value = 0.0000).

Hypothesis Two

H0₂: Mobile Banking has no significant effect on the performance of deposit money banks in Nigeria.

The coefficient for Mobile Banking (MOB) is 0.259424, which indicates that there is a positive relationship between Mobile Banking and performance. However, this relationship is not statistically significant, as the t-statistic is 1.707463, and the probability value is 0.1261, which is greater than the conventional level of significance (0.05). Thus, Mobile Banking has a positive but non-significant effect on the total deposits of deposit money banks in Nigeria (p -value = 0.1261).

Discussion of Findings

The finding suggests that the use of ATMs has a positive effect on the performance of deposit money banks in Nigeria, and this effect is statistically significant. The positive effect of ATMs on the performance of deposit money banks may be due to their convenience and accessibility. ATMs are available 24/7, making it easy for customers to access their funds whenever they need them. Additionally, the ability to deposit cash and checks into ATMs may encourage customers to deposit more frequently, resulting in higher deposits thus higher performance of DMBs. Similarly, Ighoreje and Okoroyibo (2020); Okafor (2020) realized similar result as agreed by Muotolu and Nwadiolor (2019) when they recommended that bank management should pay more attention on the activities that will improve the ATM services if they wish to increase the ROA.

Also, the finding suggests that the use of mobile banking has a positive effect on the performance of deposit money banks in Nigeria, but this effect is not statistically significant. The positive effect of mobile banking on the total deposits of deposit money banks may be due to its convenience and accessibility, which are similar to those of ATMs. However, the effect is not statistically significant, meaning that it is unclear whether this positive effect is a result of chance. Similar result was found by Okonkwu and Ekwueme 2022; (Zayyanu, Umar and Taiwo 2022), it was stated by Jumba and Wepukhulu (2019); Okon and Amaegberi (2018) researchers have acknowledge the role cashless payment plays on financial performance.

Conclusion and Recommendations

The study concludes that electronic banking has not only increased convenience for customers but has also allowed banks to expand their reach beyond traditional brick-and-mortar branches. With the rise of electronic banking, customers no longer need to physically visit a bank branch to carry out transactions, as they can do so from the comfort of their homes or offices. This has led to a reduction in operational costs for banks, as they no longer need to maintain as many physical branches and staff. We conclude that electronic banking has not only increased convenience for customers but has also allowed banks to expand their reach to their customers. In the light of these, the following recommendations were reached:

1. Deposit money banks in Nigeria should prioritize the expansion and maintenance of ATM networks. This could involve increasing the number of ATMs, improving the

accessibility of existing ATMs, and ensuring that ATMs are fully functional, well-maintained and with full internet backing at all times

2. Deposit money banks in Nigeria should continue to invest in and develop mobile banking services. This could involve enhancing the user experience of existing mobile banking apps, expanding the range of services offered through mobile banking, and increasing customer awareness of the benefits of mobile banking.

References

- Osang, F. B. (2017). E-Banking: Evaluating Electronic Payment Channels in Southern Nigeria. *NOUN Journal of Physical and Life Sciences, 1*, 135-157.
- Obi-Nwosu, V. O., Onuoha, O. C. & Okoye, N. J. (2021). Electronic Banking and Growth of Deposit Money Banks Operations: Nigeria Experience. *Asian Journal of Economics, Business and Accounting, 21*(8), 124-135.
- Amaduche, S., Adesanya, B. M. & Adediji, A. M. (2020). The Impact of Electronic Banking on the Operations and Performance of Deposit Money Banks in Nigeria. *International Journal of Operational Research in Management, Social Sciences & Education, 6*(1), 69-97.
- Nwankwo, S. N. & Agbo, E. I. (2021). Effect of electronic banking on commercial bank performance in Nigeria. *European Journal of Accounting, Finance and Investment, 7*(1), 68-82.
- Oniore, J. O. & Okoli, U. V. (2019). Impact of electronic banking on the performance of money deposit banks in Nigeria. *Noble International Journal of Economics and Financial Research, 4*(9), 83-90.

- Okonkwo, A. A., & Ekwueme, C. M., (2022). E-Payment and Performance of Deposit Money Banks in Nigeria, *Research Journal of Management Practice*, 2(3), 23-24.
- Zeker, A., Kadiri, I. B., & Kowo, S. A., (2018). Evaluation of Prospect and Challenges of Cashless Policy. The Case of Commercial Banks in Nigeria, *Financial Market, Institution and Risks*, 2(4), 92-100.
- Zayyanu, M., Umar, A. I., & Taiwo, A. M., (2022). Effect of Payment System Innovations on the Financial Performance of Commercial Banks in Nigeria, *Journal of Service Science and Management*, 15, 35-53.
- Gambo, N., (2020). Effect of innovation on Financial Performance of Commercial Banks in Nigeria. *Journal of Management Science and Entrepreneurship*, 20(7), 85-101.
- Nwakoby, N. P., Okoye, N. J., Ezejiofor, A. R., Anukwu, C. C., & Ihediwa, A. (2020), Electronic Banking and Profitability: Empirical Evidence from Selected Banks in Nigeria, *Asian Institute of Research*, 637-649.
- Ighoreje, E. J., & Okoroyibo, E. E., (2020), Cashless Policy and Deposit Money Banks in Nigeria, *European Journal of Accounting, Auditing, and Finance Research*, 8(5), 85-104.
- Asidok, N.O., & Michael, A, A. (2018). Mobile banking transactions and bank profitability in Nigeria. *International Journal of Economics, Commerce and Management*, 6(6), 692-716.
- Adewoye, J. O. (2013). Impact of mobile banking on service delivery in the Nigerian commercial banks. *International Review of Management and Business Research*, 2(2), 333-344.
- Siyانبola, T. T., (2013). The effect of cashless banking on Nigerian economy. *Canadian Journal of Accounting and Finance*, 1(2), 8-18.
- Kennedy O. & Jacky N. (2013). The impact of mobile and internet banking on performance of financial institutions in Kenya: *European Scientific Journal*, 9(5), 56-76.

- Ekechukwu, C. (2016). Investigating the effect of e-banking on the economic growth of Nigeria. *Asia Pacific Journal of Research in Business Management*, 7(10), 50-69.
- Rogers, E. M. (1983). *Diffusion of innovations*. 3rd Ed. New York: The Free Press.
- Okafor, C. A., (2020), Cashless Policy for Business Purpose and the performance of Deposit Money Banks in Nigeria, *International Journal of Innovative Finance and Economy, Research*, 8(3).
- Muotolu, P. C., & Nwadiakor, E. O., (2019). Cashless Policy and Financial Performance of Deposit Money Banks in Nigeria, *International Journal of Trend in Scientific Research and Development (ijtsrd)*, 3(4), 465-476.
- Jumba, J., & Wepukhulu, J. M., (2019). Effect of Cashless Payments on the Financial Performance of Supermarkets in Nairobi County, Kenya. *International Journal of Academic Research Business and Social Sciences*, 9(3), 1372–1397.
- Ogbeide, S. O., (2019), Empirical assessment of the effects of cashless policy on financial inclusion in the Nigerian emerging economy, *Accounting*, 5(2) 61–68.
- Shehu, H., & Idris, I., (2019), Appraisal on the Performance of Cashless Economic Policy in Nigeria, *International Journal of Education and Educational Research*, 2(1), 1-19.
- Okon, A. N., & Amaegberi, M. A., (2018), Mobile Banking Transactions and Bank Profitability in Nigeria, *International Journal of Economics, Commerce and Management, United Kingdom*, 6(6), 692-716.