

IMPACT OF ELECTRONIC BANKING ON PERFORMANCE OF SELECTED NIGERIAN DEPOSIT MONEY BANKS

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Abstract

This study investigates the impact of electronic banking on the performance of selected Nigerian deposit money banks. Ex post facto research design was adopted for the study. A sample size of 11 deposit money banks in Nigeria was used from the population of 24 banks. Data were collected from CBN Statistical bulletin and annual reports and accounts of the sampled banks for the periods from 2013 to 2022. Descriptive statistics and the hypotheses regression analysis were used to analyze the data with the aid of E-Views 9.0 statistical software. The result revealed that POS payment method and Mobile banking has a negative impact on return on assets of deposit money banks in Nigeria, and this effect was not statistically significant at 5% level of significance. While, ATM payment method has a positive effect on return on assets of quoted deposit money banks in Nigeria, but not statistically significant at 5% level of significance. The study concluded that Nigerian banks should raise knowledge about ATM usage through media campaigns, seminars, and symposia, among other things. This is despite the fact that growing use of the ATM payment mechanism boosts bank profitability in Nigeria.

Keywords: Automated Teller Machine (ATM), Bank Performance, Electronic Banking, Mobile Banking, Nigerian Deposit Money Banks and Point of Sales (POS)

INTRODUCTION

Banking institutions have over the years maintained their leading role in enhancing the economic growth and development of any nation. The effectiveness of the banking sector enhances the prosperity and economic growth of a country while the poor performance of this sector not only hampers the economic growth and structure of a particular region but also affects the economy of the whole world (Khan & Senhadji, 2001). The health of the economy is closely related to the soundness of its banking system. Although banks create no new wealth but their borrowing, lending and related activities facilitate the process of production, distribution, exchange and consumption of wealth. In this way they become very effective partners in the process of economic development. Modern banks are very useful in the utilization of resources of the country. If there were no banks a great portion of any country's capital could be stagnant.

The quest for banks in Nigeria to have efficient customer service delivery and maintain global relevance in the system has led to the exploitation of the many advantages of information and communication technology (ICT) through the use of automated devices in the industry. The evolution of ICT has changed the operations of banking industry, it has also constituted a subject of fundamental importance and concerns to all banks making it a prerequisite for local and global competitiveness (Connel & Saleh, 2014). Electronic banking has emerged as a strategic resource for achieving higher efficiency, control of operations and reduction of cost thereby replacing paper based and labour intensive methods with automated processes thus leading to higher productivity and profitability in banking (Malhotra & Singh, 2016). The introduction of technology based payments systems has done a lot to increase the convenience of bank's customers, staff as well as the society at large (Kelvin, 2012). Today, paying and receiving money between buyers and sellers are not necessarily done through raw cash. Such payment can be made using e-payment products such as ATM, internet, Point of Sale terminals (POS) and Mobile money solutions. Okoro (2014) opined that electronic banking has vastly reduced the physical transfer of paper money and coins from one place to another. The attention of Nigerian banking sector has also been drawn to these technological devices in promoting and achieving better customer service delivery that guaranteed customer satisfaction.

E-banking involves the usage of computers and telecommunications that enables banking transactions to be done by computer or telephone as an alternative to human interaction. According to Nanna (2013), electronic banking is the execution of banking services by financial institutions and their customers through the use of electronic devices such as internet banking, Automated Teller Machines (ATM), automatic payroll deposits, POS terminals, bill payments and direct deposit of pay cheques into chequing or saving accounts. The benefits of electronic banking ranges from improved performance through prompt delivery of information from the customer and service provider in a way that services are offered at minimal cost; thus transforming traditional practices in banking and enabling banks to stay connected with their customers at any place and at any time. E-banking enables the usage of innovative product or service at a low transaction fees and also encourages queue management which is one of the important dimensions of electronic banking service quality (Gbadeyan & Akinyosoye, 2012). The coming into existence of the internet banking has made transaction and data processing very accessible for quick management decision making. The rate of wholesale and retail banking services has been increased through internet banking. The prospects of reducing the cost of operations and enhancing revenue have been a motivator in the investment in internet banking by banks. Capital providers expect that they would gain tremendous returns which may accrue from e-banking. Since the introduction of electronic banking, Nigerian banks have been forced to invest more in assets in order to meet up with competitive positioning. Hence, this study examined the effect of e-banking on performance of selected Nigerian deposit money banks.

Statement of the Problem

Recent developments in information and communication technology have changed the way organizations operate and do business especially in the banks. Nigerian banks have witnessed drastic changes since the introduction of the electronic form of bank services to its customers. It is expected that with the embrace of electronic banking by the Nigerian banking system, the performance and profitability of commercial banks will be enhanced. Over the years, the banks have introduced different shades of electronic banking channels, all with a view to achieving enhanced efficiency and effectiveness. According to Lustik (2004), the reality remains that using IT in banks is dictated by the voluminous information the banks handle on a daily basis. The main concern of customers is how cash is withdrawn or deposited, cheques deposited or cleared, statements of accounts provided, money transfers etc.

Despite the potential benefits of e-banking, there is debate about whether and how their adoption improves bank performance. Several attempts have been made to investigate the impact of electronic banking on bank performance. A research carried out by Kariuki (2005) showed the positive impacts of e-banking on banking performance using internet banking, the number of ATM and POS available, bank turnover as measure of performance. He established that those banks with high profit growth are more likely to be using great numbers of e-banking services. He concluded that e-banking leads to higher profits though in long-term but not in short-term due to high e-banking investment cost. According to Davenport (1993) and Oshikoya (2007) suggest that use of and investment in e-banking requires complementary investments in skills and innovation, investment and change entails risks and which might reduce bank profits in shorter term. Hence there is need to solve this existing problem in the literature.

Furthermore, Nigerian banking sector being a highly competitive sector has employed e-banking so as to improve its performance. However, customers are reluctant in embracing the electronic banking because of the greatest rising in the level of cyber-crimes among Nigerian who use real and deceptive banking websites to spoof users' sensitive information and funds thus contribute to security concerns as a major factor inhibiting the use of e-banking. Obasan (2011) posited that there may be little interruptions at times due to network failures, which may make customers unable to carry out transactions at a particular point in time. Also, Odhiamo (2017) pointed that the Nigerian banking is characterized by high degree of e-banking inefficiency and ineffectiveness, and high cost of e-banking facilities, thus declined return on investment and overall financial performance. Banks in Nigeria render substandard and non-qualitative e-banking services to their customers,

and their distribution systems are antiquated and poor Information Communication Technology (ICT) banking facilities, this in turn reduced their profitability and return on investment (Ugwu, Oyebisi, Ilori & Adagunodo, 2017). Many banks in Nigeria have failed to retain their customer due to failure of Information Communication Technology (ICT) application and this had caused continuous decline in their financial and non-financial performance (Agboola, 2016). However, this does not mean that the Nigerian banking system is not efficient: it goes a long way to explain that there is serious need to evaluate its performance and profitability in relation to the various channels of e-banking introduced into the system. Likewise, Agwu and Murray (2015) and

Abdullahi and Micheni (2018) pointed that cost of investment in electronic banking system such as short message services (SMS) for sending alert, diffusion of smart card, upgrades of ATM and POS terminals and smart card technology for mobile computers have caused decline in net interest margin and return on equity. Also, Orji, Ogbuabor, Onyinye and Orji (2018) established that many deposit money banks in Nigeria have recorded decline in return on equity over the years as a result of weak domestic payment systems facing the Nigerian deposit money banks. However, the success of e-banking is not without its problems. First, the adoption of e-banking has not kept pace with the general usage of internet. Secondly, customers still prefer face to face due to reasons such as fear of the online environment and lack of trust in the internet. (White and Nteli. 2004). Based on the above problems the following research objectives were outlined:

- i. to examine the impact of point of sale (POS) on the Return on Asset (ROA) of Nigerian Deposit Money Banks
- ii. to determine the impact of Automated Teller Machine (ATM) on the Return on Asset (ROA) of Nigerian Deposit Money Banks.
- iii. to assess the impact of mobile banking on the Return on Asset (ROA) of Nigerian Deposit Money Banks.

LITERATURE REVIEW

Concept of Electronic Banking

Electronic banking is the use of computers and telecommunications to enable banking transactions to be done by telephone or computer rather than through human interaction. Its features include electronic funds transfer for retail purchases, automatic teller machines (ATM), and automatic payroll deposits and bill payments. Some banks offer home banking, whereby a person with a personal computer can make transactions, either via a direct connection or by accessing a web site. Electronic banking has vastly reduced the physical transfer of paper money and coinage from one place to another or even from one person to another.

Electronic banking, also be viewed as the word for a new type of financial system that is also known as online banking (Auta, 2010). E-banking makes use of the internet as a delivery channel for banking services such as money transfers, bill payments, checking and savings account balances, mortgage payments, and the purchase of financial instruments and certificates of deposit (Akinyele & Olorunleke 2010). Electronic banking refers to the supply of banking services and goods by electronic methods, regardless of location, time, or distance. Deposit-taking, lending, account management, financial advising, electronic bill payment, and other electronic payment products and services, such as electronic money, are examples of such products and services (Dogarawa, 2015).

Similarly, Payment systems refer to the legal, regulatory, and standard-based network that connects bank accounts and provides the required functionality for monetary exchange using bank deposits. It is a set of institutions, organizations, instruments, regulations, standards, procedures, and technical processes that enable the transfer of monetary value between parties who are fulfilling mutually agreed-upon responsibilities (Massimo & Gracia, 2008; Summers, 2012). Electronic payment systems, according to Harelimana (2018), are a type of inter-organizational information system for monetary transaction that connects multiple organizations and individual consumers. This may necessitate intricate relationships among stakeholders, technology, and the environment. Payment systems can be physical (traditional) or electronic (virtual), with information and communication systems used to supply the required services. As a result, electronic payment systems are

information communication technology-based systems designed to make monetary transactions between parties using bank-based platforms more convenient. Automated Teller Machines (ATMs), Point of Sale (POS) machines, Mobile Banking, and Internet (Online) Banking Platforms are all functioning electronic payment systems in Nigeria. Because the services can be evaluated on electronic devices owned by individual clients, the final two choices promise higher ease and wider utilization. Electronic payment methods, according to Binglar and Bariweni (2019), have some advantages over their physical equivalents. The first is the speed with which transactions are completed, regardless of the distance between parties. Another advantage is the convenience of conducting financial transactions from the comfort of one's bed or even the bathroom.

Electronic banking, on the other hand, is the word for a new type of financial system that is also known as online banking (Auta, 2010). E-banking makes use of the internet as a delivery channel for banking services such as money transfers, bill payments, checking and savings account balances, mortgage payments, and the purchase of financial instruments and certificates of deposit (Akinyele & Olorunleke 2010) Electronic banking refers to the supply of banking services and goods by electronic methods, regardless of location, time, or distance. Deposit-taking, lending, account management, financial advising, electronic bill payment, and other electronic payment products and services, such as electronic money, are examples of such products and services (Dogarawa, 2015).

Concept of Bank Performance

Commonly, to measure the firm's performance, financial ratios are the quantitative metrics in most of studies for all differential business sector, including banking. Bank performance is defined as the main driver of profitability generated from their operation. Besides, it is the pillar and the purpose of any banking activity (Ferrouhi, 2018). In the world and Vietnam, the popular ratios are used to measure bank performance as return on assets (ROA) and return on equity (ROE). In aspect of the financial analysis, those ratios interpret the accounting value based on historical cost principle because they lead to the latency in the measurement of performance compared to the market value. Due to timeliness, a market index is an accurate value for firm's performance measurement that is reasonably necessary for investors who focus on market value instead of ROA, and ROE comes from organization's internal activities. Thus, firm value can be measured internally (Brigham & Houston, 2006). On the external aspect, from the empirical studies by Mohan and Ruggiero (2007) and Reddy et al. (2008), who estimate firm performance by Tobin's Q ratio is a market-based measurement. This ratio expresses investors' expectations that show the invested company's good growth and powerful comparative advantages (Campbell & Mínguez-Vera, 2008; Rose, 2007). According to them, in this case, the low value of this ratio shows a company's weak resources. Besides, Chen et al. (2006); Nguyen et al. (2014), the formula of calculation Tobin's Q is the sum of the market value of a firm's stock and the book value of debt divided by the book value of total assets (Nguyen et al., 2015).

There are several dimensions of performance, each of which adds to an organization's total performance. Despite the advent of different available benchmarks and performance evaluation methods, defining what constitutes performance may remain elusive. According to Hansen and Mowen (2005), firm performance is very important to management because it is an outcome that has been achieved by an individual or a group of individuals in an organization in terms of their authority and responsibility in achieving the goal legally, not against the law, and in accordance with morale and ethics. Performance is a measure of an organization's capacity to acquire and manage resources in a variety of ways in order to obtain a competitive edge. Financial performance measurement's major goal is to identify the operating and financial features, as well as the efficiency and performance of economic unity management, as represented in financial records and reports (Amalendu, 2010). According to Akinsulire, (2008) and Pandey (2003), no performance review is without controversy; for example, stated profit is a matter of opinion. If revenue is to be quantified in terms of a growth or reduction in an enterprise's wealth, some definitions of that wealth stock are obviously required. Wealth is measured in three ways by Akinsulire (2008) and Pandey (2003): financial capital (the equity stake in an enterprise

in money terms); real financial capital (the equity stake in an enterprise in real terms); and proprietary capital (the equity stake in an enterprise in real terms).

Concept of Point of Sale (POS)

A POS or point of sale is a device that is used to process transactions by retail customers. It is a terminal portable machine used to accept bank cards of payments for goods and services. It allows you as a card holder, to have real-time online access of funds and information in your bank account through debit or cash cards. The central bank of Nigeria (CBN) introduced the POS system in 2012 to further drive home its cashless policy for enhancing Nigeria's payment system. A cash register is a type of POS. The cash register has largely been replaced by electronic POS terminals that can be used to process credit cards and debit cards as well as cash. A POS may be a physical device in a brick-and-mortar store or a checkout point in a web-based store. The software for POS device is growing increasingly elaborate, with features that allow retailers to monitor inventory and buying trends, track pricing accuracy, and collect marketing data.

Concept of Automated Teller machine (ATM)

Worldwide the use of paper cash still remains the most widely used and acceptable means of setting financial transactions and obligations. However, the proportion of cash transactions is increasingly on the decline, especially in advanced economics (Amedu, 2005). ATM device allows a bank customer to withdraw cash from his account via cash dispenser (machine) and the account is debited immediately. It is a computerized telecommunications device that provides the customers of a financial institution with access to financial transactions in a public space without the need for a human clerk or bank teller. According to Steve (2002), ATMs are placed not only near or inside the premises of banks, but also in locations such as shopping centers/malls, airports, grocery stores, petrol/gas stations, restaurants, or any place large numbers of people may gather.

Christoslav et al (2003) in a research asserted that ATM services are highly profitable for banks, and banks aggressively market the use of ATM cards. ATMS that are off bank premises are usually more profitable for banks because they attract a higher volume of non-bank customers, who must pay service fees. Rose (1999), cited by Abor, describes ATMs as follows; an ATM combines a computer terminal, record-keeping system and cash vault in one unit, permitting customers to enter the banks book keeping system with a plastic card containing a personal identification number (PIN) or by punching a special code number into the computer terminal linked to the bank computerized records 24hours a day. Ogbuji, et al (2012) postulates that ATM allows a bank customer to conduct his/her banking transaction from almost every other ATM machine in the world. He observed the ATM is one of existing replacement of the cascading labour- intensive transaction system affected through what is popularly referred to as paper- based payment instruments. According to Ugwu (2008), ATMs are set up to provide 24hours service to bank customers who cannot expect to be able to transact with banks in the same period of time. (Love Lock, 2011) ATM provides mobility in banking services for withdrawals. Meaning that ATM reduces the workload of banks staff, ATMs reduces the work pressure on banks staff and avoid queues in the bank premises.

Concept of Mobile Banking

Mobile banking can be defined as a channel via a mobile device such as a mobile phone. The mobile banking (M-banking) is an application of mobile commerce that enables the customers to bank virtually at any convenient time and place (Suoranta, 2003). It is the provision of banking and related financial services such as saving, funds transfers, and stock market transactions among others on mobile devices (Tiwari and Buse, 2007). Mobile banking could be defined as a facility which provides banking services such as balance enquiry, funds transfer, bill payment and transaction history via a user's mobile phone (quick, 2009). Segun (2011) defines mobile banking as an occurrence when customers access a banks networks using cellular phone or similar device through communication wireless networks.

Empirical Review

Obiekwe, and Mike (2017) investigated the effect of electronic payment method (EPM) on the profitability of commercial banks in Nigeria. A total sample of five (5) banks was considered for the period of 2009 to 2015 and the study adopted the panel least squares (PLS) estimation technique as the analytical tool. Findings revealed that automated teller machine (ATM) and mobile phone payment have significant effect on the profitability of commercial banks in Nigeria. While point of sale (POS) has an insignificant effect on commercial banks profitability in Nigeria. The study recommended among others, that commercial bank in Nigeria should sponsor media campaigns in order to boost the awareness on Automated Teller Machine (ATM) payment and mobile phone payment methods so as further increase their profitability.

Akhisar, Tunay and Tunay (2015) investigate the effects of electronic-based banking service on the profitability of 23 commercial banks in both developed and developing countries from 2005 to 2013. The study adopted the panel data analytical methodology. Number of branches to number of ATM ratio, point of sale (POS) and web (internet) banking service as the explanatory variable while return on equity (ROE) and return on asset (ROA) were the dependent variables. Finding revealed that ratio of number of branches to number of ATM have positive and significant effect on banks profitability in both developed and developing countries. However, POS and web (internet) banking have negative relationship with banks profitability.

On the home front, Yunus and Waidi (2011) investigated the nexus between electronic banking employees and customers responses, and bank performance in Nigeria using a sample of fifteen (15) commercial banks. The questionnaire descriptive research design was adopted using as sample of 123 respondents. Findings indicate that technological innovation has a strong influence on bank employees and customer satisfaction thereby having a strong effect on banks' profitability in Nigeria.

Similarly, Abaenewe, et al. (2013) examined the relationship between electronic banking and bank performance in Nigeria using a descriptive analytical methodology. Four (4) banks were randomly selected using the pre-adoption and post adoption era of electronic banking in Nigeria as the scope of the study. Return on asset and return on equity both served as the dependent variables. Findings revealed that electronic banking has a positive and significant effect on return on equity (ROE) of Nigerian banks but has no significant effect on return of asset (ROA).

Shehu et al (2013) investigated the effect of electronic banking products on the performance of Nigerian listed deposit money banks (DMB) using six (6) Deposit Money Banks (DMB). The dependent variable was return on equity while the independent variables include E-Direct, SMS alert, E-mobile and ATM. Findings revealed that E-Direct has a negative and insignificant relationship with the profitability of Deposit Money Banks (DMB) in Nigeria.

Adewoye (2013) investigated the impact of mobile banking on service delivery in the Nigerians commercial banks using a sample of 125 respondents. The study adopted frequency tables, percentages, mean score and chi-square test as analytical tools. Findings revealed that mobile banking improves bank service delivery in the form of transactional convenience, savings of time, quick transaction alert and savings of service. Cost among others. The study concluded that mobile banking has improved customer's satisfaction thereby increasing the profitability of the commercial banks in Nigeria.

Division of Information Theory

This study is underpinned by division of information theory. Division of information theory was propounded, developed and popularized by Rogers in 1962 after empirically analyzing more than five hundred and eight studies on technology diffusion across various fields. According to Rogers (1962), the Diffusion of Innovations (DoI) Theory was a result of contributions from the pioneering efforts in implementing innovations. In line with this theory, the decision to take up innovations is determined by five issues regarding the features of the

innovation. These are the perceived usefulness, matching needs, intricacy, testability, and visibility with the social system adopting the technology. The theory also holds that adopters can be clustered into several categories: innovators, early adopters, early majority, late majority, and laggards. Importantly, the theory holds that customers in the innovation adoption differ dramatically in their features. In the proposed study, how the bank managers, employees, and customers perceive the four salient features identified indicate reliable effects of adopting and using electronic banking in local banks. Further, within the banks in Kenya, not all banks adopt electronic banking technology products, and those that adopt do not adopt at the same time as per the theory. The categorization of the adopters as per the theory are the innovators, fast adopters, earlier mainstream, late mainstream, and the laggards, and that would be used to prove or explain why some banks adopt given electronic banking products before others and the effects of such products on their performance (Otundo, 2019).

METHODOLOGY

The research design that was adopted for this study is the *ex-post facto* research design from a sample of eleven (11) of the twenty-four (24) deposit money banks with national banking authorisation that can perform all commercial bank's activities in Nigeria. Secondary data were obtained from published financial statements for the period under review. Data were analyzed using descriptive statistics and inferential statistics generated from E-Views 9.0 statistical software, using 95% confidence interval as in Aiken and West (1991). This study employed the following statistical tools: Pearson correlation coefficient is a good measure of relationship between two variables, tells us about the nature and strength of the relationship between the study variables. Panel data regression technique was employed since the data set includes both time series and cross-sectional data that is pooled into a panel data set and estimated using panel data regression. Regression analysis predicts the value of a variable based on the value of the other variable and explains the level of significance and effect of changes in the values of variable on the values of the other variables.

Model Specification

Shehu et al (2013) specified a model for the relationship between electronic banking products and performance of DMBs as: $ROA = f(\text{POS, ATM, MPAY and WEB})$ Transforming equation (1) into its panel data form, the model takes these specifications:

$$ROA_{it} = \beta_1 POS_{it} + \beta_2 FSZ_{it} + u_{it} \dots\dots\dots(i)$$

$$ROA_{it} = \beta_2 ATM_{it} + \beta_2 FSZ_{it} + u_{it} \dots\dots\dots(ii)$$

$$ROA_{it} = \beta_3 MBAN_{it} + \beta_2 FSZ_{it} + u_{it} \dots\dots\dots(iii)$$

Where:

ROA = Return on assets (proxy for DMB banks' financial performance)

ATM = Automated Teller Machine payment method,

POS = Point of Sale payment method, It is the total value of POS transactions in Nigeria,

MBAN = Mobile Banking Transactions,

FSZ = Firm size as the total assets of the banks (control variable)

i = (number of the sampled banks) and t = (number of the years to be covered)

u_{it} = firm-specific error term

$\beta_1, \beta_2, \beta_3$ = Beta Coefficients to be estimated

Decision Rule

The decision for the hypotheses is to accept the alternative hypotheses if the p-value of the test statistic is less or equal than the alpha and to reject the alternative hypotheses if the p-value of the test statistic is greater than alpha at 5% significance level

RESULT AND DISCUSSIONS

Table 4.1 Pearson Correlation Matrix

	ROA	POS	ATM	MBAN	FSZ
ROA	1	-0.05473	-0.30292	-0.2731	-0.08707
POS	-0.05473	1	0.84297	0.6442	0.09746
ATM	-0.30292	0.84297	1	0.3751	-0.20835
MBAN	-0.06221	0.76321	0.63521	1	0.4127
FSZ	-0.08707	0.09746	-0.20835	0.4127	1

Source: E- Views 9. Correlation output, 2023

Interpretation of Pearson Correlation Matrix

Correlation analysis aids in determining the degree of association between two or more variables. Pearson correlation coefficient was used to assess the strength of direction of the association between the variables. The Pearson correlation analysis reveals that ROA correlates negatively with POS (-0.055) ATM (-0.302), MBAN (-0.0622), and FSIZ (-0.087).

4.2 Test of Hypotheses

Hypothesis One

H₀₁: There is no significant impact of POS transaction on the performance of Nigerian Deposit Money Banks

Table 4.2: Panel Least Regression Analysis showing the relationship between ROA, POS and FST

Dependent Variable: ROA

Date: 18/05/23 time: 10:21

Sample: 2011 2021

Including observation:12

Variable	Coefficient	Std. Error	t-Statistic	ProbC
C	0.255209	0.186564	1.367941	0.2085
POS	-4.58E-06	3.46E-05	-0.132056	0.8982
FSZ	-3.16E-09	1.35E-08	-0.233437	0.8213
R-squared	0.009740	Mean dependent var		0.208669
Adjusted R-squared	-0.237825	S.D dependent var		0.106614
S.E of regression	0.118617	Akaike info criteroion		-1.198840
Sum squared resid	0.112559	Schward criteroion		-1.090323
Log likelihood	9.593619	Hannan-Quinn Criteroion		-1.267245
F-statistic	0.039344	Durbin-Watson		2.343205
Prob(F-statistic)	0.961605			

Interpretation of Regression Result

In table 4.2, a panel least square regression analysis was conducted to test the relationship between return on assets (ROA) and POS. Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the table 4.2, the value of adjusted R squared was 0.24, an indication that there was variation of 24% on return on assets due to changes in POS and firm size. This implies that only 24% changes in return on assets of banks could be accounted for by POS and FSIZ, while 76% was explained by unknown variables that were not included in the model. The

probability of the slope coefficients indicate that; $P(x_1 = 0.89 > 0.05; x_2 = 0.82 > 0.05)$. The co-efficient value of; $\beta_1 = -4.58$ and -3.16 for POS and FSZ respectively, is negatively related to ROA and though not statistically significant at 5%. The Durbin-Watson Statistic of 2.343205 suggests that the model does not contain serial correlation. The F-statistic of the POS regression is equal to 0.039344 and the associated F-statistic probability is equal to 0.961605, so the null hypothesis was accepted and the alternative hypothesis was rejected.

Decision Since the Prob (F-statistic) of 0.962 is greater than the critical value of 5% (0.05), then, it would be upheld that POS payment method does not significantly affect return on assets of quoted deposit money banks in Nigeria at 5% level of significance, thus, H_0 is preferred over H_1 .

Hypothesis Two

H_{02} : There is no significant influence of ATM transaction on the performance of Nigerian Deposit Money Banks.

Table 4.3: Panel Least Regression analysis showing the relationship between ROA, ATM, and FSZ

Dependent Variable: ROA

Date: 18/05/23 time: 11:29

Sample: 2011 2021

Including observation:12

Variable	Coefficient	Std. Error	t-Statistic	ProbC
C	0.345504	0.199040	1.735849	0.1208
ATM	-1.54E-05	1.56E-05	-0.987140	0.3525
FSZ	-6.01E-09	1.30E-08	-0.461760	0.6566
R-squared	0.115338	Mean dependent var		0.208669
Adjusted R-squared	-0.105827	S.D dependent var		0.106614
S.E of regression	0.112114	Akaike info criteroion		-1.311602
Sum squared resid	0.100556	Schward criteroion		-1.203085
Log likelihood	10.21381	Hannan-Quinn Criteroion		-1.380007
F-statistic	0.521502	Durbin-Watson		2.448980
Prob(F-statistic)	0.612504			

Interpretation of Regression Result

In table 4.3, a panel least square regression analysis was conducted to test the relationship between return on assets and Automated Teller Machine (ATM). Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the table 4.3, the value of adjusted R squared was 0.11, an indication that there was variation of 11% on return on assets due to changes in Automated Teller Machine and firm size. This implies that only 11% changes in return on assets of banks could be accounted for by ATM and FSIZ, while 89% was explained by unknown variables that were not included in the model. The probability of the slope coefficients indicate that; $P(x_1 = 0.35 > 0.05; x_2 = 0.66 > 0.05)$. The co-efficient value of; $\beta_1 = -1.54$ and -6.01 for ATM and FSZ respectively is negatively related to ROA and though not statistically significant at 5%. The Durbin-Watson Statistic of 2.448980 suggests that the model does not contain serial correlation. The F-statistic of the ATM regression is equal to 0.521502 and the associated F-statistic probability is equal to 0.612504, so the null hypothesis was rejected and the alternative hypothesis was accepted.

Decision Since the Prob (F-statistic) of 0.523 is greater than the critical value of 5% (0.05), then, it would be upheld that ATM payment method does not significantly affect return on assets of quoted deposit money banks in Nigeria at 5% level of significance, thus, H_0 is preferred over H_1 .

Hypothesis Three

H₀₃: There is no significant contribution of Mobile banking on the performance of Nigerian Deposit Money Banks

Table 4.3: Panel Least Regression analysis showing the relationship between ROA, MBAN, and FSZ

Dependent Variable: ROA

Date: 18/05/23 time: 12:50

Sample: 2011 2021

Including observation:12

Variable	Coefficient	Std. Error	t-Statistic	ProbC
C	0.348531	0.143032	1.635749	0.1301
MBAN	-1.63E-04	1.62E-04	-0.877141	0.2535
FSZ	-5.02E-08	1.30E-08	-0.361260	0.5561
R-squared	0.126428	Mean dependent var		0.108634
Adjusted R-squared	-0.104826	S.D dependent var		0.102814
S.E of regression	0.122124	Akaike info criteroion		-1.211611
Sum squared resid	0.120555	Schward criteroion		-1.303045
Log likelihood	11.21371	Hannan-Quinn Criteroion		-1.280107
F-statistic	0.421401	Durbin-Watson		2.458972
Prob(F-statistic)	0.512604			

Interpretation of Regression Result

In table 4.4, a panel least square regression analysis was conducted to test the relationship between return on assets and Mobile Banking (MBAN). Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the table 4.4, the value of adjusted R squared was 0.12, an indication that there was variation of 12% on return on assets due to changes in Mobile Banking and firm size. This implies that only 12% changes in return on assets of banks could be accounted for by MBAN and FSIZ, while 88% was explained by unknown variables that were not included in the model. The probability of the slope coefficients indicate that; $P(x_1 = 0.25 > 0.05)$; $x_2 = 0.55 > 0.05$. The co-efficient value of; $\beta_1 = -1.63$ and -5.02 for MBAN and FSZ respectively is negatively related to ROA and though not statistically significant at 5%. The Durbin-Watson Statistic of 2.458972 suggests that the model does not contain serial correlation. The F-statistic of the MBAN regression is equal to 0.421401 and the associated F-statistic probability is equal to 0.512604, so the null hypothesis was rejected and the alternative hypothesis was accepted.

Decision Since the Prob (F-statistic) of 0.421 is greater than the critical value of 5% (0.05), then, it would be upheld that MBAN payment method does not significantly affect return on assets of deposit money banks in Nigeria at 5% level of significance, thus, H_0 is preferred over H_1 .

CONCLUSION AND RECOMMENDATIONS

The result revealed that ATM payment method has a positive effect on return on assets of quoted deposit money banks in Nigeria, but this effect was not significantly affect at 5% level of significance. While hypotheses two and four revealed that POS payment method has a negative effect on return on assets of quoted deposit money banks in Nigeria, but this effect does not statistically significant at 5% level of significance. The results are in line with Ugbede, Yahaya and Edicha (2019) whose study revealed that ATM does not contribute to profitability of the sampled banks and also is not significant to banks profitability. Obiekwe and Mike (2017) result revealed that Automated Teller Machine (ATM) and Mobile Phone payment have significant effect on the profitability of commercial banks in Nigeria. This result negates the findings of Obiekwe and Mike (2017) who revealed that POS has a positive contribution to bank profitability, and is also statistically significant to bank profitability, likewise, internet banking. The findings and conclusion of this study led to the following recommendations:

- i. In order to promote a cashless economy in Nigeria, the use of point of sale (POS) payment methods should be encouraged. As a result, banks should hold seminars and workshops on the advantages of POS for both clients and merchants. This would have a positive impact on Nigerian bank profitability while also reducing criminal tendencies and attacks.
- ii. Nigerian banks should conduct media campaigns, seminars, and symposia to raise awareness about ATM usage. This is despite the fact that growing use of the ATM payment mechanism boosts bank profitability in Nigeria.
- iii. the use of point of sale Mobile Banking methods should be also be encouraged. As a result, banks should hold seminars and workshops on the advantages of Mobile Banking for the public. This would have a positive impact on Nigerian bank profitability while also reducing criminal tendencies and attacks.

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