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Electronic Banking and Profitability: Empirical Evidence from Selected Banks in Nigeria

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Abstract

This study examines the link between electronic banking and profitability of Nigerian deposit money banks. The study adopted Ex post facto, research design. A sample size of 9 deposit money banks in Nigeria were employed from the population of 15 banks quoted on the Nigerian Stock Exchange. Data was collected from annual reports and accounts of the sampled banks and CBN Statistical bulletins for the periods from 2009 to 2018. The study employed regression analysis to test the formulated hypotheses with aid of E-View 9.0. Based on the data analyzed, the followings were revealed; that Automated Teller Machine (ATM) payment method has negative effect on return on equity of deposit money banks in Nigeria and this effect is not statistically significant; that Point of Sales (POS) payment method has positive effect on return on equity of deposit money banks in Nigeria and this effect is not statistically significant and that Mobile banking Payment (MPAY) has positive effect on return on equity of deposit money banks in Nigeria and this effect is statistically significant. It recommended that Nigerian banks should embark on sensitization programme to education their customers on ATM usage.

Keywords: ATM Payment, POS Payment, Mobile Payment and Return on Equity

INTRODUCTION

For most of the past decade and half, commercial banks in Nigeria have been at the forefront of adopting the use of information and communication technology in banking business. This has for the most part followed by the increased use of electronic payment systems in the country (Bingilar & Bariweni, 2019). From the use of Automated Teller Machine (ATM), Point of Sales (POS) machines, Internet (online) banking services and Mobile banking transactions, the Nigeria banking industry has witnessed a phenomenal growth in the use

electronic banking channels. These have been credited with various advantages which includes removal of risks inherent in cash based banking transactions and elimination of associated costs and. Furthermore, the use of electronic banking systems also reduces the rates of errors in transactions, makes the tracking of specific transactions much easier in addition to increasing the speed of complete transaction in real-time not minding the distance between parties to the transaction (Kelvin, 2012; Tijani & Ilugbemi, 2015).

Today's banking sector is extremely dynamic and experience rapid changes as a result of technological improvement, increased awareness and demands that banks serve their customers electronically. Ugbede, Yahaya and Edicha (2019) noted that banks have traditionally been in the forefront of harnessing technology to improve their products and services. Recently, the banking industry operates in a complex and competitive environment full of changing conditions and highly unpredictable economic climate. The issue of Information and Communication Technology (ICT) is at the Centre of this global change today that led to Electronic Banking System in Nigeria. Electronic banking involves using electronic means to deliver banking services, such like, online banking.

Alsmadi and Alwabel (2011) reported that the definition of electronic banking varies among different studies, which means that electronic banking refers to various types of services by which bank customers can request information and carry out banking services. Mainly all the banks in Nigeria offer online or internet banking services and any banks that cannot key in with this new development will definitely losing their customers. Internet or mobile banking system has now become commonplace as customers are offered the ease of operating their various accounts in any branch of their bank's network. Online banking transactions are like ancient or traditional means of payment, inquiry, and information processing systems, differing only in that it uses a different means of delivery channel. Any decision to adopt electronic banking is being affected by a number of factors. These include customer service enhancement and competitive costs, all of which motivate banks to assess their electronic commerce strategies (Kondabagil, 2007).

Initially, Nigeria was reluctant on the issues of electronic banking, compared to other countries across the globe. In the year 1986, Societe Generale Bank of Nigeria (SGBN) now called Heritage Bank Plc. The rapid growth of e-banking was made possible with the proliferation of the internet, coupled with the world increasingly addicting to e-business, the trend of cash transactions is now giving way to electronic payment system. Salehi and Alipour (2010) stated that this rapid growing acceptance of the digital lifestyle has brought about a significant transformation in customers' expectations from their financial service providers.

Offei and Nuamah-Gyambrah (2016) documented that customers are now seeking for an easy and convenient technology with more rewarding banking experience. Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) are two factors mentioned in Davis's Technology Acceptance Model (TAM) that influences users' decision to use a particular technology system (Surendran, 2012), users will eventually lose interest in e-banking if they feel that it is no longer useful even if the system is somewhat easy to handle (Obiri-Yeboah et al., 2013). Therefore banks that fail to key in to the emergence of electronic banking system in the market are likely to lose their customers (Salehi and Alipour, 2010); Lee (2009) reported that the adoption seem not to be yielding the anticipated results, thereby creating a gap between the actual returns and its proposed objectives.

Despite benefits associated with electronic banking in Nigeria, it has not come without some challenges. Studies on electronic banking have been conducted in Nigeria and other foreign countries of the world, some studies documented a positive and statistically significant relationship between electronic banking and bank profitability. (Okon and Amaegberi, 2018; Obiekwe and Mike, 2017; Eze and Egoro, 2016; Akhisar, Tunay and Tunay, 2015; Wali, Wright and Reynolds, 2014), while documented a positive and statistically significant relationship between electronic banking and bank profitability (Oloyede, Azeez and Aluko, 2015; Olasope, 2013; Shehu et al, 2013). Furthermore, electronic banking as reported by Ekwueme, Egbunike and Okoye (2012) to have immensely enhanced the keeping money administrations of banks to their clients, though the study was on six selected banks in Lagos State, Nigeria. Majority of these studies conducted in Nigeria on the effect of electronic banking on profitability of commercial banks uses survey design (see Yunus & Waidi, 2011; Abaenewe, Ogbulu and Ndugbu, 2013; Shehu et al, 2013; Adewoye, 2013; Nnolim, 2013; Olasope, 2013). It

becomes necessary to use secondary data given the fact that electronic banking has diverse effects on banking system at different periods.

In the light of the above, this present study seeks to consolidate on the existing studies thereby determine the level of relationship between electronic banking and profitability in Nigerian deposit money banks using central bank of Nigerian Statistical Bulletin and banks annual reports.

This study investigates the effect of electronic banking on the profitability of deposit money banks in Nigeria. Specifically, the study sought to do the following:

1. To investigate the effect of ATM payment method on return on equity of deposit money banks in Nigeria.
2. To investigate the effect of POS payment method on return on equity of deposit money banks in Nigeria.
3. To determine the effect of E-Mobile payment on return on equity of deposit money banks in Nigeria.

REVIEW OF RELATED LITERATURE

Conceptual Review

Electronic Banking

Of all the sectors in the Nigeria Economy, Banking stands out despite “a not too good” economy. Electronic banking provides the facility of accessing customer accounts from anywhere in the world by using a home computer with Internet connection, is particularly fascinating to Non-Resident Nigerians and High Net worth Individuals having multiple bank accounts (Eze, & Egoro, 2016). The growth potential is, therefore, immense. Further incentives provided by banks would dissuade customers from visiting physical branches, and thus get ‘hooked’ to the convenience of armchair banking.

Eze and Egoro (2016) reported that the situation does not seem to have shown any significant improvement. Whereas about 90 percent of the banks in the country offer other forms of electronic banking services like telephone banking, ATM and electronic fund transfer, Internet banking is yet to take centre stage. This aspect of banking is still at the basic informative stage, this is so despite the widely acclaimed benefits of Internet banking against the traditional branch banking practice (Ovia, 2001). Part of the reasons identified for the inability of banks in Nigeria to take full advantage of this mode of banking includes lack of adequate operational infrastructure like telecommunication and power, upon which Electronic banking generally relies. Due to the inability of the banks to integrate their operations into the Internet development process, Internet banking can be said to have less in the existing banking structure in the country (Eze & Egoro, 2016).

E-banking is defined as the provision of retail and small value banking products and services through electronic channels (Njogu, 2014). Such products and services can include deposit taking, lending, account management, the provision of financial advice, electronic bill payment, and the provision of other electronic payment products and services such as electronic money. The term "electronic banking" or "e-banking" covers both computer and telephone banking. It refers to the use of information and communication technology by banks to provide services and manage customer relationship more quickly and most satisfactorily (Charity-Commission, 2003). Burr (1996) describes it as an electronic connection between the bank and the customer in order to prepare, manage and control financial transactions (Njogu, 2014).

The term e-banking is technically and intricately complex to define as it may be interpreted differently from other accessing viewpoints. The versatility of e-banking as delivery multichannel increases the intricacy of being precisely defined in the literature. Nonetheless, several attempts have been made to offer succinct of e-banking (Kricks, 2009; Auta 2010). For example, Kricks (2009) termed e-banking as automated delivery of new and conventional banking products and services directly to customers through electronic, interactive channels. Now, compared to the traditional system of banking, banks provide fast information delivery from customer to customer making it obvious that variations exist between services offered by electronic enable banks and non-banks (Singhal & Padhmanabhanm, 2008).

Operating Variables

Internet banking: This is a type of e-banking service where customers' instructions are taken and attended to through the internet. Internet banking offers customers the possibility of enjoying banking services from the comfort of their homes and offices. What this means is that customers can buy goods by placing orders from the net, instruct their banks to pay the vendor the invoice amount involved, and the products are delivered to the destination where the buyer wants. Internet banking is also another form of banking which allows customers to make use of the bank's website in order to make transfers, pay bills, and view their bank statement without having to visit the banking hall.

Smartcard banking: is the conduct of banking transactions through the use of electronic cards (Value Card, ATM Card, Debit Card, Credit Card etc.). Electronic card is a form of internet banking is a physical plastic card that identifies the holder of the card. It is used for financial transactions on line which includes point-of-sale (POS) and Automated Teller Machine (ATM) which are used to authorize payments to the sellers (Chimaobi, 2018). The various types of card include; credit and debit card which have to be replenished. An ATM combines a computer terminal, record keeping system and cash vault in one unit, permitting customer to enter a financial firm's book keeping system with either a plastic card containing a Personal Identification Number (PIN) or by punching a special code number into a computer terminal linked to a financial firms computerized records 24hours a day.

E-Mobile/banking: This involves the conduct of banking business through the use of mobile phones or fixed wireless phones. It takes the following steps: Instructions are passed via voice or short messages (SMS) to the computer; the computer decrypts the message and executes the instructions through a highly coded device, then, the outcome is given back to the customer. Telephone banking is a form of internet banking which is used by customers in order to perform or conducted retail transactions by calling phone communication units which are linked to an automated system of bank. Some activities that can be carried out are change of pin and transfer of funds (Chimaobi, 2018). Mobile banking is a form of internet banking which involves the use of cell or mobile phones in order to settle some transactions. Some of the examples of this transactions includes; change of pin, transfer of little amount of funds, phones recharge.

Point of Sales POS: In this system customers are issued with online cards which could be slotted into special electronic machines in order to effect payments. At the centre of such payment system are the Point of Sales (POS) terminals (Azeez, 2011). These are to be distributed across commercial centers in the country. These POS terminals thus deployed will serve like the Automatic Teller Machines (ATM). In this case, upon completing a transaction and the value ascertained, the amount is entered into a POS terminal into which the electronic card has been slotted. The cash equivalent of the amount is transferred from the payer's account into the account of the payee automatically (Olaegbe, 2011).

Review of Empirical Studies

Ugbede, yahaya and Edicha (2019) examined the effects of electronic payment on financial performance of deposit money bank in Nigeria. Data for the study were collected from statistical bulletin of Central Bank and annual reports and accounts of Nigerian banks. Electronic banking measured with the Automatic teller machine, internet banking and POS and financial performance was measured with profitability of deposit money banks in Nigeria. Multiple regression technique was used. The study revealed that ATM does not contribute to profitability of the sampled banks and also is not significant to banks profitability, POS has a positive contribution to bank profitability, and is also statistically significant to bank profitability, likewise, internet banking also has a positive contribution and statistically significant to profitability of the banks. Bingilar and Bariweni (2019) investigated the effect of electronic payment systems on the performance of commercial banks in Nigeria. Data was analyzed with regression analysis technique. Findings of the research showed that there is a statistically significant positive relationship between ATM transactions and the assets base of commercial banks in Nigeria. Internet (online) banking transactions had a positive relationship with the asset base of commercial banks. There is a positive and statistically significant relationship between mobile banking transactions and the assets base of commercial banks. Okon and Amaegberi (2018) estimated the impact of mobile banking

transactions on bank profitability in Nigeria using selected banks data from Electronic payment system office, Central Bank of Nigeria statistical bulletin from 2007-2016. The study adopts Panel unit root and SURE model estimation technique to conduct quantitative analysis for four selected old and new generation banks. The results of this study were analyzed using economic a priori criteria, statistical criteria and econometric criteria. The positive and statistically significant relationship between automated teller machine of old and new generation banks in Nigeria indicates that automated teller machine is a major factor that contributes to old and new banks performance in Nigeria. The positive and statistically significant relationship between point of sale of old and new generation bank in Nigeria indicates that point of sale is a major factor that contributes to old and new banks performance in Nigeria. Taiwo and Agwu (2017) examined the roles e-banking adoption has played in the performance of organizations using a case study of commercial banks in Nigeria. Questionnaires were the source of data administered to staff of four selected banks, namely; Ecobank, UBA, GTB and First bank. The study employed Pearson correlation coefficient to analyze the data with the aid of Statistical Package for Social Sciences (SPSS). Findings show that since the adoption of electronic banking, there is improvement on banks' operational efficiency in Nigeria. It was concluded that the introduction of new channels into their e-banking operations drastically increased bank performances, since the more active customers are with their electronic transactions the more profitable it is for the banks. Obiekwe and Mike (2017) investigated the effect of Electronic payment Methods (EPM) on the profitability of commercial banks in Nigeria. In order to achieve the broad objective, the study specifically investigated the effect of Automated Teller Machine (ATM), Point of Sale (POS) and Mobile Payment (MPAY) on the profitability of commercial banks in Nigeria. A total sample of five (5) banks was considered for the period 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. However, Point of Sale (POS) has an insignificant effect on commercial banks' profitability in Nigeria. Eze and Egoro (2016) study is on the impact of electronic banking on the profitability of commercial banks in Nigeria. The study sought to examine the relationship between different e-banking channels and the profitability of commercial banks in Nigeria. Four e-banking channels (automatic teller machines, electronic mobile banking, internet banking transactions, and point of sales services) were identified and regress against the profit before tax of commercial banks operating in Nigeria between 2006 and 2014. The study used the confirmed ECM model (via residual diagnosis) to test the formulated hypotheses. The results revealed that the over impact of electronic banking on the profitability of commercial banks was significant; whereas, the impact of the individual channels was varied. Ugwueze and Nwezeaku (2016) studied the relationship between electronic banking and the performance of Nigerian commercial banks. Electronic banking was proxied by value of Point-of-Sale transactions while commercial banking performance was proxied by customers' deposits. The results show that POS is not significant with both the savings and time deposits but significant with demand deposits. Akhisar, Tunay and Tunay (2015) investigated the effects of electronic-based banking services 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 served as the explanatory variable while return on equity (ROE) and return on assets (ROA) were the dependent variables. Findings 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. Suberu, Afonja, Akande and Adeyinka (2015) studied the effect of cashless policy, saving and bank credit on Nigerian deregulated economy. Data were collected from annual accounts. Ordinary least square econometric technique was used to analyze the data. Findings from this study revealed that the marginal productivity coefficient of bank credit to the domestic economy is positive but insignificant. The implication is that banks credit did not affect the productive sectors sufficiently for the latter to impact significantly on the Nigerian economy. Ogunlowore and Oladele (2014) empirically investigated the impact of electronic banking on the satisfaction of customers using GTB bank, Lagos as a case study. A sampled of 100 respondents were administered structured questionnaire. Data obtained were analyzed with descriptive measures such as simple tables and percentages. The formulated hypotheses were validated using the chi-square statistical measure. The empirical result from the chi-square analysis revealed that electronic banking has significant relationship with customer satisfaction in GTB bank and general banking customers. The result also revealed that the introduction of electronic banking has enhanced bank profitability level. Finally, the results showed the application of electronic banking has increased the market share of banks in Nigeria. Njogu (2014) determined the effects of electronic banking on profitability of

commercial banks in Kenya. These data were collected from the Central Bank of Kenya and Commercial banks. Regression analysis was done for the period to determine the effects of electronic banking on profitability of commercial banks in Kenya. The study found that there was a strong positive relationship between financial performance of commercial banks and electronic banking, as it was found that there was a strong relationship between financial performance of commercial banks and electronic banking. Abaenewe, Ogbulu and Ndugbu (2013) examined the relationship between electronic banking and bank performance in Nigeria using a descriptive analytical methodology. Four 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 assets (ROA) and return on equity (ROE) 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 on assets (ROA). Olasope (2013) investigated the effect of electronic banking on commercial banks' operations in Nigeria using primary data derived from questionnaire and oral interviews. The study employed simple percentages and chi-square as the analytical method. Findings revealed that poor staff orientation, poor infrastructure and high cost of adoption of electronic banking platforms are factors that have affected the profitability of the commercial banks in Nigeria. Nnolim (2013) examined the impact of information and communication technology (ICT) on the banking sector using Access Bank PLC as a case study. The study also made use of the questionnaire research design and adopted the chi-square test as the analytical tool. Findings revealed that ICT has influenced operational costs of banks in terms of personnel management, personnel administration and efficiency thereby increasing the profitability of the banking sector in Nigeria. Shehu, Aliyu and Musa (2013) investigated the effect of electronic banking products on the performance of Nigerian listed Deposit Money Banks (DMB) using 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. However, SMS alert has a positive but insignificant relationship with profitability of DMBs in Nigeria. Finally, E-mobile has a positive and significant relationship with the profitability of DMBs while ATM has a negative and significant relationship with the profitability of DMBs in Nigeria. Adewoye (2013) investigated the impact of mobile banking on service delivery in the Nigerian 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 saving of service costs among others. The study concluded that mobile banking has improved customers satisfaction thereby increasing the profitability of the commercial banks in Nigeria. Mohammed, El-maude and Abam (2013) determined e-banking and bank performance: evidence from Nigeria. The study examined the impact of electronic banking on banks' performance in Nigeria. Panel data comprised annual audited financial statements of eight banks that have adopted e-) and retained their brand name banking between 2000 and 2010 as well as macroeconomic control variables were employed to investigate the impact of e-banking on return on asset (ROA), return on equity (ROE) and net interest margin (NIM). Result from pooled OLS estimations indicate that e-banking begins to contribute positively to bank performance in terms of ROA and NIM with a time lag of two years while a negative impact was observed in the first year of adoption. Ogare (2013) study on the effect of electronic banking on the financial performance of commercial banks in Kenya, the study sought to establish whether there exists a relationship between the dependent variable, for example, performance measured by profit after tax and the independent variables consisting of number of ATMS, number of debits and credit cards issued to customers, number of point of sales terminals and the usage levels of Mobile banking, Internet banking and Electronic funds transfer, as components of e-banking. The findings of the study were that e-banking has a strong and significant effect on the profitability of commercial banks in the Kenyan banking industry. Maiyo (2013) examined the effect of electronic banking on financial performance of commercial banks in Kenya. The specific objectives were to determine the extent of e-banking adoption and the effect of this adoption on financial performance of commercial banks in Kenya. Data was collected from published financial statements of the respective commercial banks and central bank of Kenya. Appropriate frequency tables and charts were used, a multiple regression analysis was also used to explain the relationship between the variables and present the findings. The study revealed that fees and commission from debit cards, credit cards and mobile banking has a significant effect on returns on asset whereas fees and commission from internet banking as well as the amount of money that commercial banks invest in electronic banking to install, train staff and maintain the platforms has no or minimal effect on return on assets. The

adoption of e-banking banking has enhanced performance of commercial banks due to increased efficiency, effectiveness and productivity.

Majority of these studies conducted in Nigeria on the effect of electronic banking on profitability of deposit money banks uses survey design. It becomes necessary to use secondary data given the fact that electronic banking has diverse effects on banking system at different periods.

The results from the empirical evidence on the effects of electronic banking and profitability are inconsistent and some are contradictory; ranging from positive, to negative, to statistical insignificant relationship depending upon the choice of methodology. In the light of the above, this present study seeks to investigate the relationship that exists between electronic banking and profitability of in Nigerian deposit money banks using central bank of Nigerian Statistical Bulletin and banks annual reports.

RESEARCH METHODOLOGY

Research Design

Ex-post fact research design and time series data which is the aspect of statistic that involves the various techniques of describing data collections has been adopted for the purpose of this research. This design will also enable the researcher describe and summarize the data collected for the purpose of this study and enable an in-depth knowledge about the objectives and the variables of the study. This population of this study consists of the 15 deposit money banks quoted on the Nigerian Stock Exchange. The study covered ten years annual reports and accounts of these banks from 2009 to 2018. This study applied purposive sampling technique, in this method; the sample is chosen based on what the researcher thinks is appropriate for the study. The banks licence with international authorization was chosen which consist a total of nine (9) out of the fifteen (15) deposit money banks quoted on the Nigerian Stock Exchange which were inevitably excluded during the data collection process.

Method of Data Analysis

The statistical model chosen for the analysis is regression analysis, with the aid of E-view 9.0 software. Three sets of hypotheses were advanced for confirmation in this study.

Decision Rule

The decision for the hypotheses is to accept the alternative hypothesis if the P-value of the test statistic is positive and significant at 5% significant level. P-value less than 5%, reject, P-value greater than 5% then do not reject.

Model Specification

This study adopted Shehu et al (2013) specified a model for the relationship between electronic banking products and performance of DMBs as: $ROE = f(ATM, POS, \text{ and } EMPAY)$

Transforming equation (1) into its panel data form:

$$ROE_{it} = \alpha_i + \beta_1 POS_{it} + \beta_2 ATM_{it} + \beta_3 EMPAY_{it} + \beta_4 FRMSZ_{it} + U_{it} \dots \dots \dots (i)$$

$$ROE_{it} = \alpha_i + \beta_1 POS_{it} + \beta_4 FRMSZ_{it} + U_{it} \dots \dots \dots (ii)$$

$$ROE_{it} = \alpha_i + \beta_2 ATM_{it} + \beta_4 FRMSZ_{it} + U_{it} \dots \dots \dots (iii)$$

$$ROE_{it} = \alpha_i + \beta_3 EMPAY_{it} + \beta_4 FRMSZ_{it} + U_{it} \dots \dots \dots (iv)$$

Where:

ROE = Return on equity

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

ATM = Automated Teller Machine payment method. ATM is the total value of ATM transactions in Nigeria

EMPAY = EMPAY is described as the total value of mobile banking payment transactions in Nigeria.

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

$i = 9$ (number of banks) and $t = 10$ (number of years)

U_i = firm-specific error term

ϵ_{it} = idiosyncratic error term

RESULTS AND DISCUSSION

Descriptive Statistics

The observation of 90 in descriptive result found the panel data set with the combination of time series data and cross sectional data (10years x 9banks). The average ROE of deposit money banks in Nigeria is 1.53 with a maximum of 2.80, a minimum of 0.60 with a standard deviation of 0.71. The observed average POS is about 220.54 with a minimum of 11.030, a maximum of 0521.08 with a standard deviation of 190.36. The observed degree of the average ATM is 3498.68 with a minimum of 399.71, a maximum of 7601.97 and a standard deviation of 2453.91 percent. The observed average MPAY in the sampled banks is 259.08, with a maximum number of 551.43, a minimum number of 1.27 and a standard deviation of 239.76. The degree of skewness shows that there is a rise in, ROE, POS, ATM, EMPAY and BNKSZ.

Test of Hypotheses

Hypothesis One

H₀₁: ATM payment method does not significantly affect return on equity of deposit money banks in Nigeria.

Table i: Panel Least Square (PLS) Regression Analysis testing the effect of ATM on ROE

Dependent Variable: ROE

Method: Least Squares

Date: 01/15/20 Time: 20:13

Sample: 2009 2018

Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.790510	0.740237	2.418835	0.0462
ATM	-0.000363	0.000747	-0.486307	0.6416
BNKSZ	4.92E-07	1.56E-06	0.314683	0.7622
R-squared	0.211424	Mean dependent var		1.529000
Adjusted R-squared	-0.013883	S.D. dependent var		0.713745
S.E. of regression	0.718683	Akaike info criterion		2.420531
Sum squared resid	3.615533	Schwarz criterion		2.511307
Log likelihood	-9.102657	Hannan-Quinn criter.		2.320951
F-statistic	0.938381	Durbin-Watson stat		0.966763
Prob(F-statistic)	0.435464			

Source: E-Views 9.0 Panel Regression Output, 2020

Interpretation of Regression Result

Table i reveals an R-squared value of 0.211. The adjusted R², which represents the coefficient of multiple determinations imply that 1.4% of the total variation in the dependent variable (ROE) of quoted deposit money banks in Nigeria is jointly explained by the explanatory variables (ATM and BNKSZ). The adjusted R² of 1.4% did not constitute a problem to the study because the F- statistics value of 0.938381 with an associated Prob.< F = 0.435464 indicates that the model is fit to explain the relationship expressed in the study model and further suggests that the explanatory variables are properly selected, combined and used. The results in table 4.2 illustrated that ATM has a negative and significant relationship with ROE measured with a beta coefficient (β_1) and t- value of -0.000363 and -0.486307 respectively and p- value of 0.6416 which is not statistically significant at 5%: $ROE = 1.790510, -0.000363 ATM + \mu$

This beta coefficient revealed that if ATM increases by one unit, then the sampled banks ROE would increase by 0.04%. In addition, Durbin-Watson test is implied to check the auto correlation among the study variables. The Durbin-Watson value is 0.966763 which is less than 2 provide an evidence of no auto-correlation among the variables.

Decision

Based on the empirical evidence that suggests that ATM has negative effect on ROE of quoted deposit money banks in Nigeria and this effect is not statistically significant at 5% level of significance, thus, the null hypothesis of the study is accepted.

Hypothesis Two

H₀₂: POS payment method does not significantly affect return on equity of deposit money banks in Nigeria.

H₁₂: POS payment method significantly affects return on equity of deposit money banks in Nigeria.

Table ii: Panel Least Square (PLS) Regression Analysis testing the effect of POS on ROE

Dependent Variable: ROE

Method: Least Squares

Date: 01/15/20 Time: 20:14

Sample: 2009 2018

Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.952143	0.690584	2.826799	0.0255
POS	-0.001126	0.004887	-0.230385	0.8244
FRMSZ	-8.53E-08	7.94E-07	-0.107419	0.9175
R-squared	0.190917	Mean dependent var		1.529000
Adjusted R-squared	-0.040250	S.D. dependent var		0.713745
S.E. of regression	0.727967	Akaike info criterion		2.446204
Sum squared resid	3.709556	Schwarz criterion		2.536980
Log likelihood	-9.231021	Hannan-Quinn criter.		2.346624
F-statistic	0.825885	Durbin-Watson stat		0.809608
Prob(F-statistic)	0.476404			

Source: E-Views 9.0 Panel Regression Output, 2020

Interpretation of Regression Result

Table ii reveals an R-squared value of 0.191. The adjusted R², which represents the coefficient of multiple determinations imply that 4% of the total variation in the dependent variable (ROE) of quoted deposit money banks in Nigeria is jointly explained by the explanatory variables (POS and BNKSZ). The adjusted R² of 4% did not constitute a problem to the study because the F- statistics value of 0.825885 with an associated Prob.< F = 0.476404 indicates that the model is fit to explain the relationship expressed in the study model and further suggests that the explanatory variables are properly selected, combined and used. The results in table 4.3 illustrated that POS has a positive but not significant relationship with ROE measured with a beta coefficient (β_1) and t- value of 1.952143 and 2.826799 respectively and p- value of 0.8244 which is not statistically significant at 5%: $ROE = 1.952143, -0.001126 POS + \mu$

This beta coefficient revealed that if POS increases by one unit, then the sampled banks ROE would increase by 0.01%. In addition, Durbin-Watson test is implied to check the auto correlation among the study variables. The Durbin-Watson value is 0.809608 which is less than 2 provide an evidence of no auto-correlation among the variables.

Decision

Based on the empirical evidence that suggests that POS has positive effect on ROE of quoted deposit money banks in Nigeria and this effect is not statistically significant at 5% level of significance, thus, the null hypothesis of the study is accepted.

Hypothesis Three

Ho₃: E-Mobile payment does not significantly affect return on equity of deposit money banks in Nigeria.

HI₃: E-Mobile payment significantly affects return on equity of deposit money banks in Nigeria.

Table iii: Panel Least Square (PLS) Regression Analysis testing the effect of MPAY on ROE

Dependent Variable: ROE

Method: Least Squares

Date: 01/15/20 Time: 20:16

Sample: 2009 2018

Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.304799	0.620351	3.715313	0.0075
MPAY	0.001756	0.002950	0.595279	0.5704
FRMS	-6.00E-07	6.04E-07	-0.994459	0.3531
R-squared	0.224062	Mean dependent var		1.529000
Adjusted R-squared	0.002366	S.D. dependent var		0.713745
S.E. of regression	0.712901	Akaike info criterion		2.404375
Sum squared resid	3.557590	Schwarz criterion		2.495151
Log likelihood	-9.021877	Hannan-Quinn criter.		2.304795
F-statistic	1.010670	Durbin-Watson stat		0.750435
Prob(F-statistic)	0.411523			

Source: E-Views 9.0 Panel Regression Output, 2020

Interpretation of Regression Result

Table iii reveals an R-squared value of 0.220. The adjusted R², which represents the coefficient of multiple determinations imply that 0.2% of the total variation in the dependent variable (ROE) of quoted deposit money banks in Nigeria is jointly explained by the explanatory variables (MPAY and BNKSZ). The adjusted R² of 0.2% did not constitute a problem to the study because the F- statistics value of 1.010670 with an associated Prob.< F = 0.411523 indicates that the model is fit to explain the relationship expressed in the study model and further suggests that the explanatory variables are properly selected, combined and used. The results in table 4.4 illustrated that MPAY has a positive but not significant relationship with ROE measured with a beta coefficient (β_1) and t- value of 2.304799 and 3.715313 respectively and p- value of 0.5704 which is not statistically significant at 5%: $ROE = 2.304799 + 0.001756 MPAY + \mu$

This beta coefficient revealed that if MPAY increases by one unit, then the sampled banks ROE would increase by 0.01%. In addition, Durbin-Watson test is implied to check the auto correlation among the study variables. The Durbin-Watson value is 0.750435, which is less than 2 provide an evidence of no auto-correlation among the variables.

Decision

Based on the empirical evidence that suggests that EMPAYS has positive effect on ROE of quoted deposit money banks in Nigeria and this effect is statistically significant at 5% level of significance, thus, the null hypothesis of the study is accepted.

Based on the analysis, the result from hypothesis one revealed that Automated Teller Machine (ATM) payment method has negative effect on return on equity of deposit money banks in Nigeria and this effect is not statistically significant. This finding therefore supports our a priori expectation and the findings of Shehu, Aliyu and Musa, (2013) and negates the view of Obiekwe and Mike (2017); Ogunlowore and Oladele (2014).

Based on the analysis, the result from hypothesis two shows that Point of Sales (POS) payment method has positive effect on return on equity of deposit money banks in Nigeria and this effect is not statistically significant. This finding therefore supports the finding of Obiekwe and Mike (2017); Ugwueze and Nwezeaku (2016) and negates our a priori expectation and the view of Ogunlowore and Oladele (2014).

Based on the analysis, the result from hypothesis two revealed that E-Mobile Payment (EMPAY) has positive effect on return on equity of deposit money banks in Nigeria and this effect is statistically significant. This negates the findings of Shehu, Aliyu and Musa (2013) and affirms the findings of Okon and Amaegberi (2018); Obiekwe and Mike (2017).

CONCLUSION

This study assessed the effect of electronic banking on profitability of deposit money banks in Nigeria. In order to achieve this objective, the study specifically investigated the effect of ATM, POS and EMPAY on the return of equity of the banks in Nigeria. The results revealed that ATM and POS have not statistically significant on banks' profitability (ROE) in Nigeria, though ATM has a negative effect on bank's profitability. However, E-Mobile payment (EMPAY) method has positive and statistically significant on the profitability of deposit money banks in Nigeria. Meanwhile, electronic banking service provides convenience to customers as well save cost, and cause banks to develop interest in expanding their market through internet banking services.

Based on the result, this study recommended that there is need for Nigerian banks to increase the awareness about ATM usage through media campaign, seminars and symposia. This is against the backdrop that increased usage of ATM payment method increases the profitability of banks in Nigeria. Also Point of Sale (POS) payment method should be encouraged in Nigeria for the purpose of transactions to keep up cashless economy. Hence, banks should organize seminars and workshops on the benefits of using POS for both customers and traders. This would boost its impact on banks profitability in Nigeria as well reduced criminal tendencies and attack.

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