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

Jonathan O. Oniore.[1], **Uju V. Okoli.**[2*]

[1]Department of Economics, Faculty of Humanities, Social and Management Sciences, Bingham University, Karu, Nigeria
[2*]Department of Economics, Faculty of Social Sciences, Nnamdi Azikiwe University, Awka, Nigeria

ABSTRACT: E- banking enable banks to speed up their retail and wholesale banking services; as the banking industry believes that adopting the new technology will help to improve customer service level and tie their customers closer to the bank. An understanding of the implications of electronic banking has therefore become crucial. It is on this basis that this study examined the impact of electronic banking on the performance of money deposit banks in Nigeria from 2006 to 2017 using time series quarterly data. The study adopted Ordinary Least Squares as main tool of analysis. The estimated regression equation showed that in the long-run, all the variables are correctly signed, except inter-bank transfer that is negatively signed. The policy implication of the findings is that e-banking has gradual positive impacts on performance of banks in Nigeria and hence could contribute to the process of economic growth. The research therefore suggests that banks must be focused in terms of their needs and using the right technology to achieve goals and objectives, rather, than acquiring technology of internet banking for having sake or because other banks have it and regulatory authorities like Central Bank of Nigeria must enforce fully the new standards and policy on electronic banking transactions.

Keywords: Electronic Banking, Deposit money banks, Banks Credit, Return on Assets and Return on Equity.

1. INTRODUCTION

The revolutionary changes happening around the world in information & communication technology & its increasing use in the banking institutions have brought significant transformation in the manual system of banking to technological based banking system & recently more recognition has been given to information & communication technology (ICT) as the engine of the banking sector while for rapid growth in the economy, the banking sector plays a significant role (Abubakar and Tasmin, 2012). Against this backdrop, information technologies, e-business, financial services & e-commerce industries have come to be an indispensable ingredient in the competitive business strategy & a powerful economic growth catalyst across the globe (Salehi and Alipour, 2014).

In light of the foregoing, Nigerian bank's investments in information technology (IT) equipment have grown rapidly in the last ten years. There have been increased investments in computer hardware, software and telecommunication equipment; resulting in the introduction of Electronic Bank (E-Banking) in the Nigeria Banking Industry. There has been an increase in the services rendered to customers by the deposit money banks through the utilization of electronic banking. This however comes with its attendant risk which the customers are exposed to. Despite the customer exposure, it is believed by the banking industry that utilization of the new banking technology they will be able to enhance the quality of services rendered to customers, hence endearing the customers to their banks. An understanding of the implication of this banking technology has therefore become crucial.

In as much as the utilization of this electronic system of banking comes with numerous challenges in regards to risk. The deposit volume in the banking industry has increased & also the fraudulent practices experienced by the Banks in Nigeria since it was introduced in the country. Information technology adoption in the economy is necessitated by the volume of information that is processed by these banks on a regular basis. On the side of the customers, depositing or withdrawal of cash is easier & faster, cheques are cleared or deposited, transfers of money are easily done, account statement are provided etc. Banks, at the same time collect up-to-date account information, facilitation of credits or its recovery, deposits, income, charges, profitability indices, & several other financial information controls. Researchers, however has focused their attention on the electronic banking revolution with respect to the Deposit Money Banking performance in Nigeria. Even though vast studies have been carried out on the customer benefits on the adoption & utilization of electronic banking, however, less research have been carried out as it relates to the performance of the banks. This study therefore investigates the impact of electronic banking on the performance of money deposit banks in Nigeria.

2. LITERATURE REVIEW

2.1. Conceptual Issues

2.1.1. Concept of E-banking

There are many definitions of E-banking in the literature, for instance, E-banking is a banking method that enable customers to conduct transactions electronically without going to any branches of the bank (Simpson, 2002). E-banking as it has just been defined means it saves valuable time as it is not necessary for the customers to visit any of the bank branches in order to conduct business & the banks are provided with the opportunity to increase the base of their customer in order to increase business profitability (Okibo and Wario, 2014). Another definition of E-banking was the one given Basel Committee on Banking Supervision (2003). According to this report, E-banking is expected to have provision for small value & retail banking services & products electronic channels and also large volume of electronic payment include many other wholesale services which the banks can deliver electronically. In regards to the field of financial services, E-banking has been observed to be an ecommerce product.

Generally speaking, E-banking implies a system where the providers of financial services, individuals, customers & even businesses are provided with the capability to check their accounts, conduct transactions & collect valuable information on the financial services & products from the private & public networks, like the internet. For instance, using electronic devices like the personal digital assistant, personal computer, Automate Teller Machine. With E-banking, customers are given the ability to access & carry out their banking transactions with less effort as compared to manual or branch based banking.

2.2. Theoretical Literature

2.2.1. Technology Acceptance Model (TAM)

This model was propounded by Fred Davis in 1989. The prediction of acceptance of Information technology & the organizational usage by the users was the initial design of the model. It was argued in the model that acceptance by the user is determined by 2 important beliefs, these are, perceived ease of use & perceived usefulness. Perceived usefulness (U) was defined as the extent which it is believed by the person that a specific technology will improve his/his job performance, on the other hand, perceived ease of use (EOU) was defined as the degree to which it is believed by a person that using a technology will be easy Davis (1989). It was posited further that the attitude of the customers as regards to a new technology is affected by the perceived ease of use and how easy it is to use. To measure the perceived usefulness, it is carried out in scale of if work is carried out faster, improved performance, increased productivity, usefulness & effectiveness. The perceived ease of use is measured on if the technology is easy to learn, understandable & clear, easy to be skilful on its usability easy to remember & controllable. The technology acceptance model also suggests that intentions are affected by external factors, actuals are also affected by external factors through its immediate effect on the perceived usefulness & perceived ease of use. Criticisms were directed to the model because it failed to account for the cost associated in obtaining new technology. In as much as the organization may want to use the new technology, they may lack the necessary financial prowess to acquire such. Regardless of this short coming, the technology acceptance model remains one of the most useful models which are available in providing explanation to the adoption of technology in the context of an organization. The motivation & the process of e- banking adoption in the commercial banks is informed by this theory.

2.2.2. Innovation Diffusion Theory

Everett Roger propounded this theory. He posits that diffusion is regarded as the process innovation is passed on through channels over a period of time between the participants in the social system. Similarly, Meso *et al.* (2006) observed that innovations are introduced, irrespective of their usability; it can take time before it can be adopted. it was proposed by Rogers that four main elements exist which influence the how new idea are spread which are communication, innovation, time channels & social system.

Innovation is an idea, practice or project that is perceived as new by an individual or other unit of adoption. The Author explains further the decision process of innovation has 5 important steps; Knowledge, Persuation, Decision, Implementation & confirmation. It was described by Rogers that the innovation-diffusion as an uncertainty process of reduction. Attributes was also proposed by him who can support the reduction of uncertainty regarding the innovation which include, relative advantage, complexity, observability, compatibility, & triability.

Relative advantage is connected to the idea that are providing an organization with competitive edge while compatibility is related to the degree to which the innovation is observed to be consistent with the values of the organization and the potential adopters needs. The degree to which the proposed innovation may be experimented is related to triability. Furthermore, observability is connected to the degree to which the innovation is observable.

2.2.4. Theory of Planned Behaviour

Ajzen (1988) propounded this theory is 1988. It was argued in the theory that the behaviour of an individual is driven by the behaviour intentions. The behaviour intentions are connected to 3 determinants; subjective norms, individual’s attitude towards behaviour, & perceived behavioural control. Attitude is regarded as the degree a person holds negative or positive feelings of the behaviour of interest. In view of Conner and Armitage (1998), a person’s motivation is represented by intentions in the sense of his or her conscious decision or plan to carry out specific behaviours. The subjective norm on the other hand is a person’s estimate of social pressure to carry out a specific behaviour. The subjective norms are believed to be made up of 2 components which work in interaction; beliefs on how people, who are observed to be important to them, would want them to behave (Normative behaviour). Perceived behavioural control is regarded as the extent in which the individual is able to carry out the behaviour. This is made up of two aspects; how confident the individual feels about not being able to perform or being able to perform & how much control an individual has over his behaviour. Planned behaviour is predicted by the theory of planned behaviour. This is because behaviours are always planned. this theory has wide application to studies which relates to the behaviour of individuals particularly in the individual’s intention prediction on his behaviour.

2.3. Empirical Issues

A study was carried out by Okoro (2014) on the effect of Point of sales, Automated teller machine, Mobile & internet services values on the intermediation of the economy. The technique adopted in the study is the multiple regressions which were carried out on time series data which ranged from 2006 to 2011. It was observed in the study that a significant relationship exists between POS, ATM, services from the net & the intermediation efficiency of the economy. Nevertheless, it was equally revealed in the study that a significant relationship does not exist between the Nigerian economy & the mobile service value & intermediate efficiency in the study period. The study concluded that the POS, ATM & internet service is major instrument the customers use to make money deposits. It was therefore recommended in the study that more efforts should be made by the relevant stake holders in advertising these products in the country.

Karimzadeh *et al.* (2014) carried out an investigation on the e-banking impact on the bank profitability. This study was carried out using quarterly data which was collected over the period of 2004 to 2012. The study revealed that e-banking expansion has a positive impact on the bank profitability which was measured with the ROA.

Another study was conducted by Rauf and Qiang (2014) on the impact of e-banking on the performance commercial bank of Pakistani. The performance of the bank was measured with the ROA, ROE, & margin of interest. The sample adopted in the study is a sample of ten banks. The data collected for the study is over the period of 2002 – 2012. It was observed in the study that e-banking has a positive & significant relationship on interest margin ROE & ROA for the banks who recently adopted the technology. The study therefore concluded that at a cost saving strategy they can consider e-banking so as to be able to compete with other foreign banks given that adequate monitoring & control measure are put in place.

Oyewole *et al.* (2013) carried out a study on the impact of e-banking on the performance of commercial banks in Nigeria. The study adopted panel data which was collected from 1999 to 2010 from 8 commercial banks in the country. it was found in the study that a significant & positive relationship exists in the performance of the banks. How ever there was no impact on ROE.

Abaenewe *et al.* (2013) examine the impact of e-banking on the commercial banks profitability in Nigeria. They conducted the study with secondary data which were collected from the Stock exchange database from the period of 1997 to the period of 2010. It was revealed in the study that electronic banking adoption has a positive & significant effect on the returns of equity of the banks in Nigeria. The sty recommended that there is need for the banking industry to adjust to full & equally effective adoption of ICT as a result of attendant advantage.

Omotunde *et al.* (2013) investigated the effect of cashless policy in Nigeria. The research method adopted in the study is the survey research which was carried out with the data collected using questionnaires. From the respondent responses, it was observed that increase in employment will be enhanced through the adoption of cashless policy, it will equally lead to reduction in cash related robbery which in turn reduce the risk of carrying cash in the society. This will equally reduce cash related corruption in the country & encourage foreign investors to invest in the country. it was therefore revealed in the study that cashless economy can be regarded as a step towards the right direction.

Aduda and Kingoo (2012) examined the existing relationship between the performance of the commercial banks in Kenya & the electronic banking. The study particularly tried to establish if there is a relationship between performance which in the study is the dependent variable & the independent variables. The dependent variable in the study which is performance was measure by the ROA, while the independent variables in the study where measured by the ATM numbers, e-banking investment, & Debit card numbers.

In the study it was observed that a significant & positive relationship exists between the performance of the bank & the electronic banking in the country. The result therefore informed the study to conclude that e-banking has made the industry to carry out transactions with ease through easier banking activities with electronic banking.

Mohammad and Saad (2011) studied the impact of electronic banking on the Jordanian banks performance. The study used Panel data which was collected from 15 Jordanian banks ranging from 2000 to 2010. The study adopted accounting data to measure that performance of the bank & carryout regression on the relevant variables using the Ordinary Least Squares estimation technique. It was observed from the study that there I a negative but significant relationship between the e-banking and the banks performance. It was seen from the study that electronic bank has failed to improve the performance of the banks in Jordan. The customers depend on the traditional methods of conducting transaction in their respective banks. This has caused a high cost of adopting the e-banking system in the banks. It was recommended in the study that the banks should put in more efforts in encouraging the customer to use the e-banking system of conducting transactions in the country.

Sumra and Manzoor (2011) observed in their study that the penetration & proliferation of internet has unleashed new scenarios & horizons for the banking industries. Through the channels of electronic medium, the retail banking is now providing its products & services to their customers. It was seen that electronic banking has a substantial impact on the performance of the banks. Thus, the study was carried out in order to examine the impact electronic banking on the profitability of commercial banks in Pakistani. The study adopted the qualitative method of data analysis which was collected from 12 banks in the country. From the results which were obtained in the study, it was seen that the profitability of the banks has been increased as a result of the adoption of electronic banking in the country. The banks have been enabled to meet up with cost, & earn profit. The customer’s illiteracy wasn’t regarded as an obstacle in the provision of their services & products.

Al-Smadi and Al-Wabel (2011) carried out a study using the panel data collected from 15 banks in Jordan for the period of 2000 to 2010. The study was conducted in order to observe the impact of electronic banking on the banks performance in Jordan. The performance of the banks was measured with the ROE & 2 control variables. The study adopted pooled OLS method of analysis and it was discovered in the study that a negative but significant impact exists between e-banking & commercial banks performance in the country of Jordan. The major limitation observed in the study is that researcher failed to observe ROE after a particular year after the adoption of electronic banking. Since high cost is involved in the use of new technology, years will be needed to cover cost of adoption then profit earnings.

Ovia (2001) examine the implementation state of electronic banking in Nigeria & evaluate its influence on the truth level of electronic payment using the technology acceptance model. He observed from the study that perceived usefulness & the ease are not antecedent to e-banking acceptance.

3. METHODOLOGY

3.1. Model Specification and Data

This study adopted a model which is predicated on the theoretical exposition of Fred Davis (1989) & a modified model of Oyewole *et al.* (2013). Based on the foregoing, the relationship between deposit money banks and electronic banking can be specified as:

ROA = f (ATM, IBT, POS) (3.1)
Where:
ROA = Return on Assets as measure of deposit money banks performance;

ROA provides a picture of the management of banks has become effective with regards to profitability with their existing assets. Return on Equity is also an important measure of the performance of banks, it measures the return earned the stock holder's investment in the organization. It provides an explanation on the effectiveness of the funds of the shareholders in the management of the firm. Both return on assets and equity are commonly used measures of bank's performance (see, Abaenewe *et al.* (2013); Al-Smadi and Al-Wabel (2011).

ATM = total transactions carried out on the automated teller machines
IBT = Inter-bank transfer is regarded as the transfer between two banks.
POS = Total number of POS transactions

To estimate equation (3.1), we take the natural logs of both sides which will result in the following equation

$$InROA = \beta_0 + \beta_1 InATM + \beta_2 InIBT + \beta_3 InPOS + \mu \quad (3.2)$$

Where μ denotes the white noise error term, In: Natural logarithm, β_0 = intercept or autonomous parameter estimate and $\beta_1 ... \beta_3$ = Parameter estimate associated with deposit money banks and electronic banking in Nigeria. All the variables are expressed in logarithmic form. Also, all coefficients are expected to be positive.

Secondary data was adopted in the study which was collected from the CBN statistical bulletin, NBS & other relevant and reliable sources. It covers the period from 2006 to 2017.

3.4. Estimation Technique

The study adopted the following procedures so as to investigate the existing relationship between explanatory variable & the explained variable.

In the first place, the characteristics of the time series data were examined in order to determine the order in which the variables are integrated & equally to avoid conducting spurious regression analysis. The study carried out a unit root test on the variables included in the regression by employing the Augmented Dickey-Fuller (ADF) since it adjusts for serial correlation. Here, the decision rule states that it the ADF calculated is higher than the critical level at 5% significance level, we are expected to reject the null hypothesis & concluded that the time series are nit stationary. Next, the study employed multiple regression model based on Ordinary Least Squares (OLS) technique to determine the effect of electronic banking on the performance of deposit banks in the country. According to Gujarati (2003), the preference of the adoption of OLS method is necessitated as a result of the simplicity in the computation procedure as compared to other estimation methods. The OLS method is also advantageous in terms of a smaller variance it has when compared to every other linear unbiased estimate; they are normally distributed & linear; they are efficient; they are also unbiased symmetrically. The OLS method has been observed to be Best Linear Unbiased Estimator (BLUE).

4. RESULTS

First, the summary of the ADF result is presented in the table below;

Table 1. ADF Test Results (Trend and Intercept)

Variables	ADF	Critical Values	Order of Integration
ROA	-4.127	-3.511*	I(1)
ATM	-6.785	-4.171*	I(1)
IBT	4.323	-3.508**	I(0)
POS	-5.449	-4.171*	I(1)

Note: * Indicate stationary at the 1% level, & ** Indicate stationary at 5% level.
Source: Researcher's Computations, E-views 9.5.

Table 1 above shows the ADF result & it indicates that the variables are stationary at first difference except IBT which tends to be stationary at level. Next, the study presents the estimated regression results from the OLS.

Table 2. Result of Estimated Equation; Dep. Var = LOG (ROA)

Variable	Coefficient	t-Statistic	p-value
C	1.531	0.971	0.33
LOG(ATM)	0.164	1.276	0.20
LOG(IBT)	-0.264	-1.714	0.09
LOG(POS)	1.059	9.264	0.00

R^2: 0.88; Adj. R^2: 0.87.
DW: 1.8.; F-Stat: 104.7; Prob (0.00).
No of Obs: 48.
Method: OLS.
Source: Researcher's computation (2019).

It can be observed from the estimated regression equation that in the long-run, all the variables are correctly signed, except inter-bank transfer that is negatively signed. The study outcome is in line with economic theory.

The coefficient of total transactions carried out on the automated teller machines (ATM) is positively related to deposit money banks performance captured by return on assets during the study period. By implication, a rise in total transactions carried out on the automated teller machines (ATM) exerts a positive impact on deposit money banks performance. Consequently, 1% increase in total transactions carried out on the automated teller machines (ATM) is associated with 0.16% rise in deposit money banks performance.

The interbank transfer is observed in the study result to have a negative impact on the performance of the banks during the study period. Consequently, one percentage change or increase in Inter-bank transfer will lead to 0.26% decrease in deposit money banks performance.

Total number of POS transactions (POS) coefficient is directly related to deposit money banks performance long-run in Nigeria. The contribution of Total number of POS transactions (POS) is about 1.1%. This finding is conforms with the study theoretical predictions.

The above findings may be as a result of the efficiency involve in use of E- banking as a medium of transaction which has made it easier for people to access money, make transfer, make payment from and to banks from wherever the banks customers are at a particular giving time. Also the possible explanation for the observed relationship is that customers in view of enjoying off bank transactions, can stay in the comfort of their homes, offices or where ever and do their transactions such as accessing money, making payment, transfers, impulsive buying inclusive, just with their electronic mobile gadgets. This invariably could lead to increase in banks revenues as more transactions attract more charges. The implication of the study findings is that there is a gradual & positive impact on the banks performance in the country, thus can contribute to the economic acceleration process.

The goodness of fit of the OLS estimate is adequate. About 88% variation in deposit money banks performance is due to the variations in the regressors. The overall significance in the study was measure by f-statistics which was observed to be 104.7 is high; DW statistics was found to be 1.8 which is approximately 2. This implies that there is no serial correlation in the study. The study results can therefore be relied upon for policy decisions.

5. CONCLUSION AND RECOMMENDATION

The study examined the empirical impact of electronic banking on the performance of banks in Nigeria from 2006 – 2017. The study adopted Ordinary Least Squares as main tools of analysis as it is widely used in research analysis. The estimated regression equation showed that all the variables are correctly signed, except inter-bank transfer that is negatively signed. Findings from the study revealed that e-banking has gradual positive impacts on the banks performance in Nigeria, thus can contribute to the economic acceleration process. The study therefore suggested that banks should adopt right technology in order to reach its goals and objectives, instead of adopting the technology of internet banking for having sake or because other banks have it. Also, there is urgent need for key players in the Nigerian banking industry to address the lack of internet and technological knowledge, on the side of customers. Finally, regulatory authorities like CBN must enforce fully the new standards and policy, effective from June 2013, on the charges on electronic transactions. For example, charging ₦105 for ATM transactions to customers, yearly.

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