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Electronic Banking and Profitability of Deposit Money Banks in Nigeria

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***Abstract*—** *The study investigated impact of electronic banking on profitability of deposit money banks in Nigeria from 2009 to 2018. Secondary data were obtained from Central Bank of Nigeria statistical bulletin. Data obtained were analysed using Ordinary Least Square estimation technique. E- view software package was used to measure relationship between electronic banking and profitability of deposit money banks in Nigeria. From the result, internet banking has an insignificantly positive impact on profitability. It was also revealed that ATM has a significantly positive impact on profitability. The study recommended that the monetary authorities and deposit money banks in Nigeria should enlighten their customers on the convenience and importance of adopting e-banking channels in completing their transactions. In addition, banks should conduct further research to find new e-banking products to attract and retain their existing customers.*

***Keywords*—** *Electronic banking, Profitability, Deposit money banks, and Central Bank of Nigeria*.

I. INTRODUCTION

Profitability is an efficiency measurement that determines the health of a firm based on revenue and profit. It is also crucial in the determination of a company's going concern aspect, revenue recognition, overall health and its economic value. In the determination of whether to invest in a company or not, potential investors evaluate the company's profitability to establish resource utilization and management of its investment portfolio (Benjamin, Emmanuel, Francis & Ben, 2019). Profitability refers to the extent to which an activity yields financial gain or profit. It is a derivative of Return of Equity (ROE) of shareholders of the firms after meeting all expenses and taxes (Benjamin, et al., 2019). Profitability is one of the principal objectives of deposit money banks. This is important for the purpose of maximizing shareholders wealth, paying corporation tax like any other company, paying interest to depositors, salaries to the staff, dividend to shareholders and meeting other expenses necessary to keep the bank in business. Therefore, unless Deposit Monet Banks makes profit, they cannot perform their role effectively (Enyioko, 2012).

Electronic banking is the automated conduct of the banking sector involving the use of ICT to move the banking business for immediate and future purposes. The evolution of electronic banking in Nigeria dates back to 1986 when the banking sector was regulated. The outcome of this regulation brought far-reaching change through computerization and improved bank services delivery. Competition with new products has become a major part of the system, whereas customer sophistication has been a challenge to them, and thus the re-engineering of business account processing techniques encourages the automation of financial services, especially among new generation deposit money banks (DMBs) (Worku & Tafa, 2016).

Timothy (2012) stated that digital banking has made the utilization of the internet to become a remote transportation channel for giving administrations to banking customers, for example, opening a bank account, transferring funds among diverse accounts and paying electronic bills has become less stressful for banking customers. This can be offered in two principal ways. A bank with physical offices can build up a website and offer these services to its client notwithstanding its customary transportation channels. Second, is to set up a virtual bank, where the computer server is kept in an office that serves as the lawful location of such aa bank.

As a result of the rapid advance of technological innovation, known as electronic development, the 21st century saw a dynamic change in the financial services industry such innovations have influenced all areas of financial intermediation and financial markets, such as e-finance, e-money, e-bank, e-brokering, e-exchange and e-supervision. This new information technology (IT) is becoming the most important factor in future banking development influencing the marketing and business strategies of the banks. As a result of rapid advances in information technology (IT) and intense competition in the banking sector, the use of e-banking is increasingly being used as a medium for financial services delivery (Chavan, 201]3). The frequency of deposit has increased, as has the fraudulent practices in Nigerian banks since its adaptation in the economy. Electronic banking has faced the significant risk-exposure problems in the banking sector. Therefore, there should be no doubt about the feasibility of introducing information technology in banks. The fact remains that the reality of using IT in banks is necessary because of the immense amount of information these banks manage daily. Cash is withdrawn or deposited on the customer's side, cheques are deposited or cleared, and the account statement is provided money transfers and other services. In the same period, banks require up-to-date information on accounts, credit and recovery facilities, interest,

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deposits, fees, revenue, indices profitability, and other financial regulation.

Electronic banking was adopted by banks to improve their service delivery, decongest the long banking hall queues facilitate easy withdrawal of cash by customer, aid international payment and remittance, track personal banking transaction, request for online bank statement and the transfer deposit to a third-party account. It is expected that if all these can be achieved, profit to be generated by banks will increase.

Whether a bank is profitable or not depends on the extent to which it is investing in information technology (IT) and using it innovatively. Thus, this study seeks to investigate electronic banking and profitability of deposit money banks in Nigeria.

II. Review of Literature

Here, we discussed the current literature on the impact of electronic banking on deposit money banks' profitability in Nigeria.

2.1 Conceptual Review

2.1.1 Concept of Electronic Banking

Electronic banking has spread rapidly throughout the world, expanded internet usage and distribution redefined the playing field of retail banks. All banks in Nigeria are making greater use of e-banking facilities to provide better services to excel in the dynamic banking industry in Nigeria (Amu & Nathaniel, 2016). Consequently, the complexity and amount of fraudulent practices associated with this method of banking was the greatest challenge facing the banking industry.

2.1.2 Automated Teller Machine (ATM)

The expanded use of ATMs in the banking sector has made the technical significance issue relevant. ATM systems have their story in Nigeria, which is less than 10 years old. These were originally run as elitist facilities tailored for exclusive consumer preferences. Cards are scare and the tortuous procedure to get them. The use of ATM cards has been generally promoted at the present. Banks no longer seem to want their clients to have personal contact. Many banks have taken to penalizing the customer as it were by debiting such a customer's account for withdrawing below a certain amount across the counter for not using their ATM.

2.1.3 Internet Banking

This is a form of e-banking system which takes orders from customers and is attended through the internet. Internet banking gives consumers the ability to benefit from the comfort of their homes and offices. What this means is that by placing orders from the web, buyers can buy goods, tell their banks to pay the seller the invoice sum required, and deliver the goods to the location where the consumer wishes to (Agwu, 2018).

2.1.4 Mobile Banking

This mode of e-banking makes use of the Global System for Mobile communication (GSM) phones as the primary electronic device. GSM has improved the operational efficiency of many banks in the country. The mobile banking services allow customers to operate their phones and network support SMS (short messaging service). The user could be able to check account balance up to his two last transactions (Benjamin, et al, 2019).

2.1.5 Funds Transfer

Customers can now electronically transfer funds across the globe without any problem or delay as compared to the traditional method before the advent of information technology when funds are seriously delayed before they are delivered to the recipients (Benjamin, et al., 2019).

2.1.6 Digital Currencies

Digital currency is a type of currency that has no physical form and only exists in digital form. Digital currencies include virtual money and cryptocurrency. This digital money may be used as traditional money to buy and sell goods, but with the allowance of instant transactions and borderless transfer-of-ownership. Digital money can be restricted to a certain community or be fully free for anyone to use. Digital money can also be decentralized or have a central authority over an emission process, can be backed by other currency or liquid assets, or work without any backing. Investing in digital currency has become very popular after the explosion of cryptocurrencies due to their volatility, which makes them a great speculation tool. Although digital currencies are useful and progressive, they are not yet widespread.

2.2 Theoretical Review

2.2.1 Transaction Cost Innovative Theory

The transaction cost innovation theory argued that the dominant factor in the technological market is the decrease of transaction costs and that, in reality, financial innovation is the result of technological advancement, which has led to a reduction in transaction costs. Reducing transaction costs will promote financial innovation and financial service development. It states that Financial Innovation reduces transaction costs. Transaction cost innovation theory is also relevant in this context: for example, the use of internet-connected information technology (IT) can significantly reduce the transaction cost of a company because it allows for effective coordination, management, and use of information. Remote, internet-connected IT can help minimize transaction cost as it also offers off-site access to the company's internal database and other relevant information outlets. Reducing operating costs by agency banking, internet banking, and mobile banking can, therefore, affect the banks' productivity growth.

2.2.2 Diffusion Innovation Theory

Diffusion of innovation theory attempts to explain and describe the mechanisms of how new inventions in this case internet banking, ATMs, POS terminals, mobile banking and digital wallets, is adopted and becomes successful (Clarke, 1995). Clarke, (1995) stated that not all innovations are adopted even if they are good, it may take a long time for an innovation to be adopted. He further stated that resistance to change may be a hindrance to diffusion of innovation although it might not stop the innovation it will slow it down. Rogers (1962) identified five critical attributes that greatly influence the rate of adoption. These include relative advantage, compatibility, complexity, triability and observability.

According to Roger, the rate of adoption of new innovations will depend on how an organization perceives its relative advantage, compatibility, triability, observability and complexity. If banks observe the benefits of digital banking,

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they will adopt these innovations given other factors such as the availability of the required resources. These banks will put in so much effort in ensuring that their presence is felt in the industry and meet the gap that technology would easily address.

2.3 Empirical Review

Tajudeen (2013), studied "the effect of the cashless policy of the government on corruption in Nigeria" states that the ultimate object of the cashless policy is the attainment of the cashless or cash lite economy. The study was conducted in Lagos because the CBN commenced the implementation of the policy in January 2012 with a pilot scheme in Lagos after which the nationwide implementation is expected to kick off in 2013. Primary data were sourced through the administration of unstructured questionnaires on the selected respondents. It was observed that though the cashless policy may affect corruption in some ways, it is insufficient in itself, and needs to be complemented by other types of reforms. In certain cases, the policy may shift corruption from one group of society to another and not reducing it.

Itah and Ene (2014) worked on the "impact of cashless banking on banks' profitability (Evidence from Nigeria)" stating that the banking system remains the major channel for monetary control by the Central Bank of Nigeria (CBN) and the monetary authorities in general. The study used proxies for cashless banking such as Automated Teller Machine (ATM), Point of Sale (POS), and Webbased Transaction (WBT) to examine its impact on the aggregate Return on Equity (ROE) of deposit money banks in Nigeria, through an Ordinary Least Square (OLS) multiple regression method of analysis. The result showed that ATM and POS are positively related to return on equity (ROE), while WBT related negatively to return on equity (ROE).

Ordu and Anyanwaokoro (2016) investigated cashless economic policy in Nigeria: A performance Appraisal of the Banking Industry. The study adopted the return on asset (ROA) as the measure of bank performance. It was observed that there is a significant difference in the profitability of First Bank of Nigeria Plc and Zenith Bank Nigeria Plc. The income of banks in a cash-based economy is lower than the income of banks in a cashless economy. The introduction of electronic banking in Nigeria has impacted positively on the development of the payment system in particular and the banking system in general.

Okeke (2017), investigated the effect of cashless policies on small and medium-sized enterprises in the State of Anambra. To investigate the effect of Automated Teller Machine (ATM), Point of Sale (POS), mobile banking and internet banking on small and medium-sized enterprises in the Anambra sampling technique, the desired target sample size of 350 was obtained. The study adopted the survey method. The tools used in analysing the data collected were simple percentages, descriptive statistics, and correlation analysis. Mobile banking was found to have a major impact on the growth of small and medium-sized enterprises in the state of Anambra.

Osazevbaru (2014), investigated e-bank and deposit money banks performance: Nigeria evidence. The research analysed the effect on the performance of banks in Nigeria from digital banking. Committee data included eight banks' quarterly audited financial statements that implemented e-banking and maintained their brand name banking between 2000 and 2010 as well as macroeconomic monitoring variable were used to analyse the effect of e-banking on return on assets (ROA), return on equity (ROE) and net interest margin (NIM). Results from pooled OLS forecasts show that e-banking is starting to make a positive contribution to bank performance in terms of ROA and NIM with a two-year gap, while the negative impact was observed in the first year of implementation. It was recommended that 25 investment decisions on electronic banking be reasonable to justify the effect on bank result of cost and revenues.

III. Methodology

3.1 Sources and Types of Data

The data for this research were derived mainly from secondary data sources particularly from Central Bank of Nigeria (CBN) Statistical Bulletin (2018). The data is a time series of data. The data include mobile app, ATM volume, POS volume, internet bank volume, mobile bank volume, and profit after tax output, lending rate, inflation rate, and human development index.

3.2 Population of the Study

The population of the study is based on electronic banking in Nigeria deposit money banks. The analysis is based on a ten-year data series (2009 to 2018).

3.3 Model Specification

$Y = f(X)$
Where:
Y = profitability
X = electronic banking
Therefore, the model is modified to include:
PAT = (ATM, INTB) (1)
Y = profit after tax
INTB = Internet banking
ATM = Automatic Teller Machine (ATM)
The equation is therefore written thus:
$Y = \beta_0 + \beta_1 ATM + \beta_2 INTB + \varepsilon$ Where
β_0 is the intercept
β_1 and β_2 are the slopes of the linear equation
ε – is the error term

3.4 Model Estimation Technique

Ordinary Least Square (OLS) will be used as the estimation technique. The tests will be conducted using the econometric views (E-views 9.0) software package to statistically measure the relationship between electronic banking and profitability of deposit money banks in Nigeria.

IV. Analysis and Discussion of Findings

The main objective of the study is to determine the impact of electronic banking on the profitability of deposit money banks in Nigeria.

The study will adopt the Ordinary Least Square (OLS) for the estimation of the data.

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4.1 Empirical Analysis

Objective One

To determine the effect of internet banking on the profitability of deposits money banks in Nigeria.

Table One

Internet Banking on Profitability				
Model One LNPAT = $\alpha_0+\beta_1$LNINTB + μ	Coefficients	Standard Error	t-statistic	Prob.
LNINTB	0.057914	0.029073	1.992049	0.0815
C	0.440410	0.454468	0.969065	0.3609
a. Dependent Variable: LNPAT R^2 = 0.3315, LNPAT = 0.44+0.057LNINTB				

Source: Author's computation using E-views 9 2021

Research objective one sought to evaluate the extent to which internet banking affects the profitability of deposit money banks in Nigeria. The result in table 1 above show that internet banking has an insignificantly positive impact on profitability. Also, the magnitudes of impact show that a unit increase in internet banking will increase profitability by 0.057 units. Furthermore, the R^2 value of 0.3315 shows that about 33.15% of changes in profitability are explained by internet banking. Furthermore, the entire model is insignificant in explaining the extent to which internet banking enhances the profitability of deposit money banks in Nigeria as depicted by the T-Statistic of 1.99 and with a p-value of 0.08 (>0.05). from the results, therefore, the null hypothesis is accepted and the conclusion is internet banking does not have a significant effect on the profitability of deposit money banks in Nigeria.

Objective Two

To determine the effect of ATM on the profitability of deposits money banks in Nigeria

Table Two

ATM on Profitability				
Model Two LNPAT = $\alpha_0+\beta_2$LNATM + μ	Coefficients	Standard Error	t-statistic	Prob.
LNATM	0.103540	0.035376	2.926871	0.0191
C	1.570160	0.695055	2.259046	0.0538
a. Dependent Variable: LNPAT R^2 = 0.517, LNPAT = 0.570+0.103LNATM				

Source: Author's computation using E-views 9 2021

Research objective one sought to evaluate the extent to which ATM affects the profitability of deposit money banks in Nigeria. The result in table 2 above show that ATM has an insignificantly positive impact on profitability. Also, the magnitudes of impact shows that a unit increase in ATM will increase profitability by 0.103 units. Furthermore, the R^2 value of 0.517 shows that about 51.7% of changes in profitability are explained by ATM. Furthermore, the entire model is insignificant in explaining the extent to which ATM enhances the profitability of deposit money banks in Nigeria as depicted by the T-Statistic of 2.92 and with a p-value of 0.01 (<0.05). From the results, therefore, the null hypothesis is rejected and the conclusion is ATM has a significant effect on the profitability of deposit money banks in Nigeria.

4.2 Discussion of Findings

From the first objective of the study, it is observed that the internet banking has an insignificantly positive impact on profitability. Also, the magnitudes of impact show that a unit increase in internet banking will increase profitability by 0.057 units. This result is in agreement with the finding of Itah and Eneh (2014) who worked on the impact of cashless banking on banks' profitability (Evidence from Nigeria) and observed that internet banking has a positive effect on the profitability of Nigeria banks.

It revealed that ATM has a significantly positive impact on profitability. Also, the magnitude of impact shows that a unit increase in ATM will increase profitability by 0.103 units. This result also is in line with the agreement with the study of Okeke (2017) who investigated the effect of cashless policy on the development of commercial banks in Anambra State and observed that ATM, POS have positive significant effects on the performance and development of commercial banks.

V. Conclusion and Recommendations

Objective of this study is to examine effect of electronic banking on profitability of deposit money bank in Nigeria. Conclusion and recommendations are stated below:

5.1 Conclusion

It is evident that electronic banking plays an important role in the operational efficiency of a bank in Nigeria and it is obvious that it is one of the major sources of growth in the overall performance of the banks. While it still needs to be protected sufficiently to ensure sufficient patronage, it is possible that banks' success in Nigeria can be significantly improved with the advent of new channels alongside technological advancement. Especially if efforts are put in place to implement effectively. The introduction of E-banking has indeed had a positive effect on the profitability of the bank since it was introduced. It has also improved the banks' customer relationship by rendering effective services. It was revealed that ATM has a significantly positive impact on profitability. Also, the magnitude of impact shows that a unit increase in ATM will increase profitability by 0.103 units. This result also is in line with the agreement with the study of Okeke (2017) who investigated the effect of cashless policy on the development of commercial banks in Anambra State and observed that ATM, POS have positive significant effects on the performance and development of commercial banks. Similarly, the regression results further indicated that mobile banking and POS have a significantly positive impact on profitability.

5.2 Recommendations

From the findings, following recommendations are made:

1. It is recommended that the monetary authorities and commercial banks enlighten their customer on the convenience and importance of adopting e-banking channels in completing their transactions.
2. It was observed that ATM has a positive effect on the profitability of deposit money banks in Nigeria. The banks should provide more ATM facilities; these should be placed

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at vantage locations within the city to reduce distance and time use in access to the facility.

3. Marketing and education of E-banking services and products should be intensified to attract more customers.
4. The bank should conduct further research to find new E-banking products to attract and to retain their current customers.

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