

## **EFFECT OF ELECTRONIC PAYMENT ON FINANCIAL PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA.**

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### **ABSTRACTS**

This study examined the effects of electronic payment on financial performance of deposit money bank in Nigeria. Data were collected from secondary sources through annual reports and statistical bulletin of Central Bank of Nigeria. Electronic banking was measured using the Automatic teller machine, internet banking and POS while financial performance was measured using the 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. It is therefore recommended that banks that want to improve their financial performance must offer numerous products/services through POS and IBK in an effective, efficient and cost effective manner.

### **1.0 INTRODUCTION**

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. Banks have traditionally been in the forefront of harnessing technology to improve their products and services. The Banking industry of the 21st century operates in a complex and competitive environment characterized by these changing conditions and highly unpredictable economic climate. Information and Communication Technology (ICT) is at the Centre of this global change curve of Electronic Banking System in Nigeria today. E-banking is the use of electronic means to deliver banking services, mainly through the Internet.

The term is also used to refer to ATMs, telephone banking, use of plastic money, mobile phone banking and electronic funds transfers. Electronic Banking offers different online services like balance enquiry, request for cheque books, recording stop payment instructions, balance transfer instructions, account opening and other form of transitional Banking services. With online banking, individuals can check their account balances and make payments without having to go to the banking halls Adetugi (2017). This is gradually creating a cashless society where consumers no longer have to pay for all their purchases with hard cash. For example: bank customers can pay for airline tickets and subscribe to initial public offerings by transferring the

money directly from their accounts, or pay for various goods and services by electronic transfers of credit to the sellers account. E-Banking has made banking transactions easier around the World and it is fast gaining acceptance in Nigeria. Virtually almost all Banks in Nigeria have Electronic Banking. e-Banking's greatest promise is timelier, more valuable information accessible to more people, at reduced cost of information access (DeYoung, 2005).

Technological developments, particularly in the area of telecommunication and information technology are impacting significantly on businesses. To make a prompt, reliable and detailed information empowers business to make the right decision at the right time. Information about money is just as important as money itself (Citibank, 2004). In fact, the way in which an organization manages and uses its financial information can either reduce or optimize its performance (Ashaolu, 2004). The above assertion has led banks to make strides into information system based on today's technology. There is growing interdependence between business strategy, rules and procedures on the one hand and information systems software, financial information can either reduce or optimize its performance (Ekwueme and Egbunike 2012).

The above assertion has led banks to make strides into information system based on today's technology. There is growing interdependence between business strategy, rules and procedures on the one hand and information systems software, hardware, databases and telecommunications on the other hand. This relationship is increasing to the point that information technology has become a strategic instrument in today's banking. That is, what a bank will like to do in a next three years is often dependent on what its information system will be able to do. Increasing customer service delivery, market share, becoming the high quality or low cost producer, developing new products and increasing workers productivity depend more on the kind and quality of the development of IT in are organization. The electronic revolution in banking basically centers on change in the distribution channels of financial institutions. The basis for the emergence of the modern electronic distribution channels is the result of the evolution of the concept of money.

Nevertheless the relevance of electronic-banking in explaining banking performance, the effect of e-banking on financial performance, is still misunderstood for two main reasons; first, there is a lack of understanding about the drivers of innovation and secondly innovation's impact on bank's performance remains untested Chibueze, & Maxwell (2013) Previous reseachers like Pooja and Singh (2009), Francesca and Claeys (2010), Batiz- Lazo and Woldesenbet (2006) andMwania and Muganda (2011) have produced mixed results regarding the impact of innovations on bank performance. Pooja and Singh (2009), in their studies they concluded that innovations had least impact on bank performance, while Hassan, Mamman & Farouk (2013) and Thulani, D., Tofara & Langton (2011) concluded that financial innovation had significant contribution to bank performance. It is at the center of such mixed conclusions that creates and necessitates the need to carry out a study from a Nigeria context to establish the effect of E-

Banking on commercial banks performance. For the purpose of analyzing the data, the following hypotheses were tested:

- i. ATM has no significant effect on financial performance of deposit money banks in Nigeria.
- ii. There is no significant effect of mobile banking on financial performance of deposit money banks in Nigeria.
- iii. POS has no significant effect on financial performance of deposit money banks in Nigeria.

## **2.0 LITERATURE REVIEW**

### **Concept of Electronic Banking**

Electronic banking is the term used for new age banking system and it is also called online banking (Auta, 2010). E-banking uses the internet as the delivery channel by which to conduct banking activities, for example, transferring funds, paying bills, viewing checking and savings account balances, paying mortgages and purchasing financial instruments and certificates of deposits (Akinyele & Olorunleke 2010) Electronic banking is the delivery of banking services and products through the use of electronic means irrespective of place, time and distance. 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 (Dogarawa, 2015). Electronic banking is also known as the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels (Amedu 2005).

As has been pointed out by (Akinyele & Olorunleke, 2010), electronic banking means the provision of information about the bank and its product via a page on the internet. Izogo, Nnaemeka, Ezema and Onuoha (2012) citing Idowu (2011) assert that electronic banking is a means where by banking business is transacted using automated processes and electronic devices such as personal computers, telephones, fax machines, internet, card payments and other electronic channels.

Internet banking is systems that enable bank customers to get access to their accounts and general information on bank products and services through the use of bank's website, without the intervention or inconvenience of sending letters, faxes, original signatures and telephone confirmations (Thulani, Tofara & Langton, 2009 cited in Yahiya, 2011). Siyanbola (2013) puts it that internet banking involves conducting banking transactions on the internet (www) using electronic tools such as the computer without visiting the banking hall. E-commerce is greatly facilitated by internet banking and is mostly used to effect payment. Internet banking like mobile banking also uses the electronic card infrastructure for executing payment instructions and final settlement of goods and services over the internet between the merchants and the customers. Commonly used internet banking transactions in Nigeria are settlement of commercial bills and

purchase of air tickets through the websites of the merchants. Level of awareness of the advantages of this product to the saving populace is still very low; hence, there is every room for improvement if cashless banking would be effective as expected (Siyanbola, 2013). Funds transfer, airtime top up, balance enquiry, password change, bill payment etc can also be conducted on the internet banking platform.

Automated Teller Machine (ATM) globally, the use of paper cash still remains the most widely used and acceptable means of settling financial transactions and obligations. However, the proportion of cash transactions is increasingly on the decline, especially in advanced economies (Amedu, 2005). In USA, where the use of cash is still prominent, compared with European countries, it represents 50 percent or more of the total transactions. Of course, cash is a non-electronic payment method. However, the physical carriage of cash as well as the visit to the bank branches is being reduced by the introduction of an electronic device, ATM. An ATM device allows a bank customer to withdraw cash from his account via a cash dispenser (Machine), and the account is debited immediately. A fundamental advantage is that it needs not to be located within the banking premises. It is usually in stores, shopping malls, fuel stations etc. This ATM uses card and this Card is a Chip device consisting of circuit element on single silicon chip. The Card a complex circuits that process microprocessors with a single chips that contain the complete arithmetic and logic unit of computers. It provided for the banks customers to perform balance inquiry, mini statement and cash withdrawal as well as transfers through the use of Automated Teller Machines. This green card can also be used for Internet/Online and POS transactions.

In this system users are issued with electronic cards which can 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.

These are to be deployed across commercial points 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. Users are issued with a card (the electronic purse). The electronic purse is topped up using revaluation terminals. There are different types of terminals: coin & note, credit card and payroll deduction terminals. The cards are simply inserted into the revaluation terminal and certain programmed instructions are followed, and money is added onto the electronic purse. This can then be used to pay for goods/services by inserting them into the POS terminals. When the card is inserted into the POS, and the transaction amount entered, the reader reads the amount and is quickly deducted from the e-purse (the card).

It has to be noted that the operation of the cashless economy (electronic payment) system is not entirely free. Curiously, using the POS comes with a hefty price tag of 1.25 percent of the cost of

every purchase or transaction that is affected in addition to the 5 for every 1000 Commission on Turnover that our deposit money banks are allowed by CBN to charge every time money is taken from our account.

### **Theoretical Framework**

Technology Acceptance Model Theory (TAM) Davis (1989), TAM theorizes that an individual's intention towards using a system is jointly determined by perceived usefulness, the user's subjective probability that using a specific application system will increase his or her job performance and perceived ease of use (PEOU), the degree to which the user expects the target system to be free of effort. The effects of external variables (e.g., system design characteristics) on behavioral intention (BI) are mediated by these beliefs. According to TAM, PEOU also has a direct effect on PU. In predicting usage; TAM models might be useful within and across organizations for evaluating applications or technologies, or to make comparisons between user groups or applications. However, TAM has limitations in being applied beyond the work place because its fundamental constructs do not fully reflect the variety of user task environment and constraints. Hernando and Balachandher (2001). While studying whether internet delivery channels change bank's performance, they found out that adoption of internet as a delivery channel involved gradual reduction in overhead expenses (particularly, staff, marketing and IT) which translates to an improvement in banks' profitability.

The study also indicates that internet is used as a complement to, rather than a substitute for, physical branches. The profitability gains associated with the adoption of a transactional web site are mainly explained by a significant reduction in overhead expenses. This effect is gradual, becoming significant eighteen months after adoption and reaching a maximum generally two and a half years after adoption. Their study showed that multichannel banks present statistically significant evidence of efficiency gains, that is, reduction in general expenses per unit of output. Banks would further profit from cost reductions to the extent that the Internet delivery channel functions as a substitute for traditional distribution channels. Their analysis shows that this effect varies over time and explains, in terms of cost and income structure, the main drivers of better performance. The Technology Acceptance Model theory (TAM) and the Theory of Planned Behaviour (TPB) are well established in the IT arena and appear to be widely accepted. TAM was chosen after considering the merits and demerits of other possible models and theories that might be suitable for this research.

Theory of Planned Behavior: Early studies mainly focus on theory of reason action (TRA) as identified by (Fishbein and Ajzen, 1975). TRA is based on the fundamental variables of attitude and subjective norm. The two variables are seen to have a positive effect on individuals' behavioral intentions, which positively induce individuals' actual action. Attitude is an individual's positive or negative evaluation of self-performance of a particular behavior. The concept is the degree to which performance of the behavior is positively or negatively valued.

Subjective norm is an individual's perception about particular behavior, which is influenced by the judgment of significant others (e.g., parents, spouse, friends, teachers). Behavioral intention is an indication of an individual's readiness to perform a given behavior and it is assumed to be immediate antecedent of behavior. However, the basic hypothesis of TRA states that the occurrence of behavior is based on volitional control of one's willpower (Fishbein and Ajzen, 1975). Thus, the behavior occurs mostly from one's willing. Thus, Ajzen (1985) modifies TRA and further proposes the theory of planned behavior (TPB). Ajzen (1985) proposes TPB to explain and predict human behavior patterns. TPB extends the theoretical framework of TRA and adds perceived behavioral control to account for individuals' uncontrollable factors.

TPB is founded on the three factors as perceived behavioral control, attitude, and subjective norms. Hence, behavioral intention is influenced by perceived behavioral control, attitude, and subjective norms. Actual behavior is, in turn, determined by behavioral intention. Among all, perceived behavioral control refers to individual's perceived ease or difficulty of performing the particular behaviors. In recent years, the use of internet has been widespread and has been more diversified. Studies on TPB applying on electronic commerce have increased. Tan and Teo (2000) integrate TPB and diffusion of innovation theory to investigate the factors that affect people's intention towards using internet. Empirical results show that attitude and perceived behavior control would positively affect people's intention to use internet banking.

## **Empirical Reviews**

Cheruiyot (2016), in his study titled "Impact of internet banking on Financial Performance of Commercial Banks in Kenya", found that internet banks are larger banks and have better operating efficiency ratios and profitability as compared to non-internet banks. Internet banks rely more heavily on core deposits for funding than non-internet banks do. However, the multiple regression results reveal that profitability and offering internet banking does have a small significant association (less than 5%), larger significant and negative association with risk profile of the banks ( more than 10%) meaning that internet based banks become better off from risks such as non-performing loans. However, the advantage expected of internet banking is yet to show some significant positive financial gains but begs for future investigation beyond financial measures used in the study as technology continues to penetrate the market.

Mabrouk and Mamoghli (2016) in their study on "Dynamics of Financial Innovation and Performance of Banking Firms: Context of an Emerging Banking Industry", analyzed the effect of the adoption of two types of financial innovations namely; product innovation (telephone banking and SMS banking and so on) and process innovation (Magnetic strip card (debit, ATM and credit card), Automatic cash dispenser; (Automatic teller machine; Electronic payment terminal and so on) on the performance of banks. Their analysis included two adoption behaviours, first mover in adoption of the financial innovation and imitator of the first movers. They found out that first mover initiative in product innovation improves

profitability while process initiative has a positive effect on profitability and efficiency. Banks that imitate are less profitable and less efficient than first movers.

Osage (2017) in his study on electronic banking adoption by Kenyan Commercial banks concluded that while adoption of electronic banking was beneficial, it was affected by factors such as availability of services 24/7, quickened transactions and customer convenience. Pikkarainen (2014) in their work on consumer acceptance of online banking found two fundamental reasons underlying online banking development and diffusion. First, banks get notable cost savings by offering online banking services. It has been proved that online banking channel is the cheapest delivery channel for banking products once (Thulani, Tofara & Langton, 2009). Secondly, banks have reduced their branch networks and downsized the number of service staff, which has paved the way to self-service channels as quite many customers felt that branch banking took too much time and effort (Karjaluo 2003). Therefore, time and cost savings and freedom from place have been found the main reasons underlying online banking acceptance.

### **3.0 METHODOLOGY**

The Ex-post factor research design was adopted for this study. The population of the study consists of all deposit money banks in Nigeria. Secondary source of data was used for this study, and the data were sourced from Central Bank of Nigeria's annual reports and statistical bulletin. The study covers the period 2009- 2018. The period was considered appropriate because electronic banking full adoption in Nigeria started between 2003 and 2004, hence, the effect can be felt within many years of adoption. The key variables of growth were measured in relation to profitability of the banks. This will constitute the dependent variables. While the independent variables of electronic banking that were measured are Automated teller machine (ATM), internet banking (IBK) and point of sales (POS). Multiple Regressions was used to find out whether effect exists between electronic banking variables and profitability variables identified in the study.

The regression model that was evaluated was represented as follows:

$$PFT_i = \alpha_0 + \beta_1 ATM_i + \beta_2 IBK_i + \beta_3 POS_i + \epsilon_t$$

Where:

PFT is financial performance represented by profitability (net profit)

ATMS - is the number of ATMS systems install by the banks

IBK- is the usage levels of Mobile banking, Internet banking and Electronic funds

POS - is the number of point of sale terminals transfer.

$\alpha_0$  = Estimated value of Y when all the other variables are zero

$\beta$  = Correlated volatility of estimated value of Y

$\epsilon_t$  = Error term

#### 4.0 DATA PRESENTATION AND ANALYSIS

##### 4.1 Summary of findings.

Table 1: Descriptive Statistic

Variables	Obs	Mean	Std.Dev.	Min.	Max.	Skewness	kurtosis
ATM	30	234.555	145.193	32	412	-1.070	3.907
POS	30	187.111	120.963	52	421	-0.061	3.201
IBK	30	185	84.855	21	328	0.002	2.790
PFT	30	218.556	83.549	100	321	2.780	3.061

**Source:**output result Stat 12

The section begins with the descriptive statistics of the data, the table show that the sampled Electronic Payment platforms during the period has an average profitability of 21.85% with standard deviation of 83.5, and minimum value of 10.0% and 32.1% as the maximum value. The standard deviation of 83.54 implies that the data deviate from the mean value from both sides by 83.54%, implying that the data is dispersed from the mean because the standard deviation is lower than the mean.

The table also shows that the average Automated teller machine (ATM) of the sampled electronic platforms is 14 machines, with standard deviation of 23.4, and the minimum and maximum ATM of 32 and 41.2 machines respectively. The standard deviation implies that the data deviate from the mean value from both sides by 14.5%, implying that the data is dispersed from the mean.

The results also show that on average 18.5% of the POS of sample electronic platforms during the period of the study, from the mean value of 18.5 with standard deviation. The minimum and maximum POS are 21% and 32.8% respectively. This implies on average public comply with the requirement of the CBN cashless regulation such as POS during the period under review.

The table also indicates that our measure of mobile payment has an average value of 18.7 with standard deviation of 12.0. While the minimum and maximum values which are dichotomous are 5.2 and 42.1 respectively the data did not follow the normal distribution assumption.

**Table 2: correlation Matrix**

Variables	ATM	POS	IBK	PFT
ATM	1.0000			
POS	0.3690	1.0000		
IBK	0.4006	0.4224	1.0000	
PFT	-0.0525	-0.3916	0.5897	1.0000

**Source:**Output result Stata 12

The results in Table 2 show that the correlation coefficients of the variables of electronic platforms attributes (ATM, POS, IBK) and profitability (PFT). The table shows negatively association between ATM and profitability, from the correlation of 0.05 which is statistically significant but weak at all levels of significance. This relationship suggests that continuous use of ATM will improve profitability positively although, it is weak. Similarly, the results from the table indicate that, there is a significant statistical positive association between POS and the profitability from the correlation of 0.40 .This implies that, the more use of POS the higher the net profit of the banks. Moreover, the results show a significant positive relationship between IBK and profitability, from the correlation 0.58 is positively significant suggesting that the internet banking (IBK) improve profitability during the period of the study.

**Table 3: Variance Inflation Factor**

<b>Variables</b>	<b>VIF</b>	<b>1/VIF</b>
<b>ATM</b>	1.26	0.7909
<b>IBK</b>	1.33	0.7522
<b>POS</b>	1.29	0.7739
<b>Mean VIF</b>	1.30	

The VIF and tolerance (1/VIF) values for ATM, IBK and POS are not worrisome. All of these variables measure income on profitabilty and the very high VIF values indicate that these variables are not possibly redundant. For example, after you know ATM, IBK, and POS you probably can predict profitability very well. In this work, multi-collinearity not arises because we did not put in too many variables that measure the same thing.

VIF values in the analysis above appear much better. Also, note how the standard errors are reduced for the independent variables, ATM,IBK and POS. This is because the high degree of collinearity caused the standard errors to be inflated. With the multi-collinearity eliminated, the coefficient for ATM, which had been non-significant, is now significant.

**Table 3: Regression Analysis**

<b>PFT</b>	<b>Coef.</b>	<b>Std. Err.</b>	<b>t</b>	<b>P&gt;/t/</b>	<b>[95% Conf. Interval]</b>	
<b>ATM</b>	-0.0967	0.1044	-0.93	0.397	-0.3651	0.1717
<b>POS</b>	0.7275	0.1806	-4.03	0.010	-1.1919	-0.2632
<b>IBK</b>	0.6694	0.1285	5.21	0.003	0.3390	0.9998
<b>-Cons</b>	20.5864	34.674	7.23	0.001	11.4519	33.721
<b>Prob &gt; F</b>				0.011		
<b>R- Squared</b>				0.86		
<b>Adj. R- Squared</b>				0.79		

Source: Output result of Stata 12.

The results from the above table show that, Automatic teller machine (ATM) has a negative effect on the profitability of sampled electronic platform in Nigeria, from the coefficient of -0.096 with t-value of -0.93 which is not statistically significant at all levels of significance 5%. This suggests that, as a result of ATM not movable people may likely make use of other electronic platforms, but the result is not statistically significant at all levels. Based on this, the study failed to reject the null hypothesis one (H01) which states that Automated teller machine transaction has no significant effect on profitability of deposit money bank in Nigeria.

The study therefore infers that Automated teller machine transaction in banks has no significant influence on profitability during the period under review.

The results from table show that, point of sale payment (POS) transaction has a significant positive effect on the profitability of sampled electronic payment platforms in Nigeria, from the coefficient of -0.72 with t-value of -0.93 which is statistically significant at 5% level of significance (p-value of 0.05). This suggests that, the more the POS transaction, the better the profitability of the banks. The study therefore infers that the POS transaction has significantly influenced on profitability, although, it has a weak relationship with profitability of the banks during the period under review.

Lastly, the above results also show that, internet banking (IBK) has a significant positive effect on the profitability of sampled banks in Nigeria, from the coefficient of 0.66 with t-value of 0.5.21 and  $p > /p/$  of 0.03 which is statistically significant at 5% level of significance (0.05). This suggests that, internet banking transaction is used about 66% contribution is added to profitability. The study therefore infers that internet banking transaction in the Nigeria is significantly influenced profitability positively during the period under review.

### **Summary of Findings**

The study empirically examined the effect of electronic platforms on economic growth in Nigeria. Electronic payment contributed to economic growth in Nigeria, point of sale payment and mobile payment had a positive effect on the economic growth, but, ATM is not statistically significant but has a very weak relationship. The results refuted that a rise in the electronic payment leads to an increase in economic growth. The findings of study are in agreement with the finding of Odusina (2014) who investigated the impact of electronic payment platforms on the revenue generation in Nigeria, adopting the ordinary least square (OLS) regression analysis technique to explore the electronic payment platforms transaction and revenue generation on Nigeria economics. The regression result indicated a very positive and significant relationship between the components of electronic transaction and GDP. Furthermore, the findings have also been supported by Edesiri G. and Promise E (2013) who analyzed the impact of e-banking on revenue generation from 1999 to 2012 in Nigeria. The study used the Ordinary Least Squares Regression technique to analyze the data collected for the study. The result from the test shows that there exists a positive impact of e-banking on economic revenue generation as it helps to reduce cash in hand but keeping in bank for other investment in Nigeria.

With the above findings, this is to conclude that electronic payment platforms transaction has really contributed to economic growth in Nigeria, as a result of the public turning out to make use of these platforms with the help of CBN cashless policy.

## **5.0 CONCLUSION AND RECOMMENDATIONS**

The study results show that electronic banking has a moderate influence on profitability of banks in Nigeria. The analysis produced a coefficient of determination of 79% which shows the percentage of variations in profitability which is explained by electronic payment.

The significant test showed that influence of electronic payment on bank profitability was statistically significant. This means that the combined effect of the electronic payment in this research is statistically significant in explaining the profits of commercial banks in Nigeria.

However the statistical significance is different for each electronic banking component tested and therefore if banks are to have meaning contribution to profits they should adopt complex forms of electronic banking.

The study recommends to the management of banks which are slow in innovation adoption, to move in and adopt various innovations in their operations in order to shore up their profitability.

This recommendation is well supported by the fact that in Nigeria, the leading banks in terms of profitability are mostly the fast movers in adoption of new technologies.

Profitability is also crucial to shareholders and the market is also keen on the profitability of organizations. Any ethical and responsible attempt to improve profitability of a company will be appreciated by the shareholders. Banks should therefore continue to adopt new technologies which will improve their margins and hence their profitability in order to attract more investors.

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