
ECONOMIC IMPLICATIONS OF ELECTRONIC BANKING IN NIGERIA BANKS

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Abstract

The study assessed the effect of e-payment systems on gross domestic product of Nigeria, using mobile payment system and Point of Sale (POS) payment system and the independent variables and gross domestic product as the dependent variable. The research questions and hypotheses were formulated in line with the objectives of the study. Ex Post Facto research design was adopted for the study. Data were collected from CBN Statistical bulletin and annual reports and accounts for the periods from 2009 to 2021. Data were analyzed with descriptive statistics and the hypotheses regression analysis was carried out with the aid of E-Views 9.0 statistical software. The results revealed that mobile banking and point of sale have a positive but insignificant effect on gross domestic product in Nigeria. Based on the findings, the study recommended among others that Nigerian deposit money banks should collaborate with phone service providers to checkmate and prosecute hackers in order to reverse the negative effect of mobile payment on banks' profitability in Nigeria.

Keywords: Mobile banking, Point of sale and Economic growth

Introduction

Business organizations, especially the telecommunication industry of the 21st century, operate in a complex and competitive environment characterized by changing factors and highly unpredictable climate, thus, information and communication technology is at the centre of this global curve as an absorber and to provide a cooling effect. Muiyiwa and John-Dewole (2013) contend that the telecommunication sector cannot ignore information system because it plays a critical role in their competitive edge both locally and globally. They point out that most fortune firms' cash flow is linked to their adoption of information system. The adoption of Information and Communication Technology in telecommunication sector is generally referred to as electronic transactions and application of its concepts, techniques, policies, and implementation strategies to telecommunication services has become a subject of fundamental importance and concerns to all telecommunication firms and indeed a pre-requisite for local and global competitiveness because, it directly affects the management decisions, plans, products and services to be offered by these firms (Zandi, 2016). It entails the adoption of various electronic payment (E-Payment) systems which has continued to change the way telecommunication firms and the corporate relationships are organized worldwide and the variety of innovation of service delivery. Electronic payment (E-Payment) systems involve the automation of process, controls and information production using computers, telecommunication, software and ancillary equipment such Automated Teller Machine (ATM) and Debit Cards (Ravikumar, 2019). It is a term that generally covers the harnessing of electronic technology for the information needs of the telecommunication sector. Mamudu and Udo (2019) assert that electronic payment (E-Payment) systems deal with the physical devices and software that link various computer hardware components and transfer data from one physical location to another. Afaha (2019) contends that financial service providers should modify their traditional operating practices to remain viable in the 21st century. They claimed that most significant shortcomings in the telecommunication industry today is a wide spread failure on the part of senior management in telecommunication firms to grasp the improvement of technology and incorporate it into their strategic plans. This necessitated this study on effect of e-payment systems on gross domestic product of Nigeria.

Electronic payment (E-Payment) systems was adopted so as to improve service delivery, decongest queues during cash payment, enable customers withdraw cash at will, aid international payment and remittance, track personal cash transaction, request for online statement, or even transfer deposit to a third party account (Iluno, Frank & Saheed, 2018). However, Owusu and Odhiambo (2014) posit that mobile banking and internet banking had negative effects on economic growth. 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, majority of the prior studies were carried out on financial performance other than economic growth. The broad objective of this study is to appraise the effect of e-payment systems on gross domestic product of Nigeria.

Conceptual Issues

Electronic Banking

E-Payment systems refer to the automated processes of exchanging monetary value among parties in business transactions and transmitting this value over the ICT networks (Amin, Onyeukwu & Osuagwu, 2018). In Nigeria, e-payment is effecting payment from one end to another end through the medium of the computer without manual intervention beyond inputting payment data. It is the ability to pay the suppliers, vendors and staff salaries

electronically at the touch of a computer button (Udeghi & Hanzace, 2018). In recent time, e-payment system has become a medium through which monetary substance circulates conveniently, especially in developing economy like Nigeria where carrying cash around is habitual. In Nigeria, e-payment system formed fundamental starting point of her modern market economy; a well-functioning e-payment system has been recognized to have much relevance on financial stability, monetary policy and overall economic activity (Aduda & Kingoo, 2018). Historically, Central Bank of Nigeria (CBN) introduced payment system which facilitated e-payment in 2002. During this period, Nigeria Automated Clearing System (NACS) was introduced as a veritable platform for development of electronic payment and to reduce clearing of cheques period.

Electronic banking system is seen to be an innovative service delivery mode that offers diversified financial services like cash withdrawal, funds transfer, cash deposits, payment of utility and credit card bills, cheque book requests, and other financial enquiries, (Onyedimekwu & Oruan, 2013). Similarly, Imiefoh (2012) considers electronic banking as an umbrella term for the process by which a customer may perform banking transactions electronically without visiting a brick-and-mortar institution. That is, automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels. E banking generally implies a service that allows customers to use some form of computer to access account-specific information and possibly conduct transactions from a remote location like home or workplace.

E-Banking has been conceptualized by different authors. Simply put, it is the use of all electronic devices in carrying out banking activities. Nnanna (2003) defined e-banking as the execution and reception of banking services by financial institutions and their customers using electronic devices such as Internet. According to Uba (2006), e-banking is the process of banking transactions without cost to the customers using electronic-driven devices. While Ubong, (2010) defined E- Banking as the use of infrastructure of the digital age to create opportunities both local and global. He noted that it enables the dramatic covering of transaction cost and the creation of new types of banking opportunities that address the barriers of time and distance. It involves the use of intranet or electronic mail (e mail), smart cards/ electronic purse /digital purse, telephone banking, among others to conduct banking service. The general umbrella is usually called e-commerce. E-commerce is divided into e-money and e-finance. According to Nsoli and Schmecher (2002), e-money is the value of money stored and does not require keeping balance in financial accounts with the banks; while e-finance involves the provision of financial services through electronic system. E-finance is further divided into e-banking, on-line brokering, capital market operations, and insurance among others.

As a result of its convenience and flexibility, e-banking has become popular. Also, it has some transaction related benefits like speed, efficiency, accessibility (Elisha, 2010). Elisha(2010) describes e-banking as the term used for new age banking system, it could also be called online banking and it is an outgrowth of PC banking. That is a banking which includes the systems that enable financial institution customers, Individuals or businesses, to access accounts, transact business, or obtain information on financial products and services through a public or private network, including the Internet or mobile phone. further, electronic banking is referred to as the process of using the internet as delivery mode for the provision of services like opening a deposit account, electronic bill payments, and online transfers. These services can either be provided by the banks having physical offices or by creating a website (Nwankwo & Agbo, 2021).

Mobile banking applications also known as M-banking or SMS banking is a term used for performing balance checks, account transactions, payments etc. through a mobile banking products such as a mobile phone (Clive, 2017). Mobile banking products provides basic banking services to customers from their mobile phones. It is an SMS driven platform which facilitates access to banking services using cell phones (Andrea, Udeh & Allison, 2022). The services available on the mobile banking product include mini statements and checking of account history, alerts on account activity or passing of set thresholds, monitoring of term deposits, domestic and international fund transfers, micro-payment handling, bill payment processing, portfolio management services, status of requests for credit, including mortgage approval and insurance coverage, cheque book and card requests, ATM location, general information such as weather updates, news and location based services.

This advancement in technology is recent in banking service and developed as a result of the introduction of the General System of Mobile (GSM) Telecommunication (Ujah, Nwaeze & Adegboye, 2015). It offers customers the freedom of banking with their mobile phones, using SMS messaging facility with optimal confidentiality and security. Mobile banking enables customers to enquire about their account balances and mini-statements, fund transfers between customer accounts, effect stop payment orders (countermands) and also effect payment of utility bills among other services. The product keeps a customer in touch with his financial affairs with the bank all the time and anywhere.

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.

Point of Sale is referred to as a retail shop, a checkout counter in a shop, or the location where a transaction occurs. POS machines are electronic devices deployed at retail outlets to facilitate the exchange of value between a cardholder and a merchant (Andrea, Udeh & Allison, 2022). They are used to perform a variety of basic banking and financial transactions like payment for purchases, balance enquires, mini statement printing etc. it eliminates the numerous issues related to regular cash transactions. The benefits of POS to all the parties involved are improving operational efficiency, ensuring transaction security and integrity, eliminating needs to carry large amounts of service beyond banking hours, increasing income from transaction fees and float, providing a simple, more efficient and convenient payment system etc.

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 (Azeez, 2011). 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

Gross Domestic Product

Economic growth is defined as 'a rise in the total output of goods or services produced by a country. It is an increase in the capacity of an economy to produce goods and services, compared from one period of time to another. Economic growth occurs whenever people take resources and rearrange them in ways that are more valuable. Economic growth refers only to the quantity of goods and services produced; it says nothing about the way in which they are produced (Mackinnon, 1973). The performance of an economy is usually assessed in terms of

the achievement of economic objectives. These objectives can be long term, such as sustainable growth and development, or short term, such as the stabilization of the economy in response to sudden and unpredictable events, called economic shocks which are very common in Kenya such political instability, ranging interest rates and labour unrest which are also common in emerging markets. Hence in order to measure economic growth it's in order to analyze, control and measure the following economic indicators such as Growth in real national income, investment levels and the relationship between capital investment and national output, levels of savings and savings ratios, price levels and inflation, competitiveness of exports, levels and types of unemployment, employment levels and patterns of employment, trade deficits and surpluses with specific countries or the rest of the world, debt levels with other countries, the proportion of debt to national income, the terms of trade of a country, the purchasing power of a country's currency, wider measures of human development, including literacy rates and health care provision. Economic growth can be measured in nominal terms, which include inflation, or in real terms, which are adjusted for inflation i.e. by the percent rate of increase in the gross domestic product (GDP). Economic growth measures growth in monetary terms and looks at no other aspects of development (Ayres, Robert, Warr, & Benjamin, 2006).

Empirical Literature

The study reviewed related studies that exist in the literature. Considering e-banking related studies in Nigeria, Osuigwe (2022) examined the effect of financial innovation on economic growth in Nigeria. An ex-post facto research design was adopted for this study because the data are time series data that were sourced from Central Bank of Nigeria, Statistical Bulletin and Annual Reports and Accounts, Nigeria Bureau of Statistics (NBS) for the period under review. Econometric techniques, including descriptive statistics, Augmented Dicker Fuller and Philip Perron tests for unit roots, and Ordinary Least Square (OLS) were used for the data analysis. The regression result indicates that automated teller machine, point of sale, mobile banking and internet banking have positive and significant effect on annual growth of gross domestic product (RGDP). The study thus concludes that financial innovation has positive effect on economic growth in Nigeria. Nwankwo and Agbo (2021) examined the effect of electronic banking on the performance of Nigerian commercial banks. The study adopted the ex post facto research design and covered the period from 2013 to 2017. E-views statistical tool was used for the analysis of the data obtained. The results of the study reveal that automated teller machine transactions have positive and significant effect on the performance of commercial banks in Nigeria while both point of sale terminal transaction and mobile banking transactions have negative and weak effects on the performance of the commercial banks in Nigeria. Njoku, Nwadike and Azuama (2020) examined the impact of electronic banking on economic growth in Nigeria over the period of 2009 – 2018 using quarterly data. The research adopted the Vector Error Correction Model (VECM) and the results of the analysis show that electronic banking has significantly impacted on the economic growth of Nigeria. The VECM result shows that R² is 0.5897, which shows that the model explains about 58.97% of the total variations in Economic growth as explained by the independent variables during the period of the study, while 41.03% is explained by variables not included in the model. The result of the analysis shows that Electronic Banking has a significant relationship with Nigeria's economic growth, while Point of Sales, Internet Banking and Mobile Banking, individually have no significant effect on Nigeria's economic growth. Afaha (2019) studied the relationship between electronic payment systems and economic growth using monthly data covering the period of 2012 to 2017. The Autoregressive Distributed Lagged Regression (ADLR) method was used in the analysis. The results indicated a significant positive relationship between electronic payment system and

economic growth in terms of real gross domestic product (GDP) growth. Ogotu and Fatoki (2019) established the effect of mobile, agency, ATM and online banking on the financial performance of listed commercial banks in Kenya. Their study employed quantitative research design using panel data analysis. The targeted population of the study was the 11 listed commercial banks in Kenya. The study found that there was a strong positive relationship between mobile, agency, ATM and online banking and financial performance of listed commercial banks in Kenya. Furthermore, financial performance of commercial banks and mobile banking were strongly and positively correlated, a strong positive correlation between financial performance of individual commercial bank and agency banking was found, and a weak positive correlation between financial performance of individual commercial bank and online banking was recorded. Mamudu and Udo (2019) studied cashless policy and its impact on the Nigerian economy using quarterly time-series data over the period 2011(Q1-Q4) to 2017(Q1- Q4). The study used the Ordinary Least Square (OLS) regression technique, Johansen Co-integration test and Error correction model. The results showed the use of cashless policy instruments have a positive and significant impact on Gross Domestic Product in Nigeria. The Johansen cointegration test showed that a long run relationship exists between the variables while in the short run regression results also show the use of these non-cash instruments have a significant and positive effect on Gross Domestic Product in Nigeria. Nedozi and Omoregie (2019) investigated an empirical evaluation of different electronic payment channels in Nigeria. The data were analyzed using percentages. From the study, it was found that ATM dominated the penetration of E-payment in terms of volume in Nigeria from 2011 to first quarter of 2019. In terms of value NEFT dominated in 2012 and 2013 while NIP dominated from 2014 to first quarter of 2019. Mbama (2018) investigated digital banking services, customer experience and financial performance in UK banks using a mixed research method by utilizing bank financial reports, interviews and questionnaires. The research adopted Regression, Structural Equation Modelling and Chi-Square analyses in its quantitative analysis, while using Content Analysis in its qualitative research. The study found that attributes such as perceived value, convenience, functional quality, service quality and e-banking innovation are important in improving customer experience, satisfaction and loyalty, and bank financial performance. Amin, Onyeukwu and Osuagwu (2018) carried out a study on E - banking, service quality and customer satisfaction in selected Nigerian Banks. Structured questionnaires and interview were used in collecting the data. Descriptive statistics was adopted in analyzing the data from the respondents. The results revealed that there is a significant relationship between quality of service and customer satisfaction while it was concluded that E-banking has a positive impact on the quality of service in the Nigerian banking sector, but not on customer satisfaction. Saidi (2018) carried out a study on E-payment technology effect on bank performance in emerging economies. The study adopted ex post facto design while using random panel regression model as analytical technique. It was discovered that bank performance contradicts autoregressive and random walk processes and thus implies that investors should not be disturbed about previous bank performances but concerned about current bank resources. Iluno, Farouk and Saheed (2018) studied impact of the electronic banking products and services on the customers' satisfaction. Frequency distribution table and multiple regression analysis were used as the analytical techniques. The result showed that electronic banking services (EBS), and electronic banking products (EBP) have significant positive impact on customers' satisfaction (CS) in Kaduna State, Nigeria. In a cross country analysis, Asongu and Nwachukwu (2017) assessed the role of ICT (proxied by internet and mobile phone penetration) in complementing financial sector development (using financial formalization and informalization) for financial access. The empirical evidence is based on the Generalized Method of Moments using 53 African countries for the period covering 2004 to 2011. The

GDP = Gross Domestic Product
MBB= Mobile Banking
POS= Point of sale
ITR = Interest rate
 β_0 = the constant
 μ = error term
 $\beta_1, \beta_2,$ = coefficient of dependent variable

Data were analyzed using inferential statistics generated from E-Views 9.0 statistical software at 95% confidence interval. This study employed the following statistical tools:

Pearson correlation coefficient **and** regression analysis to predicts the value of a variable based on the value of the other variable and explains the level of significance and effect of changes in the values of variable on the values of the other variables.

Decision Rule

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

Data Analysis and Results

Table 1: Pearson Correlation Matrix

	GDP	MBB	POS	ITR
GDP	1			
MBB	0.075696	1		
POS	0.060849	0.994455	1	
ITR	-0.197386	0.316551	0.370986	1

Source: E-Views 9.0 correlation output, 2023

Interpretation of Pearson Correlation Matrix

Correlation analysis aids in determining the degree of association between two or more variables. Pearson correlation coefficient was used to assess the strength of direction of the association between the variables. The Pearson correlation analysis reveals that gross domestic product (GDP) correlates positively with MBB (0.076) and POS 0.061), while ITR (-0.197) relate negatively with gross domestic product..

Test of Hypotheses

Hypothesis One

H_{01} : Mobile banking has not significantly affected economic growth in Nigeria

Table 2: Regression analysis between MBB, ITR and GDP

Dependent Variable: GDP
 Method: Least Squares
 Date: 05/19/23 Time: 22:39
 Sample: 2009 2021
 Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	623961.7	80754.71	7.726630	0.0000
MBB	0.003611	0.002967	1.216892	0.2546
ITR	90609.35	87297.77	1.037934	0.3264
R-squared	0.421734	Mean dependent var		426147.5
Adjusted R-squared	0.228978	S.D. dependent var		66865.76
S.E. of regression	58713.38	Akaike info criterion		25.04638
Sum squared resid	3.10E+10	Schwarz criterion		25.22021
Log likelihood	-158.8015	Hannan-Quinn criter.		25.01065
F-statistic	2.187921	Durbin-Watson stat		1.383728
Prob(F-statistic)	0.159151			

Interpretation of Regression Result

In table 2, a panel least square regression analysis was conducted to test the mobile banking (MBB) on gross domestic product (GDP). Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the table 2, the value of adjusted R squared was 0.23, an indication that there was variation of 23% on GDP due to changes in MBB. This implies that only 23% changes in GDP could be accounted for by MBB, and interest rate (ITR), while 77% was explained by unknown variables that were not included in the model. The probability of the slope coefficients indicate that; $P_{x1} (= 0.255 > 0.05)$ and $P_{x2}(= 0.326 > 0.05)$. The co-efficient values of; $\beta_1= 0.003611$, and $\beta_2=90609.35$, showing that MBB and ITR respectively are positively related to GDP but not significant.

The Durbin-Watson Statistic of 1.383728 suggests that the model does not contain serial correlation. The F-statistic of the MBB regression is equal to 2.187921 and the associated F-statistical probability is equal to 0.159151, so the null hypothesis was rejected and the alternative hypothesis was accepted.

Since the Prob (F-statistic) of 0.159 is greater than the critical value of 5% (0.05), then, it would be upheld that mobile banking (MBB) has not significantly affected economic growth in Nigeria at 5% level of significance, thus, H_0 is preferred over H_1 .

Hypothesis Two

H_{02} : Point of sale (POS) has not significantly affected economic growth in Nigeria?

Table 3: Regression analysis between POS, ITR, and GDP

Dependent Variable: GDP
 Method: Least Squares
 Date: 05/19/23 Time: 22:41
 Sample: 2009 2021
 Included observations: 13

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	625442.3	81262.19	7.696597	0.0000
POS	0.003466	0.002877	1.204582	0.2591
ITR	85641.93	87579.76	0.977873	0.3537
R-squared	0.420084	Mean dependent var		426147.5
Adjusted R-squared	0.226779	S.D. dependent var		66865.76
S.E. of regression	58797.05	Akaike info criterion		25.04923
Sum squared resid	3.11E+10	Schwarz criterion		25.22306
Log likelihood	-158.8200	Hannan-Quinn criter.		25.01350
F-statistic	2.173166	Durbin-Watson stat		1.382686
Prob(F-statistic)	0.160991			

Interpretation of Regression Result

In table 3, a panel least square regression analysis was conducted to test the point of sale (POS) on gross domestic product (GDP). Adjusted R squared is coefficient of determination which tells us the variation in the dependent variable due to changes in the independent variable. From the findings in the table 3, the value of adjusted R squared was 0.23, an indication that there was variation of 23% on GDP due to changes in POS. This implies that only 23% changes in GDP could be accounted for by POS, interest rate (ITR), while 77% was explained by unknown variables that were not included in the model. The probability of the slope coefficients indicate that; $P_{x1} (= 0.259 > 0.05)$ and $P_{x2} (= 0.354 > 0.05)$. The coefficient values of; $\beta_1 = 0.003466$, and $\beta_2 = 85641.93$, showing that MBB and ITR respectively are positively related to GDP but not significant, while IFR has negative impact with GDP, and statistically significant at 5%.

The Durbin-Watson Statistic of 1.382686 suggests that the model does not contain serial correlation. The F-statistic of the POS regression is equal to 2.173166 and the associated F-statistic probability is equal to 0.160991, so the null hypothesis was rejected and the alternative hypothesis was accepted.

Since the Prob (F-statistic) of 0.161 is greater than the critical value of 5% (0.05), then, it would be upheld that point of sale (POS) has not significantly affected economic growth in Nigeria at 5% level of significance, thus, H_0 is preferred over H_1 .

Conclusion and Recommendations

This study assessed economic implications of electronic banking in Nigeria banks. Data were analyzed using inferential statistics via E-Views 9.0 statistical software. The results revealed that MBB and POS have a positive effect, but not statistically significant on economic growth (GDP) in Nigeria. The electronic banking service though not significant but provides convenience to customers as well save cost, and cause banks to develop interest in expanding their market through internet banking services. Moreover, it is favorable to banks in terms of minimizing risk exposure. However, bank performance increased after the adoption of electronic payment technologies found that, as it facilitates the bank operations and improve in their performance.

The following policy recommendations were proffered from the findings and conclusion of this study:

1. Nigerian deposit money banks should collaborate with phone service providers to checkmate and prosecute hackers in order to reverse the negative effect of mobile payment on banks' profitability in Nigeria.
2. Point of Sale (POS) payment method should be encouraged in Nigeria for the purpose of transactions to enhance 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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