

Electronic Payment Systems and Money Deposit Banks' Deposits Mobilisations in Nigeria



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ABSTRACT: This study examined the effect of electronic payment systems on money deposits banks' deposits mobilisations in Nigeria. The study modelled deposits mobilisations of banks in Nigeria as a function of two key variables; money supply (M2) and Remita payment transaction value, with payment transaction values of NIBSS (Nigeria Inter-Bank Settlement System) instant payments (NIP) and National Electronic Fund Transfer (NEFT) as control variables. Secondary data were sourced from Central Bank of Nigeria (CBN) Statistical Bulletin. The study employed ordinary least square (OLS) regression method to analyze the data. Findings from the study revealed that Remita payment transaction value is not good predictor of deposits of banks Nigeria with p-values = 0.3732 >0.05 critical value as it had a negative linear relationship with money deposit banks' deposits mobilisations. NEFT payment transaction value is not good predictor of deposits of banks Nigeria with p-values = 0.4434 >0.05 critical value as it had a negative linear relationship with money deposits banks' deposits mobilisations. However both money supply and National Instant Payment (NIP) recorded positive linear relationship with deposits of banks in Nigeria. Furthermore, the findings from the causality test indicated no directional causality between money supply, NEFT, NIP and deposits of banks in Nigeria but causality runs from Remita payment transaction value to deposit of banks in Nigeria. Consequently, the study concluded that, there is no significant linear relationship between electronic payment systems and deposits mobilisations of deposits money banks in Nigeria. Thus, the study recommended that Federal Government of Nigeria as part of her current modifications in monetary and fiscal policies should mandate all states and local governments to adopt Treasury Single Account (TSA) policy and subsequently patronize Remita payment channel as done by the Federal Government of Nigeria.

KEYWORDS: Money, Payment transaction, Deposit, Electronic Channels

INTRODUCTION

Background to the Study

The banking businesses and operations as we have them now are more convenient, easier, faster, and more desirable both on the part of bank staffs and bank customers than what banking businesses and operations were used to be before the advent of modern information communication technology (ICT) facilities that are presently deployed in conducting banking businesses across globe in general and Nigeria in particular. Bank staff carried out their banking activities predominantly manually (Isamade et. al. 2022). This challenge limited the scope and speed of the banking operations and of course, limited the growth of banks' fortunes. Bank customers had limited bank payment options compared to a wider range of payment channels that are currently available (Mohammed et al, 2022). The implication of the wider range of payment channels is expected to translate to improved bank fortunes, which then calls for investigation.

Undoubtedly, the Nigerian payments system has grown from the rudimentary traditional exchange systems which existed prior to the establishment of formal banking system in the then British colonies and during the period immediately following the establishment of Central Bank of Nigeria (CBN). Overtime and with increased banking services, more sophisticated instruments of exchange have been developed to include among banknotes, coins, cheques, and electronic transfers. These developments were traceable to the collaborative efforts between the CBN, the deposit money banks and other key stakeholders in the banking system in particular and within the financial system in general (Okonkwo & Ekwueme, 2022; John et al, 2020).

In addition, the development and migration from predominant use of cheques as means of bank payment to other more advanced instruments and channels signaled the new age of adoption of diverse electronic payment systems in Nigeria which

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commenced with introduction of cashless economy policy as spearheaded by CBN in 2012 with Lagos State. Since then, more instruments have overtaken the hitherto over used cheques. Now, individuals can now carry out many transactions for goods and services using new methods instead of traditional methods of cash and cheques. This system of cashless payment is known as electronic or digital payment. With electronic payment systems, individuals can pay for goods and services not only over the counter in the banking hall but also from the comfort of customers' homes and any local where the customer is at that particular time regardless of whether it is banking working hour or not with the use of various electronic channels (Olaiya & Adeleke, 2019). The increased and improved payment opportunities that are available to both the banks and their customers have greatly impacted not only the banking operations and bank customers' satisfactions but also the banks deposit mobilization drive. These electronic channels have are designed to directly and indirectly increased the stock of currency in within the banking sector (Isamade et. al, 2022).

Therefore, electronic payment system introduction into the Nigerian banking sector was with the intention of achieving a better and improved payment system that will compete favorably with other developed economies of the world (Isamade et. al, 2022). Specifically, electronic payment system was to ensure saver, faster, cheaper and more convenient ways of making payment for goods and services with wider payment options. Adoption of electronic payment system is to encourage and enhance increase in usage of electronic payment channels and to reduce drastically and significantly the usage of cash in making payment for goods and service. Sustained increase in usage of electronic payment channels would lead to increase in banks deposits and ultimately reduction in total amount of cash outside of banking industry. The higher this percentage of cash outside of banking industry, the lower the total deposits of banks. Meanwhile, the higher the portion of the currency outside the banking industry, the more difficult and ineffective it will be for the various monetary policies of the government to achieve its macroeconomic variables (Okonkwo & Ekwueme, 2022; Njoku et al, 2020).

Statement of Problem

Nigerian monetary authorities have repeatedly battled with the challenges of effectively managing the amount of money outside of banking sector and this has limited the efficiency and effectiveness of monetary policies employed by the Central Bank of Nigeria (CBN) over the years to achieve different macroeconomic objectives of the government. Despite these various polices, programs and other initiatives of monetary authorities, to reduce the percentage of the stock of cash outside the banking industry, evidences from CBN statistics indicated that this percentage continued to rise. This was evident in the recent inglorious CBN's Naira redesign and cash limitation exercise which was announced late 2022 and ended early 2023. The core objective of the failed policy was to reduce appreciably the quantity of money cash outside the banking system and consequently increase the total deposit in banks (Opoku-Asante et. al, 2023; Habtamu et. al, 2021).

It is obvious from the brutal experiences and consequences (both on the citizens and the economy) of the said failed exercise that various electronic payment system policies initiated hitherto by the monetary authorities in Nigeria have failed to achieved the objectives of significant reduction in the usage of cash and reduction in the quantity of cash outside the banking industry. Despite the painful and traumatic costs of the failed exercise few months ago, the CBN's Money and Credit Statistics data reports that currency in circulation as at March, 2023 was N1.6trillion out of which N1.4trillion is outside the banking system representing about 88% of the total currency in circulation. With 88% of currency outside the banking system, monetary policies cannot have any meaningful impact in achieving macroeconomic objectives of the government (Opoku-Asante et. al, 2023).

Therefore, it is evident and quite imperative that further academic researches are undertaken on how to solve these challenges enumerated above. It is in response to this need that this study decided to combine both money supply and Remita payment transaction value as the key variables of interest to determine bank deposit mobilization in Nigeria. While CBN desire and ambition to promote the usage of non-cash (electronic) payment channels in Nigeria is laudable and commendable, its implementations have brought avoidable hardships to the citizens and their businesses. There is need for the CBN to focus its cashless policy drive on those electronic payment channels which has lower negative impact on individual members of the society and their businesses (Isamade et. al, (2022).

While previous studies like Opoku-Asante et. al. (2023), Uduak and Enobong (2021), Habtamu et al (2021), Imeokparia and Antonia (2021) and, Njoku et al (2020) have looked at the popular payment options like automatic teller machine automated teller machine (ATM), point of sale (POS), Mobile Money, Web Pay, in examine the electronic payment system, there are other payment channels that are not that popular as the ones listed above, they include NIP, NEFT, M-Cash, E-bill Pay, Remita, NAPS, Central Pay. This study decided to use Remita as it is a payment channel that is mostly patronize by the Federal Government and most state governments in Nigeria. The study combined Remita payment option with money supply as key variables of interest to determine the stock of bank deposits in Nigeria. The justification for the choice of Remita above other payment channels is the need to redirect CBN focus from other payment channels where the federal government does not have a stronger influence and

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control as a participant as it does with Remita where the bulk of government's revenue are paid. Popular payment channels like ATM, POS and mobile money are mostly patronized by individuals and small business owners who suffered mostly during the last CBN currency redesigning program.

Monetary authorities can do better by focusing instead on electronic payment channels like Remita which serves an important channel through which the governments both federal and states collect their revenues and make payments. Cashless policy restrictions on Remita will not a significant negative impact on the citizens and their businesses like it would on ATM, POS for instance. The study is of the opinion that if government which has a huge percentage of revenue to collect from the public through Remita and combined with deliberate management of money supply can achieve a significant reduction in the total stock of currency outside of banking system and consequently achieve increase in the total stock of banks deposits in country (Uduak & Enobong, 2021).

While a number of previous studies like Uduak and Enobong (2021), Habtamu et. al. (2021), Andabai and Bina (2019) have identified determinants of banks deposit mobilization to include variables as; profitability, liquidity, capital adequacy, inflation rate, deposit interest rate, number of bank branches and money supply, however, studies on electronic payment system and banks deposit mobilization has not included money supply as an important determinant of bank deposit mobilization. The stock of bank deposit is determined significantly by money supply in a country. In achieving its monetary policies objectives, the CBN reduces or increases money supply depending on its monetary stance. When the CBN wants to achieve a reduction in the stock of money in circulation for instance, it can use tools like, open market operation, reserve requirement, interest rate and special deposits to significantly reduce the total deposits of banks at any time. Same way, if the CBN intends to achieve an expansionary monetary stance, the same tools can be employed to achieve increase in banks deposits. Therefore, is it important to consider money supply as an important determining factor in deposit mobilization by banks in Nigeria. As a result of the challenges discussed above, this study is designed to specifically combine both Remita payment transaction value and money supply as the key variables of interest to investigate the impact of electronic payment system on bank deposit mobilization in Nigeria.

Research Objectives

The broad objective of this study is to examine the effect of electronic payment systems on bank deposit mobilization in Nigeria. Specific objectives are to:

- i. investigate the influence of Remita payment transaction value on bank deposit Mobilization in Nigeria;
- ii. examine the influence of money supply on bank deposit mobilization in Nigeria; and
- iii. Investigate if a causation exists between electronic payment channels and bank deposit mobilization in Nigeria.

LITERATURE REVIEW

Conceptual Review

Electronic Payment System

The Bank for International Settlements defined payment system as a specific set of instruments, banking procedures and inter-bank funds transfer systems that ensure the circulation of money. The Central Bank of Nigeria (CBN) (2021) defined payment system as the entire arrangement of instruments, procedures, regulations and laws governing institutions, interconnected networks of hardware and software, institutions and communication technology facilitating transfer of monetary value between transacting parties. Okafor (2021) defined electronic payment system as a system through which financial service providers, customers, individuals and businesses are able to access their accounts, do transactions and obtain latest information on financial products and services from public or private networks, such as the internet.

Chartered Institutes of Bankers of Nigeria (CIBN) (2019) defined payments system as established infrastructure (institutions, people, set of instruments, rules, procedures, standards and computer networks) through which financial obligations are discharged by economic agents. It entails the physical and organizational structure that enables the transfer of value between parties discharging mutual obligations. In other words, a payments system refers to an arrangement in the financial system which supports the transfer of funds from suppliers/savers to users/borrowers, and from payers to payees, usually through the exchange of obligations by financial institutions.

A payments system comprises three main elements or processes namely; payment instruments, processing, and a means of settlement for the relevant banks (Ekechukwu & Mbah, 2019) It consists of a paper-based mechanism for handling cheques and drafts, and a paperless mechanism (such as electronic funds transfer) for handling electronic commerce transactions. The goal of any payments system is to ensure that the financial system operates without interruption so that transactions take place with minimum delay, low risk and are cost-efficient. Similarly, an efficient payments system reduces the cost of exchanging goods and

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services and is indispensable to the functioning of the interbank, money, and capital markets. It also underlies the optimal utilization of resources and enhances the implementation of monetary policy to achieve price stability.

An efficient payments system must be supported by a sound legal basis, secure, reliable, accessible, prompt and cost-effective to meet the needs of all users. Its technical efficiency would determine the extent to which monetary transactions are consummated in any economy as well as the risks associated with its use. In contrast, a weak payments system may impact the stability and development of an economy, while its failures can result in inefficient use of financial resources (CBN, 2021).

Remita

Remita was established as all in one transaction platform by a private company known as SystemSpecs. Remita is quite popular in the financial technology industry by all standards. This software has made enormous impact on the Nigerian economy in a relatively short time, and is giving us much global recognition as a cutting-edge indigenous financial technology. Mustapha (2018) observed that digital payment platforms such as Remita are key to the growth of modern economies and empower individuals, businesses and governments to carry out financial transactions more cheaply and efficiently. The study projected that by 2025, these platforms will boost the Gross Domestic Product (GDP) of emerging economies by a whopping \$3.7 trillion, and drive financial inclusion (Habtamu et al, 2021, Imeokparia & Antonia, 2021).

Remita is a CBN licensed platform. It is a payment gateway heavily patronized by the Nigerian governments both at the federal and state levels through Treasury Single Account (TSA). It is mainly used by the Federal Government of Nigeria (FGN) as a platform upon which government funds can be received and government payments made. Nigerian banks, merchant, commercial and microfinance, have all synchronized their systems to be able to interface with Remita to help forward government money immediately after they receive it to avoid being fined (Imeokparia & Antonia, 2021).

Remita has been instrumental to the achievement of the Treasury Single Account (TSA) implemented by the Nigerian government. It helps users make online payments directly to the government account in the CBN via the users' bank using any electronic device. Remita's success in Nigeria has led it to be considered one of the most preferred payment platforms in Africa. According to CBN (2021), Remita recorded transaction value of 4.9billion naira in 2014 and increased to 10.6billion naira in two years later 2016. The value increased to 13.5billion in the following year 2017 and two years later the value further improved to 20.7billion naira in 2019. 23.8billion was the valued recorded in 2020 and moved upwardly to 26.2billion naira in 2021.

Money Supply

Habtamu et al (2021) opined that the volume of broad money in the economy is the result of the interaction of the banking sector (including the central bank) with the money holding sector, consisting of households, nonfinancial corporations, the general government other than central government, as well as non-monetary financial intermediaries. Broad money comprises currency in circulation and close substitutes, such as bank deposits, and is informative for aggregate spending and inflation. Money supply is given birth to by the behaviour of the central bank and others banks. Two classes of money supply are the supply of "outside money" which are created by the central bank which consisting of banknotes and banks' reserves with the central bank. While "inside money" are created by banks, consisting mainly of deposits.

Opoku-Asante et al (2023) reported that academic reports of influence of monetary policy on the supply of broad or inside money in the economy traditionally rely on the money multiplier approach. This approach believes the money supply process is essentially driven by the actions of the central bank, which conducts monetary policy by adjusting the level of outside money. The volume of broad money supplied to the economy is then simply determined as a multiple of the monetary base, depending on the size of the money multiplier. The concept of the money multiplier derives from the basic feature of deposit banking that, under normal conditions and when there is confidence in the banking system, banks only need to maintain a fraction of the deposits they have accepted in the form of highly liquid, cash-equivalent assets such as central bank reserves. The rest of the deposits can be used to acquire higher yielding, less liquid assets, in particular loans. According to this framework, therefore, when the central bank increases the volume of reserves it makes available to banks, the latter can create additional deposits equal to a multiple of this increase (Ibrahim & Aziza, 2020; Adewunmi, 2020).

Bank Deposit Mobilization

Deposit mobilization is the process of mobilizing funds by the financial institutions from the surplus units to the deficit units to create better opportunities for productive investment. Deposit mobilization is the most important service and an integral part of banking operations. Mobilizing savings through intense deposit collection has been regarded as the major task of banking. A bank's lending capacity is highly dependent on its ability to attract deposits, making it the ultimate source of bank profit and growth (Ibrahim & Aziza, 2020). Banks are one of the profitable financial institutions that offer banking and other financial services to their customers by accepting deposits from the depositors and providing loans to the borrowers. Thus, deposits become the most

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important financial resource for commercial banks to meet the financial needs of their customers, and it requires them to mobilize and accumulate enough deposit amounts. As a result, the financial resources of banking systems are primarily provided by customer deposits. The going concern of every commercial bank is highly dependent on deposits collected from customers. However, deposit mobilization should encourage customers to deposit cash in the bank or have new customers come and open an account in the bank. To be competitive in the banking sector, banks need to have a sufficient share of the deposit market (Habtamu et al, 2021; Ibrahim & Aziza, 2020).

THEORETICAL REVIEW

Monetarism Theory

This study is anchored on monetarism theory as developed by Milton Friedman (1912-2006). Monetarism is a macroeconomic theory that believes governments through the central bank (in this instance, the CBN) can achieve economic stability, growth and overall development by focusing on the growth rate of money supply. This theory is concerned with the macroeconomic impacts of money supply and the function of central banks in an economic system. Monetarism is a branch of Keynesian economics which emphasizes the usage and deployment of monetary policy over fiscal policy to manage aggregate demands, contrary to most Keynesians. Essentially, this theory is a set of opinions based on the submission that the total stock of money in an economy is the primary determinant of economic growth. The core of monetarism is the view that an increase in the money supply would lead to an increase in consumer spending, while a decrease in the money supply would result in a corresponding reduction in budgeted expenditures by individuals. In theory, this would influence aggregate demand. The essence of Friedman's monetarist thinking was that central banks should seek to control measures of the supply of money so that they grow in a steady predictable manner. Monetarists recommended that central banks should set targets for measures of the money supply.

While governments have different and sometimes conflicting economic objectives to achieve, it is important that government put in place strategies and measures aim at achieving these objectives (Opoku-Asante et al, 2023; Uduak & Enohong, 2021). One of such economic objective is achievement of a modern and competitive payment system which can compete favorably with other developed financial systems. In attempt to achieve this goal, the CBN introduced electronic payment system under the cashless policy introduced in January 2012. One of the key objective of the policy was to reduce the stock of currency outside of the banking sector. In achieving this, restrictions and limitations were placed on cash usage and further incentives were introduced for the usage of non-cash payment options. The CBN has since being designing and redesigning policies to control and influence the stock of currency in circulation and enhance bank total deposits (Ibrahim & Aziza, 2020; Nkwor, 2017) Same as this theory beliefs, this study beliefs that government through the CBN can effectively enhance the usage of electronic payment system in Nigeria by specifically focusing on managing or influencing the level of money supply in the economy at any point in time. Through the government monetary policy instruments, the CBN can increase or reduce the amount of money in circulation depending on the monetary stance of the monetary authority whether expansionary or contractionary stance. In doing this, the CBN usually uses these same tools to reduce or increase the total deposit base of commercial banks in the country (Habtamu et al, 2021).

Technological Acceptance Model

The technological acceptance model was propounded by Fred Davis in 1993. The theory explains how individuals accept new technology and it leads to growth in an economy. In essence, it shows how a user of a proposed technology welcomes and adapts to a new technology. He stated that two beliefs determine the complete acceptance of a technology. These beliefs are perceived usefulness and perceived ease of use. Perceived usefulness is a factor that affects user's acceptance because it is based on how capable the new technology will help improve job performance. The technology must be capable of producing an advantageous result and must also be able to generate a positive performance. As for perceived ease of use, Fred Davis defined it as how easy it is for users to make use of new technology. It means that the ability to employ the new technology should be effortless (Imeokparia & Antonia, 2021; Njoku et al, 2020).

Electronic payment system was considered a better, cheaper, easier and more convenient way of making payment for good and services in Nigeria when compare with cash payment. Before the implementation of the cashless policy in Nigeria, our economy was a huge cash-based economy. The attendant costs and challenges of cash based economy made the cashless policy attractive and the prospects of cashless economy made the government to extend the implementation of the policy from the four pioneering states to all the states in the country. In order to increase the effect of the policy on citizens, the people have to believe that the policy will be easy to use and also result in positive performance thereby, leading to economic growth. Available studies indicated that citizens generally bought the cashless policy despite its initial challenges. Transaction values and volumes from electronic payment channels like POS, ATM, mobile money, Remita, NIP and others continue to increase yearly. Empirical studies

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equally indicated that banks performance and customers' satisfaction have improved with the upward trend of these electronic payment channels. While there exists some challenges faced by the various stakeholders in the electronic payment system in Nigeria, it will not be out of place to submit that the outlook is positive and the prospects of a well-developed and productive electronic payment system in Nigeria are encouraging (Okonkwo & Ekwueme, 2022; Isamade et al, 2022).

Empirical Review

Opoku-Asante et al (2023) examined the linkages between macroeconomic variables and how those relationships affect the total deposits of Ghanaian banks. The macroeconomic variables included in this study were inflation, monetary policy rate (MPR), gross international reserve (GIR), public debt (PD), gross domestic product (GDP), GSE all share index (GASI), rate of change in total money supply (M2+), deposits in the banking sector (TD). The study employed monthly data over the period (2015–2020) obtained from the Bank of Ghana monthly time series database. The data were analyzed using Gretl. The co-integration technique was employed in this study to gauge the long-term and short-term responsiveness of the connections. The study revealed that identified variables play a crucial role in explaining the fluctuations in total deposit levels within the Ghanaian banking industry. This study only consider macroeconomic variables as the determinants of deposit mobilization while this current study made of electronic payment system.

Isamade et al (2022) investigated the effect of e-payment systems on gross domestic product of Nigeria. Using ATM, POS and mobile application payment system as independent variables and gross domestic product GDP as the dependent variable, the study adopted ex –post facto research design. Judgmental sampling technique was used in selection of the sample. Auto Regressive Distributed Lag Model (ARDL) was used as the analytical technique. The study revealed that ATM payment system, Point of Sales (POS) payment system and mobile applications payment system have significant effect on economic growth in Nigeria. This study failed to carry out causality test and the current study did the test. The current study also focused on deposit mobilization as against economic growth used by the study under review. Uduak and Enobong (2021) examined the effectiveness of monetary policy in enhancing the performance of the Nigerian commercial banks in terms of domestic savings mobilization for the period 1980 to 2019. Secondary data were employed. The monetary policy variables used were, monetary policy rate, treasury bill rate and money supply growth. Applying Autoregressive Distributed Lag Technique on the variables, the study found that monetary policy conduct was ineffective in enhancing commercial banks performance in domestic savings mobilization over the period. The result showed key variables of monetary policy were weak in driving domestic savings in Nigeria. Monetary policy rate variances only produced short term deposit impact that faded away over time. However, the economy's level of income showed evidence of accelerating domestic savings. Even though this study was on deposit mobilization, the study used macroeconomic variables instead of electronic payment system as done by the present study.

Habtamu et al (2021) examined major causes of deposit growth in commercial banks in Ethiopia with explicit inference on industry specific and macro-economic variables. The research used secondary data from 2010-2019. Macro-economic factors selected under this study consist of age dependency ratio, unemployment rate, population growth, broad money supply, and inflation. While bank-specific variables included are branch expansion and bank size. Since the study employed panel data in line with the nature and data of the study ordinary least square method estimation were used subsequently after the necessary diagnostic tests and Hausman test performed to determine the appropriateness of fixed effect. The result of the study indicated branch macroeconomic factors such as bank size, broad money supply, and inflation significant positive effect on deposit growth of commercial banks. This study did not conduct a causality test as done by the current study.

Imeokparia and Antonia (2021) examined the impact of electronic payment on the financial performance of deposit money banks in Nigeria. The study covered the periods of 2011 to 2017. The study randomly selected ten deposit money banks listed on the Nigeria Stock Exchange and obtained data from the annual reports of these banks. Data was also sourced from the Central Bank of Nigeria. The data extracted were analyzed using Ordinary Least Square method. Dependent variable of bank profitability was measured by profit after tax of the banks and independent variables were ATM, POS, ONL, MOB and MPS. The study revealed a positive and significant relationship between the value of ATM usage and bank financial performance. There was positive and significant relationship between the value of ATM and MOB usage and bank financial performance. This study failed to include money supply as determinant of deposit money bank performance why the current studied included it.

Njoku et al (2020) examined the impact of electronic banking on economic growth in Nigeria from 2009 to 2018 using quarterly data. Secondary data were collected from the CBN statistical Bulletin to establish the relationship between the dependent variable (Real GDP) and the independent variables; automated teller machines, point-of-sale, internet banking and mobile banking). The study used Vector Error Correction Model (VECM) and the results of the analysis indicated that electronic banking has significantly impacted on the economic growth of Nigeria. The result showed that electronic banking has a significant relationship with Nigeria's economic growth. The study recommended that the government should reduce the charges on the use

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of electronic means of transactions so as to encourage people to use them more often. This study was conducted on the economic growth of the country as against the current study that disaggregated it to banking sector.

Ibrahim and Aziza (2020) examined the key factors determining bank deposit growth in Turkey for the period 2000Q1–2016Q4. The study employed these independent variables; bank stability, banking sector efficiency, broad money supply, and inflation, while dependent variable was economic growth. Using secondary data, the study employed the autoregressive distributed lag approach to investigate the effect of bank level and macroeconomic factors on deposit growth. The results revealed that bank stability, banking sector efficiency, broad money supply, economic growth, and inflation are significant determinants of deposit growth in the long run. The findings further show that in the short run, only branch expansion and broad money supply are relevant for bank deposit mobilization. This study did not conduct a causality test as done by the current study.

Olaiya and Adeleke (2019) examined electronic banking and its effect on profitability of deposit money banks (DMB) in Nigeria covering 2010 to 2018. The study used these independent variables; automatic teller machine transaction value (ATMTV), point of sale transaction value (POSTV), mobile banking transaction value (MBTV) and internet banking transaction value (IBTV) while commercial banks performance was proxied by returns on assets (ROA). The study used secondary data and were collected from Central Bank of Nigeria's (CBN) Statistical Bulletin. Data were analyzed by conducting unit root test and co-integration bound test. Estimation was done by employing Autoregressive Distributed Lags using E-view 9.0 version. The study revealed that two independent variables namely ATMTV and POSTV individually have positive relationship ROA, while both MBTV and IBTV defied apriori expectations as they individually have negative relationship with ROA. This study scope was limited to 2018 while the present study has its scope extended to 2021. This study also failed to include the two key variables of money supply and Remita in this study while the current study was designed based on these two key variables.

Andabai and Bina (2019) investigated the impact of e-banking on economic growth in Nigeria for the period 2000–2018. The study used gross domestic product as proxy for economic growth and employed as the dependent variable; while, electronic mobile payment (EMP) and automated teller machine (ATM) to measure e-banking. They used secondary data collected from Central Bank of Nigeria Statistical Bulletin. Hypotheses were formulated and tested using Ordinary Least Square (OLS). The study revealed a significant impact of automated teller machine transaction on gross domestic product in Nigeria. Electronic mobile payment has a significant impact on gross domestic product in Nigeria. The study concluded that e-banking has a significant impact on economic growth in Nigeria. This study examined the electronic banking system on the economic growth, while the present study limited the study to only banking sector.

METHODOLOGY

Research Design

The research design for this study was ex-post-facto design as it was suitable for the usage of historical data for which the variables in this study are processed and analyzed to determine the impact of electronic payment systems on bank deposit mobilization in Nigeria. The study made use of secondary data collected from CBN Statistical Bulletin covering 2014 to 2021 being the period for which statistical data on Remita payment transaction values (which is the key variable of interest) are available.

Model Specification

To achieve the objectives of this study, the study adapted the model used by Isamade et al (2022) where they carried out a study on effects of electronic payment systems on gross domestic product of Nigeria. Their model was expressed thus;

$$GDPT = f(\beta_0 + \beta_1ATMT + \beta_2POST + \beta_3MAPt + \epsilon_t) \dots \dots \dots \text{Equ. 1}$$

This current study modified and adopted the above model by replacing gross domestic product with bank total deposit and by including Remita payment transaction value and money supply (M2) in the model.

$$BTDP = f(RPTV, MYSP, NIP, NEFT) \dots \dots \dots \text{Equ. 2}$$

Equ. 2 above is therefore, transformed into functional model as follows:

$$BTDP = \beta_0 + \beta_1RPTV + \beta_2MYSP + \beta_3NIP + \beta_4NEFT + U_t \dots \dots \dots \text{Equ. 3}$$

Where:

BTDP: Bank Total Deposits

RPTV: Remita Payment Transaction Value

MYSP: Money supply (M2)

NIP: NIBSS Instant Payments Transaction Value,

NEFT: National Electronic Fund Transfer Payment Transaction Value.

β_0 : Regression constant

$\beta_1 \beta_2 \beta_3 \beta_4$: Regression parameters

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Ut: Stochastic Error Term.

A priori Expectation

The all the explanatory variables were expected to have a positive relationship with bank deposit mobilization in Nigeria. That is, $RPTV > 0$, $MYSP > 0$, $NIP > 0$, $NEFT > 0$,

Estimation Technique

The relationship between the dependent and independent variables was be measured using the Ordinary Least Square (OLS) regression technique. The study could have used other technique for the estimation but was constrained to OLS because other techniques would normally require a longer scope or range of time series data. But with short range of data used in this study from 2014 to 2021, OLS became appropriate technique being the best linear unbiased estimator and due to the small size of the sample.

RESULTS AND DISCUSSION

The results of data analysis and its discussion are presented below.

Descriptive Statistics

In order to describe the features and nature of the data set of the study, the descriptive analysis of the data employed were done and table 1 showed summary of these features.

Table 1. Summary of Descriptive Statistics

	BTDP	RPTV	MYSP	NEFT	NIP
Mean	20137.28	1.56E+13	29319.15	9.85E+13	7.87E+13
Median	18985.00	1.60E+13	29189.45	1.48E+13	6.83E+13
Maximum	25648.26	2.63E+13	40318.29	4.10E+14	1.67E+14
Minimum	17510.00	4.91E+12	20415.61	1.08E+13	1.99E+13
Std. Dev.	2786.052	8.00E+12	7243.101	1.42E+14	5.40E+13
Skewness	0.982116	-0.063804	0.128191	1.490953	0.466989
Kurtosis	2.784782	1.588305	1.736173	3.959213	1.857466
Jarque-Bera	1.301508	0.669722	0.554330	3.270616	0.725900
Probability	0.521652	0.715437	0.757929	0.194892	0.695621
Sum	161098.3	1.25E+14	234553.2	7.88E+14	6.30E+14
Sum Sq. Dev.	54334581	4.48E+26	3.67E+08	1.40E+29	2.04E+28
Observations	8	8	8	8	8

Source: Author's computation, 2023

Table 1 described the statistical nature of the observations collected for the study. The table showed that money supply (MYSP) has the highest mean value at 29,319.15; this is seconded by bank deposit (BTDP) with an average value of 20,137.28. NEFT, NIP and RPTV follow in that order with 9.85, 7.87 and 1.60 respectively. In addition, the mean value for each of the variables are moderate and falls between their minimum and their maximum range. Equally, the standard deviation values of the variables are closed to their respective average values for BTDP, NIP, and RPTV; this is however contrary for MYSP and NEFT with wider dispersions around their mean values. The Skewness results showed that all the variables are normally skewed with exception of RPTV that is negatively skewed. The Kurtosis statistics revealed that only NEFT is symmetrical while Jaque-Bera values showed that the null hypothesis of no normality cannot be accepted for the variables, considering the p-values that are all higher than the 0.05 critical value.

Table 2. Summary of Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.875502	2.889874	2.725206	0.0722
LRPTV	-0.671925	0.643632	-1.043958	0.3732

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LMYSP	0.472293	1.569746	0.300872	0.7832
LNEFT	-0.075119	0.085318	-0.880463	0.4434
LNIP	0.624861	0.691333	0.903850	0.4327
R-squared	0.725630	Mean dependent var		9.902498
Adjusted R-squared	0.359803	S.D. dependent var		0.131597
S.E. of regression	0.105294	Akaike info criterion		-1.394955
Sum squared resid	0.033260	Schwarz criterion		-1.345304
Log likelihood	10.57982	Hannan-Quinn criter.		-1.729831
F-statistic	1.983532	Durbin-Watson stat		2.255995
Prob(F-statistic)	0.300143			

Source: Author's computation, 2023

The regression results of the electronic payment channels against the total deposit mobilized by the Nigerian deposit money banks are depicted by table 2. According to this table, RPTV, which is the focused variable in this study is inversely associated with deposit of banks Nigeria; the degree of the association is however insignificant. Consequently, the result showed that if there is 1% increase in RPTV transaction value, it causes about 67% significant decrease in the deposit of banks and vice versa. The negative effect portended by RPTV may have been due to its role as a channel for implementing the Treasury Single Account (TSA) policy since all public sector deposits revert to Central Bank of Nigeria at the close of the day from the deposit money banks. Besides, while the Federal Government of Nigeria has successfully adopted TSA, only few state governments has done so. The failure of most state governments to adopt the policy might be a key factor responsible for this negative and insignificant relationship. Furthermore, money supply (MYSP) is though positive and stimulates bank deposit in accordance to expectation that increase in money supply into circulation should increase bank deposit since banks are expected to be the custodian of the money in circulation. However, the insignificant relationship must have been triggered by the penchant of the individuals, firms and particularly, the politicians for withdrawing money out of circulation and warehousing them in their private vaults, thereby leaving a smaller proportion of money supply in the custody of the banks. Hence, for every 1% increase in MYSP, about 47% in bank deposit is recorded and vice versa. Money supply as expected indicated a positive relationship with deposits mobilizations of deposit money banks in Nigeria and therefore in agreement with findings from empirical studies like, Habtamu et al (2021), Uduak and Enobong (2021) and Opoku-Asante et al (2023).

National Electronic Fund Transfer (NEFT) is according to table 2 a negative and insignificant predictor of bank deposit. Granted that payments via NEFT is expected to give value for beneficiary 24hrs after execution may have led to its unpopular usage and its attendant insignificant and negative impact in stimulating bank deposit. For this reason, 1% increase in NEFT transaction value causes about 7.5% insignificant decrease in bank deposit. Similar negligible effect is obtained for National Instant Payment (NIP) which, in its own case is positive in association with bank deposit; as a result, 62% increase in bank deposit is recorded for every 1% increase in transaction executed via NIP. It must however be generally noted that all these payment channels, despite their convenience and speedy of transaction processing, the associated cost of using them, like internet, processing fee, and other infrastructures make them unattractive for use to many people who still believe in using over-the-counter transaction or explore other payment channels that are less demanding. The findings of negative relationship between the NEFT and Remita payment transaction values and deposits mobilizations contradicted the expected results and the findings of previous studies like Opoku-Asante et al (2023), Isamade et al (2022), Uduak and Enobong (2021) which indicated that explanatory variables used in their studies revealed a positive relationship with deposits mobilizations of deposit money banks in Nigeria.

The R^2 is 0.725, which suggests that about 73% of the changes in bank deposit mobilization stance is determined by the joint effect of the selected payment channels while other factors not included in the model predicted the remaining 27%. The adjusted R^2 is a bit far from the R^2 value; this means the real variables that predicted bank deposit in the model account for about 35% of the changes in bank deposit. The Durbin Watson stat is within the tolerable level at 2.25, suggesting absence of first order autocorrelation in the estimated model.

Table 3. Causality Test Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
LRPTV does not Granger Cause LDEPO	6	227.531	0.0468

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LBTDP does not Granger Cause LREMITA		0.10285	0.9107
LMYSP does not Granger Cause LDEPO	6	10.4325	0.2139
LBTDP does not Granger Cause LMS		0.15359	0.8746
LNEFT does not Granger Cause LDEPO	6	1.89210	0.4572
LBTDP does not Granger Cause LNEFT		1.28824	0.5288
LNIP does not Granger Cause LDEPO	6	3.96858	0.3345
LBTDP does not Granger Cause LNIP		2.91260	0.3828

Source: Author's computation, 2023

Table 3 showed that there is a unilateral causality running from RPTV to BTDP; this implies that bank deposit in Nigeria is caused by RPTV. Again, this can be attributed to the versatility of RPTV to handle bill payment, including taxes of all kinds and to all levels of government, manage personal finances and help in payment of salaries of many big organizations in Nigeria. In addition, between MYSB and BTDP, no causality is discovered, and this attested further to the loss of custody of money supply into circulation by the banks; the same situation is true for NEFT and NIP, all of which show no causality with BTDP; this again, testified to the insignificant effect recorded under the table 2 in this study.

Table 4. Breusch-Godfrey Serial Correlation LM Test

F-statistic	4.828627	Prob. F(2,1)	0.3063
Obs*R-squared	7.249338	Prob. Chi-Square(2)	0.0267

Source: Author's computation, 2023

The autocorrelation test on table 4 revealed that the null hypothesis which asserts that the residuals are uncorrelated cannot be rejected, judging from p-value of the F-stat = 0.3063 > 0.05; this confirms the result of the D.W. statistics under table 2 and hence, the study concludes that there is absence of both first and second order autocorrelation in the residuals of the estimate.

Table 5 Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.397494	Prob. F(4,3)	0.4079
Obs*R-squared	5.206046	Prob. Chi-Square(4)	0.2668
Scaled explained SS	0.550387	Prob. Chi-Square(4)	0.9684

Source: Author's computation, 2023

The result on table 5 shows that p-value of the F-statistics is higher than the critical value i.e p-value = 0.4079 > 0.05; as a result, the null hypothesis for this test which posits that the residuals are homoscedastic cannot be rejected. This thus implies that no heteroscedasticity is present in the estimated model for this study.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The quest to identify the right combination of electronic payment variables that would lead to optimal increase in the total deposit of bank in Nigeria with minimum disruptions and pains on businesses, citizens daily payment needs and the economy at large necessitated this study. The aim is to redirect CBN focus from other payment channels where the federal government does not have a stronger influence and control as a participant as it does with Remita (where the bulk of government's revenue are paid) along with money supply. Therefore, this study examined the impact of electronic payment systems on deposit mobilization of deposit money banks in Nigeria. The results revealed that RPTV, which is the focused variable of this study has a negative and insignificant relationship with deposit of banks Nigeria. Similar outcome of negative and insignificant relationship was recorded for National Electronic Fund Transfer (NEFT). However both money supply and National Instant Payment (NIP) recorded a positive relationship with deposit of banks in Nigeria. Furthermore, the findings from the causality test indicated no directional causality

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flowed from money supply, NEFT, NIP to deposit of banks in Nigeria but causality runs from Remita to deposit of banks in Nigeria. Therefore, the study concluded that considering the chosen variables in this study, there is no significant relationship between electronic payment systems and deposit mobilization of banks in Nigeria.

RECOMMENDATIONS

Based on the findings from this study, the following are recommended:

- i. The study revealed Remita payment transaction value has an insignificant and negative relationship with deposit of banks, therefore, the Federal Government of Nigeria as part of her current modifications in monetary and fiscal policies should mandate all states and local governments to adopt Treasury Single Account (TSA) policy and subsequently patronize Remita payment channel as done by the Federal Government of Nigeria.
- ii. Remita payment channel should be adopted as the medium to make payment for governments incentives and palliatives to cushion the effect of subsidy removal and increase in petro prices.
- iii. Though money supply recorded an insignificant but a positive relationship with deposit of banks in Nigeria, the monetary authority should design appropriate policy that will discourage increase currency outside the banking sector.

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