Bankers Cashless Policy and Economic Performance in Nigeria

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Certification

This is to certify that Oluwaseun Yinka ADEPOJU with matriculation number LCU/PG/002093 carried out this research work titled "Bankers Cashless Policy and Economic Performance in Nigeria" in Department of Management and Accounting, Faculty of Management and Social Sciences, Lead City University, Ibadan, Oyo state, for the award of Master Degree(MSc) in Finance and that this has not been previously submitted.

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Dr. T.M. Akinbo **Head of Department**	**Date**

Dedication

This research work is dedicated to all those who desire and crave for knowledge but are constrained due to certain limitations- there is always hope abounding around the corner.

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"Even though the above institutions and persons have assisted in the process of this research work, I alone stand responsible for the errors, if any found in this work".

Abstract

Advancement in technology in the banking sector in Nigeria has made it possible for the implementation of cashless policy in Nigeria. Bank users are encouraged to use alternative banking services provided with the aid of technology instead of the traditional banking hall services. However, this policy has some implication for banks, bank customers and the economy. This study therefore explores the bank cashless policy and economic performance in Nigeria . The data for variables in this study covered 2009Q1 to 2020Q4 and was analyzed using the ARDL method of estimation. The study found that in the short term, ATM and POS transactions have a positive impact on bank performance, while IB and MB, MI, have a negative impact. In the long run, only ATM has a significant positive effect on economic performance, while IB and POS have significant negative effects. BMI, INT, and LR have significant positive effects on both bank performance and economic performance. It was concluded that the cashless policy has a significant impact on the performance of banks and economic growth in Nigeria. It was recommended that banks need to carefully manage their adoption of the cashless policy channels and consider the short-run impacts on their performance, since most of the impacts in the short run are not immediate.

Keywords: Cashless Policy, Electronic Banking, Economic Growth, Customers Satisfaction,

Profitability and Bank Performance.

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Chapter One

Introduction

1.1 Background to the Study

The Central Bank of Nigeria (CBN) has in recent times engaged in series of reforms aimed at both making the Nigerian financial system formidable and enhancing the overall economic performance of Nigeria so as to place it on the right path in tune with global trends. Since Nigeria's independence in 1960, the successive reforms were channeled at enhancing social welfare and achieving developmental goals but there has been no substantial positive change in Nigeria's economic indicators.

Introduction of mobile banking, electronic banking and online transactions in Nigeria has paved way for a new era of development where the use and demand for physical cash is gradually declining. The increase in emerging Information Technology has made banking services become more and more automated and less paper work than in the past as averred in the Central Bank of Nigeria (CBN) reports and statistical bulletins, annual reports of most Nigerian banks. Banks in Nigeria have realized that they would soon go out of corporate existence unless they keep with the pace at which Information Technology (IT) has redefined the creation of value and worth for their customers[2].

Also, these recent evolution of information technology in the Nigerian financial institutions possess interesting questions for academician, economist, financial institutions, financial analyst and the regulatory agents of government such as Central Bank of Nigeria (CBN) regarding the current economic status, logistics, and availability of instruments to guarantee economic growth and stability, efficiency and effectiveness of the cashless policy. Some observers suggested that the increased use of cashless payment system; (i.e. money or scrip which is exchanged only electronically via computer networks) has led to the predictions of a

cashless society[1,2]. In addition, the cashless policy aims to curb some of the negative consequences associated with the usage of physical cash in the economy, including high cost of cash, high risk of using cash, high subsidy, informal economy and inefficiency and corruption[2].

Since the inception, various payment methods have been used to purchase goods and services starting with the trade by barter. The trade by barter method of transaction has been the foundation for the introduction of money and coins to solve the problem of double coincidence of wants and divisibility faced by trade by barter. The use of money/coins was introduced after the use of trade by barter method, and it has solved various challenges associated with trade by barter, but the use of money as an exchange medium has its own challenges and shortcomings and can still be replaced with a better payment system 'the cashless policy'.

Developed countries like US have enjoyed various advantages which has prompted the Central Bank of Nigeria (CBN) to adopt the cashless policy. At the end of the 1980s the use of cash for purchasing consumption goods in the US has constantly dropped with inflation[1]. Nigeria's aim to be among the biggest economy by 2020 has driven her to gradually move from a pure cash economy to a cashless policy. Since Nigeria gained her independence in1960, there have been different constitutional reforms, change in economic and banking policies mainly aimed at stabilizing the economy, enhancing social welfare and enhancing economic growth and development.

While cash and cheques are still prevalent in some parts of the world, electronic payment mechanisms and especially, mobile payments are gaining consumer acceptance in many economics due to the high penetration of mobile phone technology[3].

In view of being one of the best economies in 2020, the CBN started implementing the cashless policy in some major cities in Nigeria since 2012 such as Lagos, Kano, Port-Harcourt and Onitsha. The CBN asserted reduction in crime rates, minimized risk associated with carrying huge sums of money, reduction in banking cost, improvement on monetary policy in management of inflation and the overall growth and development of the economy of Nigeria as advantages associated with the implementation of the cashless policy.

One of the prerequisite for the development of national economy according to study is to encourage a payment system that is secure, convenient, and affordable[4]. In this regard, developed countries of the world, to a large extent, are moving away from paper payment instruments toward electronic ones, especially payment cards[1]. In these countries, for instance, it is possible to pay for a vending machine snack by simply dialing a number on one's phone bill. In recent times, the mobile phone is increasingly used to purchase digital contents (e.g. ringtones, music or games, tickets, parking fees and transport fees) just by flashing the mobile phone in front of the scanner at either 'manned' or unmanned point of sales (POS). In Nigeria, as it is in many developing countries, cash is the main mode of payment and a large percentage of the populations are unbanked[4]. This makes the country to be heavily cash-based economy.

The introduction of electronic banking, online transactions and mobile banking in Nigeria has paved way for a new era of development where the use and demand for physical cash is gradually declining. These recent evolution of technology in the Nigerian financial institutions posses interesting questions for economist, financial institutions, business analyst and the government regarding the current economical status, logistics, and availability of instruments to guarantee economic growth and stability, efficiency and effectiveness of the cashless policy.

Since the inception of humanity, various payment methods have been used to purchase goods and services starting with the trade by barter. The trade by barter method of transaction has been the foundation for the introduction of money and coins to solve the problem of double coincidence of wants and divisibility faced by trade by barter. The use of money/coins was introduced after the use of trade by barter method, and it has solved various challenges associated with trade by barter, but the use of money as an exchange medium has its own challenges and dis-advantages and can still be replaced with a better payment system-the cashless policy/banking.

Various advantages enjoyed by more developed nations such as the US has prompted the Central Bank of Nigeria (CBN) to adopt the cashless policy. At the end of the 1980s the use of cash for purchasing consumption goods in the US has constantly dropped with inflation[1]. Nigeria's aim to be among the biggest economy by 2020 has driven her to gradually move from a pure cash economy to a cashless policy. Since Nigeria gained her independence in1960, there have been different constitutional reforms, change in economic and banking policies mainly aimed at stabilizing the economy, enhancing social welfare and enhancing economic growth and development.

A cashless economy is an environment in which money is spent without being physically carried cash from one place to another. Electronic devices as means of information that reveal how much a person has deposited and has spent are needed. Information technology plays an important role in bringing about sustainable development in every nation. Without an optimal use of information technology, no country can attain a speedy social- economic growth and development. The future of all business particularly those in the services industry lies in information technology, in fact, information technology has been changing the ways companies and banks compete. Information technology is more than computers, it

encompasses the data a business creates and uses as well as a wide spectrum of increasing convergent and linked technologies that process such data. Information technology thus relates to the application of technical processes in the communication of data. It is no doubt that information technology can help to reduce transaction costs for banks, which will translate to lower prices for services to customers.

Information technology for banks takes different forms which include: computerization of customers' accounts and information storage and retrieval, deposit and withdrawal through Automated Teller Machine and networking to facilitate access to accounts from any branch of the bank. Other forms include bio-metrics used in finger- printing and identification which should dispense the use of passwords or personal identification by customers. The use of internet and websites to bundle a host of services that go beyond transactional financial services which is increasing among banks. The financial sector has undergone many organizational changes over time in order to facilitate easy production and trade of products and services. However, with accelerating development of the financial systems as a result of deregulation, globalization and new information system, new ways of handling money appeared among banks and their customers. The use of e-card, internet banking facilitates the ease and convenience in handling transactions[4].

E-banking customers have possibility to access online or electronic banking for 24 hours which allows them to view historical banking transactions, transfer money between accounts, make savings, perform other operations at everywhere. Moreover increase in knowledge and ability to manage internet banking, banks and ATMs have resulted in more independent bank customers no longer requiring bank staff. The shift in bank customers' behavior and attitude towards cash services offered at the banks gave birth to cashless policy. This means banking is entirely relying on monetary transactions that use electronic means rather than cash. The

cashless policy was conceptualized by the apex bank to migrate Nigeria's economy from cash based economy to a cashless one through electronic payment system, not only to enable Nigeria monetary system be in line with international best practices or discourage movement of cash manually, but at the same time increase the proficiency of Nigeria's payment system which will in turn improve the quality of service being offered to the banking public. Cashless policy aims to curb some of the negative consequences associated with the high usage of physical cash in the economy, including high cost of cash, high risk of using cash, high subsidy, informal economy, inefficiency and corruption[2].The introduction of the policy in Nigeria therefore brings up issues that touch on security, privacy, crime and computerization.

According to some scholars, Nigeria did not embrace electronic banking when compared to developed countries. Nigeria adopted electronic banking system in early 2000s. Electronic banking is defined as the use of computer to carry out banking transactions such as withdrawals through cash dispensers or transfer of funds at point of sale. Cashless policy started in Lagos, pilot state. The apex bank pegged withdrawal by individual and corporate accounts at ₦500,000 and ₦3million respectively. Processing (charges) fees for withdrawals above the limits for individual customers is 3% while that of corporate bodies is 5%. Charges for lodgements for individuals and corporate accounts are 2% and 3% respectively. However, ministries, departments, agencies, specialized banks, diplomatic missions, embassies, multilateral and donor agencies have been exempted from charges emanating from this policy[5].

The cashless policy will potentially result in an extensive application of computer technology in the financial system which places the computer Professional Registration Council at the centre of control and regulation of the emerging in the Nigerian economy. The Central Bank

of Nigeria has in recent times engaged in series of reformations aimed at both making the Nigerian financial system formidable and enhancing the overall economic performance of Nigeria so as to place it on the right path in tune with global trends. Recently, the CBN came out with two laudable agenda- the Islamic banking (non-interest banking) and the cashless economy (e-payment system)[6]. Some of these policy measures came with tremendous success despite the initial skepticisms of Nigerians. For instance, when the CBN in July 2004 set December 31st ,2005 deadline for N25billion minimum capitalization, it was agreed with considerable criticism when the programmed was completed , the banking landscape was transformed out of a system dominated mainly by "fringe banks to one made up of largely "mega banks"[7]. The product of the exercise was to ensure a diversified, strong and reliable banking industry where there is safety of depositors' fund, and reposition of the banks to play active developmental roles in the Nigerian economy"[8]. This remark sums up the assessment of analysis about the outcome of the reform agenda.

In recent years, Nigeria has been experiencing growth and the condition seems right for launching unto a path of sustained and rapid growth, justifying its ranking amongst the 11 countries as identified by Goldman Sachs to have the potential for attaining global competitiveness based on their economic and demographic settings and the foundation for reforms already laid. Constraints to the achievement of Nigeria's ambition to be among the top 20 economies of the world by year 2020 is the fact that the Nigerian economy is too heavily cash oriented in transaction of goods and services which is not in line with global trends. In its efforts to rescue the Nigerian economy from the brinks of total collapse; the CBN in collaboration with the Bankers' Committee, the cashless policy was designed to provide mobile payment services, breakdown the traditional barriers hindering the financial inclusion of millions of Nigerians and bring low-cost, secure and convenient financial services to urban, semi-urban and rural areas across the economy. The cashless policy

initiated by the CBN led by its former Governor, Sanusi Lamido was introduced first in Lagos state, with the aim of achieving an environment where a higher and increasing proportion of transactions are carried out through cheque and electronic payments in line with the global trend[9].

So much have been said about the anticipated gains that had resulted from the adoption of e-payment and cashless economy but in concrete terms, people have been convinced that the agenda is for the good of all but the fear being expressed is the state of Nigerian infrastructural decay, lack of security on financial information, cost of ownership and adoption due to high cost of acquiring and maintaining internet data, computers and so on. The internet is perhaps one of the most useful tools to businesses and individuals in contemporary world economies. Its use has touched virtually every aspect of human endeavour especially banking. Technological breakthroughs and product designs have led to the emergence of e-banking services which in recent time has become globally popular except in developing countries including Nigeria[10].The Central Bank of Nigeria in 2011 released a circular on the introduction of "cashless policy" which sets cash deposit and withdrawal limits, that the country would from June1st 2012 join the committee of nations that embrace the electronic means of payment and limit the use of cash to the very barest. The apex bank has also gone ahead to assert that the commencement of its "cashless policy" for cities such as Lagos, Abuja and Port Harcourt to demonstrate the CBN's seriousness about the policy which has generated huge debate from Nigerians. While the apex bank is of the view that the cashless policy is the way to go in line with global trends, many Nigerians both informed and uninformed have divergent views about the policy[2].The cashless policy of the CBN is designated to provide mobile payment services, breakdown the traditional barriers hindering financial inclusion of millions of Nigerians and bring low cost, secure convenient financial services to urban, semi-urban and rural areas across the country. The CBN has gone

ahead to license six Payments Terminal Service Providers to support and maintain Point of Sale (P.O.S) terminals. This step is a bold demonstration that apex bank is determined to see the policy work which has been kick started in Lagos early 2012[11].

Against these backdrops, the CBN introduced the cashless policy in April 2011 with the objective of promoting the use of electronic payment channels instead of cash. Presently, the CBN is conducting a pilot scheme of the cashless policy in Lagos, which commenced in January 1st 2012. So far, implementation of the policy in Lagos has not gained expected traction. Hence a rollout across the country has been substituted with phased implementation in Port Harcourt, Kano, Aba and the Federal capital territory[2]. Cashless economy does not refer to an outright absence of cash transactions in the economic setting but one in which the amount of cash-based transactions are kept to the barest minimum. It is an economic system in which transactions are not done predominantly in exchange for actual cash[12]. A cashless society possesses the following characteristics; All the money used is issued by private financial institutions (banks, and possibly other firms). It is conceivable that the central bank continues to operate like other banks, issuing its own deposits that could be used as money in the same way as other bank deposits are. However, in that case the central bank has no monopoly in the issue of Money. In a cashless society the unit of account (e.g. Dollar, euro) remains a national affair and is provided by the state.

The followings among others enhance the functioning of cashless economy; e-finance, e-banking, e-money, e-brokering, e-exchanges e.t.c In a modern economy, the use of noncash payment methods such as cards (credit and debit) dominates the use of cash in payments. The card based payment system has several players. On the one hand, are the providers of the card based payment system- first of which is the card companies like MasterCard and Visa who provide their payment network for the system to function. The second sets of providers are

the banks that act as acquirers for merchants and issuers for cardholders and reach the card payment services to the ultimate users. For these two parties, the card payment system is an income generating initiative and they are motivated to run the system as they are able to generate adequate profits out of their operations. On the other side of the system are the users- both merchants and cardholders. The benefits these two players derive from the system are manifold- the convenience of electronic transactions, the ease of credit availability, increased sales, increased purchasing power, to list a few. Since they are the end users of the convenience the card payment system generates, they are the ones who bear the cost of the system. Apart from these four players there is the regulator of the payment system, usually the central bank of the country. The card based payment system cannot function in absence of any of its players. The global volume of non-cash transactions totaled 260 billion in 2009[13], after sustained average annual gains of 6.8% since 2001. The outright volume of these payments only remains heavily concentrated in developed markets. Developing countries are just improving their payments infrastructures, enabling wider adoption and greater usage of non-cash means and channels .They also tend to be open to innovations that can broaden their still-nascent base of users[13].

However, the global use of cash payment is still endemic, especially for low-value retail transactions. But while cash may be convenient, it makes taxation less transparent, and it is costly to distribute, manage, handle and process. It therefore follows that; cash as a mode of payment is an expensive proposition for any government. As a result, many governments are seeking to reduce these costs and encourage the use of non-cash payment means. The Nigerian economy is too heavily cash oriented in its transaction of goods and services and this is not in line with global trend, considering Nigeria's ambition to be amongst the top 20 economies of the world by the year 2020. For instance an overview of central bank of Nigeria

policies on cash management in Nigeria's financial system is high and increasing; direct cost of cash is estimated to reach one hundred and ninety two billion naira[2].

Over the years, many innovations have taken place in the world. The most striking and most celebrated is the aspect of information technology. Organizations today are confronted with rapidly changing market condition indicated by high merger rate and strong competitors. Under these conditions, traditional management approaches that focus on financial figures and on centralized, analytical planning methods are considered to be insufficient for effectively steering the organization in a dynamic environment[14]. Recent management support approaches like balanced score card is aimed at providing a broader view of organizational performance.

Information technology plays a significant role in the banking sector in Nigeria, especially in the implementation of the cashless policy. It has become an integral part of the organizational structure and strategic planning process of banks, as it enables them to deliver banking services online and in real-time across all branches within the country and abroad. The integration of the bank's structure, business processes, and strategies using specialized information technology is considered a vital part of performance management concept, leading to increased revenue, improved services, expanding the customer base, and minimizing the cost of operations.

The Nigerian economy is in dire need of development, and banks are seen as a vehicle of change for economic growth and development. To achieve this, banks need to utilize information technology to deliver effective, efficient, and quality services that will drive economic success. Information technology is the lifeline of banks in the financial sector, promoting and facilitating the performance of banks and the economy. Therefore, it is crucial to embrace information technology to drive economic growth and development.

This study aims to examine the impact of information technology on the performance of banks in Nigeria. The need to study how the cashless policy, implemented with the aid of technology, has impacted the performance of the banking industry and the Nigerian economy is necessary to ensure continuous growth and development.

1.2 Statement of the Problem

The aim of any economy policies (fiscal or monetary policy) is to improve the purchasing power of every individual and the society at large. Before the introduction of cashless policy by the Central Bank of Nigeria (CBN) in 2012, Our financial institutions has been characterized with so many issues, ranging from poor handling of physical cash, high usage of cash in doing business which affect the cost of banking operation, leakages, money laundering and other financial related offence due to high cash usage within our various economic sector (private and government). Cashless policy as a technique of economic management is to bring about sustainable economic growth and development as introduced by the Central bank of Nigeria (CBN) has not been fully operational in the country due to; i) high rate of illiteracy, ii) in-adequate sensitization/education of the benefits of the cashless policy, and iii) in-adequate infrastructure (such as the provision of internet connections in commercial areas, computers and Point on Sale (POS) machines) in some part of the country.

Apart from the physical challenges, economic data and indicators are not fully available and reliable. There is a great challenge in attempting to analyze the true impact of the cashless policy on the economy of Nigeria as only few monetary and macro-economic indicators can be traced with relation to the subject matter. Several scholars have attempted to analyze the cashless system or e-banking. However, it becomes clear that few studies present a comprehensive evaluation of cash-less banking implications in developing countries. Most ignore the economic benefits of the equation while some do incomplete examination of its

negative implications. This is often due to unreliable panel data for monetary and macro-economic indicators. Although, this study focuses on Nigeria Financial institutions, it is difficult to translate cashless studies from one country to another. Even payments instruments that look similar across countries on the surface may be different due to historical and legal variations[12].

Monetary policy as a technique of economic management to bring about sustainable economic growth and development through cashless policy and banking introduced by the Central bank of Nigeria (CBN) is not fully operational due to high rate of illiteracy, in-adequate sensitization/education of the benefits of the cashless policy, and in-adequate logistics (such as the provision of internet connections in commercial areas, computers and Point on Sale (POS) Machines). Apart from the physical challenges, economic data and indicators are not fully available and reliable. There is a great challenge in attempting to analyze the true impact of the cashless policy on the economy of Nigeria as only few monetary and macroeconomic indicators can be traced with relation to the subject matter. Several scholars have attempted to analyze the cashless system or e-banking. However, it becomes clear that few studies present a comprehensive evaluation of cash-less banking implications in developing countries. Most ignore its economic benefits of the equation while some do incomplete examination of its negative implications. This is often due to unreliable panel data for monetary and macroeconomic indicators. Although, this study focuses on Nigeria, it is difficult to translate cashless studies from one country to another. Even payments instruments that look similar across countries on the surface may be different due to historical and legal variations[12].

The banking sector has undergone significant changes in recent years, with information technology playing an increasingly important role in driving efficiency, competitiveness, and

customer satisfaction. However, despite the adoption of information technology in banking sectors today, some of its objectives have not been fully realized, and many users are not fully satisfied with the services offered by banks. This gap between the potential of information technology and its actual impact on banking operations has created a need for further research into the impact of technology on bank performance in Nigeria. One area of particular interest is the impact of the cashless policy on the performance of financial institutions in Nigeria. The cashless policy was introduced in Nigeria in 2012 with the aim of reducing the amount of physical cash in circulation, promoting the use of electronic payment systems, and improving the efficiency of financial transactions. While there is some evidence to suggest that the cashless policy has had a positive impact on the Nigerian economy, there is a need for further research to explore the extent to which this policy has impacted the performance of individual banks and their contribution to the overall performance of the Nigerian economy. By examining the impact of the cashless policy on bank performance in Nigeria, this study aims to provide insights into how information technology can be leveraged to promote growth and profitability in the banking sector, and ultimately contribute to the development of the Nigerian economy.

1.3 Aim and Objective of the Study

The main objective of the study is to examine the bankers cashless policy and economic performance in Nigeria. The specific objectives of the study are to:

i. examine the effect of cashless policy on the performance of banks in Nigeria

ii. investigate the effect of cashless policy on the performance of Nigerian economy

1.4 Research Questions

This study seeks to provide answers to the following questions:

1. What has been the effect of cashless policy on the performance of banks in Nigeria?

2. What is the effect of cashless policy in the overall performance of the Nigerian economy?

1.5 Hypotheses

This study seeks to test the following hypothesis in course of the research.

$H_0$1: There is no significant relationship between cashless policy and performance banks in Nigeria

$H_0$2: Cashless policy has no significant effect on the performance of Nigerian economy

1.6 Significance of the Study

The study on the effect of cashless policy on the performance of banks and the economy in Nigeria is significant as it provides valuable insights into the implications of the policy on financial institutions and the economy of Nigeria. By examining economic indicators such as GDP and monetary policy variables, the study will determine the effect of the cashless policy on the Nigerian economy. The study will also identify the challenges and prospects of the policy, enabling stakeholders to address these effectively by implementing policies that will enhance the economy of Nigeria.

Moreover, the research work will justify the application of information technology in banking services delivery as it leads to profitability of banks. It will help to identify the reasons why banks have to adopt modern banking such as e-banking and as such, identify the problems arising from the operational system of commercial banks in Nigeria. This knowledge will

assist management of banks to appreciate the importance and use of information technology to achieve overall efficiency and effectiveness in operation.

The study will also contribute to existing literature by identifying the major barriers to the adoption of this innovation in banking operations in Nigeria and suggesting ways to address them. It will serve as a valuable tool for students, academic institutions, and individuals seeking to understand the impact and relevance of information technology in the Nigerian banking sector. Overall, the study will contribute to sustainable growth and the achievement of goals in the Nigerian banking industry and economy.

1.7 Scope of the Study

This study aims to examine the effect of financial technology tools on the cashless policy in Nigeria. The focus of the study is on variables such as mobile banking, ATMs, POS, and internet banking. The study will use time series quarterly data from 2009 to 2020, which aggregates the values of transactions carried out by these financial technology tools in the banking industry in Nigeria. The performance of the banks in Nigeria will also be examined using the bank market index as a measure.

1.8 Limitation of the Study

The fact that this study was required to be carried out simultaneously alongside the other academic activities limits the researcher from rigorously carrying out the research. The researcher was also constraints with time which was too limited to allow for detailed and much more detailed research work. Finance was also part of the research constraints.

1.9 Operational Definition of Terms

Automated Teller Machine (ATM): is an electronic banking outlet that allows customers to perform financial transactions without the need for a human teller or cashier. ATMs are typically used for withdrawing cash, depositing checks or cash, checking account balances, transferring money between accounts, and other banking-related activities.

Bank Performance: refers to the ability of a bank to meet its financial goals and objectives. This can be measured by various financial indicators such as profitability, liquidity, asset quality, efficiency, bank market index and solvency. A bank's performance is closely tied to its ability to effectively manage risks, provide quality customer service, and generate sustainable revenue and profits. Factors that can impact bank performance include economic conditions, regulatory changes, competition, and technological advancements.

Bank Market Index (BMI): is a measure of the overall performance of the banking industry, usually based on the performance of a selected group of banks or financial institutions. It is an aggregate indicator that tracks the performance of the banking sector over time, using various financial metrics such as profitability, liquidity, asset quality, and capitalization. The index is typically used as a benchmark for investors and analysts to compare the performance of individual banks or financial institutions against the overall market trend.

Cashless Policy: refers to a government or central bank policy that aims to reduce the use of physical cash in the economy and promote electronic transactions through various electronic payment channels such as credit/debit cards, mobile banking, internet banking, and other electronic payment systems. The goal is to improve efficiency, reduce costs associated with cash handling, promote financial inclusion, and combat corruption and money laundering.

Economic Performance: refers to the overall health and strength of a country's economy as measured by various indicators, such as gross domestic product (GDP), employment rate, inflation rate, trade balance, and others. It reflects the ability of an economy to produce goods and services, create jobs, generate income, and ensure sustainable growth over time. High economic performance is usually associated with increased living standards, improved social welfare, and greater economic stability.

Electronic Banking: refers to the use of electronic and telecommunication technologies, such as computers, mobile devices, and the internet, to carry out financial transactions and banking activities. It includes services such as mobile banking, internet banking, ATM transactions, point of sale (POS) transactions, electronic funds transfer, and online bill payments. Electronic banking provides customers with convenient and efficient access to their accounts and allows banks to provide services to customers anytime, anywhere.

Internet Banking: also known as online banking or web banking, refers to the use of the internet or a mobile device to conduct various banking transactions and services, such as account inquiries, money transfers, bill payments, and online loan applications. Customers can access their bank accounts anytime, anywhere through a secure online platform provided by their bank. Internet banking is a convenient and efficient way to manage one's finances without the need to visit a physical bank branch

Mobile Banking: refers to the provision of financial services to customers via mobile devices such as smartphones or tablets. These services include, but are not limited to, checking account balances, transferring funds, paying bills, and making deposits or withdrawals. Mobile banking is typically provided by banks or other financial institutions through a mobile app

Point of Sale Terminal (POS): is a system that allows merchants to process transactions for goods or services. A POS system typically includes a device or terminal, which can be a physical device or a software application, and it connects to a payment processor or gateway to authorize and process payments. POS systems can accept various payment methods, including credit and debit cards, mobile payments, and other electronic payment options. They also provide features such as inventory management, sales reporting, and customer relationship management.

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Chapter Two

Literature Review

This chapter presents a discussion of past literature on cashless policy and the performance on banks and the economy by discussing relevant concepts, theories and findings from past studies. A summary of gaps and the framework for the study was also presented.

2.1 Conceptual Review

2.1.1 Cashless Economy

The evolution of money and its role in economic activity have been significant over the centuries. From barter economies to the emergence of study money in the form of notes and coins, money has evolved to minimize the friction of transaction costs involved in mediating exchange. However, there has been a shift towards electronic money, which is difficult to define as it blends technological and economic characteristics. Electronic money is defined as an electronic store of monetary value on a technical device that may be widely used for making payments to undertakings other than the issuer without necessarily involving bank accounts in the transactions, but acting as a prepaid bearer instrument. This shift towards electronic money has led to the emergence of cashless economies, wherein there exist no notes and coins issued by central banks but by private financial institutions[1].

In Nigeria, as in many developing countries, cash is the main mode of payment and a large percentage of the population is unbanked, making the economy heavily cash-based. However, the cost of cash to the Nigerian financial system is high and increasing, with the cost very close to fifty million naira in 2008[2]. The cashless policy of the Central Bank of Nigeria is designed to provide mobile payment services, break down the traditional barriers hindering financial inclusion of millions of Nigerians, and bring low-cost, secure, and convenient

financial services to urban, semi-urban, and rural services across the country. Nigeria has up to seven different electronic payment channels, including Automated Teller Machine (ATM), Point of Sales terminals, mobile voice, web, inter-bank, intra-bank, and kiosks. These e-payment initiatives in Nigeria have been stimulated by improvements in technology and infrastructure, and indigenous firms have undertaken them[3].

Electronic banking is a compound word that comprises two words "electronic" and "banking" were electronic is defined according to the Oxford university press dictionary as anything carried out through a computer especially over a network and banking is defined as a financial institution saddled with the responsibility of carrying out banking operations, and channeling of funds from surplus spending unit to the deficit spending units of an economy. Electronic banking (e-Banking) involves the use of the internet to perform various banking transactions[4].

E-Banking is also referred to as Electronic fund transfer and it is a process whereby information and other banking services can be carried out by a customer through the internet[5], electronic banking involves driving the banks immediate and future goals through the use of information technology. It involves carrying out banking business electronically. E-Banking involves delivering banks new and traditional products or services to bank customers automatically. It is a system which allows individuals, businesses and even financial institutions transact business or obtain information on products or services through the internet[6]. E-Banking involves providing services and information for customers electronically. Some of the services which are offered through E-Banking includes; balance inquiry, payment of bills, transfer of funds etc. these are the basic services that are offered by banks[5].

Encouraging a payment system that is secure, convenient, and affordable is a key element in the development of a national economy. Many developed countries are moving away from

traditional payment methods towards electronic ones, such as payment cards, mobile phones, and point-of-sale terminals. Nigeria, like many other developing countries, relies heavily on cash payments, with a large percentage of its population unbanked. However, the cost of cash to the Nigerian financial system is high and increasing, making the move towards a cashless economy essential. The unbanked population in Nigeria also contributes to the heavy reliance on cash, making it difficult to achieve financial inclusion. To address these challenges, the Central Bank of Nigeria has implemented a cashless policy designed to provide mobile payment services and increase financial inclusion for millions of Nigerians[6].The Central Bank of Nigeria's cashless policy aims to minimize the use of physical cash by providing alternative channels for making payments, such as automated teller machines (ATMs), mobile payments, and web payments. This policy is designed to break down traditional barriers hindering financial inclusion and bring low-cost, secure, and convenient financial services to urban, semi-urban, and rural areas of the country[7].

E-banking services have become globally popular, but they are still not widely adopted in developing countries like Nigeria. However, with technological breakthroughs and product designs, e-banking has the potential to transform banking services and drive economic growth[3]. The use of the internet, mobile devices, and other electronic payment channels has led to the emergence of e-banking services in Nigeria. Indigenous firms have undertaken e-payment initiatives stimulated by improvements in technology and infrastructure. The adoption of e-banking services in Nigeria has the potential to significantly reduce the cost of cash transactions, increase financial inclusion, and improve the efficiency and security of the banking system. The cashless policy, combined with e-banking services, has the potential to revolutionize the Nigerian banking industry, making it more accessible, efficient, and secure for all[8].

The Central Bank of Nigeria (CBN) in 2011 released a circular on the introduction of 'cashless' policy which sets cash deposit and withdrawal limits. That the country would from June 1st 2012 join the committee of nations that embrace the electronic means of payment and limit the use of cash to the very barest. The apex bank has also gone ahead to assert that the commencement of its "cashless policy" for cities such as Lagos, Abuja and Port Harcourt to demonstrate the CBN's seriousness about the policy which has generated huge debate from Nigerians[9]. While the apex bank is of the view that the cashless policy is the way to go in line with global trends, many Nigerians both informed and uninformed have divergent views about the policy[4]. The Governor of the central bank of Nigeria (CBN) is of the view that the electronic means of payment is the vogue throughout the world. He stressed that the policy, if allowed to succeed, would save the country huge resources such as cost of printing cash and its transportation from the mint to the length and breadth of the country. That such fund could be diverted to other pressing national needs because the use of cash is attributed to corruption problem in Nigeria[5].

To show that CBN means business about the policy, it has gone ahead to license six Payment Terminal Service Providers (PTSPs) to support and maintain Point-of-Sale (POS) terminals. This step is a bold demonstration that the apex bank is determined to see this policy work. The bank has kick started the policy in Lagos early 2012. The licensed PTSPs are ITEX, Value Card, ETOP, Paymaster, Citi Serve and Easy Fuel, which is focused on the downstream sector. CBN also moved a step further by assuring Lagos residents that there would be no need for a separate POS terminal for each type of card scheme, as all terminals would be equipped to accept payments for any type of card. The cards in the scheme are; Verve, Genesis, Master Card, Visa, etc[3]. The success of this policy requires the increased use of alternative payment systems including e-banking. Electronic banking is defined as the provision of banking services to customers through the internet[6]. Services offered by banks

using the internet include: Mobile banking (M-banking), video banking, fund transfers, e-payments and ATM cards. Of these entire e-banking services banks offer, ATM is by far the most popular in Nigeria. However, technological advancement keeps broadening the frontier of possibilities in all human endeavours and thus more e-banking services are being developed and introduced. As at today, all the deposit money banks in Nigeria offer e-banking services[10].

Electronic banking and the introduction of the cashless economy is one that has been discussed in literature as found in the [31]pure credit economy where, monetary policy without money"[7]. These studies considered the case of the cashless economy and the connection between the flows of investor demand as measured by movements in the demand deposits and the real sector and this is further witnessed in another study where is was suggested that money does not really matter in the determination of price movements in any economy, hence inflation and that economy can grow without cash as the money base is not relevant for manipulations in the price level while the quantity theorists claim otherwise[8].

Apart from the monetary policy implications of the introduction of a cashless economy, some authors have investigated the introduction of electronic banking and cashless economy with a look to ascertaining its implications for transactions, regulations, costs to banking and non-bank public[9]. However most of these studies were centered on the comparatively more advanced countries of the world which were the likely candidates for the so called e-revolution given the standard of living, the peculiarity of their monetary policy issues and the technological sophistication[11].

With the development of sophisticated forms of money also develops sophisticated forms of financial crimes both at the public and private sectors[9]. Literature on e-banking and cashless system of banking is one that is quite scanty in less developed countries like Nigeria and this

may not be unconnected to the heavy presence of the informal sector in most dual developing economies and the poor banking culture in the same[10]. Hence, against this backdrop there is the need to investigate the problems and prospects of electronic payment in cashless economy of Nigeria. Cashless Banking Channels in Nigeria are; ATM; POS Terminals; Internet Banking; Mobile Banking; NIP; NIBSS (Nigerian Interbank Settlement Scheme); and NEFT (Nigeria Electronic Fund Transfer.

Automated Teller Machines (ATMs): ATMs have revolutionized banking operations in Nigeria, providing customers with convenient access to cash withdrawals, balance inquiries, fund/cash transfers, mobile phone credit recharge, and bill payment services. The popularity of ATMs in Nigeria is due to their ease of use, as they provide a convenient alternative to the traditional method of queuing for extended periods in banks to carry out banking transactions. ATMs have become a significant part of the Nigerian banking system, offering customers a convenient and fast method of accessing their funds. This technology has brought about a paradigm shift in the way Nigerians conduct banking transactions. Although ATMs have several advantages, their expected impact on transforming Nigeria into a cashless economy has not been fully realized[10]. ATMs have become a significant part of the Nigerian banking system, offering customers a convenient and fast method of accessing their funds. This technology has brought about a paradigm shift in the way Nigerians conduct banking transactions. Although ATMs have several advantages, their expected impact on transforming Nigeria into a cashless economy has not been fully realized[11].

However, despite their popularity, ATMs have not had the expected impact in reducing the amount of cash in circulation in the economy. Many Nigerians only use ATMs for cash withdrawals, and are not aware of the additional services available on the machines. As a result, depositors can easily withdraw cash from ATMs, leading to more cash in circulation in

the economy[12]. This lack of knowledge on the part of customers could be attributed to a lack of education on the part of banks. It is important for banks to properly educate their customers on the full range of services that ATMs can offer. With proper education, customers can fully utilize the technology to conduct more transactions and reduce the amount of cash in circulation in the economy[12]. Another factor that limits the impact of ATMs on transforming Nigeria into a cashless economy is the ease of cash withdrawal. The easy availability of cash from ATMs makes it easier for customers to withdraw and spend cash, thereby increasing the amount of cash in circulation. Banks must take steps to discourage cash withdrawals by promoting other services that can be performed at ATMs, such as cashless transactions[11].

Additionally, electronic fraud has become a major issue in Nigeria, affecting the performance of deposit money banks. ATMs have been targeted by fraudsters, who use skimming devices and other techniques to steal customers' bank account information. This has eroded customers' trust in the banking system and deterred them from using electronic banking services such as ATMs[12]. The implementation of security measures, such as the use of biometric authentication, has helped to mitigate this issue, but more needs to be done to ensure the security of electronic transactions. Customer satisfaction with ATM services is also a concern in Nigeria. While the convenience of ATMs is appreciated, customers have reported issues such as long queues at ATM locations, frequent breakdowns of machines, and insufficient cash availability. Banks need to address these issues to improve the overall experience for customers and promote the wider adoption of electronic banking services[13].

Overall, the impact of ATMs on the performance of deposit money banks in Nigeria is a topic of ongoing research and debate. While some studies suggest that electronic banking services, including ATMs, have a positive impact on bank performance, others indicate that the impact

is mixed or even negative. This may reflect the challenges facing the Nigerian banking system, including high levels of non-performing loans, limited access to credit, and regulatory challenges[14].

Point of Sale (POS) Terminals: A point of sale (POS) machine is an electronic device used for payment of goods and services in Nigeria. It is widely used in various establishments such as supermarkets, hotels, gas stations, and shops. The device is subject to a charge known as the Merchant Service Charge (MSC), which is paid by the trader. The maximum total fee for any POS transaction is 0.75% of the transaction value or N1,200.00[11]. Four companies, PAX, Bitel, Ingenico, and Verifone, have been endorsed by the industry for the supply of Point-of-Sale terminals, and they offer negotiated discounts and incentives to customers. However, parties can purchase POS terminals from any manufacturer as long as they meet the POS specifications in the Point-of-Sale guidelines[11].

Electronic banking has been found to have a significant effect on the growth and profitability of deposit money banks in Nigeria, as reported in several studies. In Nigeria, POS machines have become increasingly popular because of their ease of use and convenience. They have helped to reduce the use of cash in transactions and provide a more efficient means of payment. Despite this, there are still challenges with the widespread adoption of POS machines. One of the challenges is the lack of infrastructure and connectivity in some areas, which hinders the deployment of POS machines. Another challenge is the high cost of acquiring and maintaining POS machines, which limits the number of traders who can afford to use them[15]. The POS system has also played a significant role in Nigeria's effort to become a cashless economy, reducing the need for cash transactions and promoting financial inclusion. Its adoption has been encouraged by government policies and incentives, such as

the Cash-Less Nigeria project, which seeks to reduce the amount of physical cash circulating in the economy[13].

Overall, the POS system has proven to be a secure and convenient method of payment in Nigeria, promoting financial inclusion and contributing to the growth and profitability of deposit money banks. Its widespread adoption across various sectors of the economy is a testament to its effectiveness and reliability.

Internet Banking: Internet banking, also known as e-banking, is a technology-driven innovation that has transformed the banking sector in Nigeria in recent years. It enables customers to access banking services via the internet, making it easier and more convenient to manage their accounts from anywhere in the world. In Nigeria, e-banking is gaining traction due to the increasing availability of internet services and the growing adoption of digital devices such as smartphones and computers[14].

One of the key benefits of internet banking is that it provides customers with access to a range of banking services at their fingertips. With e-banking, customers can easily perform routine transactions such as account transfers, balance inquiries, bill payments, and stop-payment orders. They can also apply for loans and credit cards online, as well as access a wealth of information about bank products and services. Furthermore, internet banking enables customers to perform these tasks at any time, day or night, from the comfort of their homes or offices. Additionally, internet banking allows customers to access their accounts and perform transactions from anywhere in the world as long as they have an internet connection[16].

Another benefit of internet banking is improved security. Online banking platforms are highly secure, with multiple layers of authentication and encryption to protect customers' personal and financial information. This has helped to reduce fraud and cybercrime in the

Nigerian banking industry[14]. Internet banking has also contributed to the efficiency of banks in Nigeria by reducing the need for physical branches and tellers. This translates to significant cost savings for banks, which can then be passed on to customers in the form of lower fees and better interest rates. Moreover, e-banking reduces the risk of errors and fraud associated with manual transactions, making it a safer and more secure way to conduct banking activities[17].

However, there are also some challenges associated with internet banking in Nigeria. One of the main challenges is poor internet connectivity in some areas, which can hinder customers' ability to access online banking services. Another challenge is the lack of awareness and education about internet banking among some bank customers, which can lead to security breaches and fraud. Despite the numerous advantages of e-banking, there are also some challenges associated with its adoption in Nigeria. One of the major obstacles is the lack of adequate infrastructure, particularly in rural areas, where internet connectivity and access to digital devices are still limited. Additionally, some customers may still be reluctant to adopt e-banking due to concerns about the security and reliability of online banking platforms[18].

Mobile Banking: Mobile banking, also known as m-banking, is a wireless internet application of banking that combines internet and mobile phone communication for banking activities. This innovation offers customers services such as SMS Banking that provides instant notifications about transactions, which helps them keep a watch on their accounts with round-the-clock services and top-ups of mobile phone credits[17]. Customers are also able to perform other services such as account inquiries and request for a chequebook.

Mobile banking involves the use of mobile phones for the settlement of financial transactions, and it allows customers to access banking and financial services through mobile telecommunication devices. This fund transfer process between customers ensures that funds

are available immediately for the beneficiary. Card infrastructure is used for the movement of payment instructions, and secure SMS messaging is used to notify beneficiaries about the receipt of funds[15]. Mobile banking has become very popular in Nigeria, given its low infrastructure requirements and the speedy penetration of mobile phones in the country. Services covered by this product include account enquiry, funds transfer, recharge phones, changing passwords, and bill payments. However, it is surprising to note that most customers are yet to fully embrace mobile banking in Nigeria. In this regard, the apex banks, alongside other banks, are urged to increase awareness of the product to the saving populace in the country[19].

The scope of services offered by mobile banking may include facilities to conduct bank and stock market transactions, administer accounts, and access customized information. It allows customers to access banking services through a dedicated telephone line from the comfort of their homes, offices, etc. Services rendered here include balance transfer, change of PIN, authorization of interbranch money transfer, transaction alert (withdrawal or deposit), and inquiry[13]. Mobile banking is the most common of the tele-banking devices, and it allows customers to transact banking business via phone. It can be used as an alternative to traditional branch banking or in conjunction with it. Customers can access their accounts using telephone lines as a link to the financial institution's computer center. Some of the services rendered here include account balance, transfer, and change of PIN[17]. However, this product has also experienced low patronage as a result of inadequate awareness and education of the customer on how to maximize the use of their phones to transact simple banking operations.

NEFT (Nigeria Electronic Fund Transfer): NEFT is an electronic fund transfer system that enables irrevocable payments to be made to third-party banks in Nigeria. Introduced in 2004,

NEFT is commonly used for high-volume payments such as salaries and vendor payments. Transactions are processed through scheduled batch clearing sessions on the NIBSS ACH platform, which means that payments are not instantaneous[16]. However, beneficiaries receive same-day value for transactions posted before the clearing sessions. NEFT payments are settled in two clearing cycles: same-day settlement for transactions received before clearing sessions and next-day settlement for transactions received after clearing sessions[20].

To initiate an NEFT transfer, customers must first log in to their bank's internet banking platform using their ID and password. Then, they navigate to the fund transfer tab and select "add beneficiary" for the receiver's bank. Next, they select the beneficiary type, such as transfer to another bank, and enter the account number of the beneficiary before clicking on send. The bank then debits the customer's account to ensure that the funds are set aside[18]. Finally, the customer's instruction, along with other customers' instructions, is sent to NIBSS by the bank as an electronic file for onward processing. NEFT offers a convenient way for businesses and individuals to make high-volume payments without the need to physically visit a bank. However, due to the batch clearing process, NEFT payments may not be suitable for urgent transactions that require immediate settlement. Overall, NEFT is a reliable and efficient electronic fund transfer system that has contributed to the growth of Nigeria's digital economy[21].

NIBSS Instant Payment (NIP): NIBSS Instant Payment (NIP) is an online real-time interbank payment solution that offers immediate transfer of funds to the beneficiary. It was established in 2011 by the Nigeria Interbank Settlement System and has since grown to include all deposit money banks, microfinance banks (MFBs), and mobile money operators (MMOs). NIP is an account number-based system that has been widely adopted in the Nigerian financial industry due to its efficiency, convenience, and reduced payment risks[11].

With NIP, customers enjoy the convenience of instant transfers, while corporate bodies benefit from increased payment processing efficiency, liquidity, and reduced payment risks. Financial institutions can also build services around NIP to meet their customers' dynamic needs, particularly in the area of digital banking products[15].

Apart from using the internet to perform NIP and NEFT operations, customers can also visit their banks and use funds transfer forms to signify NIP or NEFT as the chosen transfer type. While NIP has been valuable to all parties, there is still room for increased awareness and education to ensure that more customers and financial institutions can maximize its benefits.

2.1.1.1 The Central Bank of Nigeria and Cashless Policy

The Central Bank of Nigeria (CBN) was established in 1958 to regulate the banking sector in Nigeria. Prior to this, banking in Nigeria was unregulated and dominated by foreign banks, which catered mainly to foreign interests. The CBN has played a key role in regulating the sector and has introduced various policies to strengthen it, including the 2004 bank recapitalization exercise that increased the minimum paid-up capital for banks to N25 billion[11]. In recent years, the CBN has also been promoting the cashless policy to reduce the volume of physical cash in circulation and encourage the use of electronic payment systems. The policy aims to improve the payment system, reduce the cost of banking services, promote financial inclusion, enhance monetary policy effectiveness, and curb the negative consequences of high cash usage[22].

While the cashless policy has many benefits, there are also some challenges associated with its implementation. These include infrastructural deficits, such as the inadequacy of payment infrastructure and the poor state of the telecom industry, which can hinder the adoption of electronic payment systems. There is also the issue of e-fraud, which has been on the rise since the policy was introduced. In addition, some Nigerians have religious beliefs that

conflict with the cashless policy, as they see it as a transition to the biblical prophecy of the anti-Christ. Lack of real data and high charges associated with e-channels are also challenges that need to be addressed[12,13].

In implementing the cashless policy, the CBN has put in place several measures to facilitate the use of electronic payment systems, including the introduction of mobile banking, point-of-sale terminals, and online banking. The use of cheques is also expected to surge, but encashment of third-party cheques over the counter is prohibited. Bank drafts and other bank instruments are also being promoted for transactions not exceeding ₦10 million[10,14]. These electronic banking tools are discussed as below.

2.1.1.2 Workability of the Cashless Policy in Nigeria

Essentially, the regulatory framework for mobile (electronic) payment services released by the CBN imposes some restrictions on the volume of transactions a customer can do in a day. For the unbanked, for instance, who requires only his name and phone number to carry out transactions, the maximum limit of ₦3, 000.00 and daily limit of ₦30, 000.00 are stipulated. The semi-unbanked has a maximum transaction limit of ₦10, 000.00 and daily limit of ₦100, 000.00[23]. However, in line with the CBN's Know Your Customer (KYC) policy; the customer would be required to present his phone number, name, photograph and biometrics. The third level, which requires the customer to have a full bank account, allows a maximum transaction limit of ₦100, 000.00 and daily limit of ₦1,000,000.00. For the customer to be able to access his mobile money account there is a Personal Identification Number, (PIN) which his mobile money operator requires him to enter just like the ATM card. It was hardly surprising that at the take-off of the scheme, it was very obvious that it had many challenges to contend with. On the eve of the take off, the CBN had announced that all charges associated with the emerging payment system be suspended till the end of the first quarter of

the year (i.e. 2012)[23,24]. That was primarily aimed at creating time for potential users of the payment system to gain better understanding of how it works. Even after the pilot scheme had taken off, most of the banks are yet to meet customers' demand on the new payment systems. For instance, there are reports of some banks being overwhelmed by demands for ATM cards. Lack of awareness and education, poor infrastructure, and insecurity in the cyberspace are issues that must be addressed to achieve penetration in the adoption of the cashless policy[24].

The low level of awareness and education on the payment system are responsible for the pilot scheme being limited to Lagos. Although the licensing and establishment of payment agencies will create jobs and new business opportunities, the hurdles before the cashless policy have raised concerns over how it is going to work. This policy, as beautiful as it is, faces great challenges here in Nigeria. A few of these challenges are treated below. To begin with, there are challenges associated with illiteracy/computerization. As it is commonplace in any developing country, the literacy rate is still very low in Nigeria especially in the Northern part of the country. The business men/women here prefer to keep their money in their own vault while there are banks scattered all over the country. Also, computer usage, skills and knowledge of Nigerians even among the educated is still poor. There is also the issue of lack of trust and the Bounced-Cheque Syndrome[25]. Trust is lacking in Nigeria's business environment. As a result, business operatives believe in cash and carry business transactions. The bounced cheque issue is a very common thing in Nigeria and as a result people place less trust on the use of cheques too. More so, Concerns have continued to trail the level of 'pocket-friendliness' of the policy on the common man. In recent times, the welfare of the common man has become more relevant in Nigeria's decision making process, unlike the virtually complete neglect of the masses when decisions were taken in the past[25,26].

The term, "anti-people" has also become mainstream language. With this development, the welfare of the common man needs to be considered in policy formulation and implementation. Many businesses in Nigeria make very little profit. In a very remarkable number of such cases, transactions are made with huge sums of capital input in both financial and non-financial terms, but the resultant profit is often disproportionate to the amount of capital invested. Despite this, the common man continues to struggle to survive, desperately holding unto his lifeline in form of the very businesses he is involved in. This implies that charges on exceeding the Five Hundred Thousand Naira (₦500, 000.00) set by the CBN for individual accounts and the Three Million Naira (₦3 million) limit set for corporate accounts will naturally eat deep into any businessman's profit, and in some cases, not only wipe out such profit, but also dig into the financial capital as well, thus, causing gradual erosion of capital, creating a new class of poor people in the country. This occurrence can be described as "electronically-generated poverty" as the poverty comes through the application of electronic process in deducting commissions from the business man's account as well as through the non-usage of electronic substitutes for payment. The occurrence can also be described as "policy generated poverty", as the poverty comes through the direct implementation of policy[27].

Apart from business people and money being transferred from one person to another for transactionary reasons, money can be transferred for personal, non-business and non-transactionary reasons as well, by both business persons and non-business persons alike. The price to pay for this is quite huge, as it will imply including the CBN's charges in one's budget, when transferring money for very personal reasons. In other words, the banking sector has a share of money (whether profits are made or not) in almost any transaction and any transfer of money which one undertakes[28].

It is easy to say that if people do not want to incur charges, then they must use electronic means to effect payment. How many people know an iota about electronic means of payment? Among those who are electronically-literate, how many of them are brave enough to undertake this process, going by the huge loss of money due to fraud, encountered by some who have dared to do this in the past? Among the brave who have dared to undertake this process, how many of them can be careful enough to ensure they do not lose their media of cash holding, such as debit cards and credit cards or lose the privacy of their Personal Identification Number (PIN) to even someone as close as a family member, who needs just those few numbers to wreck havoc on the holder's bank account? PINs do not need to be stolen before being known by another person[29]. A good number of people willingly hand over their PINs to others, literally begging such recipients to assist them in effecting the use of the PINs, as they, the PIN holders, are often not technologically exposed or savvy enough to use the PINs or otherwise seriously engaged at a pressing period. It goes without saying therefore that in addition to the probability of widening the poverty gap and increasing the incidence of poverty in the country, other challenges to the success of the cashless policy are ICT literacy, conviction of service safety and greater client exposure to fraud as a result of service/instructional support seeking from third parties, and also, of entrusting the individual with all his money, which he or she prefers to entrust to the care and safe-keeping of the bank[30].

Functionality also comes into question. Many Automated Teller Machines (ATMs) do not function at all times. Either the bank complains of no network service, no electricity power and in some cases, no money in the machines. This short-circuits the customer's intention of using some of the available means of electronic-based transactions. Resorting to physical, over-the-counter means of financial payment attracts charges for the customer who will be, in essence, paying dearly for the inefficiency of the system. The cashless policy can however,

promote the wide application of technology-enhanced business such as e-business and related web, internet and mobile phone/communication based businesses, but this will benefit only a limited number of people, as the vast majority of the populace are not endowed with such skills of using technological applications for business, and are either not yet ready to acquire such skills, or are not even in a position to acquire such skills. Despite these setbacks, the e-business community and other virtual platforms of transaction will undoubtedly receive a boost with the introduction of the cashless policy, no matter how little[31].

2.1.2 Bank Performance

In recent years, there has been a growing trend towards cashless transactions in Nigeria, driven by the government's cashless policy aimed at reducing the use of cash and promoting electronic payment systems. The policy has had a significant impact on the banking sector, which has been at the forefront of implementing electronic payment systems to meet the demands of customers[32]. This calls for a review of the performance of the banks in Nigeria.

Bank performance refers to the ability of a bank to achieve its objectives, deliver satisfactory services to customers, and generate returns for shareholders. It is a multidimensional concept that reflects the financial health and overall management of a bank. Several factors affect bank performance, including internal factors such as management quality, governance, and risk management practices, as well as external factors such as economic conditions, regulatory environment, and competition. For instance, an efficient management team, effective risk management practices, and a sound corporate governance structure can positively impact bank performance. Similarly, changes in interest rates, inflation, and the overall economic growth can also affect bank performance[33].

The measurement of bank performance is crucial for various stakeholders, including investors, regulators, and customers. Investors use bank performance indicators to evaluate the bank's

financial health and potential for growth, while regulators use these indicators to assess the bank's compliance with regulatory requirements. Customers, on the other hand, use bank performance indicators to evaluate the bank's reliability and trustworthiness. The performance of Banks can be measured through various financial and non-financial indicators such as profitability, liquidity, asset quality, efficiency, customer satisfaction, and market index[12]. Profitability is a critical factor that measures bank performance as it indicates the ability of a bank to generate income from its operations, cover its costs, and provide returns to shareholders. Factors that influence profitability include interest rates, credit risk, operational efficiency, and market competition. Liquidity is another essential factor as it measures the ability of a bank to meet its short-term obligations and fund its operations. A bank with adequate liquidity is better positioned to respond to unexpected shocks and support economic growth[15]. Asset quality measures the quality of a bank's loan portfolio and reflects the level of credit risk. A high level of non-performing loans can negatively impact a bank's financial stability and profitability. Efficiency is another crucial factor as it measures the ability of a bank to generate income relative to its operating expenses. A bank that operates efficiently can reduce costs and improve profitability[9].

Bank market indices are used to measure the performance of a group of bank stocks, providing investors with an overall view of the performance of the banking industry. The most commonly used types are price-weighted indices and market capitalization-weighted indices. They play an important role in the banking industry, providing a measure of the overall health of the industry and serving as a benchmark for evaluating the financial performance of individual banks. Investors use bank market indices to assess the performance of the banking sector and make investment decisions, while banks use them to evaluate their own performance and for comparison with their competition[34]. Customer satisfaction is an essential non-financial indicator of bank performance as it reflects the level of customer

experience and loyalty. Satisfied customers are more likely to remain loyal and refer other customers to the bank. Market share measures the size of a bank's customer base and its position relative to its competitors. A bank with a higher market share is better positioned to attract more customers and generate more income[34].

In Nigeria, the performance of banks has been the subject of several studies, as the country has implemented various policies aimed at promoting a cashless economy and enhancing financial inclusion. Some of these policies include the introduction of electronic payment systems, such as mobile banking, online banking, and point-of-sale terminals. Studies have shown that the adoption of these policies has positively impacted bank performance in Nigeria, leading to increased efficiency, profitability, and customer satisfaction[25,26].

However, some challenges still exist, such as the need for adequate infrastructure, the high cost of electronic payment systems, and the limited availability of financial services in rural areas. Addressing these challenges requires collaboration between various stakeholders, including the government, regulators, banks, and other financial institutions.

2.1.2.1 Brief History of Banking Industry in Nigeria

The business of modern banking was started in Nigeria in 1892 by the British West Africa to which the Standard Bank of Nigeria Limited, now First Bank of Nigeria Plc, is a successor bank. Prior to 1952, there were all kinds of speculative investors who started mushroom banks in Nigeria. About 1925, Barclays Bank acquired the Colonial Bank and opened a branch in Lagos. The National Bank of Nigeria Limited was established in 1933 while the African Continental Bank Limited came into being in 1947. The United Bank for Africa Limited was established initially as the British and French Bank in 1947 soon after the Second World War and took on its present name in 1961, while the Bank of the North was established in 1961. Most of the banks operated in Nigeria at this period were incorporated

abroad, and only came to do business in Nigeria, and as such, were basically foreign companies to register in Nigeria. All the other commercial and co-operative banks were established in the late sixties or early seventies, all of them being wholly owned by Nigerian Institutions and individuals. Basically their activities centre on commercial banking relating to the financing of exports and imports and not much on industries[35,36].

The business of merchant banking did not come into being in any meaningful form until 1961, when an outpost was opened in Nigeria by Hill, Samuel & Company, a United Kingdom Merchant Bank, under the name Philip Hill Limited. This same year, John Holt Limited operated a kind of finance firm in Nigeria around 1961 under the name of Nigerian Acceptances. The two companies later merged under the name – Nigerian Acceptances in 1969. In August 1973, United Dominions Corporation (Nigeria) Limited, a wholly owned subsidiary of UDT International which is in turn wholly owned by United Dominions Trust Limited, a hire purchases company, received approval to convert its hire purchase business into that of merchant banking in a bid to avert the contravention of the hire purchase regulations of 1968. In 1975, the Nigerian Industrial Development Bank Limited transformed ICON Securities into ICON Limited (Merchant Bankers). As a result of the Nigerian Enterprises Promotion Act of 1977, the City Bank went into voluntary liquidation and since then there were five Merchant Banks in Nigeria until recently, (especially in the 1990s), when new ones were opened. The number of banks in Nigeria as at June 2004 was 89. However, mergers and acquisitions through consolidation and recapitalization trimmed down the number from 89 to 25 in January 2006[36,37].

2.1.2.2 Size of the Bank

In the banking industry, bank size (Log of Total Assets) is typically used to measure possible economies of scale or diseconomies of scale. Depending on the size of the financial

institution, this variable adjusts for cost variations in product and risk diversification. If there are large economies of scale, the first element might result in a positive association between size and bank profitability. The second, however, could be detrimental if it causes lower credit risk and hence lower returns[38,39]. However, according to some studies, the banking firm's size can be increased to reduce marginal costs, particularly when markets expand[40,41,42]. Up to a certain point, an expanding bank's size may have a favorable effect on profitability. Beyond this limit, size may have a detrimental impact for bureaucratic and other factors. As a result, one can anticipate that the size-profitability relationship is non-linear[41].

The cost of delegating (as a corporation grows, so does its hierarchical bureaucracy), so also the huge firm's growing inability to recreate the powerful incentives of the residual income of an owner entrepreneur, serve as the firm's size limiters. This is due in part to the fact that a large firm's existence is more secure and less dependent on the decisions of any one individual, as well as the fact that intervention rights from a firm's center typically come with some type of income insurance to make up for the reduced responsibility, which reduces incentives[43]. Larger enterprises are found in wealthier nations or those with greater human capital averages. Thus, a positive correlation exists between firm size and economic development[44].

The size of a bank matters in terms of how profitable banks are. As it absorbs unexpected losses, increases banks capital base, and additionally used to enhance future performance by reinvestment of the retained earnings, the first bank's ability to sustain profits over time remains its principal line of defense[45]. When economies of scale are taken into account, bank size significantly influences the prediction of financial performance. A bank can increase efficiency, capital base, and market share while leveraging average cost per unit reduction[205].A larger bank is more effective in making strategic decisions and has greater

sway over its stakeholders, rivals, and efficiency. It is also more profitable than a small bank[206]. The distinctiveness of a bank's size in terms of assets, capital, deposits, and loans has an impact on the caliber of judgments made on the activities that a bank undertakes, which in turn has an effect on the soundness of financial performance[46].

In the banking industry, economies and diseconomies of scale are measured by a bank's size. The logarithm of a bank's total assets is used to calculate its size. When scale economies are taken into account, the size of the bank significantly influences the profitability estimate. A bank can increase efficiency, capital base, and market share while leveraging average cost per unit reduction. A larger bank is more effective in making strategic decisions since it has greater sway over its stakeholders, rivals, efficiency, and profitability in comparison to a smaller bank[47].The uniqueness of a bank's size in terms of assets, capital, deposits, and loans has an effect on the quality of judgments made about the activities that a bank undertakes, which ultimately has an effect on the strength of financial performance[48].

A bank's size can be broken down into two categories: vertical for activities and products, or horizontal for the distribution of a good or service among numerous companies. As a result, there is a perplexing, never-ending discussion over the ideal bank size, managerial complexity, and exposures related to activity ranges. Larger banks participate increasingly in market operations that are apart from their regular lending, which has recently increased and expanded significantly[49]. The developed world's paradigm change in activity has called for restrictions to lessen bank size exposure. As a result, larger banks frequently engage in more market-based operations, have lower capital bases, and are more sophisticated than small banks[207]. However, failures of larger banks typically have a greater effect on the banking system than failures of smaller banks[50].

The number of branches, capital base, number of client deposits, loans, and advances were utilized as the main factors in the study to determine the effect of bank size on the financial performance of Kenyan banks throughout the period of 2012 to 2016. A study shown that there is a correlation between bank size and financial performance, and larger banks have greater ROA than medium-sized and small banks[51].

Economies and diseconomies of scale associated to size are accounted for by bank size as a company property. As a financial firm gets bigger, economies of scale develop (usually measured by its total sales). Due to increased efficiency and the distribution of a higher volume of output over the business's fixed costs, the cost of production per unit of output tends to decrease when a smaller firm evolves into a larger one[52]. Larger banks appear to generate less profit than smaller ones, according to studies from Tunisia and Hong Kong. It demonstrates that banks with a significant retail deposit-taking network may not always enjoy a cost advantage[53].

The literature has employed bank size as a performance indicator[54]. According to several other studies, bank size and access to capital are closely associated, and relatively large banks with a strong deposit base are more likely to raise capital from the public at a lower cost. Higher capital is necessary for a bank to survive and function well, but the impact that capital has on a bank's size varies because having more capital, deposits, credits, or total assets does not guarantee that a bank will perform more profitably in the long run[55]. One of the crucial factors influencing how well DMBs operate is bank size. The bank's total assets function as a proxy for its size. Generally speaking, optimistic projections are made for the impact of bank size on profitability[56]. The market share and power of a larger bank are greater in terms of clients and investment volume. The size of the bank is typically used to measure possible scale economies or diseconomies in the banking industry. Performance and bank size are

strongly positively correlated[57]. Additionally, the study's findings show that a bank's size has a favorable impact on its profitability[57].

Bank size has an effect on its everyday operations[58]. The extent of risk that the bank's partners are exposed to is determined by its size, all other things being equal. Larger banks are more likely to get their debts returned than smaller banks since they have more resources to support themselves even during periods of economic crisis. It is determined that there is a direct correlation between a bank's size and its profits[13]. Big banks are therefore extremely profitable since they lower the cost of generating capital.

A banking institution's performance is significantly influenced by its ability to attract new clients, keep existing ones, and manage its assets and liabilities to maximize profits. Furthermore, it has been argued that the size of the institution, asset management, operational efficiency, and capital adequacy are all elements that enhance a bank's financial performance[21]. It is sufficient to state that banks that met the benchmark for the 2004 capital reform are not comparable in size to banks that did not, as mentioned by, in terms of assets and deposit liabilities[23]. Larger banks are able to diversify their commercial operations, which lowers risks and enables them to function with less capital and less steady funding, which can improve their market activity. In comparison to other small banks, large banks are able to operate in a totally diverse market sector, giving them a competitive edge in market activities that may necessitate incurring fairly high fixed costs but with the confidence that the bank will experience economies of scale. Market-based activities may result in unstable funding and increasing leverage because securities may be used as collateral in repos[52].

Therefore, profitability is a function of both internal and external factors, including ownership, stock market development, market concentration, and other macroeconomic factors, as well as internal factors that are primarily subjective by a bank's management

decisions and policy objectives, such as the level of liquidity, provisioning policy, capital adequacy, expense management, and bank size. However, banks with adequate capital make more money than those with inadequate capital[22]. Highly capitalized banks are less likely to experience insolvency and need less outside funding, particularly in emerging economies where it is challenging to obtain external borrowing. The size of each bank is determined in this study using a log of its total assets at the conclusion of the accounting year.

Whether bank size maximizes banks' earnings is one of the key questions explored in the literature. Numerous empirical findings supported the notion that size plays a role in determining bank profitability after the relationship between size and profitability was examined in some earlier studies. Different findings have been found after studying the literature on the connection between bank profitability and size. Size and profitability have been found to significantly positively correlate in the authors' earlier studies. Additionally, studies indicated that the size of the banks they looked into had a beneficial effect on their profitability[52]. Prior research on the effect of bank size on profitability primarily supported the notion that large banks can benefit from economies of scale that lower costs. Larger banks are more profitable than smaller ones, according to this efficiency theory, since economies of scale result in an increase in operational efficiency. By entering markets that small banks are unable to reach, large banks may also benefit from scope economies (lower risks and product diversification)[31].

Studies that looked at large banks' economies of scale also discovered diseconomies for them or economies of scale for smaller banks[23]. Particularly, only the smallest banks in Europe showed economies of scale, while the biggest ones showed diseconomies of scale[33]. According to some academics, banks could cut expenses by growing in size, but on the other side, banks might have a wide range of inefficiencies. Smaller banks may therefore be more

successful than larger ones[24].These studies suggest that the size of large banks may suggest a negative association between size and profitability, which is brought on by management expenses for very large businesses, administrative overhead, and agency expenses[28]. Additionally, several researches supported the idea that profits and bank size are negatively correlated, with larger banks achieving lower levels of profitability than smaller ones[13].

2.1.3 Economic Performance

Economic performance is a crucial indicator of a country's overall economic health, and economic growth is one of the most commonly used measures to evaluate it. In the case of Nigeria, the country has experienced fluctuations in economic growth over the years due to various factors, including its reliance on oil exports and domestic political instability[54]. The cashless policy was introduced in Nigeria in 2012 as a means of reducing the amount of physical cash in circulation and promoting electronic payment systems. The policy aims to increase the efficiency of payment transactions and reduce the costs associated with cash handling, such as security and transportation costs[53]. This policy was expected to increase the efficiency of the payment system, reduce the cost of transactions, and promote financial inclusion and contribute to economic growth by increasing financial inclusion, improving transparency, and boosting tax revenue.

Studies have shown mixed results on the impact of the cashless policy on Nigeria's economic performance. While some studies have found that the policy has had a positive impact on the economy, others have found the opposite. One of the main challenges faced by the policy is the low level of financial inclusion in Nigeria, which makes it difficult for many Nigerians to access electronic payment systems. The cashless policy has had both positive and negative impacts on the Nigerian economy. On the positive side, the policy has led to an increase in the use of electronic payment channels such as mobile banking, online banking, and card

payments. This has resulted in a reduction in the cost of transactions, increased efficiency of the payment system, and improved financial inclusion. The policy has also helped to reduce the incidence of cash-related crimes such as armed robbery and money laundering. On the negative side, the policy has faced challenges such as resistance from some members of the public who prefer cash transactions and the high cost of electronic payment infrastructure. Additionally, the policy has been criticized for having a negative impact on the informal sector, which relies heavily on cash transactions[54].

Another significant challenge is the low level of trust in the financial system, which has led to a reluctance among many Nigerians to embrace electronic payment systems fully. There are also concerns about the high cost of transactions associated with electronic payment systems, which may be prohibitive for many Nigerians[55]. In terms of its impact on economic growth, the cashless policy has been seen to have mixed results. On one hand, the policy has been credited with promoting financial inclusion, which can help to increase economic growth by providing access to credit and other financial services. On the other hand, the policy has been criticized for reducing the velocity of money, which is the rate at which money changes hands in the economy. This reduction in velocity can lead to a slowdown in economic growth[24].

Despite these challenges, the cashless policy has the potential to contribute significantly to Nigeria's economic growth if implemented effectively. The policy can help to increase financial inclusion, improve transparency, and reduce corruption by reducing the use of physical cash in transactions[24]. It can also help to improve the efficiency of payment transactions, reducing costs associated with cash handling and promoting a more efficient financial system.

2.1.4 Cashless Policy and the Nigeria Economy

The Nigerian economy has experienced significant changes with the introduction of the cashless policy. The policy was introduced in the early 2000s to encourage the use of electronic payment systems in the country, reduce the amount of physical cash in circulation, and improve financial inclusion. Although the policy has been met with some challenges, it has also had some meaningful impacts on the Nigerian economy[56].

Among the many benefits of cashless policy to the Nigerian economy is that it has reduced the cost of cash handling for banks, businesses, and the government. Cash handling costs include expenses associated with printing, transporting, storing, and securing physical cash. By reducing the amount of physical cash in circulation, the cashless policy has helped to reduce these costs. The policy has led to an increase in the adoption of electronic payment channels, such as mobile money, internet banking, and POS terminals[57]. This has made it easier for individuals and businesses to make payments and carry out transactions without the need for physical cash. It has also helped to improve financial inclusion in Nigeria. With more electronic payment channels available, individuals who were previously excluded from the banking system due to lack of access to physical bank branches now have the opportunity to open and operate bank accounts. This has helped to promote financial inclusion and improve access to credit and other financial services[58].

In addition, the use of electronic payment systems has made it easier for businesses to manage their finances, track transactions, and reduce the risk of fraud and theft. Similarly, the policy has helped to reduce the incidence of cash-related crimes, such as armed robbery and theft. With less physical cash in circulation, there is less incentive for criminals to target individuals and businesses carrying large amounts of cash.

However, there are still some challenges that need to be addressed. For example, network reliability and fraud remain major concerns, and more needs to be done to improve the security of electronic payment channels. There is also a need for greater public education to promote the adoption of electronic payment channels and ensure that individuals and businesses are aware of the risks and benefits of the policy.

2.1.4.1 Challenges of Cashless System of Payment in Nigeria

The introduction of a cashless system of payment in Nigeria has been met with several challenges, according to experts. These challenges range from network reliability to fraud, security, charges, system stability, literacy issues, network operator provider, inadequate infrastructural development, and social and security threats[28,29]. Network reliability is a major issue in Nigeria, as the instability of Point of Sale (PoS) networks across all operators poses a problem, particularly when money sent is not received when needed. This can be a barrier to usage and can affect customer satisfaction. Fraud is also a prevalent issue among ATM scammers, and this is likely to occur on the point of sale channel. As such, security concerns have been raised about trust in the agents providing cash-in and cash-out services. This lack of trust could be risky for customers and agents if there is no form of security in place[30].

Determining charges is another challenge facing the cashless system of payment in Nigeria. There are different factors that could determine charges such as location, amount, and monthly charges or access fees. However, there is a need for a transparent and fair system for determining charges to prevent exploitation of customers. The fear of the unknown is also a major challenge, as the current banking crisis has not helped in allaying the public's fear[29]. Literacy issues also pose a significant challenge to the cashless system of payment in Nigeria. Not all targeted populations are literate, and some do not know how to make use of e-banking. This could lead to exploitation by dubious business people who might see an opportunity to

deduct more than what the person consumes. There is also the challenge of inadequate infrastructural development, particularly energy (power), which puts a lot of constraints on the operations of e-payment machines.

Social and security threats are also significant challenges facing the cashless system of payment in Nigeria. Since 2011, Nigeria has been faced with social and security problems, and the amount of insecurity in banks and other financial institutions may jeopardize the e-payment program in Nigeria. Security concerns were raised about trust in the agents providing cash-in and cash-out services. This could pose a risk for customers and agents if there is no form of security. There is also the challenge of determining charges for cashless payments. The charges could be based on location, amount, and monthly access fees. This poses a challenge as there needs to be a balance between affordability and profitability for service providers[30].

The fear of the unknown is a major concern for the adoption of cashless payments. The current banking crisis in Nigeria has not helped in allaying the public's fear. Additionally, literacy issues are also a challenge as not all targeted populace is literate, and some do not know how to make use of e-banking. This could lead to unscrupulous individuals exploiting vulnerable users.

2.2 Theoretical Framework

Based on the empirical literature, this study identified three theoretical framework; Technology Acceptance Model and Diffusion of Innovation (DOI) Theory, The Theory of the monetary stages of development, The Theory of Payment System Efficiency and Central

Bank Monopoly. This research adopts the Theory of Monetary stages of development. This theory was adopted because it emphasizes economic growth which is a major variable of this research.

2.2.1 Technology Acceptance Model

Technology Acceptance Model (TAM) explains how people come to accept and use technology. TAM was first proposed by Fred Davis in 1986 to understand user acceptance of computer technology in the workplace. Since then, it has been widely applied in various fields, including healthcare, education, e-commerce, and online services[59]. TAM is based on the Theory of Reasoned Action (TRA) developed by Martin Fishbein and Icek Ajzen in 1975. TRA emphasize that individuals' behavior is determined by their attitudes and subjective norms. TAM extends TRA by adding perceived usefulness and ease of use as determinants of behavior intention and actual use of technology[60].

The theory proposed that perceived usefulness is the degree to which a person believes that using a technology will improve their performance or productivity. Perceived ease of use is the degree to which a person believes that using a technology will be free of effort. These two factors determine the person's attitude towards the technology and their intention to use it. Actual usage behavior is influenced by the individual's perceived usefulness and ease of use[33].TAM has been widely applied in various fields to study user acceptance of technology. For example, in healthcare, TAM has been used to investigate patients' acceptance of telemedicine technologies. In education, TAM has been used to study students' acceptance of e-learning platforms. In e-commerce, TAM has been used to examine consumers' acceptance of online shopping[61].

Proponents of TAM argue that it provides a useful framework for understanding the factors that influence user acceptance of technology. It is easy to use, and its constructs are well-

defined, making it easy to measure and test. It has been tested and validated in various contexts, providing evidence of its robustness and applicability[62].TAM has however been criticized that it is too simplistic and ignores other important factors that influence user acceptance of technology, such as social influence, cultural factors, and organizational context. It also assumes that individuals make rational decisions based on perceived usefulness and ease of use, which may not always be the case. TAM also does not account for the dynamic nature of technology adoption and use, which can change over time[63].

2.2.2 Diffusion of Innovation (DOI) Theory

The Diffusion of Innovation (DOI) theory explains how new ideas, technologies, or products are adopted and spread throughout a society or organization. The theory was first introduced by Everett Rogers in his book "Diffusion of Innovations" in 1962[64].The DOI theory proposes that the adoption and diffusion of innovation follow a five-stage process: knowledge, persuasion, decision, implementation, and confirmation. The theory suggests that innovation is communicated through certain channels over time, and the rate of adoption is influenced by various factors, including the innovation's perceived attributes, the characteristics of the adopters, and the social and cultural context in which the innovation is introduced[65].

According to the DOI theory, there are five categories of adopters: innovators, early adopters, early majority, late majority, and laggards. Innovators are the first to adopt new ideas, technologies, or products, while laggards are the last to do so. The theory suggests that the rate of adoption increases as the innovation is accepted by more people within a social system. The DOI theory has been applied in various fields, including marketing, healthcare, agriculture, and education. In marketing, the DOI theory is used to predict consumer adoption of new products, while in healthcare, it is used to promote the adoption of new medical technologies. The DOI theory has also been used in agricultural development to promote the

adoption of new farming techniques, and in education to promote the adoption of new teaching methods and technologies[66].

Despite its widespread application, the DOI theory has been criticized for its focus on the individual adopter and its lack of attention to the role of organizations and social networks in the diffusion of innovation. Critics argue that the DOI theory does not adequately account for the influence of power, politics, and institutional factors on the adoption and diffusion of innovation. Additionally, some have argued that the DOI theory is too focused on the linear, sequential process of innovation adoption and diffusion, and does not account for the complexities of social systems and cultural contexts in which innovation is introduced[67].

2.2.3 The Theory of the Monetary Stages of Development

The Theory of the Monetary Stages of Development (TMSD) was proposed by the economist Milton Friedman. It suggests that there are distinct stages of development through which a country's monetary system passes. According to the theory, these stages include commodity money, metallic money, paper money, and electronic money[68]. Commodity money refers to the use of physical objects with inherent value, such as gold or silver, as a medium of exchange. Metallic money involves the use of coins made from precious metals as a medium of exchange. Paper money refers to the use of banknotes as a medium of exchange, and electronic money involves the use of electronic payment systems for transactions[69].

The proponents of TMSD argue that the use of electronic money represents the final stage of monetary development, as it offers a more efficient and secure means of payment. They suggest that the adoption of electronic money can lead to increased economic growth and improved financial stability, as it reduces the need for physical currency and lowers transaction costs. The application of TMSD can be seen in the promotion of cashless policies by governments and financial institutions. These policies aim to encourage the use of

electronic payment systems such as ATM, POS, Internet Banking, and Mobile Banking. The goal is to increase financial inclusion, reduce transaction costs, and promote economic growth[70].

However, there are criticisms of TMSD as it relates to the promotion of cashless policies. One criticism is that the adoption of electronic payment systems may not be feasible in all regions, particularly those with limited access to technology or unreliable network infrastructure. Another criticism is that the widespread adoption of electronic payment systems may lead to the exclusion of certain groups, particularly those without access to bank accounts or digital devices[71]. In terms of bank and economic performance, the application of TMSD suggests that the adoption of electronic payment systems can lead to improved efficiency and financial stability for banks, as it reduces the need for physical currency and lowers transaction costs. It can also lead to increased economic growth as electronic payment systems facilitate faster and more efficient transactions, leading to increased productivity and investment.

However, the success of these policies is dependent on the development of reliable network infrastructure and the availability of digital devices, as well as addressing the concerns of exclusion for certain groups[72]. The Technology Acceptance Model (TAM) provides a theoretical framework to understand how users accept and use new technologies. In the context of cashless policy, the TAM explain the adoption of electronic banking technologies (EBT) as a factor that bank performance and in turn affects economic growth[73]. The TAM framework consists of two main constructs: perceived usefulness (PU) and perceived ease of use (PEOU), which determine users' attitude towards the technology and their behavioral intention to use it. PU refers to the degree to which a person believes that using the technology will enhance their performance or make their life easier. PEOU refers to the

degree to which a person believes that using the technology will be effortless and require minimal cognitive effort[74].

In the context of cashless policy, PU can be measured by the extent to which customers perceive EBT as beneficial to their financial transactions, such as facilitating faster transactions, reducing the risk of theft, and increasing accessibility to financial services. PEOU can be measured by the extent to which customers perceive EBT as easy to use and learn, such as having user-friendly interfaces, ease of access, security, and ease of transactions[75]. The adoption of EBT by bank customers can in turn affect bank performance, which can be measured by the bank market index[75]. The bank market index is a composite measure of a bank's profitability, liquidity, efficiency, and market share. The adoption of EBT can lead to increased profitability through cost reduction and increased revenue from service charges. It can also improve liquidity through faster and more efficient processing of transactions, as well as attract new customers and retain existing ones, thereby increasing market share.

The performance of the economy measured by economic growth is the increase in a country's output over time. A well-performing banking sector can contribute to economic growth by providing credit to productive sectors, mobilizing savings, and facilitating international trade. In addition, an efficient banking sector can increase the level of financial intermediation and reduce transaction costs, which can promote investment and growth[75]. Furthermore, the relationship between Bank Market Index and economic growth can be explained by the fact that banks play a critical role in the economy by providing loans, managing financial assets, and facilitating transactions. Therefore, better bank performance can lead to increased investment and economic growth. This relationship is described in the framework below.

2.3 Review of Empirical Studies

The literature on cashless policy and bank performance with its implications on the economy has attracted the attention of scholars in recent years. One study investigated the impact of gender on technology adoption and found that men and women have different rates of computer technology adoption[76]. Another study used a descriptive survey to examine the difference in information processing between men and women and how it affects technology acceptance[77]. The use of time series data to investigate the determinants of the adoption and influence of e-commerce involving 90% of the retail banks in Kenya was carried out. The study revealed a shift in the importance attached to some e-banking drivers between years 2005 and 2009[78]. Additionally, a researcher employed the diffusion of innovation (DOI) theory to examine the adoption of Automatic Teller Machines in Nigeria and found that constraints such as relative advantage, complexity, observability, compatibility, and trialability were positively related to the attitude towards the use of ATM cards in Nigeria[45]. Using a cluster sampling technique, a scholar examined the impact of electronic banking on the Nigerian banking system and found that an effective electronic banking system has improved customer relationship and satisfaction[79].

Scholars have examined Cashless Policy for Business Purpose and the Performance of Deposit Money Banks in Nigeria. The study aims to investigate the impact of cashless policy on the performance of deposit money banks (DMBs) in Nigeria. The study uses secondary data obtained from the Central Bank of Nigeria and employs regression analysis to examine the relationship between cashless policy and the performance of DMBs. The study finds that cashless policy has a positive and significant impact on the performance of DMBs in Nigeria, and recommends that the government should continue to implement cashless policy to further improve the performance of DMBs[80].

Similarly, other scholars investigated the Cashless Economy in Vietnam - The Situation and Policy Implications. The study examines the situation of cashless economy in Vietnam and discusses its policy implications. The study uses both secondary and primary data obtained from various sources, including surveys and interviews. The study finds that the adoption of cashless payment in Vietnam is still low, and identifies the lack of infrastructure and limited digital literacy as the main barriers to its adoption. The study recommends that the government should invest in infrastructure and education to promote the adoption of cashless payment in Vietnam[81].

Another scholar used SPSS to study the acceptance of e-banking in Nigeria and found that factors such as age, educational background, income, perceived benefits, perceived ease of use, perceived risk, and perceived enjoyment significantly influence the acceptance of e-banking[82]. A qualitative survey conducted revealed that Nigerian bankers perceive electronic banking as a tool for minimizing inconvenience, reducing transaction costs, altering customers' queuing pattern, and saving customers' banking time[83]. On the other hand, a study employed theories to investigate the implications of cashless banking in Nigeria on the economy and found that it would boost the economy in the long run[84]. Similarly, another used technology acceptance theory to determine the characteristics that affect the acceptance of retailing technologies, finding a positive relationship between education, income, exposure to mass communication, and the adoption of Electronic Funds Transfer (EFT)[85]. Meanwhile, scholars also conducted a qualitative survey to ascertain the influence of communication source and mode on consumer adoption of technological innovations in Nigeria, discovering that the older the adopters, the lower the rate of technology adoption[15]. Furthermore, a similar study used consumer acceptance theory to investigate customers' perceptions of security indicators in online banking sites in Benin, Nigeria, and found that security indicators were

not very effective at alerting and shielding users from revealing sensitive information to fraudulent e-banking sites in Nigeria[84].

In a study that utilized panel data from the Central Bank of Nigeria and the fixed effect model, the impact of the cashless policy on deposit money banks (DMBs) was investigated. The results revealed that the cashless policy had a positive and significant effect on the profitability and efficiency of DMBs. It was suggested that the government should continue promoting the adoption of the policy. In another study that employed regression analysis using secondary data obtained from selected DMBs' annual reports, the impact of the cashless policy on the performance of DMBs in Nigeria was examined. The findings showed that the cashless policy had a positive impact on DMBs' performance[9]. A survey method was used in a study that aimed to determine the impact of information technology (IT) on banks' performance in Nigeria. The sample size was 200 respondents from ten banks, and the results indicated that IT had a significant positive impact on banks' performance. The study recommended that banks should invest more in IT to enhance their performance[64].

Another study was conducted to evaluate the effect of e-banking on the financial performance of deposit money banks in Nigeria, using panel regression analysis with a sample size of 14 deposit money banks. The study found that e-banking had a significant positive effect on the financial performance of deposit money banks in Nigeria. It was recommended that banks should invest more in e-banking to enhance their financial performance[70].

A study also used a survey research design to analyze data obtained from respondents, employing descriptive and inferential statistics. The results indicated that the policy has led to a reduction in the volume of cash transactions and an increase in the adoption of electronic payment systems, leading to an improvement in the payment system. The study

recommended that the Central Bank of Nigeria should continue promoting electronic payment systems while enhancing the security of the payment system[89].

Another study conducted in Nigeria used regression analysis to examine the relationship between cashless policy and DMB performance. The study found that the policy had a positive and significant impact on DMB performance and recommended its continued implementation to further improve performance. In Vietnam, a study conducted using both secondary and primary data found that the adoption of cashless payments was still low due to infrastructure and digital literacy barriers, recommending that the government invest in infrastructure and education to promote adoption[68].

A study in Nigeria found that factors such as age, educational background, income, perceived benefits, perceived ease of use, perceived risk, and perceived enjoyment significantly influence the acceptance of e-banking. Qualitative surveys revealed that Nigerian bankers perceive electronic banking as a tool for minimizing inconvenience, reducing transaction costs, altering customers' queuing pattern, and saving customers' banking time[9].

Furthermore, another study employed theories to investigate the implications of cashless banking in Nigeria on the economy and found that it would boost the economy in the long run. Similarly, using technology acceptance theory, another study determined the characteristics that affect the acceptance of retailing technologies and found a positive relationship between education, income, exposure to mass communication, and the adoption of Electronic Funds Transfer (EFT)[45].

Scholars conducted a qualitative survey to investigate the influence of communication source and mode on consumer adoption of technological innovations in Nigeria. The study discovered that the older the adopters, the lower the rate of technology adoption. Another study used consumer acceptance theory to investigate customers' perceptions of security

indicators in online banking sites in Benin, Nigeria. The study found that security indicators were not very effective in alerting and shielding users from revealing sensitive information to fraudulent e-banking sites in Nigeria[7].

One study aimed to examine the effect of e-banking on the profitability of commercial banks in Ethiopia. The study used regression analysis, and the sample size was five commercial banks. The study found that e-banking had a significant positive effect on the profitability of commercial banks in Ethiopia. The study recommended that commercial banks invest more in e-banking to enhance their profitability. Another study investigated the impact of e-banking instruments on the performance of deposit money banks in Nigeria using the Camel evaluation approach. The study used a secondary data analysis approach. The study found that e-banking instruments had a positive impact on the performance of deposit money banks in Nigeria. The study recommended that banks adopt e-banking instruments to enhance their performance[13].

In Ghana, a researcher examined the impact of digital banking on the profitability of deposit money banks. The study used multiple regression analysis, and the sample size was six deposit money banks in Ghana. The study found that digital banking had a significant positive impact on the profitability of deposit money banks in Ghana. The study recommended that banks invest more in digital banking to enhance their profitability. Similarly, in Nigeria, a study was carried out to evaluate the impact of e-banking on the profitability of banks in Nigeria. The study used a survey method, and the sample size was 100 respondents from ten banks. The study found that e-banking had a significant positive impact on the profitability of banks in Nigeria. The study recommended that banks invest more in e-banking to enhance their profitability[39].

Cashless Policy and the Performance of Deposit Money Banks in Nigeria was also investigated to determine the impact of cashless policy on the performance of DMBs in Nigeria. The study uses panel data obtained from the Central Bank of Nigeria and employs the fixed effect model to examine the relationship between cashless policy and the performance of DMBs. The study finds that cashless policy has a positive and significant impact on the profitability and efficiency of DMBs in Nigeria, and recommends that the government should continue to promote the adoption of cashless payment to further improve the performance of DMBs[46].

Another study aims to examine the impact of cashless policy on the performance of DMBs in Nigeria. The study uses secondary data obtained from the annual reports of selected DMBs and employs regression analysis to examine the relationship between cashless policy and the performance of DMBs. The study finds that cashless policy has a positive impact on the liquidity, profitability, and efficiency of DMBs in Nigeria, and recommends that the government should continue to promote the adoption of cashless payment to further improve the performance of DMBs[65].

Impact of Cashless Policy on Bank's Profitability: Evidence from a Developing Economy was examined with the aim of determining the impact of cashless policy on the profitability of banks in a developing economy. The study uses secondary data obtained from the Bangladesh Bank and employs regression analysis to examine the relationship between cashless policy and the profitability of banks. The study finds that cashless policy has a positive and significant impact on the profitability of banks in Bangladesh, and recommends that the government should continue to promote the adoption of cashless payment to further improve the profitability of banks[48]. In a related study, the Impact of Cashless Policy Tools on Money Circulating Outside Nigerian was investigated using secondary data obtained from

the Central Bank of Nigeria and employs regression analysis to examine the relationship between cashless policy tools and the amount of money circulating outside Nigeria. The study finds that cashless policy tools have a negative impact on the amount of money circulating outside Nigeria, and recommends that the government should implement measures to mitigate the negative impact of cashless policy tools on the amount of money circulating outside Nigeria[49].

The diffusion innovation theory was used in a study to examine the impact of demographic characteristics on the adoption of electronic banking. The study study found that income and education have a positive effect on adoption, while the impacts of other demographic characteristics are less clear[37]. A related study also utilized consumer acceptance theory to determine the acceptance of online banking. It was found that attitude towards online banking and its usage is significantly affected by prior computer and technological experience, personal banking experience, and reference group influence[16].

Some scholar also studied cashless policy and financial performance of deposit money banks in Nigeria with the aim to investigate the effect of the cashless policy on the financial performance of Deposit Money Banks in Nigeria. The study used a descriptive research design and secondary data from annual reports and accounts of the Deposit Money Banks in Nigeria. The findings revealed that the cashless policy had a positive impact on the financial performance of Deposit Money Banks in Nigeria, as seen in their increased profitability, asset base, and deposit liabilities. The study concluded that the cashless policy had significantly influenced the financial performance of Deposit Money Banks in Nigeria positively. Therefore, the authors recommend that the Central Bank of Nigeria should continue to pursue the cashless policy initiative and improve on its implementation to sustain its positive impact on the financial performance of Deposit Money Banks[50].

A research was also conducted to a study E-Payment Technology Effect on Bank Performance in Emerging Economies - Evidence from Nigeria. The study aimed to assess the impact of e-payment technology on bank performance in Nigeria. The study used a sample of 10 Deposit Money Banks in Nigeria, and data were analyzed using descriptive statistics, correlation analysis, and regression analysis. The findings revealed that e-payment technology had a significant positive effect on bank performance, especially in terms of increased customer deposits, loan portfolios, and profitability. The study concluded that e-payment technology had improved the performance of Deposit Money Banks in Nigeria and recommended that banks should continue to embrace e-payment technology to enhance their performance and competitiveness in the industry[51].

A study titled "Effect of Cashless Policy on Deposit Money Banks Profitability in Nigeria Effect of Cashless Policy on Deposit Money Banks Profitability in Nigeria," aimed to examine the impact of the cashless policy on the profitability of Deposit Money Banks in Nigeria. The study used a sample of 14 Deposit Money Banks in Nigeria, and data were analyzed using regression analysis. The findings revealed that the cashless policy had a significant positive effect on the profitability of Deposit Money Banks in Nigeria. The study concluded that the cashless policy had improved the profitability of Deposit Money Banks in Nigeria and recommended that the Central Bank of Nigeria should sustain the implementation of the cashless policy initiative to boost the profitability of Deposit Money Banks further[19].

Similar study empirically assessed the effects of cashless policy on financial inclusion in the Nigerian emerging economy. The study aimed to evaluate the impact of the cashless policy on financial inclusion in Nigeria. The study used a survey research design, and data were collected using a structured questionnaire from a sample of 500 bank customers in Nigeria.

The findings revealed that the cashless policy had improved financial inclusion in Nigeria by increasing the adoption of electronic payment channels and promoting financial literacy among bank customers. The study concluded that the cashless policy had positively impacted financial inclusion in Nigeria and recommended that the government should continue to invest in financial literacy programs and promote the adoption of electronic payment channels to enhance financial inclusion in Nigeria[53].

Financial Innovation and Performance of Deposit Money Banks in Nigeria was also studied by some scholars with the aim of examining the relationship between financial innovation and the performance of Deposit Money Banks in Nigeria. The study used a sample of 14 Deposit Money Banks in Nigeria, and data were analyzed using regression analysis. The findings revealed that financial innovation had a significant positive effect on the performance of Deposit Money Banks in Nigeria. The study concluded that financial innovation was essential for improving the performance of Deposit Money Banks in Nigeria and recommended that banks should embrace financial innovation to enhance their performance and competitiveness in the banking industry[54].

Meanwhile, other scholars examined the Effect of Cashless Policy on the Financial Performance of Selected Deposit Money Banks (DMBs) in Nigeria with the aim to evaluate the effect of the cashless policy on the financial performance of selected DMBs in Nigeria. The study employed descriptive analysis and regression analysis on data obtained from the annual reports and financial statements of the banks for a period of ten years. The findings show that the cashless policy has a positive effect on the financial performance of the selected DMBs in Nigeria. The study concludes that the cashless policy is an effective tool for improving the financial performance of DMBs in Nigeria[55].

Furthermore, cashless policy performance on commercial banks in Nigeria was studied with the aim of investigating the impact of the cashless policy on the performance of commercial banks in Nigeria. The study employed descriptive analysis and regression analysis on secondary data obtained from the annual reports and financial statements of the banks. The findings reveal that the cashless policy has a positive impact on the performance of commercial banks in Nigeria. The study recommends that commercial banks should continue to invest in technology and expand their digital payment platforms to enhance the effectiveness of the cashless policy[86].

An overview of the cashless policy in Nigeria was provided by a researcher to explore the policy objectives, benefits, and challenges. The study concludes that the cashless policy is a strategic initiative aimed at enhancing the payment system in Nigeria. However, the study notes that there are challenges that need to be addressed, such as the lack of infrastructure and low levels of financial literacy among the populace[87].

2.4 Conceptual Framework

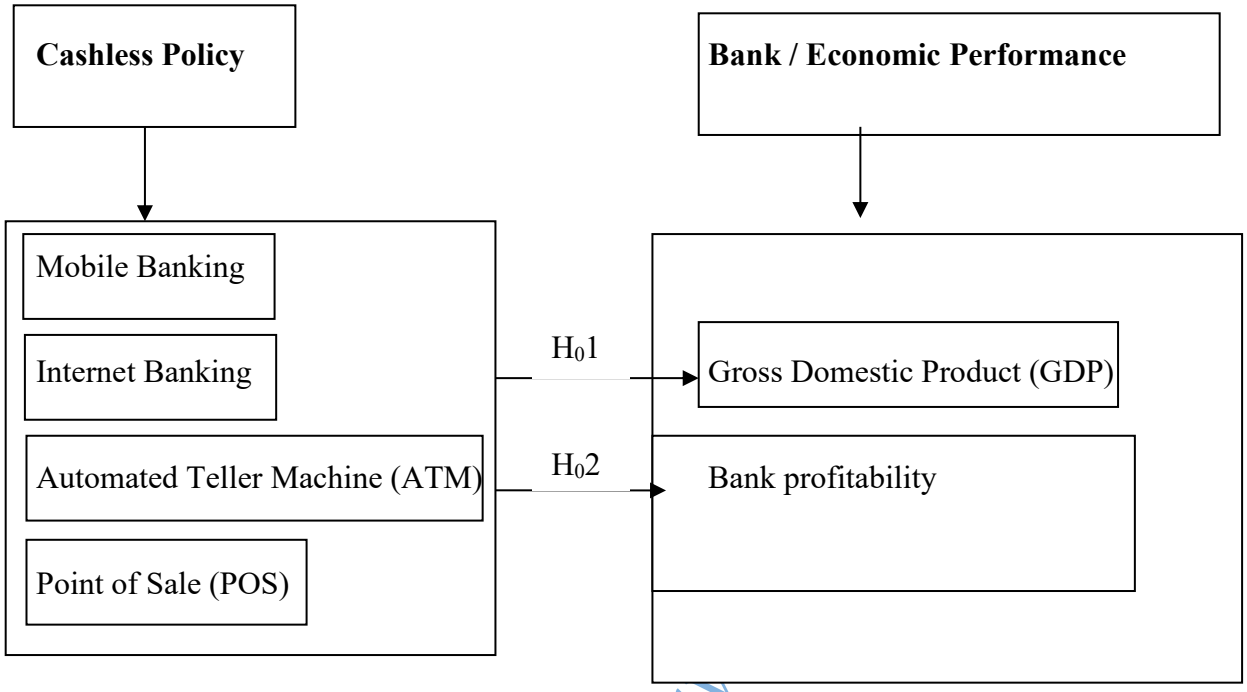

Figure 2.1: Research Conceptual Model

Source: Researcher's Conceptual Model, 2023

The conceptual framework relating the objectives of the study with the study hypotheses is presented in this section. This model shows the relationship between the dependent and the independent variables. Cashless Policy is the independent variable while Economic Performance is the dependent variable. Mobile banking, internet banking, ATM, POS are the sub variables/measures of cashless policy, while gross domestic product (GDP), and consumption are the sub variables/measures of economic performance.

2.5 Summary of Gaps in Literature Reviewed

From the existing literature reviewed, on cashless policies and their impact on banks and economic performance, it was observed that there is a lack of consensus on the specific impact of cashless policies on deposit money banks (DMBs) in Nigeria, with some studies suggesting a positive impact while others indicate negative or no significant impact. Also, there is a dearth of studies that investigate the impact of cashless policies on the wider economic performance in Nigeria. Additionally, while some studies have investigated the factors that influence the adoption and usage of e-banking services, there is a need for more research on the factors that hinder the acceptance of cashless policies in Nigeria, particularly among low-income earners and those in rural areas.

Studying the impact of cashless policy on bank performance and economic performance in Nigeria is important because it will help in accessing the effectiveness of the cashless policy introduced by the Central Bank of Nigeria (CBN) and the determine if it achieved its purpose to reduce the cost of banking services, promote financial inclusion, and drive economic growth. In addition, with the increasing adoption of digital technologies, there is a need to understand how cashless policies can improve the efficiency of the financial system and promote economic development.

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Chapter Three

Methodology

This chapter presents the methodology that was used to achieve the research objectives. It presents the model specification, estimation techniques, description, sources of data and variable measurement.

3.1 Model Specification

The objective of this study was to examine Banks cashless policy and economic performance in Nigeria. To achieve this objective, an estimation model was adapted from the study of a scholar who examined similar topic[1]. The model express bank performance as a function of cashless policy (electronic banking technologies). Incorporating the variables of this study, the model can be expressed as:

$$BMI = f(ATM, POS, MB, IB) \quad (3.1)$$

Integrating other macroeconomic variables in to the model which included monetary policy variables as identified by some studies; INT and LR as well as YG which measures economic performance as depicted in the framework of this study having a bi-directional link with performance of banks[2,3]. Thus, equation 3.1 can be re-expressed mathematically as;

$$BMI = ATM + POS + MB + IB + LR + INT + YG \quad (3.2)$$

In order present these variables in estimable form, the natural log of the variables BMI, ATM, POS, MB, and IB were taken. Hence, the equation 3.2 can be expressed statistically;

$$LBMI_t = \alpha_0 + \alpha_1 LATM_t + \alpha_2 LPOS_t + \alpha_3 LMB_t + \alpha_4 LIB_t + \alpha_5 LR_t + \alpha_6 INT_t + \alpha_7 YG_t + \varepsilon_t \quad (3.3)$$

Where,

LMBI = log of bank market index

LATM = log of the values of ATM transactions

LPOS = log of the values of POS transactions

LMB = log of the values of Mobile Banking transactions

LIB = log of the values of Internet Banking transactions

LR = Liquidity Ratio

INT = Interest Rate

YG = GDP Growth Rate

t = Time Dimension

ε = Error term

α_0= Intercept

α_{1-7} = Coefficient of the independent variables

In order to achieve the first objective of this study which seek to examine the effect of cashless policy on the performance of banks in Nigeria, the equation 3.3 was estimated.

For the second objective which is to investigate the effect of cashless policy on economic performance in Nigeria. Equation 3.3 was modified and re-expressed as follows:

$$YG_t = \alpha_0+\alpha_1 LATM_t+\alpha_2 LPOS_t+\alpha_3 LMB_t+\alpha_4 LIB_t+\alpha_5 LR_t+\alpha_6 INT_t+\alpha_7 LBMI_t+\varepsilon_t \quad (3.3)$$

Where YG is GDP growth rate, a measure of economic performance

3.2 Estimation Procedure

To attain the study's objectives using the designated model, the variables undergo a stationary test using the Augmented Dickey-Fuller test. This test employs non-parametric statistical techniques to address the serial correlation in the error terms, without the need for lagged difference terms.

The study adopts the Autoregressive Distributed Lagged (ARDL) model to accomplish its objectives. The ARDL bound test is used to examine the cointegration relationship between the study's variables. The ARDL estimation method is preferred because it can be applied when the model's variables are integrated at order one [I(1)] or a combination of one [I(1)] and order zero [I(0)]. Additionally, it can be employed even with a small sample size and irrespective of whether some of the regressors are endogenous.

3.3 Description and Measurement of Data

This study seeks to examine the Banks cashless policy and economic performance in Nigeria. There are two dependent variables in this study which are bank performance and economic performance. Bank performance is measure by the bank performance index (BMI). This index is based on the market capitalization methodology. It measures the overall performance of the banking sector, it provides a quantitative measure of the performance of the banking industry, and are therefore considered a financial performance measure. Economic performance on the other hand is measured by the growth of GDP in the economy which is the percentage increase in the value of goods and services produced by a country's economy over a certain period of time. Cashless policy which is the independent variable is measured by the values of transaction performed using each of ATMs, POS, Internet Banking and Mobile Banking. Other macroeconomic variables include Liquidity ratio and interest rate which were used to factor in policy regulation of money flow in the economy.

3.4 Data Requirement and Sources

The data required for this study as stated above are secondary data. The data were sourced from the Central Bank of Nigeria statistical bulletin and publications for cashless policy transactions macroeconomic variables. While data for bank market index was sourced from

Nigerian Exchange Limited (NGX Group). The data is an aggregate data showing the value of electronic banking and the overall performance of deposit money banks in Nigeria.

Endnotes

1. O., Fabian, O., Emeka, & C.J., Okeke. *E-naira digital currency and financial performance of listed deposit money banks in Nigeria.* **International Journal of Trend in Scientific Research and Development,** 6(2), 2022, pp.222-229.

2. D.B., Haralayya, & P.S., Aithal. *Analysis of bank performance using Camel approach.* In Analysis of Bank Performance Using Camel Approach: Haralayya, Dr. Bhadrappa| uAithal, PS. [Sl]: 2021.

3. K., Goyal, & S., Kumar. *Financial literacy: A systematic review and bibliometric analysis.* **International Journal of Consumer Studies,** 45(1), 2021, pp.80-105.

Chapter Four

Results and Discussion of Findings

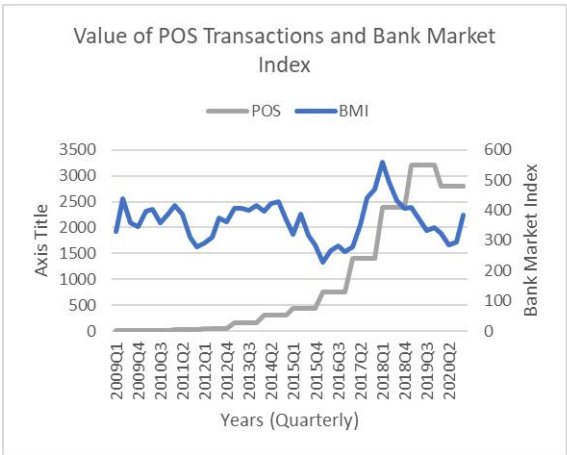
This chapter presents the empirical results and discussion of findings with respect to the objectives of the study. The discussion in this chapter starts with the preliminary analysis consisting of descriptive statistics, trend and correlation analysis followed by the pre-estimation tests, where the unit root and co-integration tests were carried out. Some diagnostic tests were also provided using some test statistics in order to ensure that the estimated results are reliable for meaningful inferences.

4.1 Preliminary Analysis

The preliminary analysis presents the trends, descriptive statistics and correlation analysis of the variables for empirical analysis based on the objectives of the study. The facts of the trends of cashless policy, bank performance, economic growth and other monetary policy variables in Nigeria are presented using trends and summary statistics. Meanwhile, the data for this study are presented in appendix I.

4.1.1 Graphical Trend Analysis of Variables

The trends and pattern of cashless policy variables, bank performance and economic performance in Nigeria are discussed with the figures 1 to 4. In exploring the trends, in order to show the behaviour of the variables over the period under investigation each of the four indicators of the cashless policy are presented with the performance of banks in Nigeria on one chart and with economic performance on another chart.



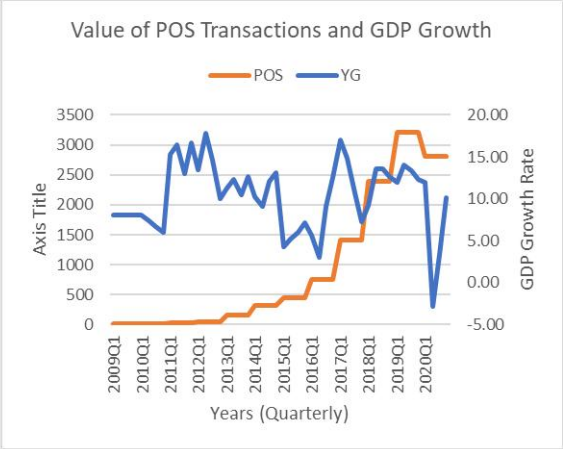


Figure 4.1a: Trend Analysis of the Value of POS Transaction and Bank Performance in Nigeria.

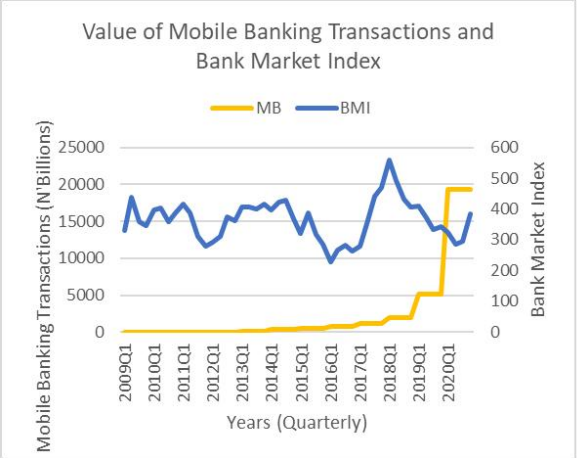
Figure 4.1b: Trend Analysis of the Value of POS Transaction and Economic Performance in Nigeria.

Source: Authors Computation

From figure 4.1a, the BMI (Bank Market Index) which measures the performance of the Nigerian banking sector. From 2009 to 2013, the BMI was relatively stable, but it started to decline in 2014 and continued to decline until 2017. The decline in the BMI may be due to the decrease in oil prices during this period, which affected the overall economy. However, from 2018, the BMI started to recover and has been increasing steadily, which may be due to the increase in foreign reserves and the implementation of economic reforms. Meanwhile, the recovery from 2017 may be due to the sharp rise in the value of POS transaction which continued since then, except for a slight decrease in 2020 Q2. The increase in POSVA can be attributed to the growth in e-commerce and the adoption of digital payment systems in Nigeria.

Meanwhile for figure 4.1b, the YG (GDP growth rate) which measures the increase or decrease in the value of goods and services produced in Nigeria. YG was relatively stable

from 2009 to 2011, but it started to decline in 2012 and continued to decline until 2017. The decline in YG can be attributed to the decrease in oil prices, which is Nigeria's main source of revenue. However, from 2018, YG started to recover and has been increasing steadily, which may be due to the implementation of economic reforms. In addition to this is the sharp rise in the value of POS transactions which implies increase in economic activities.



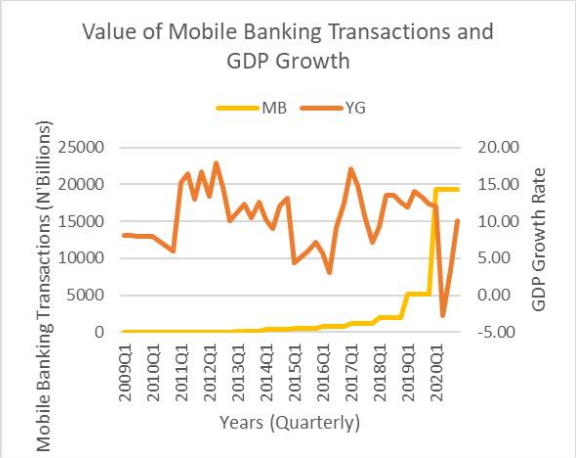
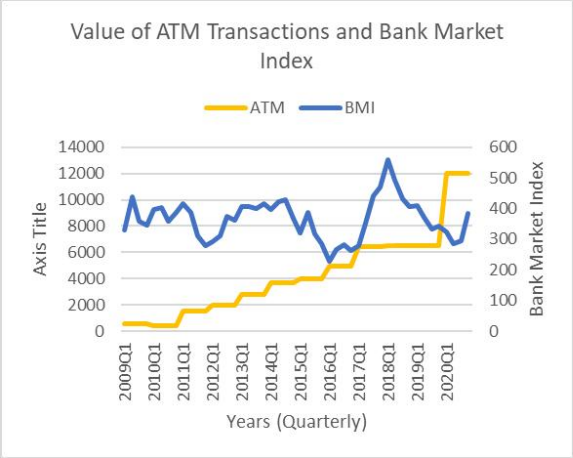


Figure 4.2a: Trend Analysis of the Value of Mobile Banking Transaction and Bank Performance in Nigeria.

Figure 4.2b: Trend Analysis of the Value of Mobile Banking Transaction and Economic Performance in Nigeria.

Source: Authors Computation

Similar to the trend in figures 4.1a and 4.1b, the figures 4.2a and 4.2b show BMI and YG having the same trend. However, the value of mobile banking having increased from 2009 at a steady rate continued till 2020 Q1 when there is a sharp rise which may be as a result of the outbreak of COVID-19 which caused banks to close and transactions done via mobile banking. The result of this heavy dependence on mobile banking is seen in the rise in BMI and YG following the rise in the value of mobile banking. Meanwhile it is also important to note that the effect of the change in MB is not immediate.



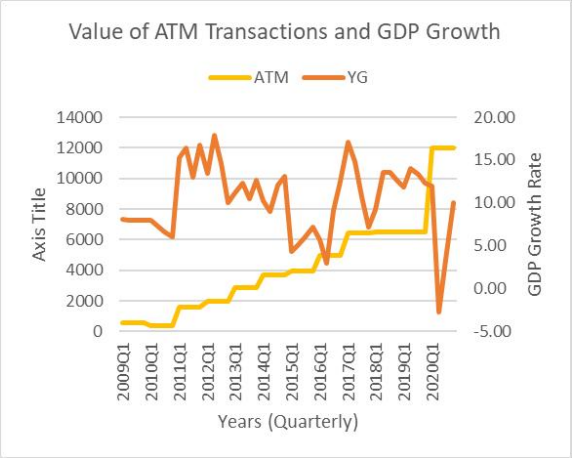
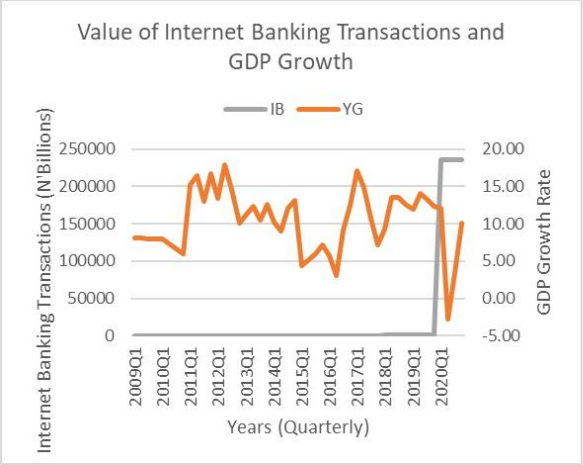


Figure 4.3a: Trend Analysis of the Value of ATM Transaction and Bank Performance in Nigeria.

Figure 4.3b: Trend Analysis of the Value of ATM Transaction and Economic Performance in Nigeria.

Source: Authors Computation

With regards to the trends and pattern of the value of ATM transactions, there appears to be a general upward trend in ATM transactions, with some occasional fluctuations. The initial values of N548.6 billions suggest a stable baseline, followed by a drop to N399.71 billions, which may have been due to external factors such as a decrease in consumer spending or an increase in the availability of other payment methods. From there, the values steadily increase, with some occasional spikes, notable jumps in 2019Q4 which may be due to the outbreak of COVID-19 which encouraged the use of electronic banking as a means of completing monetary transactions. Meanwhile, it could be observed that this sharp rise may also account for the recovery of YG and BMI in 2020 as shown in figures 4.3a and 4.3b.



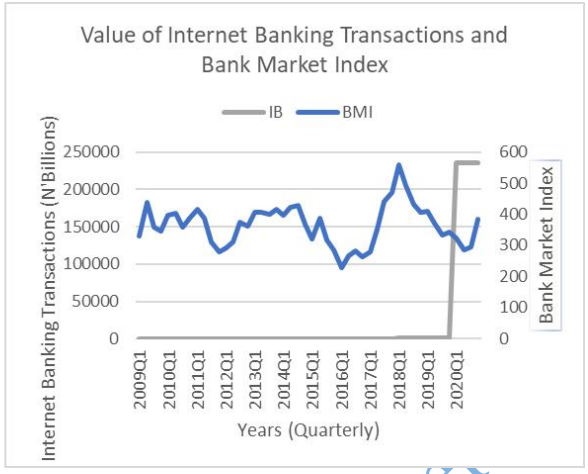


Figure 4.4a: Trend Analysis of the Value of Internet Banking Transaction and Economic Performance in Nigeria

Figure 4.4b: Trend Analysis of the Value of Internet Banking Transaction and Bank Performance in Nigeria

Source: Authors Computation

Observing the trends of internet banking from 2009 to 2020 as shown in figure 4.4a and 4.4b it is difficult to determine the fluctuation in the trends from 2009 to 2019, however, the overall view shows an upward trend, this may be due to the low adoption of internet banking during that period, lack of awareness or trust in online banking services, and a preference for traditional banking methods. Meanwhile, from 2020 Q1, there is a sharp rise in the value of internet banking transactions, this may be due to increased internet penetration, the convenience of online banking, the growth of e-commerce, and the need for contactless transactions due to the COVID-19 pandemic. In comparison with BMI and YG, it could be seen that the increase in the values of internet banking may also account of recovery of BMI and YG in 2020 by providing seamless transactions and stimulating economic transactions.

4.1.2 Descriptive Statistics of Variables

The descriptive statistics provide important information about the distribution of the variables of the study and this can help to identify potential outliers or extreme values. The table 4.1 below presents the descriptive statistics results of this study.

Table 4.1: Descriptive Statistics

	YG	LBMI	LIB	LATM	LMB	LPOS	LR	INT
Mean	10.3032	5.8839	5.2526	7.9937	5.4213	5.5709	45.9398	16.5565
Median	10.5956	5.9132	4.4749	8.2486	5.9699	5.9245	43.1050	16.6883
Maximum	17.8590	6.3285	12.3699	9.3930	9.8718	8.0723	87.9266	19.4233
Minimum	-2.7960	5.4248	3.2208	5.9907	0.2390	2.4006	18.5133	11.4200
Std. Dev.	4.1550	0.1833	2.3703	0.9947	2.7415	2.0191	15.4162	1.6294
Skewness	-0.5895	-0.2077	2.2148	-0.7696	-0.2981	-0.2992	0.6757	-1.3298
Kurtosis	3.5610	2.8130	7.1700	2.6117	2.2241	1.6622	3.1550	5.6567
Jarque-Bera	3.4099	0.4150	74.0225	5.0404	1.9151	4.2956	3.7008	28.2658
Probability	0.1817	0.8125	0.0000	0.0804	0.3838	0.1167	0.1571	0.0000
Sum	494.55	282.42	252.12	383.70	260.22	267.40	2205.11	794.71
Sum Sq. Dev.	811.42	1.5800	264.06	46.50	353.26	191.62	11170.00	124.79

Observations	48	48	48	48	48	48	48	48

Source: Authors Computation

From the result presented in table 4.1, it can be observed that the mean for YG (economic growth) is 10.30, while the median is 10.59, indicating a slightly left-skewed distribution. The maximum value for YG is 17.86 and the minimum value is -2.7960. The standard deviation of 4.1550 suggests that there is a significant amount of variation in the economic growth rate over the study period. Meanwhile, for LBMI (Bank Market Index), the mean and median are relatively close, indicating a symmetric distribution. The standard deviation is small, indicating that LBMI is less volatile than economic growth.

LIB (log the value of Internet Banking Transactions) has a mean of 5.25 and a median of 4.47. The standard deviation of 2.37 suggests that there is significant variation in the use of internet banking over the study period. The positive skewness of 2.21 and high kurtosis of 7.17 suggest that the distribution of LIB is highly concentrated around the mean. Wheras, LATM (log the value of ATM Transactions), LMB (log the value of Mobile Banking Transactions), and LPOS (log the value of POS Transactions) have their mean between 5.42 and 7.99 and their median between 5.92 and 8.25. All the three variables have relatively high standard deviations, indicating a significant amount of variation in the use of electronic banking channels over the study period. LATM has a high kurtosis of 2.61, while LMB has a positive skewness of 0.298.

As for other monetary policy variables, LR (liquidity ratio) has a mean of 45.9398 and a median of 43.1050. The standard deviation of 15.4162 suggests that there is significant variation in liquidity ratios among Nigerian banks over the study period. INT (interest rate) has a mean of 16.5565 and a median of 16.69. The standard deviation of 1.6294 suggests that interest rates have been relatively stable over the study period. The positive skewness of 0.68

and kurtosis of 3.16 for LR suggest that the distribution of liquidity ratios is moderately skewed and has a relatively sharp peak.

4.1.3 Correlation Analysis

The correlation matrix shows the degree of linear relationship between the variables in the study. A correlation coefficient ranges from -1 to +1, where -1 indicates a perfect negative relationship, +1 indicates a perfect positive relationship, and 0 indicates no relationship. The table 4.2 presents the correlation analysis of the degree of association between cashless policy variables, bank performance and economic growth in Nigeria between 2009 and 2020.

Table 4.2: Correlation Matrix

	YG	LBMI	LIB	LATM	LMB	LPOS	LR	INT
YG	1	0.1733	-0.2624	0.0383	-0.0587	-0.0228	0.0439	0.1189
LBMI		1	-0.1077	-0.0963	-0.0677	-0.0183	0.0439	0.2011
LIB			1	0.6502	0.7119	0.6386	0.6093	-0.7865
LATM				1	0.9587	0.9552	0.6864	-0.6000
LMB					1	0.9755	0.7388	-0.6618
LPOS						1	0.7092	-0.5132
LR							1	-0.5415
INT								1

Source: Authors Computation

The correlation between YG (economic growth) and LBMI (Bank Market Index) is positive but weak (0.1733), implying that there is a slight positive association between the two variables. This means that as economic growth increases, the performance of deposit money banks may also increase, but the relationship is not very strong. YG has weak correlation with all the variables in the model, it has a negative and weak relationship with LIB, LMB, and LPOS while with LBMI, LATM, LR and INT, a positive and weak relationship was found. LMBI on the other hand also shows a positive and weak correlation with YG, LR and INT whereas, there is a negative relationship LIB, LATM, LPOS and LMB. There are a few possible reasons for this negative relationship between BMI and Cashless policy variables. This could be as a result of the increased adoption of electronic banking channels may lead to a reduction in the demand for traditional banking services, such as opening physical branches or conducting transactions in person. This may result in a decrease in revenue for banks, which can lead to lower profitability and a decline in the Bank Market Index. Another reason could be due to customers choosing one type of electronic banking service over another or banks incentivizing the use of certain electronic banking channels over others.

4.2 Pre-Estimation Test

This study presents the pre-estimation tests of the variables. Before presenting the findings of the stated objectives, pre-estimation tests were carried out in terms of stationarity and cointegration tests and presented first in order to determine the appropriate estimation technique to use for the empirical analysis.

4.2.1 Unit Root Test

The stationarity level data in the study is tested using the Augmented Dickey Fuller (ADF). It indicates whether the variables are stationary or non-stationary. This permits this study to determine the stationary level of the the variable under study in order to suggest the

appropriate technique to estimate the parameter coefficients. Intercept and trend model were used to statistically find the significance of the variables at 1%, 5% and 10% critical point at levels and first difference. Furthermore, it should be noted that the lag length for ascertaining this stationarity level of our variables as well as unit-root test is automatic and optimally chosen by the Schwarz-Bayesian Information Criterion (SIC). The results of the unit root tests for the variables are summarized in the table below.

Table 4.3: Summary of the ADF Test

Variables	Level		First Difference		Order of Integration
	ADF Test Statistics	Test Critical Values	ADF Test Statistics	Test Critical Values	
LBMI	-2.6423	-4.1484	-6.8175	-4.1525***	I(1)
YG	-3.6216	-3.5085**	--	--	I(0)
LATM	-2.5453	-4.148	-3.8093	-3.5085**	I(1)
LIB	-1.5793	-4.1485	-7.5129	-4.1525***	I(1)
LMB	-2.9319	-4.1525	-7.5083	-4.1567***	I(1)
LPOS	-3.4964	-4.1485	-8.0514	-4.1525***	I(1)
INT	-0.0125	-4.1657	-5.4245	-4.1705***	I(1)
LR	-2.7896	-4.1657	-6.3355	-4.1756***	I(1)

Source: Authors Computation

The unit root test results are summarized in the table 4.3 using the Augmented Dickey Fuller (ADF) Test. The result indicated that only the economic growth (YG) variable is stationary at levels at 5% level of significance while the other variables are stationary at first difference at 1% level of significance with only LATM at 5% level of significance. The implication of this is that the statistic of the variable was stationary and integrated of the first order, hence a long-run equilibrium convergence.

4.2.2 ARDL Bound Test for Cointegration

Based on the result of the stationarity test and the order of integration of the variables, the Autoregressive Distributed Lag (ARDL) method of estimation was adopted. Meanwhile, before proceeding with this method, the existence of a long run relationship among the variables need to be determined using the ARDL bound test for cointegration. A maximum of four lags was imposed on the variables. This choice is based on Akaike's Information Criterion (AIC) to select the optimum number of lags as shown in the lag length criteria table in appendix 2.The table 4.4 presents the results of the cointegration test showing the F-statistics estimates of the long run relationship between bank market index and cashless policy variables in Nigeria using ARDL (4,3) with restricted constant.

Table 4.4 ARDL Bound Test for Cointegration Result

	Test Statistic		Value (F-Statistic)		k	Remarks
	F-statistics (LBMI| LATM, LIB, LMB, LPOS, LR, YG, INT)		11.85679		7	Cointegration
	ARDL((3, 3, 3, 3, 3, 3, 3, 3)					
Model 1			**10%**	**5%**	**2.5%**	**1%**
	Critical Value Bounds	**I(0) Bound**	1.92	2.17	2.43	2.73
		I(1) Bound	2.89	3.21	3.51	3.9
	F-statistics (YG | LATM, LIB, LMB, LPOS, LR, LBMI, INT)		9.174159		7	Cointegration
	ARDL(4, 3, 4, 4, 4, 3, 4, 4)					
Model 2			**10%**	**5%**	**2.5%**	**1%**
	Critical Value Bounds	**I(0) Bound**	1.92	2.17	2.43	2.73
		I(1) Bound	2.89	3.21	3.51	3.9

Source: Authors Computation

The table 4.4 presents the ARDL bound test for cointegration for the models of the study. The model one test the effect of cashless policy variables on the performance of banks in Nigeria, while the second model test the effect of cashless policy on economic growth in Nigeria. The F-statistics estimates for both models, testing the existence of a long-run relationship between cashless policy variables and bank performance for model one and the existence of a long-run

relationship between cashless policy variables and economic growth for model 2. At the 1% level of significance, the estimated F-statistics of the normalized equations were found to be greater than the lower but less than the upper critical bound. This implies that the null hypothesis of no long-run relationship for both models is not rejected at the 1% level of significance. The implication of this is that there is a long run cointegration, such that if there is a short run deviation in their relationship, the series would return to equilibrium in the long-run. Based on the findings of a long run relationship among the dependent and independent variables, the short-run and long-run model can therefore be estimated.

4.3 Examination of the Effect of Cashless Policy of the Performance of Banks in Nigeria

The first objective of this study seeks to examine the effect of cashless policy on the performance of banks in Nigeria. Having established the long run co integration of the model, the ARDL model was adopted as the method of estimation to achieve this objective. The long run and short run estimate of the effect of cashless policy variables on the performance of banks in Nigeria was estimated using using ARDL (4, 3) with restricted constant. The test automatically choose the lag length based on automatic selection of Akaike Information Criterion for each of the variables as the model was set at 4,3 to ensure sufficient degree of the freedom. The table 4.5 presents the summary of estimated result for the long the longrun and shortrun effect of cashless policy variables; LATM (ATM Transactions), LIB (Internet Banking Transactions), LMB (Mobile Banking Transactions), LPOS (POS Transactions) and other macroeconomic variables; LR (liquidity ratio), YG (Economic Growth), and INT (interest rate) on the performance of banks in Nigeria; LBMI (Bank Market Index).

Table 4.5 ARDL Result of the Analysis of the Impact of Cashless Policy on Bank Performance in Nigeria

Dependent Variable: D(LBMI)

Selected Model: ARDL(3, 3, 3, 3, 3, 3, 3, 3)

Sample: 2009Q1- 2020Q4

Included observations:45

Short Run Estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LBMI(-1))	-0.261728	0.077853	-3.361815	0.0051
D(LBMI(-2))	0.109117	0.072985	1.495058	0.1588
D(LATM)	0.101556	0.068293	1.487055	0.1608
D(LATM(-1))	0.398712	0.063839	6.245584	0.0000
D(LATM(-2))	0.300226	0.060862	4.932927	0.0003
D(LIB)	-0.016504	0.012732	-1.296271	0.2174
D(LIB(-1))	-0.120192	0.015232	-7.890848	0.0000
D(LIB(-2))	-0.104508	0.016094	-6.493601	0.0000
D(LMB)	0.088485	0.033555	2.637013	0.0205

D(LMB(-1))	-0.380370	0.037349	-10.18429	0.0000
D(LMB(-2))	-0.352381	0.039456	-8.930945	0.0000
D(LPOS)	-0.076830	0.062484	-1.229593	0.2406
D(LPOS(-1))	0.457919	0.057864	7.913712	0.0000
D(LPOS(-2))	0.450824	0.060316	7.474372	0.0000
D(LR)	-0.002109	0.001246	-1.692327	0.1144
D(LR(-1))	-0.001892	0.001189	-1.591785	0.1354
D(LR(-2))	-0.004058	0.001334	-3.043296	0.0094
D(INT)	0.112155	0.028818	3.891873	0.0019
D(INT(-1))	-0.205791	0.024476	-8.407956	0.0000
D(INT(-2))	-0.164271	0.023819	-6.896586	0.0000
D(YG)	0.014405	0.003057	4.712467	0.0004
D(YG(-1))	-0.039476	0.003452	-11.43667	0.0000
D(YG(-2))	-0.019027	0.002927	-6.500661	0.0000
CointEq(-1)*	-0.501953	0.038231	-13.12934	0.0000
Long Run Estimates				
LATM	-0.109342	0.207063	-0.528061	0.6064

LIB	0.268206	0.083109	3.227146	0.0066
LMB	1.100883	0.389839	2.823942	0.0144
LPOS	-1.309874	0.473833	-2.764423	0.0161
LR	0.011468	0.004847	2.366071	0.0342
INT	0.780118	0.238971	3.264493	0.0062
YG	03	0.014252	5.108208	0.0002
C	-7.568288	4.347280	-1.740925	0.1053
Adjusted R-squared	0.8449	Durbin-Watson stat		2.1365
F-statistic	12.3414	Prob(F-statistic)		0.00001

Source: Author's Computation

The result of the ARDL estimation as reported in table 4.5 shows that in the short run, the cashless policy variables show LATM, LIB, LMB, and LPOS have a significant impact on the performance of banks in Nigeria. It was observed that in the short run, the current value of ATM transactions have a negative but insignificant impact on bank performance, while the first and second lag of LATM and LPOS have a positive and significant impact on bank performance in Nigeria. On the other hand, the past values of LIB and LMB transactions have a negative impact on the performance of banks in Nigeria.

The implication of this is that the cashless policy variables have a mixed effect on the performance of banks in Nigeria. While some variables have a positive impact, others have a negative impact, and the impact varies across different time periods. This imply that the cashless policy may not be having a consistent or predictable effect on bank performance in

the short run. The positive and significant impact of the first and second lag of LATM and LPOS on bank performance in Nigeria suggests that the use of these channels for transactions is beneficial for banks in the short run. This could be due to the fact that these channels are cost-effective and more efficient than traditional methods of banking. On the other hand, the negative impact of the past values of LIB and LMB transactions on bank performance suggests that banks may not have been able to fully leverage these channels for their benefit in the short run.

As for other macroeconomic variables, only the second lag of LR has a negative and significant impact on the performance of banks in Nigeria, while interest rate and economic growth have a positive and significant impact on the performance of banks in Nigeria. This implies that an increase in economic growth will lead to an increase in bank performance in Nigeria. Furthermore, the CointEq(-1)* values implied that the models correct its short-run disequilibrium by 50.20% speed of adjustment in order to return to the long run equilibrium

The ARDL estimation results in the long run reveal that the cashless policy has a significant effect on the performance of banks in Nigeria. From the ARDL model's long-run estimates presented in table 4.5, it was observe that the variables, LIB, LMB, LPOS, LR, INT, and YG, are all significant determinants of the performance of banks in Nigeria. However, LATM has an insignificant effect on bank performance.

Specifically, the LATM has a negative but insignificant effect on the performance on banks in Nigeria, whereas, LIB has a positive (0.2682) and significant impact on the performance of banks in Nigeria, implying that banks with more internet banking transactions tend to have a higher market index, which reflects their overall performance. LMB also has a positive (1.1008) and significant effect on bank performance. Banks with more mobile banking transactions tend to have a higher market index, indicating better performance. On the other hand, LPOS has a negative (-1.3098) and significant impact on the performance of banks in

Nigeria. This implies that banks with more point of sale transactions have a lower market index, which indicates poorer performance.

With regards to the macroeconomic variables, the liquidity ratio (LR) have a positive (0.0114) and significant effect on the performance of banks, implying that banks with a higher liquidity ratio have a higher market index, which reflects their better performance. The interest rate (INT) has a positive (0.7801) and significant effect on bank performance, indicating that an increase in the interest rate tends to improve the performance of banks. Economic growth (YG) also has a positive (0.0728) and significant effect on bank performance, implying that as the economy grows, the performance of banks improves.

The implications of the results are that the cashless policy has significant long-term effects on bank performance in Nigeria. Banks that adopt more mobile and internet banking transactions are likely to perform better, while those that rely more on point of sale transactions may perform poorly. Banks with higher liquidity ratios, higher interest rates, and operating in growing economies also tend to perform better.

The result further shows that the model explains 84.49% of the variation in the performance of banks in Nigeria. However, the Durbin-Watson statistic of 2.1365 implies that there is an absence of first order correlation. The F-statistic of 12.3414and a p-value < 0.001 shows that the model is statistically significant. Diagnostic tests were also carried out to determine the reliability and stability of the result of the model. These estimation tests were reported in table 4.6 below. The output of each of the analysis is reported in appendix 3.

Table 4.6 Diagnostic Tests (BMI)

Tests	Obs*R-squared / Jarque-Bera	Probability
Normality	0.6105	0.7369
Autocorrelation	15.9187	0.3634
Heteroskedasticity	29.4826	0.7093
Stability Test	Stable	

Source: Author's Computation

Table 4.6 presents the results, indicating that the residuals for the model are normally distributed as evidenced by the Jarque-Bera statistics and corresponding probability value, thus accepting the null hypothesis that errors are normally distributed. Furthermore, the Breusch-Godfrey Serial Correlation LM test for the model reveals no significant autocorrelation in the residuals, with a p-value greater than 0.05. Similarly, the Breusch-Pagan-Godfrey heteroskedasticity test affirms no significant heteroskedasticity in the residuals, indicating a constant mean and variance throughout the study period. These consistency tests provide assurance for the model's reliability. The stability of the models was also assessed using the Cumulative Sum of recursive residuals (CUSUM) and Cumulative Sum of recursive residual square (CUSUMSQ) tests, with graphical representations presented in the appendix indicating that all the models are stable.

4.4 Analysis of the Impact of Cashless Policy on Economic Performance in Nigeria

The second objective of this study seeks to examine the effect of cashless policy on the economic performance of Nigeria. Having established the long run cointegration of the model, the ARDL model was also adopted as the method of estimation to achieve this second

objective. The long run and short run estimate of the effect of cashless policy variables on the economic performance of Nigeria was estimated using using ARDL (4, 3) with restricted constant. The test automatically choose the lag length based on automatic selection of Akaike Information Criterion for each of the variables as the model was set at 4,3 to ensure sufficient degree of the freedom. The table 4.7 presents the summary of estimated result for the long the longrun and shortrun effect of cashless policy variables; LATM (ATM Transactions), LIB (Internet Banking Transactions), LMB (Mobile Banking Transactions), LPOS (POS Transactions) and other macroeconomic variables; LR (liquidity ratio), LBMI (Bank Market Index) and INT (interest rate) on the economic performance in Nigeria YG (Economic Growth).

Table 4.7 ARDL Result of the Analysis of the Effect of Cashless Policy on Economic Performance in Nigeria

Dependent Variable: D(YG)

Selected Model: ARDL(4, 3, 4, 4, 4, 3, 4, 4)

Sample: 2010Q1 2020Q4

Included observations:45

Short Run Estimates				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
D(YG(-1))	2.536778	0.194307	13.05549	0.0000
D(YG(-2))	2.634010	0.233157	11.29714	0.0000
D(LATM)	65.72353	4.791822	13.71577	0.0000
D(LATM(-1))	-7.537959	1.806621	-4.172407	0.0059
D(LATM(-2))	-17.02263	1.776711	-9.580978	0.0001
D(LIB)	-7.636312	0.634133	-12.04212	0.0000
D(LIB(-1))	12.68932	1.057657	11.99758	0.0000
D(LIB(-2))	11.90556	0.877479	13.56791	0.0000
D(LMB)	15.97358	1.548433	10.31596	0.0000
D(LMB(-1))	65.45495	4.962416	13.19014	0.0000
D(LMB(-2))	62.50961	4.588007	13.62457	0.0000
D(LPOS)	-52.23909	4.094879	-12.75717	0.0000
D(LPOS(-1))	-92.97089	7.195826	-12.92011	0.0000
D(LPOS(-2))	-89.31726	6.548819	-13.63868	0.0000
D(LBMI)	31.86555	3.364216	9.471909	0.0001
D(LBMI(-1))	15.29581	2.240953	6.825584	0.0005

D(LBMI(-2))	17.00290	2.893892	5.875442	0.0011
D(INT)	1.102124	0.805633	1.368022	0.2203
D(INT(-1))	17.19817	1.409475	12.20183	0.0000
D(INT(-2))	12.92178	1.145163	11.28379	0.0000
D(LR)	0.252062	0.032284	7.807761	0.0002
D(LR(-1))	0.556302	0.059577	9.337608	0.0001
D(LR(-2))	0.332330	0.040197	8.267459	0.0002
CointEq(-1)*	-3.659238	0.263632	-13.88011	0.0000
Long Run Estimates				
LATM	15.02960	3.079912	4.879881	0.0028
LIB	-5.390711	2.385900	-2.259404	0.0646
LMB	-15.83223	4.296549	-3.684871	0.0103
LPOS	15.25345	5.831443	2.615725	0.0398
LBMI	13.17450	0.967657	13.61484	0.0000
INT	-6.656861	1.884985	-3.531519	0.0123
LR	-0.112010	0.053623	-2.088842	0.0817
C	-44.54822	41.20314	-1.081185	0.3211
Adjusted R-squared	0.92845	Durbin-Watson stat		2.8193
F-statistic	7.38129	Prob(F-statistic)		0.0092

Source: Authors Computation, 2023

The result of the ARDL estimation presented in table 4.7 shows that in the short run, the cashless policy variables have significant effects on economic performance in Nigeria. The variables that have a significant positive effect on economic performance in the short run are D(YG(-1)) and D(YG(-2)), indicating that past economic performance has a positive impact on current economic performance. Among the cashless policy variables, only LATM has a

significant positive effect, implying that an increase in ATM transactions leads to an increase in economic performance. Although, the first and second lag of LATM have a negative and significant impact on economic performance, which means that past performance of ATM transaction values have a negative effect on the current economic performance in Nigeria. This could be as a result of the investment expenditure and maintenance in the past. The variables LIB and LPOS have significant negative effects, indicating that an increase in internet banking and POS transactions leads to a decrease in economic performance in the short run. Although, the first and second lag of internet banking transactions have a positive and significant influence on the economic performance of Nigeria. LMB on the other hand, have a positive and significant effect on the performance of the Nigerian economy. This means that as transactions carried out through mobile banking increases, there is improvement in the performance of the Nigerian economy.

The macroeconomic variables LBMI, INT and LR have significant positive effects on economic performance, implying that an increase in the bank market index, interest rate and liquidity ratio in the short run, leads to an increase in economic performance in Nigeria. The negative and statistically significant coefficient for CointEq(-1) suggests that the cashless policy has a significant and positive impact on the economic performance of Nigeria in the short run, and any deviation from the long-run equilibrium will be corrected in the short run.

In the long run, the results as presented in the table 4.7 shows that cashless policy variables have a significant impact on the economic performance of Nigeria (YG). It was observed that LATM and LPOS have a positive and significant impact on economic performance, indicating that an increase in both ATM and POS transactions leads to an improvement in economic performance. On the other hand, LIB and LMB both have a negative impact and significant (at 10% and 5% level of significance respectively) on economic performance, indicating that an increase in internet and mobile banking transactions leads to a decrease in

economic performance. The results further shows that the liquidity ratio (LR) has a negative and significant (at 10% level) impact on economic performance, while the interest rate (INT) has a negative and significant impact on economic performance. The coefficient of LBMI is positive and significant, which indicates that an increase in bank market index leads to an improvement in economic performance. The results suggest that the cashless policy has a significant impact on economic performance in Nigeria, and that the use of electronic payment methods can contribute positively to the growth of the economy.

Furthermore, it was observed that the model explains 92.85% of the variation in the economic performance in Nigeria. The Durbin-Watson statistic of 2.82 implies that there is first order correlation. However, the F-statistic of 7.3823 and a p-value < 0.01 shows that the model is statistically significant. Diagnostic tests were also carried out to determine the reliability and stability of the result of the model. These estimation test were reported in table 4.8 below. The output of each of the analysis is reported in appendix 4.

Table 4.8 Diagnostic Tests (YG)

Tests	**Obs*R-squared / Jarque-Bera**	**Probability**
Normality	O.0829	0.9594
Autocorrelation	30.7922	0.5102
Heteroskedasticity	35.4744	0.7887
Stability Test	Stable	

Source: Author's Computation

Table 4.8 presents the results, indicating that the residuals for the model are normally distributed as evidenced by the Jarque-Bera statistics and corresponding probability value,

thus accepting the null hypothesis that errors are normally distributed. Furthermore, the Breusch-Godfrey Serial Correlation LM test for the model reveals no significant autocorrelation in the residuals, with a p-value greater than 0.05. Similarly, the Breusch-Pagan-Godfrey heteroskedasticity test affirms no significant heteroskedasticity in the residuals, indicating a constant mean and variance throughout the study period. These consistency tests provide assurance for the model's reliability. The stability of the models was also assessed using the Cumulative Sum of recursive residuals (CUSUM) and Cumulative Sum of recursive residual square (CUSUMSQ) tests, with graphical representations presented in the appendix 4 indicating that all the models are stable.

4.5 Discussion of Findings

The study explored the interactions among cashless policy, bank performance and economic performance in Nigeria. The objective was to examine the effect of cashless policy on bank performance and economic performance in Nigeria. Data for the study was subjected to statistical analysis using ARDL method of estimation. The findings reveal some insights that will be useful for banks and policy makers in the economy.

The first objective of the study seek to examine the effect of cashless policy on the performance of banks in Nigeria. The long run and short run estimate of the effect of cashless policy variables on the performance of banks in Nigeria was estimated using using ARDL (4, 3) with restricted constant. Findings from the result of the estimation revealed that in the short run, the cashless policy variables have a mixed impact on the performance of banks in Nigeria in the short run. The value of ATM and POS transactions have a positive and significant impact, while past values of LIB and LMB transactions have a negative impact. The impact varies across different time periods, suggesting that the policy may not have a consistent effect on bank performance. Other macroeconomic variables such as interest rate

and economic growth have a positive impact, while the second lag of LR has a negative impact on bank performance.

In the long run however, the cashless policy has a significant impact on the performance of banks in Nigeria. LIB and LMB have a positive and significant impact on bank performance, whereas LPOS has a negative and significant effect. LATM has an insignificant effect. The liquidity ratio, interest rate, and economic growth also have significant positive effects on bank performance. The implication is that banks that adopt more mobile and internet banking transactions are likely to perform better, while those that rely more on point of sale transactions may perform poorly. Banks with higher liquidity ratios, higher interest rates, and operating in growing economies also tend to perform better.

The findings of this study are consistent with some other related studies. For instance, the study on the impact of electronic payment on the performance of Nigerian banks found that electronic payment has a positive impact on the performance of banks[1]. Similar studies also the impact of cashless policy on the Nigerian economy found that the policy has a positive effect on the economy, particularly on the banking sector[2,3] .However, the findings of this study differ from some other studies such as the study on the impact of cashless policy on the Nigerian economy found that the policy has a negative effect on the economy, particularly on the informal sector and the study on the impact of cashless policy on the performance of banks in Nigeria found that the policy has a negative impact on the performance of banks[4,5].

The second objective of this study seek to examine the effect of cashless policy on the economic performance of Nigeria. The long run and short run estimate of the effect of cashless policy variables on the economic performance of Nigeria was estimated using using ARDL (4, 3) with restricted constant. The ARDL estimation shows that in the short run, the cashless policy variables have significant effects on economic performance in Nigeria. Among the cashless policy variables, only LATM has a significant positive effect on

economic performance, while LIB and LPOS have significant negative effects. LMB has a positive and significant effect on economic performance. LBMI, INT, and LR also have significant positive effects on economic performance. The negative and statistically significant coefficient for CointEq(-1) suggests that the cashless policy has a significant and positive impact on the economic performance of Nigeria in the short run, and any deviation from the long-run equilibrium will be corrected in the short run.

Whereas in the long run, the cashless policy variables have a significant impact on the economic performance of Nigeria. Both LATM and LPOS have a positive impact on economic performance, while LIB and LMB have a negative impact. The liquidity ratio has a negative impact, and the interest rate has a negative impact on economic performance. The bank market index has a positive impact on economic performance. These results indicate that electronic payment methods can contribute positively to the growth of the Nigerian economy.

The results of the study are consistent with previous studies that have analyzed the impact of cashless policy on the economic performance in Nigeria. The studies found that cashless policy has a significant effect on the Nigerian economy, with electronic payment channels improving efficiency, reducing transaction costs, and increasing financial inclusion[6,7].

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Chapter Five

Conclusion

This chapter of the study provides a summary of the major findings, conclusion, recommendations, and suggestions for further studies followed by the concluding remarks.

5.1 Summary of Findings

Advancement in technology in the banking sector in Nigeria has made it possible for the implementation of cashless policy in Nigeria. Bank users are encouraged to use alternative banking services provided with the aid of technology instead of the traditional banking hall services. However, this policy has some implication for banks, bank customers and the economy. This study therefore explores the impact of cashless policy on the performance of banks and the performance of the Nigerian economy. Channels through with bank users transact with the aid of technology make up the variables that measures cashless policy, this include ATM transactions, POS transactions, Internet Banking transactions, Mobile Banking transactions. The performance of banks was measured by the bank market index while economic performance was measured by the growth rate of the economy in Nigeria. The data for these variables were gathered from CBN and NGX covering 2009Q1 to 2020Q4.

The descriptive statistics of the data provides important information about the distribution of the variables of the study, the correlation matrix shows that the degree of association between economic growth and the other variables are weak, suggesting that these variables may not have a significant impact on economic growth. However, the positive correlations between LBMI, LATMVA, and LR suggest that the performance of deposit money banks and liquidity have a slightly positive impact on economic growth. The negative correlations between LIBVA, LMBVA, and LPOSVA suggest that the use of electronic banking may have a slightly negative impact on economic growth. The data was further tested for unit root,

and found that the variables are combination of I(0) and I(1). The long run cointegration was also established with the aid of the ARDL bound test for cointegration. Having established this, the ARDL method of estimation was used for the estimation of the models in the study.

From the first objective of the study, it was established that the value of ATM and POS transactions have a positive and significant impact, while past values of LIB and LMB transactions have a negative impact. The impact varies across different time periods, suggesting that the policy may not have a consistent effect on bank performance. Other macroeconomic variables such as interest rate and economic growth have a positive impact, while the second lag of LR has a negative impact on bank performance. Meanwhile, in the long run, cashless policy has a significant impact on the performance of banks in Nigeria. LIB and LMB have a positive and significant impact on bank performance, whereas LPOS has a negative and significant effect. LATM has an insignificant effect. The liquidity ratio, interest rate, and economic growth also have significant positive effects on bank performance. The implication is that banks that adopt more mobile and internet banking transactions are likely to perform better, while those that rely more on point of sale transactions may perform poorly. Banks with higher liquidity ratios, higher interest rates, and operating in growing economies also tend to perform better.

The second objective confirmed that among the cashless policy variables, only LATM has a significant positive effect on economic performance, while LIB and LPOS have significant negative effects. LMB has a positive and significant effect on economic performance. LBMI, INT, and LR also have significant positive effects on economic performance. While in the long run the cashless policy variables have a significant impact on the economic performance of Nigeria. Both LATM and LPOS have a positive impact on economic performance, while LIB and LMB have a negative impact. The liquidity ratio has a negative impact, and the

interest rate has a negative impact on economic performance. The bank market index has a positive impact on economic performance.

Overall, the study provides useful insights into the impact of the cashless policy on the performance of banks in Nigeria, which can guide policymakers and stakeholders in making informed decisions.

5.2 Conclusion

This study examined the banks cashless policy and economic performance. Descriptive statistics showed weak correlations between economic growth and the other variables, but positive correlations between LBMI, LATMVA, and LR suggest a slightly positive impact on economic growth. Negative correlations were found between LIBVA, LMBVA, and LPOSVA, suggesting a slightly negative impact. The study found that in the short term, ATM and POS transactions have a positive impact on bank performance, while LIB and LMB have a negative impact. In the long run, only LATM has a significant positive effect on economic performance, while LIB and LPOS have significant negative effects. LBMI, INT, and LR have significant positive effects on both bank performance and economic performance. The study suggests that banks that adopt more mobile and internet banking transactions perform better, while those that rely more on point of sale transactions may perform poorly. The study concludes that the cashless policy has a significant impact on the performance of banks and economic growth in Nigeria

5.3 Recommendations

Based on the findings of this study, the following are recommended

1. Policymakers should continue to promote the use of electronic payment methods, such as ATM and POS transactions, as they can have a positive impact on economic growth.

However, measures should be put in place to regulate the use of mobile banking and internet banking transactions to prevent any negative impact on economic performance.

2. Banks need to carefully manage their adoption of the cashless policy channels and consider the short-run impacts on their performance. Since most of the impacts in the short run are not immediate.

3. The central bank of Nigeria should consider adjusting interest rates to promote better bank performance.

4. The positive impact of the bank market index on economic performance highlights the importance of a stable and well-functioning banking sector in promoting economic growth. Policymakers should therefore consider implementing policies that promote the growth of the banking sector and increase liquidity in the economy to boost economic performance in the short run.

5. Policy makers should adopt a long-term approach to policy implementation, as the effect of cashless policy variables on bank performance and economic growth varies across different time periods.

6. The study found that banks that adopt more mobile and internet banking transactions tend to perform better. Therefore, policymakers should encourage the adoption of these channels as they have a positive impact on bank performance.

5.4 Contribution to Knowledge

This study has made several contributions to the body of knowledge. First, it provides empirical evidence on the impact of cashless policy on the performance of deposit money banks and the overall economic growth of Nigeria. Second, it offers insights into the role of different electronic banking channels and macroeconomic variables in shaping the performance of deposit money banks and economic growth. Third, it demonstrates the

usefulness of the ARDL model in examining the short- and long-run relationships between the variables of interest. Fourth, it highlights the importance of considering different time periods and lags in analyzing the impact of cashless policy and macroeconomic variables on bank performance and economic growth. Finally, the study suggests that policymakers should pay close attention to the adoption of mobile and internet banking transactions and their impact on bank performance and economic growth, as well as the potential negative impact of the use of point of sale transactions.

5.5 Areas for Further Study

Further research should be conducted to investigate the reasons for the negative impact of the values of Internet banking and Mobile Banking transactions on economic growth and to identify potential solutions.

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Appendix I

Collected Data for the Study

Year	LBMI	YG	LPOSVA	LMBVA	LIBVA	LATMVA	LR	MPR	INT
2009Q1	5.800244	8.04	2.400619	0.239017	4.432601	6.307377	34.30667	9.75	18.29
2009Q2	6.079926	8.03	2.400619	0.239017	4.432601	6.307377	33.86667	8.004	19.04
2009Q3	5.886613	8.02	2.400619	0.239017	4.432601	6.307377	29.31	6.001	19.21
2009Q4	5.846603	8.01	2.400619	0.239017	4.432601	6.307377	26.56667	6.002	19.42
2010Q1	5.983693	8.01	2.543176	1.894617	3.220874	5.990739	30.08667	6.006	18.86
2010Q2	6.002017	7.33	2.543176	1.894617	3.220874	5.990739	30.33333	6.009	18.49
2010Q3	5.882477	6.66	2.543176	1.894617	3.220874	5.990739	30.35	6.083	16.98
2010Q4	5.955613	5.98	2.543176	1.894617	3.220874	5.990739	27.58667	6.257	16.08
2011Q1	6.032191	15.2	3.434632	2.943386	4.087823	7.353556	25.93	6.836	15.78
2011Q2	5.959001	16.3	3.434632	2.943386	4.087823	7.353556	18.51333	7.836	15.78

2	2	9	2	6	3		3		7
2011Q	5.74258	13.0	3.43463	2.94338	4.08782		20.2333		15.8
3	6	0	2	6	3	7.353556	3	8.92	4
2011Q	5.63652	16.7	3.43463	2.94338	4.08782		37.3333	12.0	16.6
4	6	0	2	6	3	7.353556	3	0	9
2012Q	5.67661	13.4	3.87137	3.45028	3.45212		37.5533	12.0	17.1
1	7	4	4	4	4	7.593202	3	0	0
2012Q	5.74323	17.8	3.87137	3.45028	3.45212			12.0	16.9
2	8	6	4	4	4	7.593202	46.48	0	4
2012Q	5.92330	14.5	3.87137	3.45028	3.45212		48.4666	12.0	16.6
3	2	9	4	4	4	7.593202	7	0	2
2012Q	5.89071	10.0	3.87137	3.45028	3.45212		42.1633	12.0	16.5
4	4	7	4	4	4	7.593202	3	0	1
2013Q	6.00395	11.2	5.08150	4.96142	3.85685		65.3966	12.0	16.5
1	3	2	6	5	6	7.947657	7	0	8
2013Q	6.00545	12.3	5.08150	4.96142	3.85685		72.1366	12.0	16.6
2	8	3	6	5	6	7.947657	7	0	2
2013Q	5.98852	10.4	5.08150	4.96142	3.85685		52.3566	12.0	16.5
3	7	9	6	5	6	7.947657	7	0	9
2013Q	6.03372	12.6	5.08150	4.96142	3.85685			12.0	17.0
4	6	5	6	5	6	7.947657	48.43	0	9
2014Q	5.98303	10.2	5.74323	5.84778	4.30465		44.7133	12.0	16.8
1	7	4	3	8	4	8.210635	3	0	6

2014Q2	6.04209	9.05	5.74323	5.84778	4.30465	8.210635	40.58	12.00	16.57
2014Q3	6.06117	12.06	5.74323	5.84778	4.30465	8.210635	44.9933	12.00	16.49
2014Q4	5.91207	13.10	5.74323	5.84778	4.30465	8.210635	41.57	12.68	16.28
2015Q1	5.76833	4.32	6.10593	6.09211	4.51722	8.286585	38.8833	13.00	16.84
2015Q2	5.95799	5.17	6.10593	6.09211	4.51722	8.286585	37.65	13.00	16.42
2015Q3	5.75905	6.02	6.10593	6.09211	4.51722	8.286585	39.7066	13.00	17.20
2015Q4	5.65530	7.12	6.10593	6.09211	4.51722	8.286585	41.46	11.67	16.93
2016Q1	5.42481	5.67	6.63199	6.62922	4.88552	8.514817	41.0833	11.33	16.69
2016Q2	5.58003	3.01	6.63199	6.62922	4.88552	8.514817	37.8566	12.00	16.56
2016Q3	5.64318	9.15	6.63199	6.62922	4.88552	8.514817	41.5033	14.00	17.14
2016Q4	5.576	12.49	6.63199	6.62922	4.88552	8.514817	44.6866	14.00	17.08
2017Q1	5.63285	17.00	7.25121	7.00488	5.21817	8.76991	44.0466	14.00	17.11

1	9	6	2	1	3		7	0	6
2017Q	5.86787	14.7	7.25121	7.00488	5.21817		46.9866	14.0	17.5
2	4	9	2	1	3	8.76991	7	0	4
2017Q	6.09250	10.7	7.25121	7.00488	5.21817			14.0	17.7
3	1	0	2	1	3	8.76991	46.43	0	4
2017Q	6.14930		7.25121	7.00488	5.21817		50.0933	14.0	17.7
4	8	7.22	2	1	3	8.76991	3	0	8
2018Q	6.32852		7.77616	7.58794			55.9366	14.0	17.4
1	6	9.26	1	5	6.51607	8.776489	7	0	6
2018Q	6.20153	13.5	7.77616	7.58794			47.6633	14.0	17.0
2	6	7	1	5	6.51607	8.776489	3	0	3
2018Q	6.07144	13.5	7.77616	7.58794			39.8866	14.0	16.6
3	6	8	1	5	6.51607	8.776489	7	0	9
2018Q	6.00343	12.6	7.77616	7.58794				14.0	16.4
4	4	5	1	5	6.51607	8.776489	63.96	0	5
2019Q	6.01208	11.9		8.53325	6.16989		64.3866	13.8	15.6
1	4	1	8.07239	6	9	8.781495	7	3	7
2019Q	5.91450	14.0		8.53325	6.16989		64.1633	13.5	16.4
2	3	1	8.07239	6	9	8.781495	3	0	5
2019Q	5.81034	13.3		8.53325	6.16989			13.5	15.3
3	2	0	8.07239	6	9	8.781495	68.72	0	4
2019Q	5.83691	12.3		8.53325	6.16989		82.3533	13.5	14.9
4	4	4	8.07239	6	9	8.781495	3	0	9

2020Q1	5.77819	12.01	7.939622	9.871885	12.36997	9.393001	87.92667	13.50	13.26
2020Q2	5.655409	-2.80	7.939622	9.871885	12.36997	9.393001	68.51	12.83	12.42
2020Q3	5.683169	3.39	7.939622	9.871885	12.36997	9.393001	62.06333	12.17	11.81
2020Q4	5.954143	10.07	7.939622	9.871885	12.36997	9.393001	59.97	11.50	11.42

Appendix II

Preliminary Test

1. Descriptive Statistics

	YG	LBMI	LIBVA	LATMVA	LMBVA	LPOSVA	LR	INT
Mean	10.3032	5.8839	5.2526	7.9937	5.4213	5.5709	45.9398	16.5565
Median	10.5956	5.9132	4.4749	8.2486	5.9699	5.9245	43.1050	16.6883
Maximum	17.8590	6.3285	12.3699	9.3930	9.8718	8.0723	87.9266	19.4233
Minimum	-2.7960	5.4248	3.2208	5.9907	0.2390	2.4006	18.5133	11.4200
Std. Dev.	4.1550	0.1833	2.3703	0.9947	2.7415	2.0191	15.4162	1.6294
Skewness	-0.5895	-0.2077	2.2148	-0.7696	-0.2981	-0.2992	0.6757	-1.3298
Kurtosis	3.5610	2.8130	7.1700	2.6117	2.2241	1.6622	3.1550	5.6567
Jarque-Bera	3.4099	0.4150	74.0225	5.0404	1.9151	4.2956	3.7008	28.2658
Probability	0.1817	0.8125	0.0000	0.0804	0.3838	0.1167	0.1571	0.0000

Sum	494.55	282.42	252.12	383.70	260.22	267.40	2205.11	794.71
Sum Sq. Dev.	811.42	1.5800	264.06	46.50	353.26	191.62	11170.00	124.79
Observations	48	48	48	48	48	48	48	48

2 Correlation

	YG	LBMI	LIBVA	LATMVA	LMBVA	LPOSVA	LR	INT
YG	1	0.1733	-0.2624	0.0383	-0.0587	-0.0228	0.0439	0.1189
LBMI		1	-0.1077	-0.0963	-0.0677	-0.0183	0.0439	0.2011
LIBVA			1	0.6502	0.7119	0.6386	0.6093	-0.7865
LATMVA				1	0.9587	0.9552	0.6864	-0.6000
LMBVA					1	0.9755	0.7388	-0.6618
LPOSVA						1	0.7092	-0.5132
LR							1	-0.5415
INT								1

3 Unit Root Test (ADF Test)

LBMI

At Level

Null Hypothesis: LBMI has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.642350	0.2642
Test critical values:	1% level	-4.148465	
	5% level	-3.500495	

	10% level	-3.179617

*MacKinnon (1996) one-sided p-values.

At First Difference

Null Hypothesis: D(LBMI) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.817525	0.0000
Test critical values:	1% level	-4.152511	
	5% level	-3.502373	
	10% level	-3.180699	

*MacKinnon (1996) one-sided p-values.

LATMVA

At Level

Null Hypothesis: LATMVA has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.545314	0.3062
Test critical values:	1% level	-4.148465	

	5% level	-3.500495
	10% level	-3.179617

*MacKinnon (1996) one-sided p-values.

At First Difference

Null Hypothesis: D(LATMVA) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 3 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.809389	0.0247
Test critical values:	1% level	-4.165756	
	5% level	-3.508508	
	10% level	-3.184230	

*MacKinnon (1996) one-sided p-values.

LIBVA

At Level

Null Hypothesis: LIBVA has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=10)

	t-Statistic	Prob.*

Augmented Dickey-Fuller test statistic		-1.579333	0.7874
Test critical values:	1% level	-4.148465	
	5% level	-3.500495	
	10% level	-3.179617	

*MacKinnon (1996) one-sided p-values.

At First Difference

Null Hypothesis: D(LIBVA) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.512987	0.0000
Test critical values:	1% level	-4.152511	
	5% level	-3.502373	
	10% level	-3.180699	

*MacKinnon (1996) one-sided p-values.

LMBVA

At Level

Null Hypothesis: LMBVA has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 1 (Fixed)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.931867	0.1617
Test critical values:	1% level	-4.152511	
	5% level	-3.502373	
	10% level	-3.180699	

*MacKinnon (1996) one-sided p-values.

At First Difference

Null Hypothesis: D(LMBVA) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 1 (Fixed)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.508307	0.0000
Test critical values:	1% level	-4.156734	
	5% level	-3.504330	
	10% level	-3.181826	

*MacKinnon (1996) one-sided p-values.

LPOSVA

At Level

Null Hypothesis: LPOSVA has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.496472	0.0505
Test critical values:	1% level	-4.148465	
	5% level	-3.500495	
	10% level	-3.179617	

*MacKinnon (1996) one-sided p-values.

At First Difference

Null Hypothesis: D(LPOSVA) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.051453	0.0000
Test critical values:	1% level	-4.152511	
	5% level	-3.502373	
	10% level	-3.180699	

*MacKinnon (1996) one-sided p-values.

YG

At Level

Null Hypothesis: YG has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.621632	0.0386
Test critical values:	1% level	-4.165756	
	5% level	-3.508508	
	10% level	-3.184230	

*MacKinnon (1996) one-sided p-values.

INT

At Level

Null Hypothesis: INT has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-0.012507	0.9949
Test critical values:	1% level	-4.165756	
	5% level	-3.508508	

	10% level	-3.184230

*MacKinnon (1996) one-sided p-values.

1st DIff

Null Hypothesis: D(INT) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=0)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.424557	0.0003
Test critical values:	1% level	-4.170583	
	5% level	-3.510740	
	10% level	-3.185512	

*MacKinnon (1996) one-sided p-values.

LR

At Level

Null Hypothesis: LR has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-2.789602	0.2082

Test critical values:	1% level	-4.165756
	5% level	-3.508508
	10% level	-3.184230

*MacKinnon (1996) one-sided p-values.

First Diff

Null Hypothesis: D(LR) has a unit root

Exogenous: Constant, Linear Trend

Lag Length: 1 (Automatic - based on SIC, maxlag=9)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.335507	0.0000
Test critical values:	1% level	-4.175640	
	5% level	-3.513075	
	10% level	-3.186854	

*MacKinnon (1996) one-sided p-values.

4 Lag Length Selection

VAR Lag Order Selection Criteria

Endogenous variables: YG LBMI LIBVA LATMVA LMBVA LPOSVA

LR INT

Exogenous variables: C

Date: 04/03/23 Time: 00:56

Sample: 2009Q1 2020Q4

Included observations: 44

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-485.2273	NA	0.753120	22.41942	22.74382	22.53973
1	-236.4525	395.7781	0.000178	14.02057	16.94015	15.10329
2	-179.6128	69.75788	0.000329	14.34603	19.86080	16.39118
3	-79.88081	86.13214	0.000158	12.72186	20.83181	15.72942
4	199.2924	139.5866*	9.26e-08*	2.941256*	13.64639*	6.911237*

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Appendix III

Effect Cashless Policy on performance of Deposit Money Banks in Nigeria

1 ARDL Output

Dependent Variable: LBMI

Method: ARDL

Date: 04/03/23 Time: 18:02

Sample (adjusted): 2009Q4 2020Q4

Included observations: 45 after adjustments

Maximum dependent lags: 4 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (3 lags, automatic): LATM LIB LMB LPOS LR INT YG

Fixed regressors: C

Number of models evalulated: 65536

Selected Model: ARDL(3, 3, 3, 3, 3, 3, 3, 3)

Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LBMI(-1)	0.236319	0.157161	1.503677	0.1566
LBMI(-2)	0.370845	0.186353	1.990012	0.0680
LBMI(-3)	-0.109117	0.128911	-0.846453	0.4126
LATMVA	0.101556	0.122902	0.826316	0.4235

LATMVA(-1)	0.242271	0.126025	1.922404	0.0767
LATMVA(-2)	-0.098486	0.102314	-0.962587	0.3533
LATMVA(-3)	-0.300226	0.114831	-2.614490	0.0214
LIBVA	-0.016504	0.020813	-0.792977	0.4420
LIBVA(-1)	0.030939	0.024201	1.278415	0.2235
LIBVA(-2)	0.015684	0.024219	0.647604	0.5285
LIBVA(-3)	0.104508	0.026832	3.894892	0.0018
LMBVA	0.088485	0.071420	1.238931	0.2373
LMBVA(-1)	0.083737	0.065965	1.269421	0.2265
LMBVA(-2)	0.027989	0.071801	0.389816	0.7030
LMBVA(-3)	0.352381	0.066554	5.294622	0.0001
LPOSVA	-0.076830	0.119628	-0.642240	0.5319
LPOSVA(-1)	-0.122747	0.127109	-0.965688	0.3518
LPOSVA(-2)	-0.007095	0.104659	-0.067793	0.9470
LPOSVA(-3)	-0.450824	0.094832	-4.753916	0.0004
LR	-0.002109	0.002256	-0.934800	0.3669
LR(-1)	0.005974	0.002717	2.198288	0.0466
LR(-2)	-0.002167	0.002537	-0.854063	0.4085
LR(-3)	0.004058	0.001897	2.139494	0.0519
INT	0.112155	0.052394	2.140611	0.0518
INT(-1)	0.073637	0.047334	1.555678	0.1438
INT(-2)	0.041520	0.044031	0.942967	0.3629
INT(-3)	0.164271	0.038402	4.277626	0.0009

YG	0.014405	0.004628	3.112344	0.0082
YG(-1)	-0.017337	0.005341	-3.245992	0.0064
YG(-2)	0.020449	0.005651	3.618838	0.0031
YG(-3)	0.019027	0.005899	3.225483	0.0066
C	-3.798927	1.738089	-2.185692	0.0477

R-squared	0.967137	Mean dependent var	5.881368
Adjusted R-squared	0.888772	S.D. dependent var	0.186740
S.E. of regression	0.062279	Akaike info criterion	-2.533860
Sum squared resid	0.050424	Schwarz criterion	-1.249123
Log likelihood	89.01186	Hannan-Quinn criter.	-2.054923
F-statistic	12.34145	Durbin-Watson stat	2.136559
Prob(F-statistic)	0.000012		

*Note: p-values and any subsequent tests do not account for model selection.

2 Long Run Form and Bound Test

ARDL Long Run Form and Bounds Test

Dependent Variable: D(LBMI)

Selected Model: ARDL(3, 3, 3, 3, 3, 3, 3, 3)

Case 2: Restricted Constant and No Trend

Date: 04/03/23 Time: 18:09

Sample: 2009Q1 2020Q4

Included observations: 45

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.798927	1.738089	-2.185692	0.0477
LBMI(-1)*	-0.501953	0.090785	-5.529009	0.0001
LATMVA(-1)	-0.054885	0.104455	-0.525439	0.6081
LIBVA(-1)	0.134627	0.025181	5.346298	0.0001
LMBVA(-1)	0.552592	0.136057	4.061460	0.0013
LPOSVA(-1)	-0.657496	0.162254	-4.052250	0.0014
LR(-1)	0.005756	0.002032	2.832271	0.0141
INT(-1)	0.391583	0.078073	5.015595	0.0002
YG(-1)	0.036544	0.006713	5.443330	0.0001
D(LBMI(-1))	-0.261728	0.149153	-1.754758	0.1028
D(LBMI(-2))	0.109117	0.128911	0.846453	0.4126
D(LATMVA)	0.101556	0.122902	0.826316	0.4235
D(LATMVA(-1))	0.398712	0.122116	3.265040	0.0061
D(LATMVA(-2))	0.300226	0.114831	2.614490	0.0214
D(LIBVA)	-0.016504	0.020813	-0.792977	0.4420
D(LIBVA(-1))	-0.120192	0.027698	-4.339395	0.0008
D(LIBVA(-2))	-0.104508	0.026832	-3.894892	0.0018
D(LMBVA)	0.088485	0.071420	1.238931	0.2373
D(LMBVA(-1))	-0.380370	0.090083	-4.222417	0.0010

D(LMBVA(-2))	-0.352381	0.066554	-5.294622	0.0001
D(LPOSVA)	-0.076830	0.119628	-0.642240	0.5319
D(LPOSVA(-1))	0.457919	0.100613	4.551278	0.0005
D(LPOSVA(-2))	0.450824	0.094832	4.753916	0.0004
D(LR)	-0.002109	0.002256	-0.934800	0.3669
D(LR(-1))	-0.001892	0.001909	-0.991070	0.3397
D(LR(-2))	-0.004058	0.001897	-2.139494	0.0519
D(INT)	0.112155	0.052394	2.140611	0.0518
D(INT(-1))	-0.205791	0.047934	-4.293223	0.0009
D(INT(-2))	-0.164271	0.038402	-4.277626	0.0009
D(YG)	0.014405	0.004628	3.112344	0.0082
D(YG(-1))	-0.039476	0.005492	-7.187964	0.0000
D(YG(-2))	-0.019027	0.005899	-3.225483	0.0066

* p-value incompatible with t-Bounds distribution.

Levels Equation

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LATMVA	-0.109342	0.207063	-0.528061	0.6064
LIBVA	0.268206	0.083109	3.227146	0.0066
LMBVA	1.100883	0.389839	2.823942	0.0144

LPOSVA	-1.309874	0.473833	-2.764423	0.0161
LR	0.011468	0.004847	2.366071	0.0342
INT	0.780118	0.238971	3.264493	0.0062
YG	0.072803	0.014252	5.108208	0.0002
C	-7.568288	4.347280	-1.740925	0.1053

EC = LBMI - (-0.1093*LATMVA + 0.2682*LIBVA + 1.1009*LMBVA -1.3099 *LPOSVA + 0.0115*LR + 0.7801*INT + 0.0728*YG -7.5683)

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	11.85679	10%	1.92	2.89
k	7	5%	2.17	3.21
		2.5%	2.43	3.51
		1%	2.73	3.9
		Finite Sample: n=45		
Actual Sample Size	45			
		10%	2.131	3.223
		5%	2.504	3.723

	1%	3.383	4.832

3 Short Run ECM

ARDL Error Correction Regression

Dependent Variable: D(LBMI)

Selected Model: ARDL(3, 3, 3, 3, 3, 3, 3, 3)

Case 2: Restricted Constant and No Trend

Date: 04/03/23 Time: 18:15

Sample: 2009Q1 2020Q4

Included observations: 45

ECM Regression

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LBMI(-1))	-0.261728	0.077853	-3.361815	0.0051
D(LBMI(-2))	0.109117	0.072985	1.495058	0.1588
D(LATMVA)	0.101556	0.068293	1.487055	0.1608
D(LATMVA(-1))	0.398712	0.063839	6.245584	0.0000
D(LATMVA(-2))	0.300226	0.060862	4.932927	0.0003
D(LIBVA)	-0.016504	0.012732	-1.296271	0.2174
D(LIBVA(-1))	-0.120192	0.015232	-7.890848	0.0000
D(LIBVA(-2))	-0.104508	0.016094	-6.493601	0.0000
D(LMBVA)	0.088485	0.033555	2.637013	0.0205
D(LMBVA(-1))	-0.380370	0.037349	-10.18429	0.0000
D(LMBVA(-2))	-0.352381	0.039456	-8.930945	0.0000

D(LPOSVA)	-0.076830	0.062484	-1.229593	0.2406
D(LPOSVA(-1))	0.457919	0.057864	7.913712	0.0000
D(LPOSVA(-2))	0.450824	0.060316	7.474372	0.0000
D(LR)	-0.002109	0.001246	-1.692327	0.1144
D(LR(-1))	-0.001892	0.001189	-1.591785	0.1354
D(LR(-2))	-0.004058	0.001334	-3.043296	0.0094
D(INT)	0.112155	0.028818	3.891873	0.0019
D(INT(-1))	-0.205791	0.024476	-8.407956	0.0000
D(INT(-2))	-0.164271	0.023819	-6.896586	0.0000
D(YG)	0.014405	0.003057	4.712467	0.0004
D(YG(-1))	-0.039476	0.003452	-11.43667	0.0000
D(YG(-2))	-0.019027	0.002927	-6.500661	0.0000
CointEq(-1)*	-0.501953	0.038231	-13.12934	0.0000

R-squared	0.926003	Mean dependent var	0.001501
Adjusted R-squared	0.844958	S.D. dependent var	0.124446
S.E. of regression	0.049001	Akaike info criterion	-2.889416
Sum squared resid	0.050424	Schwarz criterion	-1.925863
Log likelihood	89.01186	Hannan-Quinn criter.	-2.530213
Durbin-Watson stat	2.136559		

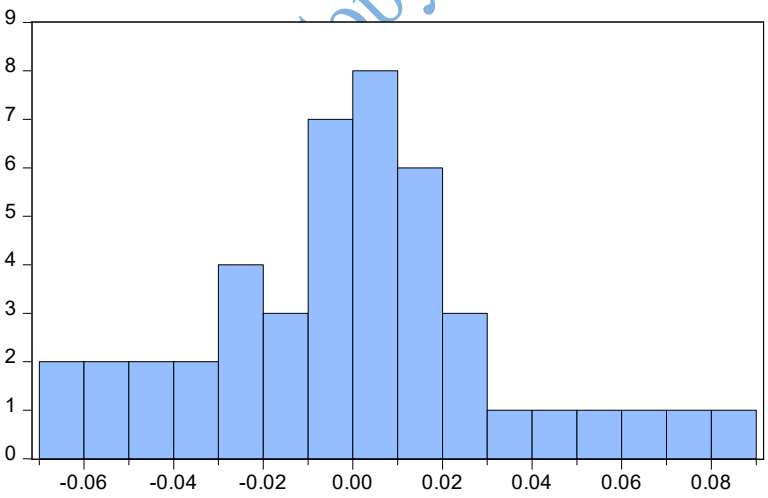
* p-value incompatible with t-Bounds distribution.

F-Bounds Test Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	11.85679	10%	1.92	2.89
k	7	5%	2.17	3.21
		2.5%	2.43	3.51
		1%	2.73	3.9

Post Estimation Test

4 **Normality**



Series: Residuals
Sample 2009Q4 2020Q4
Observations 45

Mean	2.18e-15
Median	0.000780
Maximum	0.081777
Minimum	-0.066000
Std. Dev.	0.033852
Skewness	0.279667
Kurtosis	3.112821
Jarque-Bera	0.610470
Probability	0.736950

5 Serial Correlation

Breusch-Godfrey Serial Correlation LM Test:

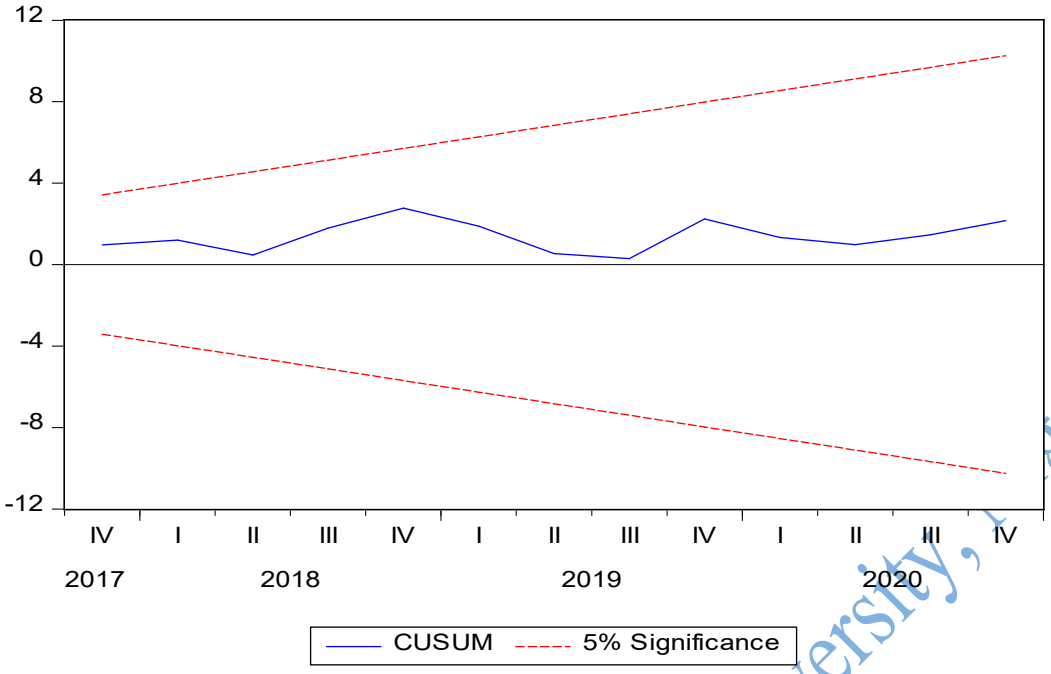
F-statistic	1.231623	Prob. F(4,9)	0.3634
Obs*R-squared	15.91874	Prob. Chi-Square(4)	0.0031

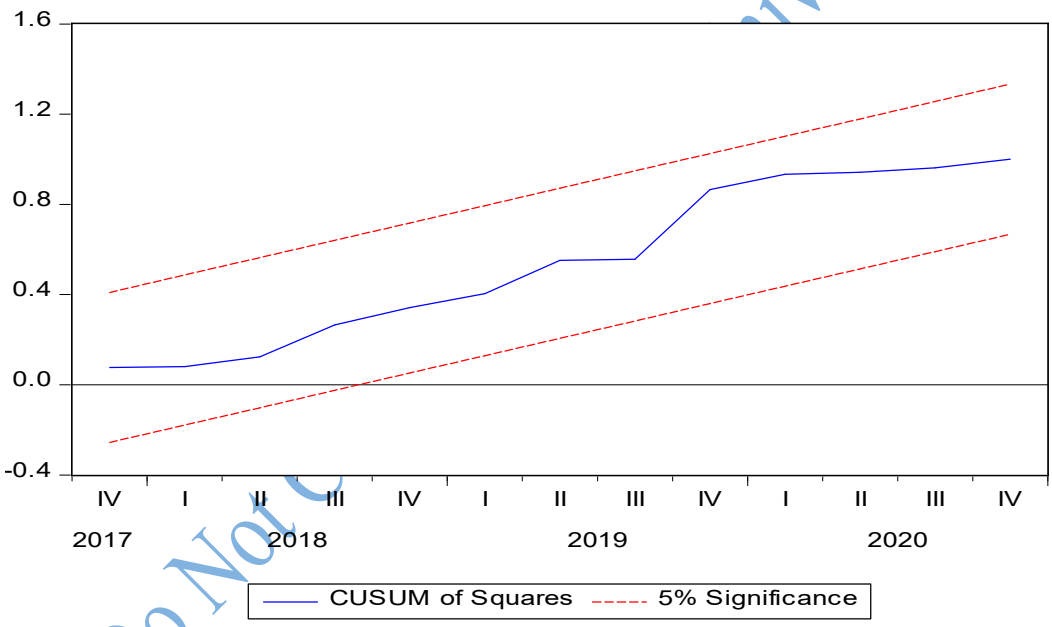
6 Heteroskedasticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.796768	Prob. F(31,13)	0.7093
Obs*R-squared	29.48268	Prob. Chi-Square(31)	0.5441
Scaled explained SS	2.599329	Prob. Chi-Square(31)	1.0000

7 Stability Test





Appendix IV

The Effec of Cashless Policy on Economic Performance of Nigeria

1 ARDL Output

Dependent Variable: YG

Method: ARDL

Date: 04/03/23 Time: 18:52

Sample (adjusted): 2010Q1 2020Q4

Included observations: 44 after adjustments

Maximum dependent lags: 4 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (4 lags, automatic): LATM LIB LMB LPOS LBMI INT LR

Fixed regressors: C

Number of models evalulated: 312500

Selected Model: ARDL(4, 3, 4, 4, 4, 3, 4, 4)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
YG(-1)	-0.122460	0.323684	-0.378331	0.7182
YG(-2)	0.097232	0.316886	0.306836	0.7693
YG(-3)	-1.759610	0.324694	-5.419281	0.0016
YG(-4)	-0.874400	0.366685	-2.384607	0.0544
LATMVA	65.72353	20.74466	3.168215	0.0194
LATMVA(-1)	-18.26460	4.878757	-3.743699	0.0096

LATMVA(-2)	-9.484672	4.640519	-2.043882	0.0870
LATMVA(-3)	17.02263	3.586869	4.745820	0.0032
LIBVA	-7.636312	2.469547	-3.092191	0.0213
LIBVA(-1)	0.599736	0.824354	0.727523	0.4943
LIBVA(-2)	-0.783762	0.879274	-0.891374	0.4071
LIBVA(-3)	-3.716765	1.051408	-3.535035	0.0123
LIBVA(-4)	-8.188791	7.481432	-1.094549	0.3157
LMBVA	15.97358	5.533288	2.886815	0.0278
LMBVA(-1)	-8.452525	3.286471	-2.571915	0.0422
LMBVA(-2)	-2.945332	3.012685	-0.977643	0.3660
LMBVA(-3)	-8.641084	3.885039	-2.224195	0.0678
LMBVA(-4)	-53.86853	15.93033	-3.381508	0.0148
LPOSVA	-52.23909	18.71740	-2.790937	0.0315
LPOSVA(-1)	15.08421	5.827323	2.588533	0.0413
LPOSVA(-2)	3.653629	4.100461	0.891029	0.4072
LPOSVA(-3)	5.328907	5.343722	0.997228	0.3572
LPOSVA(-4)	83.98835	29.86149	2.812598	0.0307
LBMI	31.86555	7.041659	4.525289	0.0040
LBMI(-1)	31.63890	10.33401	3.061630	0.0222
LBMI(-2)	1.707084	11.58541	0.147348	0.8877
LBMI(-3)	-17.00290	8.214231	-2.069932	0.0839
INT	1.102124	2.796108	0.394164	0.7071
INT(-1)	-8.262989	3.376839	-2.446960	0.0500

INT(-2)	-4.276388	1.967620	-2.173382	0.0727
INT(-3)	-7.437742	2.460301	-3.023103	0.0233
INT(-4)	-5.484041	2.672194	-2.052261	0.0860
LR	0.252062	0.101756	2.477120	0.0480
LR(-1)	-0.105631	0.145466	-0.726159	0.4951
LR(-2)	-0.223972	0.121523	-1.843050	0.1149
LR(-3)	0.045696	0.119058	0.383816	0.7143
LR(-4)	-0.378026	0.129793	-2.912533	0.0269
C	-163.0125	165.5709	-0.984548	0.3629

R-squared	0.978503	Mean dependent var	10.51031
Adjusted R-squared	0.845938	S.D. dependent var	4.282952
S.E. of regression	1.681092	Akaike info criterion	3.611606
Sum squared resid	16.95642	Schwarz criterion	5.152497
Log likelihood	-41.45534	Hannan-Quinn criter.	4.183043
F-statistic	7.381293	Durbin-Watson stat	2.819313
Prob(F-statistic)	0.009238		

*Note: p-values and any subsequent tests do not account for model selection.

2 Long Run Form and Bound Test

ARDL Long Run Form and Bounds Test

Dependent Variable: D(YG)

Selected Model: ARDL(4, 3, 4, 4, 4, 3, 4, 4)

Case 2: Restricted Constant and No Trend

Date: 04/03/23 Time: 19:14

Sample: 2009Q1 2020Q4

Included observations: 44

Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-163.0125	165.5709	-0.984548	0.3629
YG(-1)*	-3.659238	0.714609	-5.120613	0.0022
LATMVA(-1)	54.99689	17.52565	3.138080	0.0201
LIBVA(-1)	-19.72589	9.244099	-2.133890	0.0768
LMBVA(-1)	-57.93389	18.64430	-3.107325	0.0209
LPOSVA(-1)	55.81601	22.32661	2.499977	0.0465
LBMI(-1)	48.20863	9.374633	5.142456	0.0021
INT(-1)	-24.35904	6.796034	-3.584302	0.0116
LR(-1)	-0.409871	0.148697	-2.756419	0.0330
D(YG(-1))	2.536778	0.502375	5.049575	0.0023
D(YG(-2))	2.634010	0.565345	4.659118	0.0035
D(YG(-3))	0.874400	0.366685	2.384607	0.0544

D(LATMVA)	65.72353	20.74466	3.168215	0.0194
D(LATMVA(-1))	-7.537959	5.375937	-1.402167	0.2104
D(LATMVA(-2))	-17.02263	3.586869	-4.745820	0.0032
D(LIBVA)	-7.636312	2.469547	-3.092191	0.0213
D(LIBVA(-1))	12.68932	7.196538	1.763253	0.1283
D(LIBVA(-2))	11.90556	7.130025	1.669778	0.1460
D(LIBVA(-3))	8.188791	7.481432	1.094549	0.3157
D(LMBVA)	15.97358	5.533288	2.886815	0.0278
D(LMBVA(-1))	65.45495	18.81232	3.479365	0.0132
D(LMBVA(-2))	62.50961	17.62669	3.546304	0.0121
D(LMBVA(-3))	53.86853	15.93033	3.381508	0.0148
D(LPOSVA)	-52.23909	18.71740	-2.790937	0.0315
D(LPOSVA(-1))	-92.97089	32.80014	-2.834467	0.0298
D(LPOSVA(-2))	-89.31726	31.25342	-2.857839	0.0289
D(LPOSVA(-3))	-83.98835	29.86149	-2.812598	0.0307
D(LBMI)	31.86555	7.041659	4.525289	0.0040
D(LBMI(-1))	15.29581	8.223363	1.860044	0.1122
D(LBMI(-2))	17.00290	8.214231	2.069932	0.0839
D(INT)	1.102124	2.796108	0.394164	0.7071
D(INT(-1))	17.19817	4.023459	4.274474	0.0052
D(INT(-2))	12.92178	3.055835	4.228560	0.0055
D(INT(-3))	5.484041	2.672194	2.052261	0.0860
D(LR)	0.252062	0.101756	2.477120	0.0480

D(LR(-1))	0.556302	0.152366	3.651084	0.0107
D(LR(-2))	0.332330	0.094159	3.529439	0.0124
D(LR(-3))	0.378026	0.129793	2.912533	0.0269

* p-value incompatible with t-Bounds distribution.

Levels Equation

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LATMVA	15.02960	3.079912	4.879881	0.0028
LIBVA	-5.390711	2.385900	-2.259404	0.0646
LMBVA	-15.83223	4.296549	-3.684871	0.0103
LPOSVA	15.25345	5.831443	2.615725	0.0398
LBMI	13.17450	0.967657	13.61484	0.0000
INT	-6.656861	1.884985	-3.531519	0.0123
LR	-0.112010	0.053623	-2.088842	0.0817
C	-44.54822	41.20314	-1.081185	0.3211

EC = YG - (15.0296*LATMVA -5.3907*LIBVA -15.8322*LMBVA + 15.2535 *LPOSVA + 13.1745*LBMI -6.6569*INT -0.1120*LR -44.5482)

F-Bounds Test Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic:	
			n=1000	
F-statistic	9.174159	10%	1.92	2.89
k	7	5%	2.17	3.21
		2.5%	2.43	3.51
		1%	2.73	3.9
			Finite Sample:	
Actual Sample Size	44		n=45	
		10%	2.131	3.223
		5%	2.504	3.723
		1%	3.383	4.832
			Finite Sample:	
			n=40	
		10%	2.152	3.296
		5%	2.523	3.829
		1%	3.402	5.031

3 Short Run ECM Test

ARDL Error Correction Regression

Dependent Variable: D(YG)

Selected Model: ARDL(4, 3, 4, 4, 4, 3, 4, 4)

Case 2: Restricted Constant and No Trend

Date: 04/03/23 Time: 19:19

Sample: 2009Q1 2020Q4

Included observations: 44

ECM Regression

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(YG(-1))	2.536778	0.194307	13.05549	0.0000
D(YG(-2))	2.634010	0.233157	11.29714	0.0000
D(YG(-3))	0.874400	0.122637	7.129957	0.0004
D(LATMVA)	65.72353	4.791822	13.71577	0.0000
D(LATMVA(-1))	-7.537959	1.806621	-4.172407	0.0059
D(LATMVA(-2))	-17.02263	1.776711	-9.580978	0.0001
D(LIBVA)	-7.636312	0.634133	-12.04212	0.0000
D(LIBVA(-1))	12.68932	1.057657	11.99758	0.0000
D(LIBVA(-2))	11.90556	0.877479	13.56791	0.0000
D(LIBVA(-3))	8.188791	0.717482	11.41324	0.0000
D(LMBVA)	15.97358	1.548433	10.31596	0.0000

D(LMBVA(-1))	65.45495	4.962416	13.19014	0.0000
D(LMBVA(-2))	62.50961	4.588007	13.62457	0.0000
D(LMBVA(-3))	53.86853	4.314686	12.48493	0.0000
D(LPOSVA)	-52.23909	4.094879	-12.75717	0.0000
D(LPOSVA(-1))	-92.97089	7.195826	-12.92011	0.0000
D(LPOSVA(-2))	-89.31726	6.548819	-13.63868	0.0000
D(LPOSVA(-3))	-83.98835	6.780376	-12.38698	0.0000
D(LBMI)	31.86555	3.364216	9.471909	0.0001
D(LBMI(-1))	15.29581	2.240953	6.825584	0.0005
D(LBMI(-2))	17.00290	2.893892	5.875442	0.0011
D(INT)	1.102124	0.805633	1.368022	0.2203
D(INT(-1))	17.19817	1.409475	12.20183	0.0000
D(INT(-2))	12.92178	1.145163	11.28379	0.0000
D(INT(-3))	5.484041	0.957456	5.727724	0.0012
D(LR)	0.252062	0.032284	7.807761	0.0002
D(LR(-1))	0.556302	0.059577	9.337608	0.0001
D(LR(-2))	0.332330	0.040197	8.267459	0.0002
D(LR(-3))	0.378026	0.047942	7.885024	0.0002
CointEq(-1)*	-3.659238	0.263632	-13.88011	0.0000

R-squared	0.976707	Mean dependent var	0.046810
Adjusted R-squared	0.928456	S.D. dependent var	4.114486
S.E. of regression	1.100533	Akaike info criterion	3.247970
Sum squared resid	16.95642	Schwarz criterion	4.464463

Log likelihood	-41.45534	Hannan-Quinn criter.	3.699104
Durbin-Watson stat	2.819313		

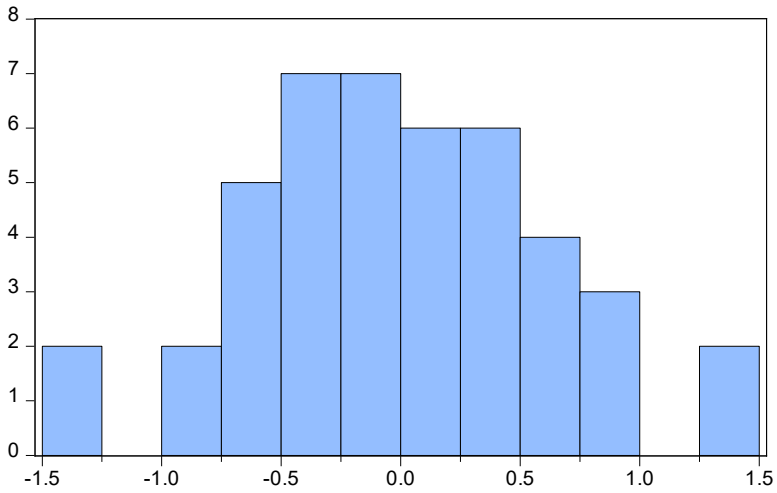
* p-value incompatible with t-Bounds distribution.

F-Bounds Test — Null Hypothesis: No levels relationship

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	9.174159	10%	1.92	2.89
k	7	5%	2.17	3.21
		2.5%	2.43	3.51
		1%	2.73	3.9

Post Estimation Test

4 **Normality**



Series: Residuals	
Sample 2010Q1 2020Q4	
Observations 44	
Mean	-2.06e-13
Median	-0.028192
Maximum	1.353630
Minimum	-1.423560
Std. Dev.	0.627961
Skewness	0.078469
Kurtosis	2.856511
Jarque-Bera	0.082900
Probability	0.959397

5 Serial Correlation

Breusch-Godfrey Serial Correlation LM Test:

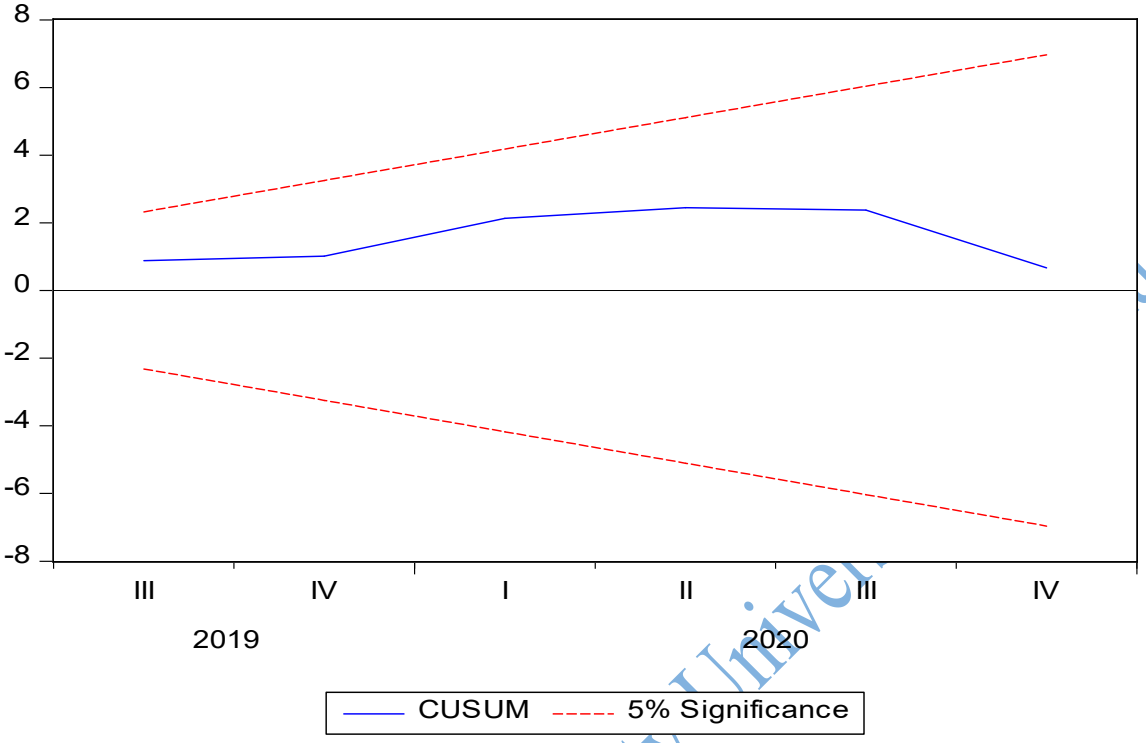
F-statistic	1.165690	Prob. F(4,2)	0.5102
Obs*R-squared	30.79226	Prob. Chi-Square(4)	0.0000

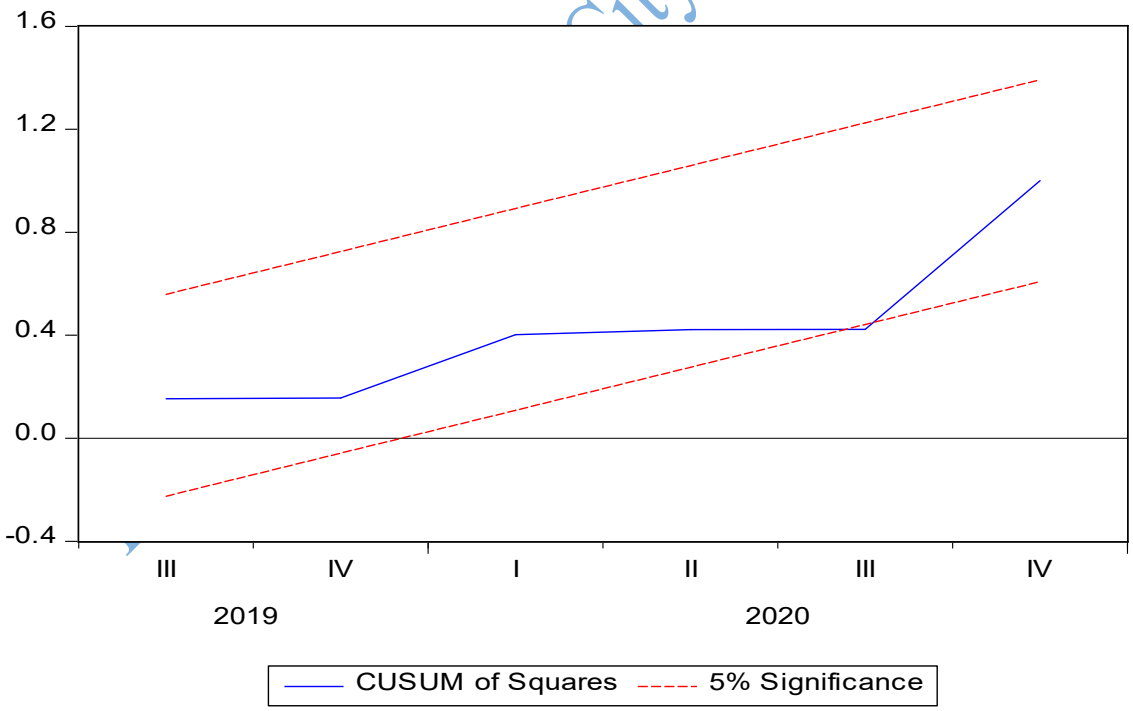
6 **Heteroskedasticity**

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.674749	Prob. F(37,6)	0.7887
Obs*R-squared	35.47444	Prob. Chi-Square(37)	0.5406
Scaled explained SS	0.612323	Prob. Chi-Square(37)	1.0000

7 Stability


8
6
4
2
0
-2
-4
-6
-8
III
IV
I
II
III
IV
2019
2020
CUSUM
5% Significance


1.6
1.2
0.8
0.4
0.0
-0.4
III
IV
I
II
III
IV
2019
2020
CUSUM of Squares
5% Significance

Bio-data

A. Personal Data:

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Place of birth: Saki

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Marital Status: Married

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B. Educational Background

Educational Institution Attended With Dates

i. Primary Education: 2nd Baptist Primary School Ago Are , Atisbo LG , Oyo State

ii. Secondary Education: Baptist Secondary Grammar School (BASEGA) Ago Are Oyo State

iii. Higher Educational Institution: Osun State Polytechnics Iree , Osun State

C. Working Experience With Dates Seedvest Microfinance Bank Ibadan Oyo State

D. Awards and Fellowships (if any): Nil

E. Membership of Academic Professional Bodies Chartered institute of Bank of Nigeria, Chartered Portfolio Management of Nigeria, Institute of Professional Manager of Nigeria and Financial reporting council of Nigeria

F. Publications (if any): Nil

1 Thesis/ Dissertations

2 Books

3 Scholarly Articles

4 Notable or Professional Accomplishments

G. Major Conferences/Workshop Attended: Nil

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Signature **Date**

The University Compliance Certification

This is to certify that this thesis written by Oluwaseun Yinka ADEPOJU with Matric Number LCU/PG/002093 in the Department of Management and Accounting, Faculty of Management and Social Sciences, Lead City University, Ibadan is in full compliance with the approved University format and style.

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Signature **Date**

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Signature **Date**