# BANK LENDING AND THE GROWTH OF THE NIGERIAN ECONOMY

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**A PROJECT WRITTEN AND SUBMITTED TO THE DEPARTMENT OF BANKING AND FINANCE OF THE FACULTY OF MANAGEMENT SCIENCES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF SCIENCE (B.Sc) DEGREE IN BANKING AND FINANCE OF THE UNIVERSITY OF BENIN, BENIN CITY**

**JANUARY, 2023**

## DECLARATION

I, **Faith Erowho ESHANOKPE** do hereby declare that this project is entirely my work and composition. The work embodied in this project has not been submitted by another candidate for any degree and is not currently being submitted for any other degree. All references made to the works of other persons have been duly acknowledged.

**Faith Erowho ESHANOKPE** **Date**

## CERTIFICATION

We, the undersigned certify that this research work was submitted by **Faith Erowho ESHANOKPE** and it is hereby approved for the partial fulfilment of the requirement for the award of Bachelor of Science (B.Sc) degree in Banking and Finance, University of Benin, Benin City.

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## DEDICATION

This work is dedicated to God Almighty for seeing me through and to my parents Mr. Joseph Eshanokpe and Mrs. Elizabeth Eshanokpe, who have been a great support to me.

## ACKNOWLEDGEMENTS

I sincerely express my profound gratitude to the Almighty God who in His infinite love and care has kept me safe and made this project a huge success.

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In addition, I sincerely appreciate every special being I couldn't mention in person but has impacted on me in a way or the other. I love you all and this is for you.

## TABLE OF CONTENTS

## ABSTRACT

*The study empirically examined the relationship between bank lending and the growth of the Nigerian economy for the period 1992 to 2021. The ordinary least squares (OLS) estimation technique was employed in the empirical analysis of data. The result from the analysis revealed that, credit to private sector (CPRIV) has significant positive relationship with economic growth in Nigeria; credit to public sector (CPUB) has an insignificant negative relationship with economic growth; while inflation rate (INFL) has a weak negative effect on economic growth, and this suggests that it does not play any significant role in the growth and development of the Nigerian economy. Those of exchange rate (EXCR) has significant positive effect on the growth and development of the Nigerian economy. The study recommends that, credit to private sector should be given more priority if the economy would grow as expected because, through the private sector the real sector of the economy which is central to the economy are directly affected. Failure to do this will only spell doom to the Nigerian economy. Also, there is need to review lending policy on a continuous basis with respect to interest rate with a view to ensuring that the level and structure of interest rates are adequate and consistent with policy objectives of making lending more accessible to private and public sectors of the economy.*

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background to the Study

Bank lending and economic growth are correlated, and this relationship can have significant effects on a nation's development and the viability of many private and public sector businesses. The fact that lending is the primary function of commercial banks can have significant effects on the growth of the private and public sectors, and it will likely be hampered in times of crisis by the risky nature of the business environment that frequently goes hand in hand with economic contraction. The private sector, which is the main engine of a country's economy, and the public sector will be impacted by higher costs of access to capital due to the risky nature of the business environment, which increases the likelihood of loan default. This relationship between commercial lending and economic growth is one that is positive. It is well known that commercial bank lending in Nigeria is at an all-time low and has not increased to the lending levels seen before the 1990s (CBN, 2012), which causes the majority of Nigerian banks to be failing in their primary responsibility, which is to lend to both private and public sector businesses.

Every economy relies heavily on the lending function of banks, and it is widely acknowledged that there is a correlation between bank credit and economic growth

(Oluitan, 2012). By creating money and transferring it from the surplus unit to the deficit unit, the banking sector lends money to other economic sectors. (Dietrich and Wanzenried, 2009; Njanike, 2009; Ali et al. (Jahn, 2012; Babalola, 2012).

In particular, through the credit facilities they provide to various sectors, banking activities have reportedly continued to be of enormous support to the growth of the economy, according to Ugoani (2013). These credits are anticipated to enhance investments, which will have a positive effect on economic expansion. According to the Central Bank of Nigeria (2013), the production, commercial, service, and other sectors of the economy in Nigeria have received bank loans.

Numerous studies on bank lending and economic growth evaluate the impact of the financial system's operation on growth and determine whether the effect is economically significant. These studies are important because they help promote growth at specific stages of economic development. Therefore, the purpose of this study is to investigate the connection between bank lending and Nigerian economic expansion.

## 1.2 Statement of the Research Problem

In essence, research has discovered that bank loans are a causal factor in economic growth. For instance, according to Bayouni and Melander (2008), a 2 percent decrease in total credit causes a 1 percent decline in GDP. Baum, Mustafa, and

Nestihan (2005) noted that this area of research has attracted a lot of attention. The hope of tending was that they would encourage investment funds, resulting in an expansion of economic activity through the actions of investors in terms of investing the loans obtained on securities in the stock market or in other forms of investment.

Furthermore, it is anticipated that bank lending will have a significant impact on both the choice of investments and economic expansion. As a result, in developing economies, financial decision-makers, business leaders, and entrepreneurs have traditionally placed a high priority on the necessity of maintaining low bank lending rates in order to promote domestic private investment, which stimulates economic growth. A connection between bank lending and economic growth has also been studied in earlier research. Several research projects (Nicholas, 2010, Obamuyi and Olorunfemi, 2011, Noula, 2012: Bouga. However, neither Obute, Asor, nor Itodo (2012) nor Onwumere, Okore, and Ibe (2012) discovered a connection between lending and economic growth.

Previous research on the connection between bank lending and economic growth has produced mixed results. In addition, the Greenwood-Jovanovic hypothesis, which assumes an inverted U-shaped relationship between bank lending and economic growth, has been taken into consideration as a means of explaining the conflicting opinions (both positive and negative) on the relationship between bank lending and the nexus between economic growth and bank lending. In other words, bank lending

may boost economic growth in the beginning but tends to dampen it as regular investors and business owners gain access to financial institutions. Theoretically, lending influences economic growth significantly and benefits investors when lending is high and expected to stimulate economic growth. This is motivated by examining the relationship between bank lending and economic growth in Nigeria using Dynamic Ordinary Least square. (DOLS) method for the period 1985-2021. The question is how applicable is this theory in real sense to Nigeria. Therefore, this study aims to close the gap.

## 1.3 Objective of the Study

The main objective of the study is to examine the effects of bank lending on economic growth in Nigeria. The specific objectives are;

i. To examine the impact of bank lending to private sector in driving the growth of the Nigerian economy.

ii. To examine the impact of bank lending to public sector in driving the growth of the Nigerian economy.

## 1.4 Research Questions

The questions this study intends to give answers to are:

i. What is the impact of bank lending to private sector on the growth of the Nigerian economy?

ii. What is the influence of bank lending to public sector on the growth of the Nigerian economy?

## 1.5 Research Hypotheses

The following hypotheses will be tested:

$H_{o1}$: There is no significant effect of bank lending to private sector on the growth of the Nigerian economy.

$H_{o2}$: There is no significant effect of bank lending to the public sector on the growth of the Nigerian economy.

## 1.6 Significance of the Study

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## 1.7 Scope of the Study

This study investigates the effect of bank lending on economic growth in Nigena for the period between 1985 - 2021. The research spans thirty-seven (37) years. The time range is thought to be long enough to study the kind of relationship that exists in the private and public sectors on the growth of the Nigerian economy. The study will rely on secondary data sourced from the Central Bank of Nigeria's annual statistical bulletins for the various years under consideration.

## 1.8 Limitations of the Study

The Limitation faced by this study is the problem of reliability of data. This is due to the fact that this study relies more on secondary data. Sources from which the data on the variables used posed a significant constraint to the findings of this study. To minimize this constraint, the study attempts to rely on data from the Central Bank of

Nigeria Statistical Bulletin as this source is more reliable in Nigeria and internationally.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

This section reviews literatures on bank lending and economic growth in Nigeria. The section shall be in three (3) sections namely; conceptual review, theoretical review and empirical review. The conceptual review will discuss concepts related to the subject matter, that is, bank lending and economic growth in Nigeria. The theoretical review will highlight and briefly discuss relevant theories on the relationship between bank lending and economic growth in Nigeria while the empirical review will present previous studies, adopted statistical tools and their respective findings which will present gaps that the researcher will highlight.

## 2.2 Conceptual Review

### 2.2.1 The Concept of Economic Growth

Economic growth is the rise in a nation's output (goods and services) from one period to the following. Economic growth, which is typically measured over a certain time period, is the continuous improvement in the capacity to meet demand for goods and services as a result of increased production scale and improved productivity (innovations in products and processes). According to macroeconomic

indicators, particularly GDP per capita, which has a positive impact on the social-economic sector, the growth of the economy is defined as the methodical expansion of a nation's economy (Smith, 2014). It is also described as an increase in the nation's output that eventually results in an increase in national income. It involves raising national output, which lowers unemployment and raises living standards for citizens of a nation (Ufoeze, 2018). Additionally, economic growth ensures the equitable distribution of national resources, which reduces the disparity in wealth distribution (Roihjert).

Being able to improve social welfare outcomes, which is the main objective of economic policy, requires economic growth, which is a crucial issue in economics (Mauck). Resources are distributed equally across the economy thanks to economic growth (Xu. Forecasting the economy's future prospects and evaluating the efficacy of various government policies aimed at fostering economic growth are both done using economic growth (Sax, 2014). To assess whether a nation is developing, the most recent production is contrasted with earlier ones (Ufoeze, 2018).

Because it measures the overall change in the country's productivity and is one of the primary factors taken into account by investors, particularly foreign investors, the GDP of a country is typically used to measure its economic growth. GDP is the total dollar amount of all goods and services produced in a particular economy each

year (Sax, 2014). Additionally, market fundamentals have an impact on GDP, and changes to the GDP are indicative of changes to real economic growth. A rise in real GDP also results in economic stability, which in turn boosts business confidence (Mauck). Macroeconomic fundamentals that are taken into consideration when formulating and enacting macroeconomic policy include the index of industrial production, inflation, the exchange rate, the utilization of a nation's manufacturing capacity, and others. Economic growth is correlated with changes in these fundamentals. At any given time, economic growth is used to evaluate the general health or well-being of a nation. Companies' and households' incomes decline as a result of exogenous shocks that slow economic activity, such as the recession of a significant external partner, making it harder for them to pay their debts to credit institutions (Moinescu).

#### 2.2.1.1 Economic Transformation Measures and Growth Agenda in Nigeria

The year 1986 marked the start of economic deregulation, with the goals of restructuring and diversifying the economy's economic base and reducing reliance on oil; achieving fiscal balance and reducing the deficit in the balance of payments in the medium term; and laying the groundwork for non-inflationary growth in the medium and long term (Adedipe, 2004).

**SAP, Monetary Policy and Financial Institutions Reforms**

The Structural Adjustment Programme (SAP), which was imposed by the IMF, was designed to increase competition and efficiency by relying more on market forces. These included the abolition of import licensing in September 1986, the privatization and commercialization of some public enterprises, the partial abolition of exchange controls, the reduction of government borrowing, and the bolstering of the use of Treasury Bills as an efficient tool of monetary control. Others include loosening restrictions on commercial banks' ability to participate in company equity and removing restrictions on their ability to lease equipment. Lastly, it required the use of tools for monetary control, including the creation of discount houses and the use of measures like cash reserve requirements, liquidity ratios, the discount rate, and open market operations (CBN, 2014). The CBN's open market operation (OMO) is how it intervenes in the money market by purchasing and disposing of her instruments, such as treasury bills and government bonds, in order to add or remove liquidity.

The CBN also uses the deposit money banks' (DMB) ability and capacity to lend money to the system to control their ability and capacity to maintain specific reserves and ratios. These reserves include the liquidity ratio, which requires banks to hold a specific proportion of their total customer deposits in Treasury Bills with a Fixed Yield. On the money market, these instruments can be discounted and traded. The Central Bank of Nigeria (CBN) imposes a mandatory cash reserve requirement (CRR) when she freezes a specific proportion of banks' deposits with her as a necessary cash reserve (typically interest-free). These policies have significant effects on the manufacturing industry, which is directly impacted by the nation's foreign reserves, local currency liquidity, and the resulting exchange rates, which determine the landing prices of her imported raw materials and even plants and machinery.

In a free market economy, deposit mobilization and lending are largely determined by the market and dependent on their liquidity position, particularly in Nigeria where licensed Deposit Money Banks (DMBs) are listed on the Stock Exchange and are privately owned and operated. Their cost of funds (interest paid on deposits) and lending rate are largely influenced by the Monetary Policy Rate (MPR) of the Central Bank of Nigeria (CBN) and the market's interplay of supply and demand for funds. Deposits in Nigerian DMBs are primarily influenced by the money supply of the economy, which is primarily influenced by government spending and capital inflows. Narrow money (M1) and broad money (M2) are the two main classifications of the money supply in the economy. M2 also records the available withdrawable balances of bank customers, in addition to M1, which records the amount of money in circulation in the economy. When M2 is high in the system, the economy is typically flush with liquidity, especially after the government has released funds to her service providers (recurrent and capital expenditure) or has statutorily shared the monthly federally collected revenue to all tiers of government (local councils, state governments, and the federal government). This typically signals a challenge with excess liquidity for the CBN, whose main responsibilities include managing inflation and stabilizing interest and exchange rates in the economy. Therefore, the CBN intervenes in the market via OMO, purchasing DMB deposit liabilities as well as freely moving public funds through the sale of Treasury

Bills (T-bills) at alluring interest rates. When this happens, banks' ability to lend to the private sector and/or the manufacturing sector may be harmed (limited) because they may become "illiquid," and the manufacturing sector may be said to have been "crowded out" (short changed) by the government's borrowing through the CBN in OMO.

The OMO served as the CBN's main tool for managing liquidity in 2013 and 2014, which it accomplished by issuing Treasury bills (T-bills). In the second half of 2013 compared to the first half, T-bill sales decreased by 52.8%. The volume of transactions made through the standing lending facility window increased by 30 point 66 percent in the second half compared to the first, while those made through the standing deposit facility window increased by 53 point 6 percent. OMO was primarily used by the CBN in 2014 as a monetary management tactic to mop up or inject liquidity into the system. Due to injections into the system brought on by Federal Government Bond maturities, there were more OMO auctions (CBN, 2015).

During the Structural Adjustment Programme, the banking industry was not exempt. The banking system reform was implemented in part to improve the effectiveness of the regulatory and supervisory framework and in part to increase the banking sector's reliance on market forces (CBN, 2013). These reforms included the Central Bank's autonomy, the adoption of the Banks and Other Financial Institutions Decrees (BOFID) in 1991, the creation of the Nigeria Deposit Insurance Corporation (NDIC), and the Central Bank's issuance of prudential guidelines and regulations to banking institutions (CBN, 2014). By supplementing the Central Bank of Nigeria's (CBN) supervisory activities in ensuring a safe and sound banking system, these decrees were issued to give depositors an additional level of protection and to promote financial stability. The prudential guidelines require lending banks to take reasonable care when valuing and lending depositors' money (deposits). As a backup source of loan and advance repayment, they must also offer sufficient security or collateral. The guidelines also outline how lenders should set aside money from their current income earnings in the event of loan and advance non-performance in order to minimize the effects of potential loan losses on their liquidity and capacity to fulfill their obligations to depositors. Bankers view bad loan fear as a necessary step toward achieving healthy banks and balance sheets because bad loans' impact on liquidity has been identified as one of the main causes of bank failures (CBN, 2014).

It can be said that the decade before SAP was implemented in the Nigerian economy in 1986 was a period of prohibition during which the country's economy was all but strangled by regulations (CBN, 2005). On the other hand, it is possible to characterize the decade that followed the SAP's implementation as a time of transition. Politicians and bureaucrats had been imposing economic controls for more than 40 years before this time (CBN, 2014). The first three years of structural adjustment saw the greatest and most noticeable improvements; however, from 1990 to 1993, the government's wasteful spending and the way it was financed completely undid the prior improvements (Dawoda, 2015).

**Post SAP Economy (Return of Regulation)**

The system's high level of liquidity, brought on by excessive government spending, contributed to an increase in the demand for foreign exchange during the same time period (post SAP). Additionally, a 16 percent average annual depreciation of the Naira was caused by the declining level of export earnings as a result of falling oil prices and the stagnation of non-oil exports (CBN, 2012). As predicted when SAP was introduced, however, such a long-lasting and abrupt depreciation did not lead to a significant increase in non-oil exports. The monetary contraction that was attempted to stop the rising demand for foreign currency and stop the gap between the official and parallel market exchange rates from widening did not have a lasting effect.

As a result, a new regulation was put into place in 1993 that made each bank's allotted share of foreign exchange proportional to its holdings of Naira deposits at the Central Bank of Nigeria (CBN, 2013). This arrangement primarily led to the removal of almost all excess liquidity from the financial system. The government set the exchange rate in 1994 at roughly N22.00 to USD1.00 after all attempts to stabilize it appeared to have failed (CBN, 2005). Exchange controls were reinstated during this time, and foreign exchange was directly allocated to priority industries like manufacturing and agriculture.

**Revert to Civil Law**

Between 1993 and 1998, Nigeria experienced rapid economic growth, laying the groundwork for the country to revert to democratic rule in 1999. By the middle of 1997, Nigeria's foreign exchange reserves had grown from USD 494 million in 1993 to USD 9.6 billion, and its external debt had dropped from USD 36 billion in 1993 to USD 27 billion (CBN, 2011). When Nigeria returned to civil rule in 1999, the country's economy did not perform well. Particularly in the second half of the year, the pressures associated with inflation decreased. During this time, inflationary pressures had decreased to 61%. It had risen to 70% in 1995 and 1996, so this represented a significant decline. (Masha, 2000). This happened during a time when the money supply and the economy were both expanding. The dollar was trading at N92.00 to a US dollar in the fourth quarter of 1999, and the value of the naira had also declined at that time. The exchange rate did, however, dramatically increase in the latter half of 2000, which is not unrelated to the implementation of a floating exchange rate regime, which had previously been fixed under the military era, which ended in 1999. A dollar was equivalent to NI35.00 until the second half of 2000. As reported by Mudasiru and Adabonyon in 2001, this represents a further 50% decline in the value of the naira.

However, a look at the real industries (manufacturing and agriculture) showed steady improvement. Agriculture production continued its five-year rise in 1999 after starting to rise in 1995. The total index of agricultural production rose by 3.3

percent during this time, compared to 3.1 percent in 1998, but the performance drastically declined in the second half of 2000 (CBN, 2000). A modest recovery was seen in the manufacturing sector in 1999 and 2000 compared to 1996. However, the industry has struggled to alter peoples' preferences and perceptions of imported goods.

A nationwide survey by CBN of 560 manufacturing facilities revealed that the sector's weighted average capacity utilization rate rose from 30 point three percent in 1998 to 34 point three percent in 1999. Because of higher costs for raw materials, equipment, and spare parts, the overall cost of operations increased by 14 point 2 percent over 1999. Compared to locally sourced raw materials, the value of imported raw materials increased by 5.8 percent, accounting for roughly 47.5 percent of the total value of raw materials used (CBN Annual Report, 1999). Imported raw materials also increased in value by 34.7 percent.

**Rebasing of Nigeria¬s GDP**

The estimated size of the economy increased by 9% as a result of the rebasing of Nigeria's GDP from 1990 to 2010. As a result, Nigeria surpassed South Africa to become the continent's largest economy, surpassing South Africa's nominal GDP of USD 435 billion with an estimated nominal GDP of USD 510 billion. The economy is more diverse than previously believed, according to the rebasing exercise. With an estimated real GDP growth of 7 point 4 percent in 2013 (up from 6 point 5 percent in 2012), Nigeria has maintained its impressive growth over the past ten years. This growth rate is much higher than Sub-Saharan Africa's and the West African subregion's combined. Improvements in the non-oil sector continue to support the economy's performance, with real GDP growth rates of 5 point 4 percent, 8 point 3 percent, and 7 point 8 percent in 2011, 2012, and 2013, respectively (AFDB, OECD, UNDP, 2014).

Although the growth cannot be characterized as holistic, this section finds that between 1960 and 2015, the Nigerian economy significantly improved in almost all sectors. While some industries have advanced, others have not. To accomplish various goals, various policy measures were put into place at various points in time. As varied as their implementation timelines and intended outcomes were, so were the results of these actions. The review of the Nigerian economy, primarily from 1967 to 2015, is a tale of an emerging market with developing opportunities and challenges from a "virgin" nation that attained political independence from Great Britain in 1960.

Both before and after independence, agriculture remained the country's main source of employment and one of the main contributors to its GDP. Manufacturing made the largest contribution to the GDP of the country between 1981 and 1985, followed by agriculture and then oil. Oil continued to be the main contributor to the country's foreign reserve and, consequently, the main source of revenue for the government's fiscal plan, despite its lower contribution to the reserve and, as a result, its lower importance. The manufacturing sector, a significant component of the real sector, was subject to challenges from foreign goods, underutilization of capacity, exchange rates, and illiquidity as a result of monetary policies and regulations.

### 2.2.2 Concept of Deposit Money Banks

The idea of the banking sector as a whole must be taken into consideration in order to conceptualize deposit money banks. Depository banks and non-depository banks are the two categories into which financial institutions in Nigeria fall. The DMBs are essentially deposit money or depository banks, even though they carry out a variety of tasks, like opening accounts where depositors (surplus unit) make payments into their account for safekeeping, and this deposit is then disbursed as loans to interested customers (deficit unit) who seek such loans for investment purposes. A deposit money bank is a financial establishment that provides a range of financial services, including taking deposits and disbursing loans, according to Investopedia (2017). Savings accounts and certificates of deposit are just a couple of the investment options available to deposit money bank customers. Loans from business loans to auto loans to mortgages can all be obtained from a deposit money bank. CBN (2016) states that commercial banking in an economy entails exchanging cash for bank deposits and deposits for cash, transferring the former from one person or corporation to another, and exchanging deposits for government bonds, bills of exchange, or the secured or unsecured promise of repayment from businesses. This banking concept illustrates the fundamental truth that a bank, as an institution, is primarily concerned with the accumulation of temporarily idle money from the general public for the purpose of advancing it to others for expenditure (Wurangtep, 2020).

Deposit money banks are commercial organizations created to conduct banking operations and generate profit for their shareholders (Ramadhani, 2015). Between the surplus (supply side) and deficit (demand side) units of a fund, deposit money banks and other financial institutions in a nation act as a link. The financial crises of 2007–2010 starkly illustrated how important deposit money banks are to providing lending to the economy, especially during periods of extreme financial distress (Li, 2007). The crisis has particularly shown how deregulation, financial innovation, and the expanding influence of institutional investors have altered the entire monetary transmission mechanism. Deposit money banks may thus become a source of resistance in the process of transmitting monetary policy (Li, 2007). Deposit money institutions lend money to people, companies, and governments in the form of loans and advances to help them make investments and other types of development work that promote economic growth in general and economic development in particular.

### 2.2.3 The Concept of Deposit Money Bank Lending

According to Dhikhary (2018), a loan is a contract, either written or oral, under which the owner of the property, known as the lender, temporarily transfers it to the borrower with the promise that the borrower will return the property in accordance with the terms of the loan. The property is typically cash in cash form. The conditions cover interest, repayment interval, and repayment schedule. When the

lender asks for repayment of a term loan, it must be made. It will be repaid in the agreed-upon monthly installments if it is an installment loan. With a time loan, the lender expects a one-time payment at the conclusion of the predetermined time frame. In addition, banks classify their loans into secured and unsecured loans, secured and unsecured loans for construction and mortgages, consumer loans, commercial loans, industrial loans, and so forth. The definition of commercial bank loans used in this study is the same as that used by De Haas, Ferreira, and Taci (2016), who stated that they were the sum of all loans made. In Nigeria, a commercial bank must be registered in order to make loans of any kind to any borrower. Credit is the term used to describe the lending of funds by the lender to the borrower. According to Ajayi (2009), credit refers to a promise made by one party to another to obtain money or something equivalent in exchange for a later refund. Credit is inextricably linked to the banking industry because banks serve as a conduit for money to be transferred from surplus economic sectors to deficit ones that need money for productive purposes. These funds are received in the form of deposits from the surplus sectors of the economy. Banks are consequently debtors to borrowers of funds and creditors to those who deposit money with them. The amount of loans and advances made to economic agents by the banking industry constitutes bank credit, according to the Central Bank of Nigeria (CBN, 2018). Collateral is frequently used in conjunction with credit to help ensure loan

repayment in the event of default. Credit facilities allow for the channeling of savings into investment, which fosters economic expansion. The ability to play the intermediary role, which is essential for economic growth, is made possible by the availability of credit.

According to Gichure (2015), a bank loan is typically a sum of money given to a person or organization with the understanding that it will be paid back later, with or without interest. It is also possible to borrow against other assets, including real estate, equipment, and buildings (Karakaya and Er, 2013). However, the cost of credit is significant in the loanable funds market because it is crucial for the mobilization and effective distribution of financial resources in an economy. Therefore, interest-bearing and non-interest-bearing loans are both offered by deposit money banks. In the case of non-interest loans, banks take a cut of the business's profits. But one of the study's independent variables is the interest rate on the loans that deposit money banks offer.

A bank's main duties are to accept deposits and make loans. Receiving a deposit is risk-free because the banker is required to return the deposit upon request. On the other hand, because repayment is never guaranteed, lending is always risky. On the other hand, a banker makes the majority of his money through lending. Bankers should exercise extreme caution when making loans because they are not using their

own funds. The majority of the money that is lent comes from public deposits. The majority of these deposits are repayable on demand (Mithani et al. , 2008).

A loan is the act of lending money by one person, group, or entity to another person, group, or entity. A note that details the principal amount borrowed, the interest rate the lender charges, and the repayment date, among other things, serves as legal documentation for a loan, which is a debt given by one entity (an organization or individual) to another entity at an interest rate. For the duration of the loan, the lender and borrower will alternate ownership of the subject asset(s) (Guttentag, 2007).

### 2.2.4 Concept of Lending Rate

Bank loans known as lending interest loans specify the price of obtaining credit in a market. Rates are commonly used to express this, and they typically represent a percentage of the total loaned amount (Gichure, 2015). As a result, a lender's fee to a borrower in exchange for a loan is what is meant by "lending interest rates.". According to Kristianti and Yovin (2016), the lending interest rate includes both the cost of borrowing money and the rate of return on an investment. The interest rate is defined as the amount paid per unit expressed as a percentage of the amount borrowed (Nimalathasan, 2009). It represents the cost of present resource claims relative to those for the foreseeable future. The cost of borrowing money over a

predetermined period of time, according to Amengor (2010), is represented by the interest rate. Interest rates typically vary according to the maturity term, which gives rise to the term structure of interest rates.

There are many different categories for interest rates. Interest rates can be classified as either nominal or real. The nominal interest rate takes inflation into account (Nimalathasan, 2009). Instead of measuring the nominal interest rate in terms of goods, it can be done in terms of money. The relative cost of consuming now as opposed to later is determined by the real interest rate, which is an interest rate that has been modified for either actual or anticipated inflation. According to Karakaya and Er (2013), the real interest rate is calculated by deducting the nominal interest rate from the inflation rate. Comparing the two interest rates, the nominal rate is higher. Real interest rates are therefore a crucial variable in crucial theoretical models in microeconomics and finance, like the consumption-based asset pricing model (Kwak, 2000).

Jaffer and Mabwe (2014) assert that the cost of borrowing money is correlated with the lending interest rate. Since many banks rely heavily on borrowing for funding, lending interest rates are a major source of concern for the banks because the indexing of interest rates on the banks' borrowing arrangements ultimately has an impact on growth. The allocation of portfolios by domestic and foreign traders in

the financial and exchange rate markets is significantly influenced by changes in interest rates, as are household saving and consumption patterns, bank capitalization decisions, and bank capital allocation decisions. The positions of aggregate demand and supply in an economy are said to be impacted by these changes, which can happen right away or with a two-year lag. The expectations and plans of economic agents as well as their opinions of welfare and income redistribution as well as the future prospects of the economy are all impacted by these changes (Fredriksson, Maresch).

The cost of conducting business, residing, and investing are all low when the real interest rate is low (Li, 2007). Making home and auto loans more affordable has a positive economic impact. As a result, people have a propensity to borrow more money and spend more money. Interest rates also have an impact on inflation. The amount of money entering the economy is affected by interest rates. According to Ramadhani (2015), the creation of a positive interest rate—lending that is higher than the rate of inflation—is a requirement for successful and long-term finance. The entire banking system and the economy as a whole are affected when Nigeria's central bank changes the interest rate at which banks borrow money. Interest rates have an effect on the economy as a whole, the stock and bond markets, inflation, and recessions. The psychology of consumers and businesses is impacted by interest rate changes (Nimalathasan, 2009).

Businesses and consumers both cut back on spending when interest rates rise. High interest rates limit aggregate investment and consumption as well as national economic growth by increasing the cost of borrowing (Edwards). As holders of adjustable-rate debt must make larger payments, rising interest rates can also result in an increase in the rate of default. Bashir (2003) asserted that while interest rates are the cost that lenders charge for loans taken out, they would eventually reach the market equilibrium interest rate as a result of forces in the market such as supply and demand. This point of view is in line with traditional economic theory. According to the Nigerian Stock Exchange (2017), the amount of money in circulation, the rate of inflation, the length of the credit period, and the monetary policy of the central bank all play a major role in determining interest rates. Diamond and Dybvig (2013) make a distinction between the liquidity approach and the loanable funds approach when determining interest rates. These methods are predicated on the notion that the level of income and employment identified in the real sector of the economy remains constant. One assumes that there is no inflation.

Interest-rate targets are a crucial tool for monetary policy, and they are taken into account when addressing factors like investment, inflation, and unemployment. Interest rates typically decline when a nation's central bank wants to spur more investment and consumer spending. On the other hand, a low interest rate as a macroeconomic policy can be risky and can result in the bursting of an economic

bubble where huge amounts of money are invested in the stock and real estate markets (Damankah, Anku-Tsede). According to Athanasoglou, Brissimis, and Delis (2005), this occurred in Japan in the late 1980s and early 1990s, leading to sizable unpaid debts to Japanese banks and the bankruptcy of these banks, as well as stagflation in the Japanese economy (Japan was the world's second largest economy at the time), with exports turning into the last pillar for the Japanese economy's growth throughout the rest of the 1990s and the early 2000s.

### 2.2.5 Nigerian Banking Operation History

The First Bank of Nigeria (previously known as the Bank of British West Africa (BBWA)) and the African Banking Corporation, which were both founded in 1892 and 1894, respectively, are credited with establishing banking in Nigeria (Onoja, 1998). There was no denying that the Colonial Banks had a lengthy history in Nigeria. They managed business operations, impacted financial dealings, and influenced trade and business dealings from Nigeria to Ghana (Chibuike, 1999). The Colonial Bank, the Anglo-Egyptian Bank, and the National Bank of South Africa were merged to create Barclays Bank (Dominion, Colonial and Overseas) in the early to mid-20th century (ibid). The British and French Bank for Commerce and Industry, later known as the United Bank for Africa, was founded in 1948. Because of this, these banks failed to try to satisfy the needs of Africans (Sklar,

2004). Dr. Nnamdi Azikwe founded the African Continental Bank, a bank with African ownership, in 1949. He made the decision to found the bank in the name of Pan Africanism because he and his group of companies were the targets of discrimination by foreign banks. True, the ACB did not establish itself as the first bank in Nigeria. The Industrial and Commercial Bank established itself as the nation's first bank in 1929, but it had a brief existence and failed in 1930, fifteen months later (Charles, 1966).

Despite the fact that economic repression at the time also contributed to its demise, mismanagement, accounting incompetence, and embezzlement have been held responsible. With the majority of its directors also serving on the board of the defunct ICB, Mercantile Bank acquired its leftovers in 1931. The company established branches in Lagos and Aba a year later, but six years later it also entered voluntary liquidation. The establishment of the Nigerian Farmers and Commercial Bank occurred in 1947. The government appointed Mr. G out of concern for the rapid growth of local banking institutions. D. In 1948, the Nigerian government asked Paton, a Bank of England official, to "enquire generally into the business of banking in Nigeria and make recommendations to the Government on the form and extent of control which should be introduced.". It set the stage for the first Banking Ordinance Act's enactment the following year with its report on this inquiry, which was delivered in 1952. It was created primarily to uphold the integrity of the

commercial banking system, as well as to stop the emergence of unhealthy banks and unsupervised banking activities (CBN, 2013). The draft legislation for the establishment of the Central Bank of Nigeria was delivered to the House of Representatives later that month, in March 1958. The Central Bank of Nigeria began operating in full on July 1, 1959, after it was passed and fully implemented. Because there was no long-term banking regulation in place during this time, it is known as the "free banking era" (Victor and Atsede, 2003). As a result, the years 1892 to 1952 are referred to as this era.

Between 1959 and 1989, when the finance and banking industries were theoritically deregulated through the creation of the Structural Adjustment Programme (SAP) inspired by the Bretton Woods conference, there was a significant increase in the founding and operation of financial banks. Due to financial sector reforms, new deposit-taking financial institutions are now the norm (Nwabugo, 2013). Community banks, finance companies, and short-term credit institutions were numerous. An important outcome of this financial oversight was the creation of People's and Mortgage Banks (previously known as Primary Mortgage Institutions), which currently exist only in name and logo. The government created the Nigeria Deposit Insurance Corporation (NDIC) in 1988 with the intention of implementing financial reforms and assisting the Central Bank of Nigeria in formulating policy. Its job was to carry out effective monitoring to guarantee the security and soundness

of financial services as well as the protection of bank deposits. Its auxiliary supervisory role with the Central Bank was established by the NDIC Act (Nwabugo, 2013).

### 2.2.6 Finance-Growth Theories and Contributions of the Banking Sector to the Nigerian Economy

The Nigerian banking system appears to be facing a number of difficulties that are affecting its contribution to the growth of the country's economy, despite the numerous policy interventions and successes in the sector. According to Afolabi (2004), the period from 1995 to 2005 was particularly challenging for Nigeria's financial sectors (banking, capital markets, and insurance) as some of the country's banks experienced financial distress, largely as a result of poor management on the part of bank managers. These not only caused widespread concern among regulatory organizations but also among policy analysts and members of the public. In order to absorb excess naira liquidity in the economy, the Central Bank of Nigeria implements monetary policies using a variety of tools, including open market operations, discount rates, and cash reserve ratios. Because they are unable to mobilize deposits into the banking industry, banks typically experience issues as a result. As a

result, some banks took part in currency arbitrage activities that were typically outside the boundaries of permitted banking operations.

The World Bank (2013) asserts that Nigeria's private sector-led economic growth is constrained by high transaction costs, which include the need to build out necessary infrastructure, rising insecurity, a dearth of effective due process, and murky economic decision-making (particularly in government contracting). Although corruption is pervasive, it is less obvious now than it was under military rule, and things are beginning to change. Since 1999, the Nigerian Stock Exchange has performed well, and the private sector in Nigeria is increasingly embracing equity as a way to promote corporate growth (World Bank, 2013).

In order for an economy to grow and develop, its financial system is expected to play a significant role (Balago, 2014). And the financial system is composed of a variety of financial operators, institutions, and tools that give the system its character and distinctiveness. CBN (2009) claims that the Nigerian financial system is made up of a variety of financial agreements, agents, institutions, rules, and regulations that work together and with the rest of the world to facilitate exchange and, as a result, economic growth in the nation.

The main engine of economic growth is the financial system, which accomplishes this through intermediation procedures that include the provision of a medium of exchange necessary for the mobilization of savings from surplus to deficit units (Agu, 2005). A more effective transfer of funds from the surplus to the deficit sectors of the economy is made possible by the financial intermediation process, which increases productive activity and, in turn, aggregate output and economic growth.

Financial markets are essential to a strong modern economy because they let lenders and savers sell excess money to borrowers and spenders who need it for business purposes. Once again, the financial system offers ways to organize and control the payments system as well as ways for banks and other depository institutions to gather and transfer savings. Additionally, plans are made to cover the operations of the money market in terms of short-term financial instruments, the activities of the capital market in terms of the issuance and trading of long-term securities, and the operations of financial markets that are complementary to the money and capital markets (Nzotta, 1999; Nzotta and Okereke, 2009).

Hierarchical control over the Nigerian financial sector (NBCB) is exercised by the Central Bank of Nigeria (CBN), the Nigeria Deposit Insurance Corporation

(NDIC), the Securities and Exchange Commission (SEC), the National Insurance Commission (NAICOM), and the National Board for Community Banks. For the purposes of this study, the analysis will only be performed on the Nigerian banking sector, which is an important part of the financial system. The term "financial intermediation" is also used in this study to describe the activities of the banking sector as a component of the financial sector/system. In fact, it powers the market economy based on banks.

In light of the significance of the financial system, a number of studies on the role of financial intermediation in national economic growth have been conducted (Benston). Benston and Smith Jr. (1975), financial intermediation not only performs specialized tasks but also lowers the cost of information acquisition and financial transaction execution (Shittu, 2012). Risk-sharing and insurance are provided (Allen). , 1975). This implies that there are empirical evidences to show the importance of finance in economies, but that these evidences are incomplete and inconclusive, necessitating this study.

Examining how the Nigerian banking sector has evolved over time and how it has contributed to the country's economic growth is necessary to comprehend the role of financial intermediation, in particular the bank-based financial

system, and the role of finance in national economies. The encouragement of economic growth through various inputs is inextricably linked to the growth theories advanced by economists, from the classical to the endogenous growth models. The development of economic growth theories has been well-captured by Salvadori (2003), who noted that there have been notable ups and downs in interest in studying economic growth over the course of economic history. It was at the center of classical political economy from Adam Smith to David Ricardo, and then in Karl Marx's "critique," but it moved to the periphery during the alleged "marginal revolution.". Growth theory was given new life by John von Neumann and Roy Harrod's growth model, which attempted to apply Keynes' principle of effective demand to the long run. Following the mid-1950s publication of papers by Robert Solow and Nicholas Kaldor, growth theory became one of the primary topics of the economics profession until the early 1970s. Since the mid-1980s, economic growth has come back to the forefront of economic theory after a ten-year hiatus.

Endogenous growth theory, which is the most recent theory, contends that the growth rate is determined by the model itself rather than by an exogenous variable. The classical viewpoints of Adam Smith and David Ricardo were the foundation of growth theories, as was previously mentioned. Adam

Smith viewed the growth process as a combination of capital accumulation and labor division, and he went on to explain economic growth as an endogenous process in which growth is determined by the decisions and actions of agents (savers and investors), as well as the creativity and innovativeness that emerges in an economy.

While agreeing with Smith in many respects, David Ricardo does not share Smith's view on the long-term trend of profitability as capital builds up (Salvadori, 2003). Ricardo thus showed that, given the real wage rate, the rate of profits cannot decline due to "competition of capital," as Smith argued, but rather due to diminishing returns brought on by a scarcity of land(s) in the growth process.

In addition to the traditional explanations for economic growth offered by Adam Smith and David Ricardo, the Keynesian theory of economic growth has also gained popularity. The Keynesian theory of economic growth is predicated on the notion that the economy does not necessarily tend toward full employment and that the various demand-related factors can affect the growth rate of the economy (Commendatore et al. , 2003). The components of aggregate demand that are net of imports and exports are consumption, investment, and government spending.

### 2.2.7 Bank Lending and Economic Growth

Since Schumpter's groundbreaking study from 1911, the relationship between finance and economic growth has drawn a lot of attention from academics. According to Schumpeter, the banking system's ability to provide financial intermediation is essential for economic growth and development because it affects how savings are allocated and mobilized, which in turn affects how quickly technology advances and how quickly productivity increases. Further, according to Schumpeter, economic growth would be boosted if savings raised through the banking system were used effectively and efficiently by identifying and supporting entrepreneurs who had the best chances of implementing novel products and manufacturing techniques. Contrary to conventional wisdom, Tahir et al. (2015) acknowledged Luintel and Khan's (1999) claim that the impact of credit is not always positive on economic growth. It is not difficult to understand the real way in which the growth of credit influences economic growth in the sense that when credit grows, consumers can borrow and spend more, and enterprises can borrow and invest more. In Nigeria, commercial banks lend more to the private sector compared to the public sector, which is exp. According to empirical studies, the public sector has a poor track record of fostering economic growth because it is prone to waste and employs programmers who may not be motivated by the best interests of the general public (Tahir et al. , 2015). Ajibola (2015) study showed an

increasing importance of commercial bank lending to economic growth in Nigeria, more so that commercial banks accounted for over 60% of total loans provided. Additional studies, such as Mamman and Hashim (2014) and Ringim and Sayedi (2019), came to similar conclusions about the impact of bank lending on economic growth in Nigeria.

## 2.3 Theoretical Review

This section will review the theory of financial intermediation, supply leading theory, the Wicksell theory of lending and economic growth.

### 2.3.1 Theory of Financial Intermediation

According to Besley and Bringham (2009), the presence of intermediaries enhances economic prosperity. They continued by saying that financial intermediaries were created to address particular needs of both savers and borrowers and to lessen inefficiencies that would otherwise exist if loan recipients could only obtain funds by borrowing directly from savers. Individuals, organizations, and other economic agents need money for a variety of reasons. The required financing is provided by a number of different financial institutions. One type of financial institution that offers services is a deposit money bank. They primarily engage in financial intermediation, also known as indirect financing, which entails transferring money from the surplus unit of the economy to the deficit unit and converting bank

deposits into loans and credits. Although some businesses lack the funds, they would like to invest in good ideas and business opportunities. They are ready to take out loans from net savers who have money sitting around. These second groups are therefore referred to as the economy's deficit unit or net borrowers. However, there are challenges that make borrowing challenging to complete. And a go-between will be needed to close the gap between net savers and net borrowers in order to remove this barrier. Financial intermediation is the term for this. Financial intermediation is the process of transferring money from net savers' idle funds to investors or net borrowers in need of capital.

### 2.3.2 The Supply Led Finance Theory

This theory was created by Patrick in 1966, and it is predicated on the idea that finance plays the largest role in determining the growth of the real sector. The supply led finance theory asserts that finance is the primary driver of economic growth and is therefore growth inducing or growth induced. According to the theory, financial institutions' provision of funds through the extension of credit to businesses supports the creation, transformation, and growth of industries and development projects, thereby raising the economy's potential for growth. According to this point of view, the development of other economic sectors would be facilitated by the existence of a financial sector and effective financial

intermediation in directing scarce resources from surplus units to deficit units. The supply led finance theory places a strong emphasis on the reciprocal and causal relationship between finance and economic development, suggesting that there is a two-way causal relationship between the two.

### 2.3.3 Wicksell Theory of Lending and Economic Growth

The quantity theory of money had a significant impact on Knut Wicksell, a Swedish economist who put forth this theory in 1901. According to Weise (2006), Wicksell's theory was based on a comparison between the marginal product of capital and the cost of borrowing money. As a result, Wicksell's theory approached economic growth from a monetary perspective. Entrepreneurs would borrow at the money rate, according to Wicksell, to purchase capital goods if the interest rate on loans was lower than the natural rate of return on capital (Wicksell, 1901). As a result, prices for all resources would rise due to the increase in demand. Instead, business owners would sell capital goods and pocket the profit if the interest rate on borrowed money was higher than the natural rate of return on capital. As a result, there would be less demand for money and less of a cost to borrow money. The output gap and the interest rate were connected by Wicksell. What should be produced and what shouldn't be was represented by the production gap. This theory is crucial to this study because it establishes a clear connection between the demand for and price of

money, as well as output in a nation. It shows how borrowing is impacted by interest rates, which in turn has an impact on the acquisition of capital goods and production. If interest rates are higher than the natural rate of return, borrowing will decrease, which will result in lower economic growth due to low investment. Instead, more borrowing will take place if the interest rate is lower than the natural rate of return, which will lead to increased economic growth through increased investment (Weise, 2006).

### 2.3.4 Robert Solow Model of Growth

This theory was put forth by Robert Solow in 1956. This neoclassical economics-based model of long-term economic growth. The model looks to capital accumulation, labor (population) growth, and productivity increases—also known as technological progress—to explain long-term economic growth. The Solow model makes the following presumptions. It starts off by assuming that capital is subject to diminishing returns in a closed economy. Second, the most recent unit of capital accumulated will always have a smaller effect on output than the previous one if the labor supply stays constant. Third, the amount of new capital produced will eventually fall short of covering the amount of existing capital lost to depreciation if there is no advancement in technology or growth in the labor force. Economic growth has stopped at the moment (Romer, 2011). The Cobb-Douglas

model's effect of diminishing returns was lessened by the addition of the changing technological context in the Solow model. As a result, the Solow model proposed that technology, labor supply, and capital all affect production. The production function made technological advancement equivalent to an increase in the effective supply of labor given the current state of technology, which grows at a rate equal to the sum of population and productivity growth rates (Solow, 1956). This theory is pertinent to this study in the manner described below. First, the model approaches the rate of economic growth from the standpoint of output, just like this study does. Second, it is presumable that commercial loans will give access to capital for boosting a nation's output. The theory merely establishes a connection between capital, other factors of production, and the level of national output given the state of technology (Romer, 2011).

## 2.4 Empirical Review

A quarterly period from 1999 to 2020 was studied by Inim, Ishaku, Cross, Okeke, and Murat (2022) to determine this general consideration, the direction of causality, and the degree of impact. applying the Granger non-causality test and the Teda-Yamamoto procedure, and the Johansen cointegration test. The findings demonstrated a strong and positive long-short cointegrating relationship between banking activity and economic expansion. supporting the notion that economic

growth and banking activity in Nigeria are proportionally linked. The non-directional causality between economic growth and banking activities can be attributed to uncertainties, including but not limited to supply-demand side effects, unexpected effects, sectoral adjustment effects, inflation effects, and real balance effects on the banking and economic environment.

In order to study the asymmetric effect of lending rate on economic growth in Ghana, Adsbor (2022) looked at the linear relationship between lending rate and economic growth using annual time series data spanning the years 1970 through 2019. They discovered evidence of long- and short-run asymmetrical effects of lending on Ghana's economic growth using the nonlinear autoregressive distributed lag (NARDL) model as an estimation method. In particular, the estimates from the long-run and short-run dynamic NARDL suggested that positive changes in lending rates cause a decrease in economic growth of roughly 0.151 percent and 0.213 percent, respectively, while negative changes result in increases in economic growth of roughly 0.214 percent and 0.677 percent. One of the study's other major conclusions was that economic growth reacts to favorable changes in lending rates in a manner that is distinct from how quickly it reacts to other events. short-term lending rate changes that are negatively skewed, further supporting the idea that lending rates are asymmetric.

Using a few key variables from the Central Bank of Nigeria's statistical bulletin, Okon, Onoja, and Ndem (2022) estimated the effect of commercial bank loans on economic growth in Nigeria. These variables included real gross domestic product, credit to the private sector, interest rate, total deposits, and interest rate. The study used the Autoregressive Distributed Lag Model framework for analysis. Economic a priori, statistical, and econometric criteria were used to analyze the study's findings. The results showed that financial deepening, interest rates, and total deposits and credit to the private sector all had positive and significant effects on economic growth.

Joseph (2020) investigated the link between bad credit and economic expansion. The study specifically looked at the links between financial intermediation overall and economic growth as well as the causal relationships between bank credit by borrowing industry. Data from time series are used, spanning the years 1993 to 2017. The application of the vector error correction and causality test. The findings indicated that there is no causal link between bank credit and economic growth or between bank credit and economic growth. Bank credit contributes significantly to economic growth over the long term.

Adesola, Ewa, and Oko (2019) used the Auto Regressive Distributed Lag Approach to examine the impact of financial deepening as measured by the ratio of money

applied to GDP, the ratio of credit to the private sector to GDP, money supply, and interest rate spread on the expansion of the Nigerian economy between 1981 and 2017. Among other things, they found that there is no meaningful long-run relationship. Anyanwu, Ananwude, and Okoye (2017) empirically assess the impact of commercial banks' lending on economic development of Nigeria from 1986 to 2015 by determining the impact of commercial banks' lending on real gross domestic product and index of industrial production. It reveals the deplorable state of Nigeria's financial system development during the period under consideration. Serial correlation, heteroskedasticity, Ramsey Reset model fitness specification, and stationarity were all detected in the data taken from the Central Bank of Nigeria statistical bulletin. The results of the Granger Impact Assessment demonstrated that commercial banks' lending has a significant impact on real GDP, while real GDP, on the other hand, has a significant impact on credit to the private sector. Lending by commercial banks had little impact on the index of industrial production. The vector error correction model showed that commercial bank lending is crucial for the long-term growth and development of the Nigerian economy because the high interest rates charged by commercial banks continue to pose a threat to the beneficial effects of bank credit on the economy.

Jatau, Ali, and Ashami (2016) looked at the effect of deposit money bank credit on investment in Nigeria in their study. The ordinary least square (OLS) regression

method and E-view were used to analyze time series data from 1981 to 2012 in order to test hypotheses formulated in accordance with the study's objectives. The unit root, variance inflation factor (VIF), and heteroskedacity white test were employed for data stationarity and diagnosis. Both total deposit money bank credit and interest rate have a favorable and significant impact on investment in Nigeria, according to the empirical findings of their study. The interest rate outcome, however, differs from what was anticipated a priori. The study comes to the conclusion that deposit money banks' lending to the private sector should be maintained because it is a reliable source of funding for the private sector of the Nigerian economy based on the empirical findings. The study concluded that since SMEs are crucial to the growth process, more should be done to make medium and long term loans available to productive sectors like manufacturing, agriculture, and SMEs. Additionally, the interest rate on credit facilities offered to the private sector needs to be drastically lowered.

Bank credit to the private sector and economic growth in Pakistan were the subjects of a 2015 study by Tahir, Shehzadi, Ali, and Ullah. Descriptive research and correlation were employed to make sure the data was normal. The variable stationarity was evaluated using the unit root test. To test the variable relationship and causality effect, the co-integration VECUM and Granger Causality tests were applied statistically. Regression analysis was used to investigate the effect of bank

credit on economic growth. The results of the study showed a significant long-term relationship between bank credit and economic growth, as well as a significant short-term relationship. Bank credit had a detrimental effect on Pakistan's economic growth, according to a regression analysis.

In his 2014 study, Dada examined how bank credit influences the real economy by boosting output. In his analysis of the financial development and growth of thirteen (13) African countries, Tang (2003) used bivariate and multivariate models. Real private sector credit growth served as a proxy for the value of economic growth while serving as an independent variable in the study to represent the banks' credit. The research found a negative correlation between real output and financial development. In other words, real output propels financial development, not the other way around. Oriavwote and Eshenake (2014) studied the impact of financial sector development on poverty reduction in Nigeria using bank credit to the private sector, interest rate, and money supply as proxy measures of financial sector development. The error correction mechanism was used to analyze the data that was gathered for this study. It has been demonstrated that private sector bank credit has a significant impact on reducing poverty in Nigeria. Additionally, it was found that neither interest rates nor inflation rates had any bearing on the decline of poverty.

In their study from 2013, Aliyu and Yusuf looked into how the financial sector's

expansion affected economic growth. In order to measure the financial sector, financial deepening variables were used, and the gross domestic product growth rate was used as a proxy for economic growth. Ordinary Least sq\.s (OLS) analysis was used to examine the data. The research showed that the expansion of the financial industry had a significant influence on the expansion of the real estate market. On the other hand, the amount of credit given to the private sector has a significant impact, whereas liquid liabilities and the size of financial intermediaries have a significant positive influence.

Samsi, Yusof, and Cheong (2012) used the ordinary least square approach to look at how the real and financial sectors interacted in Malaysia from 1986Q1 to 2011Q4. Their findings showed that the banking sector is the main driver of output growth and that real sector output is strongly correlated with it.

In their study evaluating the impact of financial deepening on economic growth in Nigeria between 1992 and 2008 using the vector error correction technique, Onwumere, The, Ozob, and Mounanu (2012) found that broad money velocity and stock market liquidity fostering economic growth. On the other hand, market capitalization, economic volatility, and money stock diversification did not support growth.

The economic growth of Pakistan's banking industry was examined by Aurangzeb

(2012). Ten banks provided the study's data between 1981 and 2010. The common least squares and granger causality tests, as well as the Augmented Dickey Fuller (ADF) and Philip Perron unit root tests, were used. All variables are stationary at the first difference, according to the unit root test. The regression results show that deposits, investments, advances, profitability, and interest income all have a very positive impact on Pakistan's economic development. Deposits, advances, and profitability all exhibit a bidirectional causal relationship with economic growth, according to the Granger Causality test. However, we found a one-way causal relationship between investments and interest earnings and economic growth, running from investments and interest earnings to economic growth. It is advised that policymakers implement measures to strengthen Pakistan's banking industry because it has a big impact on the country's economic development.

Human development and financial indicators have been linked in Pakistan, according to research by Zaman, Izhar, Khan, and Ahmad (2012). Using annual data from 1975 to 2010, the study's objective is to examine how financial indicators in Pakistan affect human development. Data analysis techniques include variance decomposition, the Granger causality test, and cointegration theory. The results demonstrate that while causality runs from financial indicators to human capital but not the other way around, with the exception of credit to the private sector (CPS), In Pakistan, economic growth and human development are closely correlated with

financial indicators.

The relationship between credit provided by the banking sector and the expansion of the Nigerian economy between 1970 and 2008 was examined by Akpansung and Babalola in 2011. The Granger causality test was employed to determine the causal relationships between the relevant pair of variables, and the regression models were estimated using the Two-Stage Least sq\.s (TSLS) method. Estimated regression models showed that private sector credit has a positive impact on economic growth over the study's coverage period. The results of the Granger causality test demonstrate evidence of a unidirectional causal relationship between GDP and private sector credit (PSC) and between GDP and the industrial production index (IND). On the other hand, the lending (interest) rate inhibits economic expansion. A multivariate VAR model was used by Mukhopadhyay and Pradhan (2010) to investigate the causal relationship between financial development and economic growth in seven Asian developing nations over a 30-year period (Thailand, Indonesia, Malaysia, the Philippines, China, India, and Singapore). The study came to the conclusion that there is no consensus on how finance and growth interact in developing nations.

Mishra, Das, and Pradhan (2009) looked at the causal relationship between India's credit market development and economic growth for the years 1980 to 2008.

Evidence supporting the idea that the expansion of the credit market stimulates economic growth was provided by the Granger Causality Test's application in the VAR framework. The results of the empirical investigation showed that the development of the nation's credit market is positively impacted by economic growth.

Empirical research was done by Adams, Andersson, Andersson, and Lindmark (2009) on the dynamic link between insurance, bank lending, and economic growth. They used time series data spanning the years 1830 to 1998 in their research, which was carried out in Sweden. Two tests—the Granger Casualty test and the Toda and Yammato procedure—were used to analyze the data in this 1995 study. Time series data' non-stationary nature was taken into account using the second method. According to the findings, promoting economic growth necessitates the availability of credit and insurance. Furthermore, this might have a big impact on developing nations' policies.

In order to take into account the impact of inflation on credit market development, Vazakidis and Adamopoulos (2009) used a Vector Error Correction Model (VECM) to analyze the relationship between credit market development and economic growth in Italy from 1965 to 2007. The empirical results indicate that while inflation has a negative impact on the development of the credit market, economic

growth has a positive impact.

## 2.5 Gaps in Literature Review

According to a review of the empirical literature, there are few studies on the relationship between bank lending and the economy that take into account both credit to the private sector and credit to the public sector. As suggested by the literature reviewed above, we are inclined to believe that credit to both the public and private sectors plays a significant role in determining a country's rate of economic growth. This illustrates a gap in the literature review, which the current study will attempt to fill by investigating the connection between bank lending and economic growth in Nigeria using credit to the public sector and credit to the private sector as the explanatory variables and the inflation rate and exchange rate as the control variables.

# CHAPTER THREE

# METHODOLOGY

## 3.1 Introduction

This chapter provides a detailed account of how the study will be carried out, as well as the research methods that will be used. The purpose of this research is to look into the impact of bank lending on economic growth in Nigeria. It is divided into several sections, including research design, population and sample, data sources, variable operationalization, model specification, and data analysis techniques.

## 3.2 Research Design

Research design refers to the strategy and steps for a study that includes the general hypotheses and specific techniques for data collection and analysis. According to Kothari and Gaurav (2014), it serves as the guide for gathering, measuring, and analyzing data. It consists of the techniques for gathering data, analyzing it, and interpreting it that are used to implement the strategy (Ibrahim, 2014; Kothari). In this study, the expost-facto research design will be employed. This kind of study is carried out after the fact, using data that is already available (Saunders, 2012).

## 3.3 Population and Sample of the Study

The total number of the 22 deposit money banks that the Central Bank of Nigeria has granted a license to conduct banking operations serves as the study's population. These include Zenith Bank plc, Citibank Nigeria limited, Ecobank Nigeria plc, Heritage Banking Company limited, Keystone Bank limited, Polaris Bank limited, Stanbic IBTC Bank plc, Standard Chartered Bank, Access Bank plc, Fidelity Bank plc, First City Monument Bank limited, First Bank of Nigeria limited, Guaranty Trust Bank plc, Union Bank of Nigeria plc, United Bank for Africa plc, Sterling Bank plc, Titan Trust Bank limited, Unity Bank plc, We.

The sample size is limited to information regarding the study's variables (credit to the private sector, credit to the public sector, inflation rate, exchange rate, and real gross domestic product) from the years 1985 to 2021.

## 3.4 Sources of Data

The data for this research work will be gathered from secondary sources. The data will be sourced specifically from the Central Bank of Nigeria Statistical Bulletin for the various years under consideration.

## 3.5 Theoretical Framework and Model Specification

This research is based on Patrick's supply-led finance theory, which he developed in 1966. This theory is predicated on the assumption that finance is the most important factor influencing real sector growth (Patrick, 1966). Supply led finance theory is growth inducing or growth induced, implying that finance is the most important factor in promoting economic development. According to the theory, the provision of funds by financial institutions through the extension of credit to businesses supports the creation, transformation, and expansion of industries and development projects, thereby increasing the economy's growth potential.

The regression model used is represented as;

$$RGDP = \alpha + \beta_1 CPRIV + \beta_2 CPUB + \beta_3 INFL + \beta_4 EXCR + ę \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where:

RGDP = real GDP

$\alpha$ = Constant Term

$\beta$ = Beta coefficients

CPRIV = Credit to private sector

CPUB = Credit to public sector

INFL = Inflation rate

EXCR = Exchange rate

ẹ = Error Term

Where;

$\beta_0$ = constant term

$\beta_1$ = coefficient of credit to private sector

$\beta_2$ = coefficient of credit to public sector

$\beta_3$ = coefficient of inflation rate

$\beta_4$ = coefficient of exchange rate

Apriori expectation

$\beta_1, \beta_2 > 0$ $\beta_3, \beta_4 < 0$

### 3.6 Measurement and Operationalization of Variables

The process by which a researcher defines how a concept is measured, observed, or manipulated within a specific study is known as operationalization. This process

converts theoretical, conceptual variables of interest into a set of specific research questions.

| VARIABLES | VARIABLE TYPE | MEASUREMENT | SOURCE |
|---|---|---|---|
| Economic Growth | Dependent Variable | Economic growth is measured by the gross domestic product at constant price | Olowofeso, Adeleke and Udoji (2015) |
| Bank lending to private sector | Independent Variable | Bank lending to private sector is measured using the aggregate of bank loans to the private sector. | Tahir, Shehzadi, Ali and Ullah (2015) |
| Bank lending to public sector | Independent Variable | Bank lending to public sector is measured using the aggregate of bank loans to the public sector. | Ranjan and Dhal (2003) |
| Inflation rate | Control Variable | Inflation rate is measured by consumer price index. | Okorontah and Odoemena (2016) |
| Exchange rate | Control Variable | Exchange rate is measured by Trade-weighted index (TWI)-broader measure for general trends in a currency. | Romer (2009) |

***Source: Authors →Compilation (2021)***

## 3.7 Techniques of Data Analysis

The study will adopt the ordinary least square method of data analysis. This techniques will be used in the study to determine the impact of bank lending on economic growth in Nigeria. After conducting the necessary tests, the data will be analyzed using Eviews 9.0, and the results will be used to test the study's hypotheses.

# CHAPTER FOUR

# DATA ANALYSIS AND PRESENTATION OF RESULTS

## 4.1 Introduction

This chapter is on empirically analysis of data in line with the specified model in chapter three on bank lending and the growth of the Nigerian economy. First, due to the nature of the study as well as the variables involve, there is the need to first examine the stationarity properties in order to avoid spurious regression results. Then the Ordinary Least Squares (OLS) estimation technique is employed for the main analysis of the study. The Eviews 9.0 econometric software was used for the estimations.

## 4.2 Unit Root Testing

Table 4.1 presents results of ADF test in levels without taking into consideration the trend in variables. The ADF test statistic for each of the variables is shown in the second column, while the 95 percent critical ADF value is shown in the third column. The result indicates that all the variables are non-stationary except that of FPI. The implication of this is that these time series are non-stationary in their levels.

**Table 4.1: Unit Root Test for Variables in Levels**

| Variable | ADF Test Statistic | 95% Critical ADF Value | Remark |
|---|---|---|---|
| **GDP** | 9.086391 | -2.967767 | Stationary |
| **CPRIV** | 2.267248 | -2.967767 | Non-Stationary |
| **CPUB** | -0.079293 | -2.967767 | Non-Stationary |
| **INFL** | -2.236865 | -2.967767 | Non-Stationary |
| **EXCR** | 1.269393 | -2.967767 | Non-Stationary |

**Sources: Author's Compilations (2022)**

The result of the unit root test on these variables in first differences is reported in table 4.2. From the result, it is seen that the ADF test statistic for each of the variables is greater than the 95 percent critical ADF values (in absolute values). With this result, these variables are adjudged to attained stationarity after the first differences. Thus, we would accept the hypothesis that the variables possess unit roots. Indeed, the variables are integrated of order one (i.e. I[1]).

**Table 4.2: Unit Root Test for Variables in First Difference**

| Variable | ADF Test Statistic | 95% Critical ADF Value | Remark |
|---|---|---|---|
| **∆GDP** | -8.562996 | -2.976263 | Stationary |
| **∆CPRIV** | -3.372121 | -2.971853 | Stationary |
| **∆CPUB** | -5.461221 | -2.971853 | Stationary |
| **∆INFL** | -4.681197 | -2.971853 | Stationary |
| **∆EXCR** | -4.289524 | -2.971853 | Stationary |

**Sources: Author's Compilations (2022)**

## 4.3 Correlation Analysis

In order to observe the pattern of relationship between bank lending and the growth of the Nigerian economy, the correlation matrix is estimated. Thus, the results of the correlation tests is presented in table 4.3; and the results revealed that gross domestic products (GDP) has significant positive correlation values of 0.982137, 0.929480 and 0.948745 with and credit to private sector (CPRIV), credit to public sector (CPUB) and exchange rate (EXCR); and a weak negative correlation value of -0.319158 with GDP respectively. Again, credit to private sector (CPRIV) has significant positive correlation value of 0.953407and 0.910074 with credit to public sector (CPUB) and exchange rate (EXCR). Also, looking across the other variables,

we observed that a strong positive correlation existing among them. Therefore, given this result, we conclude that there is no serious indication of the problem of multicollinearity amongst the independent variables in the model.

**Table 4.3: The Pairwise Correlation Matrix**

| | GDP | CPRIV | CPUB | INFL | EXCR |
|---|---|---|---|---|---|
| GDP | 1 | | | | |
| CPRIV | 0.982137 | 1 | | | |
| CPUB | 0.929480 | 0.953407 | 1 | | |
| INFL | -0.319158 | -0.325110 | -0.308136 | 1 | |
| EXCR | 0.948745 | 0.910074 | 0.839065 | -0.307000 | 1 |

**Sources: Author's Compilations (2022)**

## 4.4 The Ordinary Least Square (OLS) Analysis

In Table 4.4, bank lending and the growth of the Nigerian economy is analyzed using the OLS estimation of the GDP equation. The result has an impressive goodness of fit information. It is seen that the R squared value of 0.98 is high and it indicates that the explanatory variables in the model effectively predict variations in the dependent variable (GDP) with about 98 percent. Even the adjusted R squared value of 0.98 is equally very high, indicating that the model possessed good predictive ability. The F-Statistics value of 263.57 passes the 1 percent significance level. This means that we

cannot reject the hypothesis of a significant linear relationship between the dependent variable economic growth (proxied GDP) and all the explanatory variables combined.

**Table 4.4: Bank Lending and Economic Growth in Nigeria (OLS)**

| | **Dependent Variable = (GDP)** | | |
|---|---|---|---|
| Variables | Coeff. | T-Ratio | Prob. |
| Constant | -6305.832 | -0.647770 | 0.5235 |
| CPRIV | 5.503411 | 4.522720 | 0.0002** |
| CPUB | -4.545582 | -0.258534 | 0.7983 |
| INFL | -80.76266 | -0.381187 | 0.7066 |
| EXCR | 144.7143 | 2.402704 | 0.0247* |
| AR(1) | 0.552694 | 2.420496 | 0.0238 |
| SIGMASQ | 38639192 | 2.519172 | 0.0192 |
| $R^2 = 0.98$ | $\bar{R}^2 = 0.98$ | F-Stat = 263.57 | D.W = 1.55 |

**Source: Author's compilations (2022); Note: *sig at 5% level.**

On the basis of the individual explanatory variables relationship with the dependent variable, the coefficient of credit to private sector (CPRIV) has significant positive relationship with economic growth in Nigeria, as the variable passed the 1 percent

significance level. This simply means that CPRIV is a relevant factor in determining the overall growth of the Nigerian economy overtime.

The coefficient of credit to public sector (CPUB) has an insignificant negative relationship with economic growth in Nigeria; the variable failed 5 percent significance level. This means that the level of credit to public sector within the investigating period is does not significantly affect the growth of the Nigerian economy, instead, it has the tendency of reducing it as suggested by the negative sign.

The coefficient of inflation rate (INFL) has a weak negative effect on economic growth, and this suggests that it does not play any significant role in the growth and development of the Nigerian economy.

Lastly, the exchange rate (EXCR) is positively signed and also passed the 5 percent significance level. It suggests that a unit rise in rate of exchange between the naira and other international currencies increases the overall the growth and development of the Nigerian economy by 144.7143 percent approximately.

After correcting for serial correlation with Autoregressive process that had 27 iterations and 1 lags, the improved estimate equation with t-statistics in parentheses was arrived at as reported in 4.4 above. The overall results obtained from the model estimation are effectively acceptable because the D.W. statistic value of 1.55 is

appropriate and it indicates the absence of autocorrelation in the model. Thus, the results are applicable for structural analysis as well as policy directions.

# CHAPTER FIVE

# SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

## 5.1 Summary of Findings

The study has empirically examines the relationship between bank lending and the growth of the Nigerian economy. The ordinary least squares (OLS) estimation technique was employed in the empirical investigation, and on the basis of the analysis, the following findings were made:

(i) That credit to private sector (CPRIV) has significant positive relationship with economic growth in Nigeria, as the variable passed the 1 percent significance level. This simply means that CPRIV is a relevant factor in determining the overall growth of the Nigerian economy overtime.

(ii) That credit to public sector (CPUB) has an insignificant negative relationship with economic growth in Nigeria.

(iii) Inflation rate (INFL) has a weak negative effect on economic growth, and this suggests that it does not play any significant role in the growth and development of the Nigerian economy.

(iv) That exchange rate (EXCR) has significant positive effect on the growth and development of the Nigerian economy.

## 5.2 Recommendations

Based on the findings in this study, the following recommendations are made:

(i) Credit to private sector should be given more priority if the economy would grow as expected because, through the private sector the real sector of the economy which is central to the economy are directly affected. Failure to do this will only spell doom to the Nigerian economy.

(ii) Also, there is need to review lending policy on a continuous basis with respect to interest rate with a view to ensuring that the level and structure of interest rates are adequate and consistent with policy objectives of making lending more accessible to private and public sectors of the economy.

(iii) Use of punitive sanctions on banks for disregarding government monetary policy guidelines on lending, particularly in promoting investments in sectors that appear socially but not commercially profitable, may not be effective. A combination of moral persuasion and a reward system for those heeding such objectives may be better.

(iv) Market regulators and government should develop policy strategy that will lower lending rate so that it will be more attractive to investors/borrowers to expand their investment horizons, and this will in turn boost the overall stock market performance in Nigeria.

## 5.2 Conclusion

Because bank lending is widely acknowledged by financial experts to be essential to economic growth in the empirical literature, its significance for the development of the Nigerian economy cannot be overstated. However, the study used the ordinary least square (OLS) estimation technique on data spanning the years 1992 to 2021 to determine the degree to which bank lending has influenced economic growth in Nigeria. Accordingly, based on this estimation, the results generally show that credit to the private sector (CPRIV) has a significant positive relationship with economic growth in Nigeria; credit to the public sector (CPUB) has an insignificant negative relationship with economic growth; and inflation rate (INFL) has a weak negative effect on economic growth, which suggests that it does not play a significant role in the growth and development of the Nigerian economy. Exchange rates (EXCR) have a significant positive impact on the expansion and improvement of the Nigerian economy. The conclusion is that bank lending (credit to the private sector and exchange rate) are significant factors that management and policy makers in the sector must ignore in determining economic growth in Nigeria.

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# APPENDICES

**GDP CPRIV CPUB INFL EXCR**

Dependent Variable: GDP
Method: ARMA Maximum Likelihood (OPG - BHHH)
Date: 12/30/22 Time: 00:46
Sample: 1992 2021
Included observations: 30
Convergence achieved after 27 iterations
Coefficient covariance computed using outer product of gradients

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -6305.832 | 9734.679 | -0.647770 | 0.5235 |
| CPRIV | 5.503411 | 1.216837 | 4.522720 | 0.0002 |
| CPUB | -4.545582 | 17.58213 | -0.258534 | 0.7983 |
| INFL | -80.76266 | 211.8716 | -0.381187 | 0.7066 |
| EXCR | 144.7143 | 60.22976 | 2.402704 | 0.0247 |
| AR(1) | 0.552694 | 0.228339 | 2.420496 | 0.0238 |
| SIGMASQ | 38639192 | 15338052 | 2.519172 | 0.0192 |

| | | | |
|---|---|---|---|
| R-squared | 0.985665 | Mean dependent var | 51217.62 |
| Adjusted R-squared | 0.981925 | S.D. dependent var | 52804.62 |
| S.E. of regression | 7099.222 | Akaike info criterion | 20.78647 |
| Sum squared resid | 1.16E+09 | Schwarz criterion | 21.11342 |
| Log likelihood | -304.7971 | Hannan-Quinn criter. | 20.89106 |
| F-statistic | 263.5714 | Durbin-Watson stat | 1.559860 |
| Prob(F-statistic) | 0.000000 | | |

| | |
|---|---|
| Inverted AR Roots | .55 |

| | GDP | CPRIV | CPUB | INFL | EXCR |
|---|---|---|---|---|---|
| GDP | 1 | 0.9821377222258878 | 0.9294809157779 | -0.3191589257398464 | 0.9487453053763958 |
| CPRIV | 0.9821377222258878 | 1 | 0.9534073994805122 | -0.3251104795958852 | 0.9100740584619212 |
| CPUB | 0.9294809157779 | 0.9534073994805122 | 1 | -0.3081364484216977 | 0.8390650225120838 |
| INFL | -0.3191589257398464 | -0.3251104795958852 | -0.3081364484216977 | 1 | -0.3070006370016695 |
| EXCR | 0.9487453053763958 | 0.9100740584619212 | 0.8390650225120838 | -0.3070006370016695 | 1 |

**Unit root test (at levels)**

**GDP**

Null Hypothesis: GDP has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | 9.086391 | 1.0000 |
| Test critical values: | 1% level | -3.679322 | |
| | 5% level | -2.967767 | |
| | 10% level | -2.622989 | |

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP)
Method: Least Squares
Date: 12/30/22 Time: 00:51
Sample (adjusted): 1993 2021
Included observations: 29 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| GDP(-1) | 0.097970 | 0.010782 | 9.086391 | 0.0000 |
| C | 1444.362 | 717.8724 | 2.012004 | 0.0543 |

| | | | |
|---|---|---|---|
| R-squared | 0.753565 | Mean dependent var | 6040.327 |
| Adjusted R-squared | 0.744438 | S.D. dependent var | 5426.494 |
| S.E. of regression | 2743.263 | Akaike info criterion | 18.73816 |
| Sum squared resid | 2.03E+08 | Schwarz criterion | 18.83245 |
| Log likelihood | -269.7033 | Hannan-Quinn criter. | 18.76769 |
| F-statistic | 82.56251 | Durbin-Watson stat | 2.069994 |
| Prob(F-statistic) | 0.000000 | | |

**CPRIV**

Null Hypothesis: CPRIV has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | 2.267248 | 0.9999 |
| Test critical values: | 1% level | -3.679322 | |
| | 5% level | -2.967767 | |
| | 10% level | -2.622989 | |

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CPRIV)
Method: Least Squares
Date: 12/30/22 Time: 00:51
Sample (adjusted): 1993 2021
Included observations: 29 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| CPRIV(-1) | 0.062719 | 0.027663 | 2.267248 | 0.0316 |
| C | 352.8931 | 253.8142 | 1.390360 | 0.1758 |

| | | | |
|---|---|---|---|
| R-squared | 0.159936 | Mean dependent var | 756.9279 |
| Adjusted R-squared | 0.128823 | S.D. dependent var | 1042.761 |
| S.E. of regression | 973.2807 | Akaike info criterion | 16.66569 |
| Sum squared resid | 25576433 | Schwarz criterion | 16.75999 |
| Log likelihood | -239.6526 | Hannan-Quinn criter. | 16.69523 |
| F-statistic | 5.140415 | Durbin-Watson stat | 1.561869 |
| Prob(F-statistic) | 0.031593 | | |

**CPUB**

Null Hypothesis: CPUB has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -0.079293 | 0.9428 |
| Test critical values: | 1% level | -3.679322 | |
| | 5% level | -2.967767 | |
| | 10% level | -2.622989 | |

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CPUB)
Method: Least Squares
Date: 12/30/22 Time: 00:52
Sample (adjusted): 1993 2021
Included observations: 29 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| CPUB(-1) | -0.005585 | 0.070432 | -0.079293 | 0.9374 |
| C | 33.36219 | 28.60860 | 1.166159 | 0.2537 |

| | | | |
|---|---|---|---|
| R-squared | 0.000233 | Mean dependent var | 31.84936 |
| Adjusted R-squared | -0.036796 | S.D. dependent var | 112.7437 |
| S.E. of regression | 114.7992 | Akaike info criterion | 12.39072 |
| Sum squared resid | 355829.4 | Schwarz criterion | 12.48502 |
| Log likelihood | -177.6654 | Hannan-Quinn criter. | 12.42025 |
| F-statistic | 0.006287 | Durbin-Watson stat | 2.116029 |
| Prob(F-statistic) | 0.937385 | | |

**INFL**

Null Hypothesis: INFL has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -2.236865 | 0.1983 |
| Test critical values: | 1% level | -3.679322 | |
| | 5% level | -2.967767 | |
| | 10% level | -2.622989 | |

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFL)
Method: Least Squares
Date: 12/30/22 Time: 00:52
Sample (adjusted): 1993 2021
Included observations: 29 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| INFL(-1) | -0.243819 | 0.109000 | -2.236865 | 0.0338 |

| C | 3.386029 | 2.774253 | 1.220519 | 0.2328 |
|---|---|---|---|---|

| | | | |
|---|---|---|---|
| R-squared | 0.156344 | Mean dependent var | -1.143793 |
| Adjusted R-squared | 0.125097 | S.D. dependent var | 10.91696 |
| S.E. of regression | 10.21131 | Akaike info criterion | 7.551341 |
| Sum squared resid | 2815.312 | Schwarz criterion | 7.645637 |
| Log likelihood | -107.4944 | Hannan-Quinn criter. | 7.580873 |
| F-statistic | 5.003565 | Durbin-Watson stat | 1.593761 |
| Prob(F-statistic) | 0.033751 | | |

**EXCR**

Null Hypothesis: EXCR has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | 1.269393 | 0.9978 |
| Test critical values: | 1% level | -3.679322 | |
| | 5% level | -2.967767 | |
| | 10% level | -2.622989 | |

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EXCR)
Method: Least Squares
Date: 12/30/22 Time: 00:52
Sample (adjusted): 1993 2021
Included observations: 29 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| EXCR(-1) | 0.064474 | 0.050791 | 1.269393 | 0.2151 |
| C | 4.033911 | 8.606338 | 0.468714 | 0.6430 |

| | | | |
|---|---|---|---|
| R-squared | 0.056319 | Mean dependent var | 13.64276 |
| Adjusted R-squared | 0.021368 | S.D. dependent var | 22.29208 |
| S.E. of regression | 22.05263 | Akaike info criterion | 9.091213 |
| Sum squared resid | 13130.60 | Schwarz criterion | 9.185509 |
| Log likelihood | -129.8226 | Hannan-Quinn criter. | 9.120746 |
| F-statistic | 1.611359 | Durbin-Watson stat | 1.250532 |
| Prob(F-statistic) | 0.215134 | | |

**Unit root test (at first diff.)**

**GDP**

Null Hypothesis: D(GDP,2) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -8.562996 | 0.0000 |
| Test critical values: | 1% level | -3.699871 | |
| | 5% level | -2.976263 | |
| | 10% level | -2.627420 | |

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GDP,3)
Method: Least Squares
Date: 12/30/22 Time: 00:53
Sample (adjusted): 1995 2021
Included observations: 27 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(GDP(-1),2) | -1.776185 | 0.207426 | -8.562996 | 0.0000 |
| C | 1026.831 | 616.8181 | 1.664722 | 0.1085 |

| | | | |
|---|---|---|---|
| R-squared | 0.745741 | Mean dependent var | 483.3156 |
| Adjusted R-squared | 0.735571 | S.D. dependent var | 6199.725 |
| S.E. of regression | 3188.066 | Akaike info criterion | 19.04340 |
| Sum squared resid | 2.54E+08 | Schwarz criterion | 19.13939 |
| Log likelihood | -255.0860 | Hannan-Quinn criter. | 19.07195 |
| F-statistic | 73.32489 | Durbin-Watson stat | 1.953985 |
| Prob(F-statistic) | 0.000000 | | |

**CPRIV**

Null Hypothesis: D(CPRIV) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -3.372121 | 0.0209 |
| Test critical values: | 1% level | -3.689194 | |
| | 5% level | -2.971853 | |
| | 10% level | -2.625121 | |

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CPRIV,2)
Method: Least Squares
Date: 12/30/22 Time: 00:54
Sample (adjusted): 1994 2021
Included observations: 28 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(CPRIV(-1)) | -0.635783 | 0.188541 | -3.372121 | 0.0023 |
| C | 526.6733 | 231.4251 | 2.275783 | 0.0313 |

| | | | |
|---|---|---|---|
| R-squared | 0.304277 | Mean dependent var | 78.37964 |
| Adjusted R-squared | 0.277519 | S.D. dependent var | 1179.282 |
| S.E. of regression | 1002.376 | Akaike info criterion | 16.72688 |
| Sum squared resid | 26123719 | Schwarz criterion | 16.82204 |
| Log likelihood | -232.1764 | Hannan-Quinn criter. | 16.75597 |
| F-statistic | 11.37120 | Durbin-Watson stat | 1.889067 |
| Prob(F-statistic) | 0.002344 | | |

**CPUB**

Null Hypothesis: D(CPUB) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -5.461221 | 0.0001 |
| Test critical values: | 1% level | -3.689194 | |
| | 5% level | -2.971853 | |
| | 10% level | -2.625121 | |

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CPUB,2)
Method: Least Squares
Date: 12/30/22 Time: 00:54
Sample (adjusted): 1994 2021
Included observations: 28 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(CPUB(-1)) | -1.088643 | 0.199341 | -5.461221 | 0.0000 |
| C | 35.42132 | 22.67035 | 1.562451 | 0.1303 |

| | | | |
|---|---|---|---|
| R-squared | 0.534258 | Mean dependent var | 5.430378 |
| Adjusted R-squared | 0.516345 | S.D. dependent var | 167.3549 |
| S.E. of regression | 116.3874 | Akaike info criterion | 12.42048 |
| Sum squared resid | 352196.9 | Schwarz criterion | 12.51563 |
| Log likelihood | -171.8867 | Hannan-Quinn criter. | 12.44957 |
| F-statistic | 29.82494 | Durbin-Watson stat | 1.999010 |
| Prob(F-statistic) | 0.000010 | | |

**INFL**

Null Hypothesis: D(INFL) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -4.681197 | 0.0009 |
| Test critical values: | 1% level | -3.689194 | |
| | 5% level | -2.971853 | |
| | 10% level | -2.625121 | |

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INFL,2)
Method: Least Squares
Date: 12/30/22 Time: 00:55
Sample (adjusted): 1994 2021
Included observations: 28 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(INFL(-1)) | -0.884999 | 0.189054 | -4.681197 | 0.0001 |
| C | -1.495534 | 2.075584 | -0.720537 | 0.4776 |

| | | | |
|---|---|---|---|
| R-squared | 0.457357 | Mean dependent var | -0.452500 |
| Adjusted R-squared | 0.436486 | S.D. dependent var | 14.54621 |
| S.E. of regression | 10.91949 | Akaike info criterion | 7.687725 |
| Sum squared resid | 3100.116 | Schwarz criterion | 7.782882 |
| Log likelihood | -105.6281 | Hannan-Quinn criter. | 7.716815 |
| F-statistic | 21.91361 | Durbin-Watson stat | 1.994846 |
| Prob(F-statistic) | 0.000078 | | |

**EXCR**

Null Hypothesis: D(EXCR) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=1)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -4.289524 | 0.0023 |
| Test critical values: | 1% level | -3.689194 | |
| | 5% level | -2.971853 | |
| | 10% level | -2.625121 | |

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EXCR,2)
Method: Least Squares
Date: 12/30/22 Time: 00:55
Sample (adjusted): 1994 2021
Included observations: 28 after adjustments

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(EXCR(-1)) | -0.694349 | 0.161871 | -4.289524 | 0.0002 |
| C | 7.620709 | 4.035745 | 1.888303 | 0.0702 |

| | | | |
|---|---|---|---|
| R-squared | 0.414415 | Mean dependent var | -1.107500 |
| Adjusted R-squared | 0.391892 | S.D. dependent var | 23.64951 |
| S.E. of regression | 18.44219 | Akaike info criterion | 8.735908 |
| Sum squared resid | 8842.970 | Schwarz criterion | 8.831065 |
| Log likelihood | -120.3027 | Hannan-Quinn criter. | 8.764998 |
| F-statistic | 18.40002 | Durbin-Watson stat | 1.274347 |
| Prob(F-statistic) | 0.000219 | | |

## DATA

| YEAR | GDP | CPRIV | CPUB | INFL | EXCR |
|---|---|---|---|---|---|
| 1992 | 906.03 | 75.46 | 1.5993 | 48.8 | 6.34 |
| 1993 | 1,257.17 | 88.82 | 1.8103 | 61.3 | 81.02 |
| 1994 | 1,768.79 | 143.52 | 2.1666 | 76.8 | 81.25 |
| 1995 | 3,100.24 | 204.09 | 2.90 | 51.6 | 81.02 |
| 1996 | 4,086.07 | 254.85 | 3.5712 | 14.3 | 81.25 |
| 1997 | 4,418.71 | 311.36 | 2.5943 | 10.2 | 81.65 |
| 1998 | 4,805.16 | 366.54 | 1.1748 | 11.9 | 83.81 |
| 1999 | 5,482.35 | 449.05 | 2.5059 | 0.2 | 92.34 |
| 2000 | 7,062.75 | 588.00 | **8.29** | 14.5 | 101.77 |
| 2001 | 8,234.49 | 844.49 | 32.1007 | 16.5 | 111.49 |
| 2002 | 11,501.45 | 948.46 | 23.4913 | 12.2 | 120.65 |
| 2003 | 13,556.97 | 1,203.20 | 27.069 | 23.8 | 129.22 |
| 2004 | 18,124.06 | 1,519.24 | 28.522 | 10 | 133.00 |
| 2005 | 23,121.88 | 1,991.15 | 72.0896 | 11.6 | 131.10 |
| 2006 | 30,375.18 | 2,609.29 | 101.4936204 | 8.5 | 128.14 |
| 2007 | 34,675.94 | 4,820.70 | 89.82547245 | 6.6 | 125.07 |
| 2008 | 39,954.21 | 7,799.40 | 163.7770569 | 15.1 | 117.78 |
| 2009 | 43,461.46 | 9,667.88 | 322.5104996 | 12 | 147.27 |
| 2010 | 55,469.35 | 9,198.17 | 374.305216 | 11.8 | 148.31 |
| 2011 | 63,713.36 | 9,614.45 | 519.7282502 | 10.3 | 151.83 |
| 2012 | 72,599.63 | 10,440.96 | 666.8032316 | 12 | 155.45 |
| 2013 | 81,009.96 | 11,543.65 | 777.3623233 | 8 | 155.25 |
| 2014 | 90,136.98 | 13,179.60 | 545.0312473 | 8 | 156.48 |
| 2015 | 95,177.74 | 13,568.54 | 592.854264 | 9.6 | 191.80 |
| 2016 | 102,575.42 | 16,500.15 | 682.969211 | 18.6 | 253.09 |
| 2017 | 114,899.25 | 16,193.86 | 898.2308476 | 15.4 | 305.29 |
| 2018 | 129,086.91 | 15,438.60 | 545.0312473 | 11.4 | 305.58 |
| 2019 | 145,639.14 | 17,436.99 | 592.854264 | 11.98 | 306.42 |
| 2020 | 154,252.32 | 19,818.38 | 772.969211 | 15.8 | 358.31 |
| 2021 | 176,075.50 | 22,026.37 | 925.2308076 | 15.63 | 401.98 |

**Source: CBN Statistical Bulletin (2021)**