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DOES PRIVATE SECTOR BANK CREDIT AFFECT GROWTH IN NIGERIA'S ECONOMY?**

MARK DANGANA
Department of Banking and Finance
Markdangana13@gmail.com

&

FRIDAY OGBOLE OGBOLE
(Corresponding Author)
Department of Banking and Finance
ogbolefo@fuwukari.edu.ng

Abstract

This study investigates the impact of private sector bank credit on Nigerian economic growth for 31 years period, from 1991-2021. The ARDL time series econometric model is used in the analysis with private sector bank credit, prime lending rate, inflation and money supply as explanatory variables and economic growth (GDP) as the dependent variable. The study reveals that the impacts of explanatory variables on economic growth are: private sector bank credit (significant and negative); prime lending rate (significant and negative); money supply (significant and positive) while inflation rate (insignificant and positive). It recommends that the monetary authorities should efficiently manage the macroeconomy by maintaining the levels of Bank credits to the Private sector, prime lending rates, inflation rates, and money supply such that the productive sectors of the economy are well served to stimulate growth in the country's economy.

Key Words: Private Sector Bank Credits, Prime Lending Rate, Inflation, Money Supply, Economic Growth

Introduction

Private sector Bank credit is believed to affect economic growth in one way or the other. The relationship between these variables is one of the main macroeconomic concerns attracting the attention of financial professionals, monetary officials, and policymakers in emerging economies. Bank financing refers to the total amount of credits (loans) made available to an individual or a firm for economic or other purposes by a banking institution (Ahmed, 2008). Every economy, especially developing Countries like Nigeria and all other economies, is significantly reliant on credit for the growth of their economies. How financing (credits) theoretically relates with growth in national economies, has taken center stage in

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finance and economic literatures. These ideas center on the role of banks as middlemen in fostering technological innovation.

Emecheta and Ibe (2014); Tahir et al. (2015) and Kamil (2018) show that an efficient credit system has a significant and beneficial impact on productivity and job possibilities, whereas economic growth is distorted by an insufficient degree of financial development. Banks are critical to the expansion and development of any economy by providing credit facilities. This assertion is supported by Khan and Senhadji (2001). Also, nations with well-organized credit systems expand faster than those without them because credit systems enhance investment and productivity. However, financial growth if not appropriately managed may not sustain economic growth.

Problem Statement

Demand for transaction money is essentially what drives growth in credits. Funding entrepreneurs is believed to significantly affect Nigeria's economic expansion. However, despite increased private sector funding from 1991 to 2021, there still seem to be unsatisfactory levels of economic growth. Also, there are contradictory findings from different researchers on the actual effect on national economies that credits from deposit money Bank to the private sector exert. It is therefore necessary in this study to further empirically investigate to what extent private sector bank credits have impacted on growth of Nigeria's economy.

Broad and Specific Objectives

Generally, the study's objective is to investigate the extent to which private sector bank credits affect growth of Nigeria's economy from 1991-2021. However, the study has specific objectives as follows:

- i. Examining the effect private sector bank credits have on growth of Nigeria's economy from 1991-2021
- ii. Evaluating the effect prime credit rates have on growth of Nigeria's economy from 1991-2021
- iii. Investigating the effect inflation has on growth of Nigeria's economy from 1991-2021
- iv. Determining the effect money supply has on growth of Nigeria's economy from 1991-2021

Research Questions

The research questions answered in this study are stated below:

- i. What is the extent to which private sector bank credits affect growth of Nigeria's economy from 1991-2021?
- ii. What is the extent to which prime credit rates affect growth of Nigeria's economy from 1991-2021?
- iii. What is the magnitude to which inflation affects growth of Nigeria's economy from 1991-2021?
- iv. What is the degree to which money supply affects growth of Nigeria's economy from 1991-2021?

Research Hypotheses

The study's hypotheses are as follows:

- i. Private sector bank credits have no significant effect on growth of Nigeria's economy from 1991-2021
- ii. Prime credit rates have no significant effect on growth of Nigeria's economy from 1991-2021
- iii. Inflation has no significant effect on growth of Nigeria's economy from 1991-2021
- iv. Money supply has no significant effect on growth of Nigeria's economy from 1991-2021

REVIEW OF RELATED LITERATURE

Conceptual Review

Concepts used in this study need to be properly contextualized. This is aided by providing a conceptual review of each of them as follows:

Credit

Financing / granting of credit is a system in which services or goods are released by a vendor, bank, or financing corporation in exchange for a future payment rather than an instant payment by the borrower. Credit is viewed as the commitment to pay for goods and services obtained and money borrowed from another person (John, 2003). Credit facilities refer to the aggregate of advances and loans lent by banks for economic activities (CBN, 2003). Bank credit/loan is the capacity for borrowing provided by banks to individuals or organizations (Nwanyanwu, 2008) or banking facilities lent to various economic players within an economy (CBN Briefs, 2003). These may be in the form of advances, loans, bankers' acceptances, commercial papers and discounted bills.

Prime Credit Rate

The prime rate serves as the foundation for all other interest rates. Banks and other lenders use it as the standard when establishing interest rates for a wide range of products, including credit cards and mortgages. Borrowers who have lower dependability are charged with a rate greater than the prime rate. Commercial banks can offer reduced interest rates to specially selected (prime) borrowers, often corporate clients, because they have a lower probability of non-payment and the loans are perceived to be secured.

Inflation Rate

This is the rate of price expansion over time which decreases the purchasing strength of money. Usually, inflation is a broad measure. Consumer Price Index (CPI) consists of a group of indices that monitor price adjustments for urban consumers. CPI particularly measures the average change in value of market basket of consumer services and goods over time. It is a measure for inflation.

Broad Money Supply

This is a group used to identify how much money is circulating around in an economy. When the money supply falls, prices, profits, and manufacturing activities slow, and production falls as well. Whenever the cash supply grows prices, earnings, and overall output increase, resulting in prosperity. The money supply is influenced by the credit system or the quantity of credit supplied by banks. It is the most exhaustive approach of establishing the total amount of money in a given nation, taking into account other assets which swiftly can be modified to cash and narrow

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money to make transactions. Broad money represents the overall money (money supply) encompassing both highly liquid "narrow money" and less liquid forms. It usually refers to M_2 , M_3 , and/or M_4 .

Economic Growth

The rate of change in real production measures economic growth (Baye & Jansen, 2006). It is the ability of an economy to grow its output of commodities and services within a specified period of time while employing its capital stock and other productive factors. It is the upsurge in real output per worker and per capita over time (Aretis et al., 2007). Gross domestic product (GDP) is commonly used as a measure of economic growth. It describes the increase in a country's commodities output, national revenue, and services provided over a specific time period (Aretis et al. (2007). Real GDP is determined using actual selling prices, as opposed to estimates (Burda & Wyplosz, 2003). Productivity declines when there is a shortfall in capital (Case & Fair, 2004).

Theoretical Framework

Deposit money banks (commercial banks) are financial intermediaries because they provide credits (funds) pooled from parties with excess capital to those needing funds. Owolabi and Nasiru (2017) explain how financial intermediation services of pooling savings, projects assessment, risk management, managers' scrutiny, and transaction facilitation are critical for economic progress. Shaw (1973) stresses the relevance of financial intermediation for a country's economic development. Bencivenga and Smith (1991) suggest that the establishment of banks and their effective financial link aid in economic expansion by diverting deposits into high-productivity sectors and minimizing the risks of liquidity. Different theories underpin the relationship between credits and economic growth/expansion.

Jaffee and Russell Model (1976)

This theoretical framework explains the fact that asymmetric and incomplete information can lead to loan market restriction, depriving certain agents the loans they wanted. They examined how the loan market worked when borrowers knew more about the possibility of default than creditors. The model explains the link between default proportion and contract size. It shows that there is a minimum loan size below which no default occurs, and when the contract size exceeds that point, the number of individuals who do not default drops. Because there is little ex ante borrower differentiation, the market rate incorporates a premium.

Stiglitz and Weiss Model (1981)

This framework deals with the rationing of the size (quantity) of credits, such that a particular applicant is allowed loans while others are denied because the banking sector is concerned with the interest rate it would gain on the credit and the credit's riskiness. They asserted that lenders make less money on loans to debtors with riskier projects than they do on loans to debtors of higher repayment probability for a given loan rate.

Theories of Economic Growth

Theories of economic growth generally explain the concept of economic growth. Some of these theories include the Neo-Classical theory and the Endogenous Growth Theory.

Neo-classical Model of Growth

First proposed in 1956, this theory analyzes how an ongoing rate of economic growth could be realized by balancing capital, labor and technology. It was developed by Robert Solow. With an innovation in technology, capital and labor must be adjusted to maintain equilibrium growth. Thus, technological innovation is relevant in economic growth (Khan and Senhadji, 2001). This theory views productivity growth as an "exogenous" variable that is independent of the quantity of capital investment (Geoff, 2006).

Endogenous Growth Theory

Owing to criticisms of neoclassical growth theory, endogenous theory of growth, along with other economic theories was developed in 1980s. It prioritizes technological advancements caused by the amount of capital stock, investment and the stock of human capital (Jhingan, 2006); that is, factors internal to the economy are responsible for economic growth and not external factors.

Supply-Leading Theory

This theory is founded on the idea that monetary expansion promotes growth; robust financial institutions improve broad economic effectiveness (Ohwofasa and Aiyedogbon, 2013); and financial depth predicts economic development (Adeyeye et al., 2015), implying that financial expansion is responsible for economic growth.

Empirical Review

Bank Credit and Economic Growth

Several researchers endeavored to determine the extent to which private sector bank credits have impacted on economic growth over the years. Gazdar and Cherif (2012), in their study, reveal that while several financial performance indices have substantial effects on economic growth, institutional quality mitigates this effect in middle-east and North African (MENA) countries. Cevik and Rahmati (2013) in Libya (1970-2010) reveal in their study that growth in finances has a statistically insignificant effect on economic growth. Akpansung and Babalola (2012) find from their study in Nigeria that, from 1970 to 2008, bank credit to entrepreneurs/ private sector improves expansion in the Nation's economy. Adamopoulos and Dritsakis (2004) find that economic transparency, financial development, and economic expansion (in Greece) are positively related from 1960 to 2000. Akin (2019) finds that credit to the private sector has an important influence on expansion in Nigeria's economy. Eleje and Wilson (2013) find that Bank Credits affect the Manufacturing Sector in Nigeria. King and Levine (1993) find from 80 countries between 1960 and 1989 that financial frameworks, accessibility of financial services significantly correlate with growth of the economy. During global financial crisis, Ioana (2013) finds that household credit impacts more on GDP production than government credit.

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Masood et al. (2011) in Pakistan (2001-2007) find that the local government (Public) debts reduced the volume of bank loans to the private sector, thereby reducing the effect of the banking system on economic growth. Audu and Okumoko (2013) find that a significant influence is exerted on Nigerian economy from 1970 to 2012 when the financial sector expands. Emecheta and Ibe (2014) find a significantly positive effect of private sector bank credit on Nigerian economic development from 1960 to 2011. Tahir et al. (2015) finds that bank credit has a significant short-term association with expansion of the economy in Pakistan from 1973 to 2013. Olowofeso et al. (2015) find a tremendous possibility of credit to the private sectors to boost economic expansion in Nigeria. Nwaru and Okorontah, (2014) find a little impact of bank loans on the Nigerian economy. Chijindu (2014) finds that from 1987 to 2012 loans from banks to the public and commercial sectors had a considerable and favorable effect on Nigeria's GDP.

Furthermore, Odufuye (2017) finds no substantial effect of Banks credits on growth of Nigeria's economy from 1992-2015. Mamman and Hashim (2014) find no statistically significant effect of Bank Credit on growth in Nigeria's economy from 1987 to 2012. In the study of Owolabi and Nasiru (2017) findings show that credit to entrepreneurs in Nigeria has significant adverse effects on the country's economic development. Duican and Pop (2015) find that credits have a major impact on Romania's GDP from 2005 to 2014. Kamil (2018), in his study, finds that bank credits to entrepreneurs are strongly related to Ethiopia's economic growth from 1989 to 2017. Nzomoi and Rutto (2012), show that private-sector bank credit has a high potential for fostering sector-based economic growth in Kenya. Wooldridge (2001) observes in his analysis that banks' ability to lend money to the private sector may assist that sector's economy to thrive.

Prime Lending Rate and Economic Growth

Akinwale (2018) finds in his empirical study that, from 1980-2016, a decrease in bank lending rate stimulates growth in Nigeria's economy. Also, Mamman and Hashim (2014) finds in their study of the Nigerian economy that from 1987-2012, bank lending significantly impacts on economic growth. Furthermore, Ademola et al. (2023) find that from 2006 to 2022 a stable lending rate stimulates growth in Nigeria's economy. In addition, Taiga and Adofu (2021) finds that from 1986-2020 lending rates positively and significantly affect growth in Nigeria's manufacturing industry.

Inflation and Economic Growth

Researchers have established a relationship between inflation and economic growth. Some of their findings are as follows: The study of Gregorio (1992) shows that inflation inhibits economic growth in 12 Latin American countries. Kasidi and Nwakanemela (2013) find that growth in the Tanzanian economy is negatively affected by inflation from 1990-2011 but there exists no long-run relationship between them. The study of Ekinici et al. (2020) shows that inflation effects economic growth negatively in 24 inflation targeting countries.

Money Supply and Economic Growth

Money supply has a relationship with economic growth. The study of Uduakobong (2014) of the Nigerian economy from 1985-2011 reveals that money supply exerts a positive impact on economic growth. The study of Dingela (2017) of

the South African economy (1980-2016) shows that in both short and long-run money supply significantly and positively relates with economic growth. Omodero (2019) finds in his study of the Nigerian and Ghanaian economies from 2009-2018, that money supply (M2) exerts a significant and positive influence on economic growth in Ghana. However, this influence is negative and insignificant on economic growth in Nigeria. Also, money supply (M3) exerts a significant and negative effect on economic growth in Ghana, but this effect is insignificant and positive on economic growth in Nigeria. Opata and Obasikene (2021) find that from 1986-2019, broad money supply exerts a positive and significant effect on economic growth in Nigeria. Akujuobi and Chikezie (2022) find that in Nigeria's economy (1982-2021) money supply exerts a long-run positive and significant effect.

METHODOLOGY

Research Design

In the evaluation of the cause-and-effect relationship between bank credits to private sector and growth in Nigeria's economy, a causal research design is employed. In other words, the study investigates the extent to which the explanatory variable impacts on the dependent variable.

Model Specification

The general relationship among the variables is shown as: **GDP = f(DTCPS, INF, PLR, MS)**. However, Unit root test results (using the Augmented Dickey Fuller Test-ADF for stationarity tests) on the times series show that the order of integration is a combination of order zero [I (0)] and order one [I (1)]. Under such a condition, the Autoregressive Distributed Lag (ARDL) model, formulated by Pesaran et al. (1996), is a more appropriate tool to use than the Ordinary Lease Square (OLS) model, which has its own different conditions for use. Inputting the variables in the ARDL model, we have the following expression:

$$\Delta GDP_t = a_0 + \sum_{i=1}^p a_{1i} \Delta GDP_{t-1} + \sum_{i=1}^q a_{2i} \Delta DTCPS_{t-1} + \sum_{i=1}^q a_{3i} \Delta CPI_{t-1} + \sum_{i=1}^q a_{4i} \Delta PLR_{t-1} + \sum_{i=1}^q a_{5i} \Delta MS_{t-1} + e_t.$$

With the error correction term, the model becomes:

$$\Delta GDP_t = a_0 + \sum_{i=1}^p a_{1i} \Delta GDP_{t-1} + \sum_{i=1}^q a_{2i} \Delta DTCPS_{t-1} + \sum_{i=1}^q a_{3i} \Delta CPI_{t-1} + \sum_{i=1}^q a_{4i} \Delta PLR_{t-1} + \sum_{i=1}^q a_{5i} \Delta MS_{t-1} + \lambda ECT_{t-1} + e_t$$

Where:

GDP = GDP Growth Rate at constant market price	e = Error Term
a_0 = Constant	a_1, a_2, a_3, a_4 and a_5 = Coefficients
p = Lag value of the dependent variable	l = Number of variables in the equation
DTCPS= Deposit Money Banks Total Credit to Private Sector	PLR = Prime Lending Rate
INFR = inflation measured by Consumer Price Index	MS = Ratio of Broad Money Supply to GDP
Subscript t = Estimated period of time	Δ = Difference operator
λ = the speed of adjustment	ECT = Error correction term

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Data Analyses

Descriptive Statistics

Table: 4.1 Descriptive Statistics

	GDP	DTCPS	PLR	INFR	MS
Mean	4.079664	6738.300	18.40677	18.16677	16.77419
Median	4.230061	2609.290	12.88000	17.95000	14.79000
Maximum	15.32916	22026.37	72.84000	29.80000	24.90000
Minimum	-2.035120	42.07900	5.390000	11.55000	8.460000
Std. Dev.	3.842196	7115.710	16.51726	3.419047	5.497942
Skewness	0.457946	0.625746	2.127941	1.104641	0.074388
Kurtosis	3.666224	1.977593	6.423944	6.118270	1.364974
Jarque-Bera	1.656838	3.373253	38.53807	18.86419	3.481616
Probability	0.436739	0.185143	0.000000	0.000080	0.175379
Sum	126.4696	208887.3	570.6100	563.1700	520.0000
Sum Sq. Dev.	442.8742	1.52E+09	8184.596	350.6965	906.8210
Observations	31	31	31	31	31

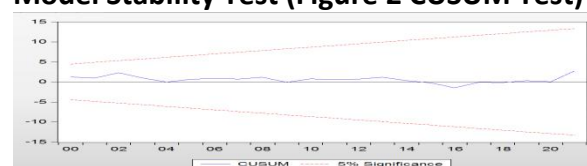
Source: Analysis from E-views 10

Table 4.1 shows a mean of 4.079664 for GDP, 6738.300 for DTCPS, 18.40677 for PLR, 18.16677 for INFR, and 16.77419 for MS. The maximum values are: GDP (15.32916), DTCPS (22026.37), PLR (72.84000), INFR (29.80000), and MS (24.9000). The minimum values are: GDP (-2.035120), DTCPS (42.07900), PLR (5.390000), INFR (11.55000) and MS (8.460000). The standard deviations indicate how far the observations deviate from the respective sample means. For test of normality, it is believed that the distribution of a data set is normal if the value for skewness is between -2 and 2 and that for kurtosis is between -7 and 7. Based on this assertion, the distribution of the variables GDP, DTCPS, INFR and MS in table 4.1 is normal. In addition, the probability values of Jarque- Bera test of GDP (0.436739), DTCPS (0.185143) and MS (0.175379) are greater than 0.05 percent which shows that their distribution is normal. Also, the probability of the Jarque Bera test of the regression residual is approximately 0.74, which is greater than 0.05, indicating a normally distributed data set.

Test for Heteroskedasticity and Serial Correlation

The probability value of 0.8442 in Breusch- Godfery LM test is greater than 0.05 indicating that there is no problem of serial correlation in the model (see appendix 5). Similarly, the probability value of 0.2077 in Breuch-Pagan-Godfery test (appendix 4) is also greater than 0.05 indicating that there is no problem of heteroskedasticity.

Model Stability Test (Figure 2 CUSUM Test)



Source: E-views 10 output

The CUSUM statistics line (in blue) is within the critical bounds (red lines) at a 5% significant level in the CUSUM test for model stability. This indicates model stability.

Stationarity Tests**Table 4.4 Unit Root Test Results**

Variables	ADF Critical Value at 5%	ADF t-statistic	ADF P- Value	Order of Integratio n ADF
GDP	-2.967767	-7.604537	0.0000	I(1)
DTCPS	-2.967767	-3.381119	0.0201	I(1)
PLR	-2.971853	-4.306758	0.0022	I(1)
INFR	-2.963972	-3.366590	0.0205	I(0)
MS	-2.967767	-4.635470	0.0009	I(1)

Extract: E-views, Version 10

Regressing a non-stationary series on another would yield inaccurate conclusions. Dickey and Fuller devised the Augmented Dickey-Fuller (ADF) approach in 1979 to try to prevent this by first determining the order of integration. If the result shows that the orders of integration consists of I(0)s and I(1)s, then ARDL model is used for estimation. Such is the case here, and so we use the ARDL model for estimation.

Inferential Statistics**Correlation Analysis****Table 4.5.1 Correlation Matrix**

	GDP(-1)	DTCPS	DTCPS(-1)	PLR	INFR	MS	MS(-1)	C
GDP(-1)	0.034216	-5.85E-06	4.76E-05	0.004424	0.012836	-0.001878	-0.037248	-0.061836
DTCPS	-5.85E-06	4.16E-07	-4.23E-07	-2.64E-06	3.18E-05	-0.000103	8.44E-05	-0.000420
DTCPS(-1)	4.76E-05	-4.23E-07	5.56E-07	8.75E-06	1.57E-05	9.77E-05	-0.000203	0.000563
PLR	0.004424	-2.64E-06	8.75E-06	0.001721	0.000493	0.002993	-0.007904	-0.014743
INFR	0.012836	3.18E-05	1.57E-05	0.000493	0.049492	0.002462	-0.045954	-0.557092
MS	-0.001878	-0.000103	9.77E-05	0.002993	0.002462	0.105707	-0.084779	-0.366824
MS(-1)	-0.037248	8.44E-05	-0.000203	-0.007904	-0.045954	-0.084779	0.199643	-0.063445
C	-0.061836	-0.000420	0.000563	-0.014743	-0.557092	-0.366824	-0.063445	17.51691

Source: Output from Eviews Version 10

Table 4.5.1 shows low correlation between the variables. A correlation value of 0.9 and higher between explanatory variables indicates the existence of multicollinearity. Others researchers suggest that a value of above 0.7 is indicative of multicollinearity. Since the correlation values in table 4.5.1 are below these thresholds we may conclude that the explanatory variables are not multicollinear.

ARDL Test for Long Run Relationship

The **ARDL Bound Test** Result (appendix 7) shows the existence of long-run relationship among the variables as the value of the F-statistic (4.748157) is greater than those of the lower (2.56) and upper (3.49) bounds when the level of significance is 5 percent.

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Table 4.5.2 Result For Long- Run Relationship

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DTCPS	-0.000923	0.000319	-2.892997	0.0084
INFR	0.180218	0.269674	0.668281	0.5109
PLR	-0.175144	0.040093	-4.368451	0.0002
MS	0.809761	0.353424	2.291188	0.0319
C	-3.890452	4.937692	-0.787909	0.4392

Source: Extract from E-views (Version 10) Output

Having established a long-run relationship among the variables, we proceed to do the error correction text as shown in Table 4.5.3

Table 4.5.3 Result of the Error Correction Model (ECM) (Appendix 8)

Variables	Coefficient	t-statistic	P-Value
Coint Eq(-1)	-0.871462	-5.9913011	0.0000

Extract: E-views version 10

Table 4.5.3 shows that the ECM is significant (p-value, 0.0000 is less than 0.05) and the coefficient is negative (-0.8098) indicating a strong corrective force. The negative coefficient indicates the speed of adjustment (87%) with which the dependent variable returns to a state of equilibrium after a deviation. It is the degree of adjustment, that is, the rate at which the model corrects itself in the long run if there is short- run disequilibrium.

4.6 Test of Hypotheses

The earlier stated hypotheses are tested below:

Hypotheses One

Private sector bank credits have no significant effect on growth of Nigeria's economy from 1991-2021

In table 4.5.2 the probability value of 0.0084 is less than 0.05 level of significance. This indicates that private sector bank credit (DTCPS) exerts a significant effect on economic growth (GDP) in Nigeria in the period under study. This null hypothesis is thus rejected.

Hypotheses Two

Prime credit rates have no significant effect on growth of Nigeria's economy from 1991-2021

In table 4.5.2 the probability value of 0.0002 is less than 0.05 level of significance. This indicates that prime credit rate (PLR) exerts a significant effect on economic growth (GDP) in Nigeria in the period under study. This null hypothesis is thus rejected.

Hypotheses Three

Inflation has no significant impact on economic growth in Nigeria from 1991-2021

In table 4.5.2 the probability value of 0.5109 is greater than 0.05 level of significance. This indicates that inflation (INFR) represented by consumer price index(CPI) does not have a significant influence on economic growth (GDP) in Nigeria in the period under study. Therefore we lack sufficient evidence to reject this hypothesis.

Hypotheses Four

Money supply has no significant effect on growth of Nigeria's economy from 1991-2021

In table 4.5.2 the probability value of 0.0319 is less than 0.05 level of significance. This indicates that money supply (MS) has a significant influence on economic growth (GDP) in Nigeria in the period under study. This null hypothesis is thus rejected.

Discussion of Results

Deposit Money Banks Total Credit to Private Sector (DTCPS) vs Economic Growth

The result in table 4.5.2 shows that DTCPS has a significant effect (p -value, $0.0084 < 0.05$) on economic growth. Many researchers agree with this result because they also find a significant effect of Bank credit on economic growth. These include Wooldridge (2001); Akpansung and Babalola (2012); Nzomoi and Rutto (2012); Eleje and Wilson (2013); Ioana (2013); Audu and Okumoko (2013); Chijindu (2014); Emecheta and Ibe (2014); Tahir et al. (2015); Duican and Pop (2015); Owolabi and Nasiru (2017); Kamil (2018); and Akin (2019).

Furthermore, in this study the said significant effect is negative. This means that an increase in bank credit causes a decrease in economic growth in the period of study. This shows a negative/inverse/indirect relationship between DTCPS and GDP. Specifically, the study reveals that a one unit increase (decrease) in bank credit results in a 0.000923 unit decline (increase) in economic growth. It is necessary to attempt to explain why an increase in bank credit should be related to a decline in economic growth. The answer is not farfetched. It is probably that while bank credits to the private sector are expected to cause economic growth, there exist other factors in the dynamics that have caused the contrary.

For instance, to expect economic growth, *firstly*, bank credits should be channeled selectively and necessarily to identified *productive sectors of the economy* that have been identified to have the capacity to stimulate growth in the specific economy in question. *Secondly*, such credits should be managed properly and with a high degree of *financial frugality* and *accountability*. *Thirdly*, given that the first and second conditions are fulfilled, it is important that the provision of credits should be *sufficient in quantity* and *sustained long enough* to exert the desired *positive* and *significant* growth effect on the economy. Impliedly, the quantity and duration of sustained supply of bank credits to the private sector may vary from economy to economy. These variables must interplay with the appropriate *monetary-fiscal policy mix* that would stimulate growth in the specific economy without generating inflationary pressures that may be sufficient to undermine economic growth.

However, contrary to the finding of this study, some researchers find little or no significant effect of bank credits on economic growth such as Masood et al (2011); Cevik and Rahmati (2013); Mamman and Hashim (2014); and Odufuye (2017).

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We may therefore conclude from the foregoing that while bank credit to the private sector is expected to stimulate economic growth, significantly and positively, the differences observed in the findings of different researchers may be due to some *country-specific factors* some of which may include the specific monetary-fiscal policy mix and its duration, the total quantity of credit in the economy, the ratio of public-private credits, inflation management policies, the specific productive sector(s) of the economy to which the credits have been channeled, the specific period in the economy studied, the extent of financial frugality in the economy, the appropriateness of method of analyzing data, the quality of data analysed, and the specific macroeconomic control variables specified in the model, amongst others.

Prime Lending Rate (PLR) vs Economic Growth

The result in table 4.5.2 shows that PLR has a significant effect (p-value, $0.0002 < 0.05$) on economic growth. This result agrees with the findings of Akinwale (2018), Mamman and Hashim (2014), Ademola et al. (2023), and Taiga and Adofu (2021). The result in table 4.5.2 also shows that the effect of PLR on economic growth is inverse or negative. Specifically, it shows that for every unit increase (decrease) in PLR economic growth declines (grows) by 0.175144 units. This implies that high bank lending rates slow down economic growth by discouraging investors from patronising deposit money banks' loans, whereas low bank lending rates stimulate economic growth by encouraging investors to obtain loans at low interest rates for investment purposes.

Money Supply (MS) vs Economic Growth

The result in table 4.5.2 shows that MS exerts a significant positive effect (p-value, $0.0319 < 0.05$) on economic growth. It shows that for every unit increase (decrease) in MS, there is a 0.809761 unit increase (decrease) in economic growth. This outcome agrees with the finding of Uduakobong (2014); Dingela (2017); Omodero (2019); Opata and Obasikene (2021); and Akujuobi (2022). Some policy implications may be deduced from this result; that is, monetary policies should ensure that there is sufficient aggregate demand (money supply) in the economy to stimulate economic growth.

Inflation (INFR)

The result in table 4.5.2 shows that MS has an insignificant positive effect (p-value, $0.5109 > 0.05$) on economic growth. This means for every unit increase (decrease) in inflation economic growth also increases (decreases) by 0.180218 units. This result is contrary to the findings of Gregorio (1992), Kasidi and Nwakanemela (2013) and Ekinici et al. (2020). In this study the effect of inflation on the growth of the Nigerian economy is positive but insignificant. It should be generally noted while some measure of inflation may stimulate economic growth, excessive inflation reduces the purchasing power of money, discouraging investment that is necessary for enhanced economic development.

Conclusion

This study investigates the impact of private sector bank credit on Nigerian economic growth for 31 years period, from 1991-2021. The ARDL time series econometric model is used in the analysis with private sector bank credit, prime

lending rate, inflation and money supply as explanatory variables and economic growth (GDP) as the dependent variable. The study reveals that the impacts of explanatory variables on economic growth are: private sector bank credit (significant and negative); prime lending rate (significant and negative); money supply (significant and positive) while inflation rate (insignificant and positive).

Recommendations

On the basis of the forgoing, the study recommends as follows:

- i. Establishment of a comprehensive regulatory framework by economic/monetary authorities is needed to monitor the performance of bank credits to the private sector and collection of debts owed to banks (which will minimize bank risk in credit lending and stimulate lending by banks).
- ii. The monetary authorities should formulate and implement policies targeted at lowering PLR particularly to economic-growth-stimulating sectors of the economy, especially the real sector (agriculture, manufacturing and mining).
- iii. The government and its monetary authorities should ensure adequate economic-growth-stimulating volume of MS in the economy with a view to ensuring a sustainable economic growth not compromised by excessive inflationary pressures.

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Appendices

Appendix 1

Table 1 Value of Data (Variables) for the Study

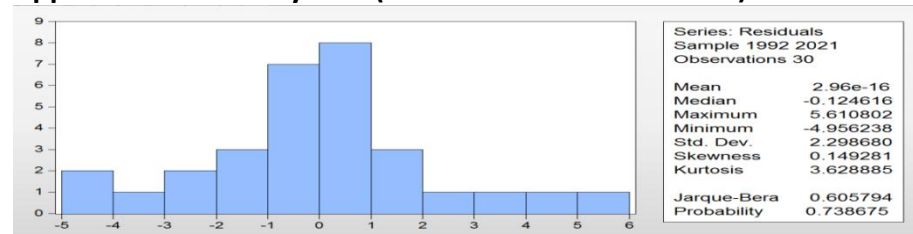
Year	GDP (%) **	DTCPs * N(Billion)	INFR (%) **	PLR (%)*	MS (%) *
1991	0.358353	42.079	13.01	20.01	12.78
1992	4.631193	75.46	44.59	29.80	12.26
1993	-2.03512	88.82	57.17	18.32	13.15
1994	-1.81492	143.52	57.03	21.00	13.02
1995	-0.07266	204.09	72.84	20.18	9.32
1996	4.195924	254.85	29.27	19.74	8.46
1997	2.937099	311.36	8.53	13.54	9.35
1998	2.581254	366.54	10.00	18.29	10.16
1999	0.584127	449.05	6.62	21.32	11.47

UNIPORTJABFM		VOL. 16	NO. 2		MARCH 2025
2000	5.015935	588	6.93	17.98	12.44
2001	5.917685	844.49	18.87	18.29	15.41
2002	15.32916	948.46	12.88	24.85	13.09
2003	7.347195	1203.2	14.03	20.71	14.41
2004	9.250558	1519.24	15.00	19.18	11.76
2005	6.438517	1991.15	17.86	17.95	11.41
2006	6.059428	2609.29	8.23	17.26	12.50
2007	6.59113	4820.7	5.39	16.94	14.79
2008	6.764473	7799.4	11.58	15.14	21.63
2009	8.036925	9667.88	12.56	18.99	22.29
2010	8.005656	9198.17	13.72	17.59	20.01
2011	5.307924	9614.45	10.84	16.02	19.82
2012	4.230061	10440.96	12.22	16.79	21.35
2013	6.671335	11543.65	8.48	16.72	23.14
2014	6.309719	13179.6	8.06	16.55	22.65
2015	2.652693	13568.54	9.01	16.85	21.94
2016	-1.61687	16500.15	15.68	16.87	23.65
2017	0.805887	16193.86	16.52	17.56	24.90
2018	1.922757	15438.6	12.09	19.33	23.07
2019	2.208429	17436.99	11.40	15.53	23.52
2020	-1.79425	19818.38	13.25	12.32	23.35
2021	3.65	22026.37	16.95	11.55	22.90

Sources: 1. * Central Bank of Nigeria and National Bureau of Statistics 2021

2. ** World Development Indicators 2021

Appendix 2 Normality Test (Source: Eviews Version 10)



Appendix 3a ADF Test (GDP) (Source: Eviews Version 10)

Null Hypothesis: D(GDP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-7.604537	0.0000
Test critical values:		
1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

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

Appendix 3b ADF Test (DTCPS) (Source: Eviews Version 10)

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Null Hypothesis: D(DTCPS) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.381119	0.0201
Test critical values:		
1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

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

Appendix 3c ADF Test (PLR) (Source: Eviews Version 10)

Null Hypothesis: D(PLR) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.306758	0.0022
Test critical values:		
1% level	-3.689194	
5% level	-2.971853	
10% level	-2.625121	

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

Appendix 3d ADF Test (INFR) (Source: Eviews Version 10)

Null Hypothesis: INFR has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.366590	0.0205
Test critical values:		
1% level	-3.670170	
5% level	-2.963972	
10% level	-2.621007	

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

Appendix 3e ADF Test (MS) (Source: Eviews Version 10)

Null Hypothesis: D(MS) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.635470	0.0009
Test critical values:		
1% level	-3.679322	
5% level	-2.967767	
10% level	-2.622989	

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

Appendix 4 Heteroskedasticity Test (Source: Eviews Version 10)

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.496306	Prob. F(7,22)	0.2201
Obs*R-squared	9.676136	Prob. Chi-Square(7)	0.2077
Scaled explained SS	6.839847	Prob. Chi-Square(7)	0.4457

Appendix 5 LM Test for Serial Correlation (Source: Eviews Version 10)

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.114210	Prob. F(2,20)	0.8926
Obs*R-squared	0.338761	Prob. Chi-Square(2)	0.8442

Appendix 6 Short Run Estimation of the ARDL Model (Source: Eviews Version 10)

Dependent Variable: GDP
Method: ARDL
Date: 05/23/23 Time: 07:35
Sample (adjusted): 1992 2021
Included observations: 30 after adjustments
Maximum dependent lags: 4 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (1 lag, automatic): DTCPS PLR INFR MS
Fixed regressors: C
Number of models evaluated: 64
Selected Model: ARDL(1, 1, 0, 0, 1)
Note: final equation sample is larger than selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GDP(-1)	0.128538	0.184976	0.694888	0.4944
DTCPS	0.000751	0.000645	1.164111	0.2568
DTCPS(-1)	-0.001555	0.000746	-2.084886	0.0489
PLR	-0.152632	0.041483	-3.679359	0.0013
INFR	0.157053	0.222468	0.705958	0.4876
MS	-0.515956	0.325126	-1.586941	0.1268
MS(-1)	1.221633	0.446814	2.734097	0.0121
C	-3.390382	4.185320	-0.810065	0.4266
R-squared	0.642448	Mean dependent var	4.203708	
Adjusted R-squared	0.528582	S.D. dependent var	3.844227	
S.E. of regression	2.639163	Akaike info criterion	5.001979	
Sum squared resid	153.2340	Schwarz criterion	5.375632	
Log likelihood	-67.02969	Hannan-Quinn criter.	5.121514	
F-statistic	5.647076	Durbin-Watson stat	1.737801	
Prob(F-statistic)	0.000730			

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

Appendix 7 ARDL Long-Run Form and Bounds Test (Source: Eviews Version 10)

ARDL Long Run Form and Bounds Test
 Dependent Variable: D(GDP)
 Selected Model: ARDL(1, 1, 0, 0, 1)
 Case 2: Restricted Constant and No Trend
 Date: 05/23/23 Time: 07:38
 Sample: 1991 2021
 Included observations: 30

Conditional Error Correction Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.390382	4.185320	-0.810065	0.4266
GDP(-1)*	-0.871462	0.184976	-4.711223	0.0001
DTCPS(-1)	-0.000804	0.000354	-2.271845	0.0332
PLR**	-0.152632	0.041483	-3.679359	0.0013
INFR**	0.157053	0.222468	0.705958	0.4876
MS(-1)	0.705677	0.368499	1.915003	0.0686
D(DTCPS)	0.000751	0.000645	1.164111	0.2588
D(MS)	-0.515956	0.325126	-1.586941	0.1268

* p-value incompatible with t-Bounds distribution.

** Variable interpreted as $Z = Z(-1) + D(Z)$.

Levels Equation Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DTCPS	-0.000923	0.000319	-2.892997	0.0084
PLR	-0.175144	0.040093	-4.368451	0.0002
INFR	0.180218	0.269674	0.668281	0.5109
MS	0.809761	0.353424	2.291188	0.0319
C	-3.890452	4.937692	-0.787909	0.4392

EC = GDP - (-0.0009*DTCPS -0.1751*PLR + 0.1802*INFR + 0.8098*MS -3.8905)

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
Asymptotic: n=1000				
F-statistic	4.748157	10%	2.2	3.09
k	4	5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37
Finite Sample: n=30				
Actual Sample Size	30	10%	2.525	3.56
		5%	3.058	4.223
		1%	4.28	5.84

Appendix 8 Error Correction Model (Source: EvIEWS Version 10)

ARDL Error Correction Regression
 Dependent Variable: D(GDP)
 Selected Model: ARDL(1, 1, 0, 0, 1)
 Case 2: Restricted Constant and No Trend
 Date: 05/23/23 Time: 07:44
 Sample: 1991 2021
 Included observations: 30

ECM Regression Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(DTCPS)	0.000751	0.000409	1.835455	0.0800
D(MS)	-0.515956	0.252936	-2.039873	0.0535
CointEq(-1)*	-0.871462	0.147380	-5.913011	0.0000
R-squared	0.591029	Mean dependent var		0.109722
Adjusted R-squared	0.560735	S.D. dependent var		3.594450
S.E. of regression	2.382296	Akaike info criterion		4.668646
Sum squared resid	153.2340	Schwarz criterion		4.808766
Log likelihood	-67.02969	Hannan-Quinn criter.		4.713471
Durbin-Watson stat	1.737801			

* p-value incompatible with t-Bounds distribution.