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RESEARCH ARTICLE

SECTORAL ALLOCATION OF BANK LOANS AND THE GROWTH OF THE NIGERIAN ECONOMY

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ABSTRACT

This study determined the effect of sectoral allocation of bank loans on the growth of the Nigerian economy. The study covered a period of thirty-eight years (1985 to 2023). The study proxy-measured the growth of the Nigerian economy by examining the allocation of bank loans to the agricultural, manufacturing, mining, and quarrying sectors, likewise to small and medium-sized enterprises (SMEs). Data from the Central Bank of Nigeria (CBN) Statistical Bulletin were the primary source of time series data utilised in the study. The study conducted a variety of data analyses, comprising the long-term and short-term dynamics of Autoregressive Distributive Lag (ARDL) model estimations, the bounds co-integration test, and the unit root test applying Augmented Dickey-Fuller (ADF). The study's upshots indicated that short-term and long-term loans from deposit money bank to the agricultural, manufacturing, mining, and quarrying sectors, likewise to small and medium-sized enterprises (SMEs), have a favourable and substantial impact on Nigeria's gross domestic product. As per the upshots of the investigation, it was determined that the Nigerian economy experiences substantial development as a result of sectoral allocation of bank loans. The study recommended, among other things, that deposit money institutions should rise their efforts to extend more credits to the agricultural sector on a consistent basis. This will further strengthen and rise the growth rate of the real sector in Nigeria.

Keywords: Sectoral allocation, bank loans, Nigerian economy, agricultural sector, gross domestic product

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1.0. INTRODUCTION

In every economy, banks serve as the middlemen between the surplus and deficit units, facilitating the indirect exchange of financial value. Consumers' are looking for loans or investors getting ready to start profitable ventures get the excess units when they deposit them in banks. The investors and consumers pay interest on the loans. Banks have an intermediary function in an economy, stimulating corporate activity via, among other things, the generation and distribution of credit. As a result, banks have grown into the primary source of credit and a potent tool for private sector financing. Banks do lend money to businesses and other organisations so that they may engage in investment and development projects, which helps the businesses expand and the economy as a whole. Financial institutions like as banks play a crucial role in saving, mobilisation, and allocating resources. As attested by Aigbomian and Akinlosotu (2017), they play a substantial role in the expansion of Nigeria's private sector. Loans from deposit-taking businesses (other than central banks) to various economic sectors are known as "bank loans" (Okorie and Chikwendu, 2019). Loan rules govern the availability of these financial resources. As part of their credit policies, monetary authorities limit the total and/or sectoral distribution of bank loans and advances. Credit policies in Nigeria have historically sought to rise the supply, decrease the cost, and expand access to credit for businesses and other organisations, and to spur expansion in the economy's productive sectors, comprising the real sector. Consequently, private companies in emerging nations, like Nigeria, rely on bank loans for investment capital (Okorie & Chikwendu, 2019).

Ijaiya and Abdulraheem (2010) state that banks' capacity to create and distribute loans—the result of their demand deposits and serial expansions—is one of their tasks. The fact that banks lend out most of their clients' deposits and hold onto lesser portions to use as needed is no longer a secret. Loans and advances make up the largest portion of banks' total assets, so their lending activities in Nigeria typically rely on factors like capital base, deposit base diversity, internal policies, and the loan guidelines issued periodically by the controlling authorities (Somoye & Iio, 2018). Additionally, as attested by Ogunyomi (2015), there are several factors that impact banks' loan-granting decisions. These comprise, but are not limited to, the following: the level of interest rates, the amount of deposits, the level of investments both domestically and abroad, the liquidity ratio of the bank, and the bank's reputation and prestige.

By directing bank loans to industries with the greatest growth and productivity potential, or "sectoral allocation," a nation's GDP may expand at a faster rate and with less waste. In addition, the research of Kayode, Obamuyi, Owoputi, and Adeyefa (2015) shown that bank loans to various industries contribute substantially to the expansion of Nigeria's economy. So, it is safe to say that a more equitable distribution of bank loans across different industries would boost productivity across the board, which will ultimately boost GDP. Financial institutions' loans rank highest among emerging nations' investment funding options for private companies, comprising Nigeria's. The amount and ease of access to bank credit for

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borrowers in the real sector directly impact the level of private investment (Okorie & Chikwendu, 2019). Adewole, Nwankwo, Ogbadu, Olukotun, and Samuel (2018) further confirmed that sectoral distribution of bank loans facilitates technological innovation and rises the quantity of money available for investment by pooling investments. Their capacity to pool resources, assess investment opportunities, keep tabs on management, and enable cheaper transactions is central to this argument, as is the idea that this would lead to more private sector investment and faster economic development. In addition, as attested by Aigbomian and Akinlosotu (2017), the private and public sectors are able to access the capital they need to spur economic development and ensure the long-term viability of the country's economy via DMB loans for productive pursuits. Private sector investment rises as a result of their lending function, which makes it easier for investors to pursue lucrative enterprises. Ebere and Iorember (2016) also found that banks do a great social service when they lend money to various parts of the economy. This is because banks ensure economic growth by increasing production, capital investments, and living standards.

Bank loan distribution across different economic sectors may have far-reaching repercussions, even if access to credit is a basic engine of economic growth and development. The unequal distribution of bank loans throughout various parts of Nigeria's economy is one of the main problems. Evidently, some industries, like the oil and gas industry, may get an outsized amount of credit, while others, like agriculture and SMEs, may have trouble getting the money they need. This makes one wonder how this will affect the development of the economy and how fair it is to distribute financial resources. Furthermore, a large percentage of Nigerians find work in agriculture, making it an important part of the country's economy and ensuring food security. It has a unfavourable impact on Nigeria's economic development since it often obtains a lesser percentage of bank credit compared to industries like manufacturing and oil. Unfortunately, records reveal that Nigerian deposit money banks still have a high spate of bad loans (non-performing loans), even though the banking industry has implemented prudential guidelines and all deposit money banks have a Risk Management Department responsible for managing the risk of the bank.

Financial institutions are unable to lend money to various parts of the economy due to a number of factors, comprising but not limited to: high interest rates, inadequate or nonexistent collateral, a growing number of non-performing loans on their books, slow loan processing, and excessive government intervention in the loan approval process. Because of this, businesses are unable to put their resources into productive endeavours, which slows economic expansion in Nigeria. Hence, there was need to examine the effect of sectoral allocation of bank loans on the growth of the Nigerian economy. The specific objectives are to:

i. Investigate the effect of deposit money bank loan to agricultural sector on Gross Domestic Product (GDP) in Nigeria.
ii. Analyze the effect of deposit money bank loan to manufacturing sector on Gross Domestic Product (GDP) in Nigeria.

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iii. Ascertain the effect of deposit money bank loan to mining and quarrying sector on Gross Domestic Product (GDP) in Nigeria.
iv. Investigate the effect of deposit money bank loan to SMEs on Gross Domestic Product (GDP) in Nigeria.

2.0 THEORITICAL FRAMEWORK AND LITERATURE REVIEW

2.1. Theoretical Framework

This investigation will be predicated on the subsequent theories:

Commercial Loan Theory

The real bills doctrine or commercial loan theory is the first and most venerable banking theory. Banks should only lend on short-term, self-liquidating commercial paper, as attested by the commercial loan theory. Hosna and Manzura (2009) state that commercial loan theory is designed to subtly but effectively affect financial indicators and general economic activities, comprising bank lending. Adherence to this theory to the letter will show that its intended function is to provide monetary stimulus for shifts in overall economic activity. Deposit-Money Banks (DMBs) in Nigeria clearly favour this doctrine. Nigerian bankers think that the money depositors' should be utilised for short-term loans since their resources could be repaid quickly. As attested by Kargi (2011), when you consider that there were almost no secondary reserve assets when this theory was dominant, which meant that the bank did not have much of a liquidity buffer, you can see how orthodox the connection is. The theory also disregards the fact that Nigeria's developing economy has credit requirements. It has not prompted financial institutions to lend money for the acquisition of real estate, machinery, and other physical assets.

Any theory that insists on liquidating all loans as part of regular operations ignores the relative security of bank deposits. Although demand deposits are payable upon demand, it is highly unlikely that all depositors will make a simultaneous demand for payment. So, a bank can safely lend money for a long time without worrying about running out of money thanks to stable deposits. The commercial loan theory, also known as the real bills doctrine, has persisted as a banking theory despite its shortcomings. There are traces of it in the way many bankers think, how bank examinations are structured, and the regulatory agencies that oversee banks. The history of banking is essential to comprehending modern banking practices, and knowledge of commercial loan theory is necessary to comprehend banking credits and the risks associated with them.

Financial Development Theory

In 1973, Shaw and McKinnon were recognised for their work that contributed to financial development theory. The idea claims that financial liberalisation may have a beneficial influence on growth rate when interest rates and currency rates level climb towards market equilibrium when resources are effectively dispersed. Shaw (1973) and McKinnon (1973) postulated that favourable real deposit rates boost the saving rate; promote financial

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deepening; raise investment and therefore growth. The idea was established to analyse the link between economic growth and financial development'. In doing this, they theorised two main hypotheses; the "demand leading", which argues that financial development accrete as the economy improves; and a "supply-leading" phenomena, in which the general expansion of financial institutions leads to an economic rise. Thus, financial development is a function of economic expansion with regard to demand of financial services and vice versa (Patrick, 1966). The ideal course of action, as attested by Mckinnon (1973), is to allow interest rates and currency rates to freely fluctuate, and financial growth via liberalisation leads to integrated financial markets. Some prominent changes pertaining to finance, i.e. financial liberalisation, are hindered by the effectiveness of the Financial Development theory. The theory is suited for the research since it argues that via financial liberalization, the production of various sectors of the economy may be raised for greater economic development, provided the regulatory authorities enable financial institutions run smoothly by the invisible hand.

Empirical Literature

Ajudua (2023) conducts an empirical evaluation of the effect of lending by deposit money banks on the advancement of the Nigerian economy. Data from 1986 to 2020 were acquired from secondary sources and unit root test, co-integration test and the ECM approach utilised in evaluating the data. The research found that rise in the money supply and total bank credit are substantially correlated with economic growth. Private sector credit had a favourable but not substantial association with economic growth whereas lending rate had a unfavourable and substantial correlation with economic growth.

Cookey, Akidi and Oladosu (2023) evaluated the consequences of bank loans in deepening SMEs performance in Nigeria, covering the period from 1990 to 2022. This study utilised the ADF unit root test, the Bound co-integration test statistic, and the ARDL approach to analyse annual time series data collected from the CBN Statistical Bulletin and reports from the National Bureau of Statistics (NBS). Providing private and agricultural sectors with market-friendly loans had a favourable, albeit insubstantial, effect on SMEs' production in Nigeria, as attested by the study. In contrast, loan rate had a unfavourable and statistically substantial effect on the regressand, but credit to the manufacturing sector and SMEs had a favourable and statistically substantial effect on SMEs' production.

Applying time series data from 1960 to 2011, Emecheta (2022) examined the effect of bank loans on economic development in Nigeria applying the reduced version of the vector autoregressive (VAR) approach. In this investigation, researchers utilised the ADF and Phillips Perron (PP) unit root tests to ensure that the variables were stationary. There was an integration of order one, or I, for all of the variables (1). Finding a strong favourable correlation between broad money, private sector bank loans, and economic growth is a key consequence. The historical values of all the variables were important in predicting their present values.

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From 1980 to 2018, Amos (2020) analysed the correlation between loans from deposit money banks and economic development in Nigeria. This research appraised the correlation between domestic credit (DCPS) and GDP, a measure of economic growth, applying time series data from the World Bank's Development Indicators applying the ARDL method. Other variables were inflation and interest rates (INF and LIR). The upshots illustrated that GDP rose by 6% for every unit rise in domestic credit (dcps). Inflation rate was shown to limit economic growth rate by 7%. Research covering 39 years found that loans from deposit money banks was a key factor in Nigeria's economic development.

Joseph (2020) appraised how bank credit and GDP growth are related. In particular, the research appraised how total financial intermediation and bank credit by the borrowing sector affected economic growth. Time series data from 1993 to 2017 is employed. Causality testing and vector error correction are used. Analyses indicated that there is no causal link exists between bank credit and economic growth, nor between economic growth and bank credit. Bank loans considerably improve GDP growth over the long run.

Aniekan and Sikiru (2020) appraised the data from 1970 to 2008 to determine how the credit from the banking sector affected GDP growth in Nigeria. While developing the regression models, we utilised a Two-Stage Least Squares (TSLS) estimation method to determine the correlations between the relevant variables. Private sector credit (PSC) and industrial production index (IND) both have a one-way causal correlation with GDP, as attested by the upshots of the Granger causality test. Over the time frame of this study, private sector credit had a favourable effect on economic growth, as attested by the estimated regression models. However, high interest rates on loans impede economic growth.

Abina (2020) appraised the economic growth and sectoral distribution of bank credits in Nigeria from 1985 to 2019. To make sure the data was stationary, we utilised the ADF statistics; to test our hypothesis, we utilised the error correction model. Bank loans to the public sector, real estate, and agriculture had a favourable effect on the human development index, whereas loans to the manufacturing, mining, and general commerce sectors had a unfavourable effect. Additionally, the research supported both bank-based systems and the theory put forth by commercial banks. Financial institutions are hesitant to provide credit to industries comprising manufacturing, mining, and general commerce due to the present uncertain economic climate.

From 1981 to 2016, Sayedia and Ringimb (2019) appraised how deposits money banks' (DMBs) lending affected Nigeria's economic development. The study's sample frame is the entire population, and regression is the tool for analysis. The study's upshots show that the beta values of the estimated co-efficient for DMB lending and DMB lending rate are within the 95% confidence interval. This implies bank lending influences the economic development of Nigeria. The regression findings suggested that DMBs' lending had favourable and substantial influence on economic growth. But DMBs' lending rate has favourable and

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negligible influence on economic development. The outcomes of this research have both theoretical and practical consequences to economy of Nigeria.

Idachaba, Olukotun and Elam (2019) studied the effect of bank loans on the Nigerian economy applying time series data spanning the period from 1980 to 2017. Unit root test was performed to test stationary which demonstrates that all the variables were stationary at initial difference. Regression upshots indicated that private sector loans boosted the Nigerian economy, whilst public sector loans and prime lending rate dampened it. There is co-integration among the variables, indicating long-term analysis, as attested by the reported upshots of the co-integration test.

From 2008Q1–2017Q4, Ubesie, Echekoba, Chris-Ejiogu, and Ananwude (2019) evaluated the impact of sectoral distribution of deposit money banks' lending on real GDP growth in Nigeria. When estimating the created models, the OLS regression method was used. The research indicated that there was no difference in the lending practices of commercial banks to the wholesale and retail, agricultural, industrial, and building and construction sectors with respect to the effect on real GDP.

Ndubuisi (2017) examined the effect of sectoral lending by commercial banks on the Nigerian growth index. This research made use of time series data collected from the CBN statistical bulletin from 1994 to 2015. To ensure that the series was stationary, we utilised the ADF test; to identify any potential long-term cointegrating correlations between the variables, we turned to the Johansen co-integration test. To determine the monetary connection between the variables, however, the Vector Error Correction test was used. The research found that credit to agriculture, manufacturing, and general services receives a favourable and statistically substantial boost as the economy grows.

Over the course of 24 years (i.e., 1992–2015), Odufuye (2017) studied the effect of bank loans on GDP growth in Nigeria. We relied on scholarly articles, textbooks, and the statistics bulletin from the CBN as secondary sources of information. By applying the OLS estimate approach in conjunction with the Statistical Package for the Social Sciences (SPSS), we were able to prevent the occurrence of misleading findings. The upshots illustrated that there is no statistically substantial correlation between the explanatory factors and GDP. Also, the f-statistic finding illustrated that bank credit as a whole substantially affects GDP over the time period considered.

3.0 METHODOLOGY

Data Collection Method and Sources

Secondary sources or already published materials were the only sources of data used. This research made use of yearly time series data that extended over 38 years (1985–2022). An official statistics report from the CBN provided the basis for these numbers.

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Model Specification

Modifications made to the model by Abina (2020) served as the basis for this study's model. Function, mathematical, econometric, and log linear versions of the model were each presented in the following ways:

The model's functional form is defined as:

$$GDP = f(BLAS, BLMS, BMQS, BLS) \quad (1)$$

Because the constant and parameters are missing from equation (1), it is insufficient for specifications in econometrics. Consequently, we provide the constant parameters and variables as outlined below:

$$GDP_t = \beta_0 + \beta_1 BLAS_t + \beta_2 BLMS_t + \beta_3 BMQS_t + \beta_4 BLS_t \quad (2)$$

The assumption of exactness in the connection among the variables in equation (2) necessitates the introduction of the disturbance term in the econometric version, which clarifies the presence of an imperfect correlation.
So, to express the model in its econometric form:

$$GDP_t = \beta_0 + \beta_1 BLAS_t + \beta_2 BLMS_t + \beta_3 BMQS_t + \beta_4 BLS_t + \mu_t \quad (3)$$

In conclusion, the requirements for the log linear version of the model are as follows:

$$InGDP_t = \beta_0 + \beta_1 InBLAS_t + \beta_2 InBLMS_t + \beta_3 InBMQS_t + \beta_4 InBLS_t + \mu_t \quad (4)$$

Where: **GDP** = Gross Domestic Product, **BLAS** = Deposit money bank loan to agricultural sector, **BLMS** = Deposit money bank loan to manufacturing sector, **BMQS** = Deposit money bank loan to mining and quarrying sector, **BLS** = Deposit money bank loan to SMEs, β_0 = Intercept/constant variable,

β_1 = Co-efficient of deposit money bank loan to agricultural sector, β_2 = Co-efficient of deposit money bank loan to manufacturing sector, β_3 = Co-efficient of deposit money bank loan to mining and quarrying sector, β_4 = Co-efficient of deposit money bank loan to SMEs, t = time
In = log linear, μ_t = Disturbance term which is a random (stochastic) variable that has well defined probabilistic properties.

A Priori Expectations

As per the understanding of economic theory, the a priori expectations of this research are as follows:

Gross Domestic Product Model: As proxies for the sectoral allocation of bank loans, the parameters of bank loans to agriculture, manufacturing, mining and quarrying, and small and medium-sized enterprises (SMEs) should all show favourable signs, indicating a favourable correlation with real GDP. The mathematical proof of this is: $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 > 0$, $\beta_4 > 0$.

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Data Analysis Techniques

In an effort to make sure the estimated model is not spurious and whether a co-integrating regression could be estimated, the analytical approach for this research began with various pre-estimation tests. Nevertheless, the ARDL method was utilised because to the variables' mixed stationarity, which means they are both stationary at levels [I(0)] and stationary at first difference [I(1)].

4.0 RESULTS AND DISCUSSION

Unit Root Test

In order for a co-integration connection to exist, it is necessary to test the series' unit roots. In an effort to determine whether all of the variables had stationarity, this research first utilised the well-known ADF unit root test. Below in Table 1 you can see the unit root test upshots:

Table 1: Augmented Dickey-Fuller (ADF) Test Upshots

	At Levels		At 1st Difference			
Variables	**ADF**	**Mackinnon Critical Value @ 5%**	**ADF**	**Mackinnon Critical Value @ 5%**	**Decision**	**Order of Integration**
LOG(GDP)	-3.21391	-2.941145	-	-	Stationary at Level	I(0)
LOG(BLAS)	-0.83736	-2.941145	-6.99085	-2.943427	Stationary at 1st Difference	I(1)
LOG(BLMS)	-1.57383	-2.941145	-4.98215	-2.943427	Stationary at 1st Difference	I(1)
LOG(BMQS)	-1.67857	-2.941145	-5.02686	-2.943427	Stationary at 1st Difference	I(1)
LOG(BLS)	-1.59782	-2.941145	-6.16739	-2.943427	Stationary at 1st Difference	I(1)

Source: *Authors' Computation (2025), E-views 12.0*

Table 1 displays the aggregated upshots of the ADF Unit root tests performed on all of the model variables. GDP stabilised at level, as attested by the unit root test. Why? Because at the 5% level of significance, the test statistic value of GDP is higher than the Mackinnon critical value. Thus, it follows that GDP was stagnant at order zero, or I(0). However, after initial differentiation, loans from deposit money bank to the agriculture sector (BLAS), manufacturing sector (BLMS), mining and quarrying sector (BMQS), and small and medium-sized enterprises (SMEs) (BLS) all reached stability. Their test statistic values above the Mackinnon critical value at the 5% level of significance at first difference, which explains why this is the case. It may be inferred from this that the loans from deposit money bank to the agricultural, manufacturing, mining, and quarrying sectors, likewise SMEs are all interconnected at the first order [i.e., I(1)]. The use of ARDL was necessary for the estimate of the long run connection among the variables and the error correction model since the variables had to achieve mixed stationarity, which means they were stationary at order zero and one.

ARDL Bound Co-integration Test

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Table 2: ARDL Bounds Co-integration Test

Significance	I(0) Bound	I(1) Bound	F-Statistics
10%	2.2	3.09	
5%	2.56	3.49	4.871709
2.5%	2.88	3.87	
1%	3.29	4.37	
Computed F-statistic: F_{GDP}[BLAS BLMS BMQS, BLS]			
K =4			

Source: *Authors' Computation (2025), E-views 12.0*

Table 2 displayed the upshots of the ARDL Bounds correlation analysis. As attested by Table 2, there is a correlation between the growth of the Nigerian economy indicator (Gross Domestic Product) and the indicators of sectoral allocation of bank loans (DMB loan to agricultural sector, DMB loan to manufacturing sector, DMB loan to mining and quarrying sector, and DMB loan to SMEs). This highlights the importance of considering the long run. That is, 4.871709 is the calculated F-statistic, which stands for FGDP(BLAS BLMS BMQS, BLS). At the 10%, 5%, 2.5%, and 1% significance levels, respectively, the estimated F-statistic value of 4.871709 exceeds the upper limit critical values of 3.09, 3.49, 3.87, and 4.37. Therefore, we can conclude that there is co-integration among GDP, loans from deposit money bank to the agricultural and manufacturing sectors, loans from deposit money bank to the mining and quarrying sector, and loans from deposit money bank to SMEs, and we reject the null hypothesis that there is no co-integration.

It was also necessary to estimate the extent of the association between the dependent and independent variables applying the ARDL model in an effort to establish long term dynamics among the variables.

Autoregressive Distributive Lag (ARDL) Long-term **and Short-Run Dynamics**
Table 3 illustrates the outcomes of the ARDL model estimation:

Table 3 displays the ARDL model's long-term estimates. The findings illustrated that there is a favourable and statistically substantial association between the agricultural sector's use of DMB loans and Nigeria's GDP. The favourable co-efficient value (0.348718) and probability-value (0.0360) of the DMB loan to the agricultural sector, both of which are below 0.05, demonstrate this. This means that in the long term, a one unit rise in the amount of money in which financial bodies like banks lends tothe agriculture sector would lead to a 0.348718 unit gain in GDP. Additionally, the ARDL model's short-run projections showed a favourable and statistically substantial correlation between agricultural sector DMB loans and Nigeria's GDP. The fact that the probability-value (0.0008) is below 0.05 at lag one and the co-efficient value (0.348718) of the DMB loan to the agricultural sector are favourable indicators of this. In the near term, this means that a one unit rise in the amount of money in which financial bodies like banks lends tothe agriculture sector will result in a 0.348718 rise in GDP.

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Table 3: Estimated Long-term **Co-efficient of ARDL**

Dependent Variable = LOG(GDP)				
Long-term **Upshots**				
Variable	**Co-efficient**	**Std. Error**	**t-Statistic**	**Prob.***
LOG(BLAS)	0.348718	0.149104	2.338756	0.0360
LOG(BLMS)	0.985083	0.095225	10.34480	0.0000
LOG(BMQS)	1.367729	0.419139	3.263189	0.0062
LOG(BLS)	0.167737	0.029651	5.657067	0.0001
C	4.325406	0.142294	30.39762	0.0000
Short-Run Upshots				
DLOG(GDP(-1))	1.109658	0.197993	5.604538	0.0001
DLOG(GDP(-2))	0.935605	0.199288	4.694735	0.0004
DLOG(BLAS)	0.348718	0.062801	0.404777	0.0008
DLOG(BLAS(-1))	-0.348718	0.080277	-4.343920	0.0008
DLOG(BLMS)	0.587964	0.139707	4.208536	0.0010
DLOG(BLMS(-1))	-0.106984	0.126515	-0.845621	0.4131
DLOG(BLMS(-2))	-0.345840	0.142474	-2.427388	0.0305
DLOG(BMQS)	0.449525	0.126851	3.543733	0.0036
DLOG(BLS)	0.197077	0.040266	4.894432	0.0003
DLOG(BLS(-1))	0.218583	0.047003	4.650408	0.0005
CointEq(-1)*	-0.371568	0.081255	-4.572887	0.0005
R^2 = 0.828258; Adjusted R^2 = 0.675599; Durbin-Watson stat = 2.631372				

Source: *Authors' Computation (2025), E-views 12.0*

Interpretation of Long-term **and Short-Run ARDL Model Upshots**

Deposit Money Bank Loan to Agricultural Sector (BLAS) and Gross Domestic Product (GDP)

Loans from Deposit Money Banks to the Manufacturing Sector (BLMS) and GDP

In addition, the ARDL model's long-term estimations illustrated that there is a favourable and statistically substantial association between loans from deposit money bank to the manufacturing sector and Nigeria's GDP. The fact that the probability-value (0.0000) is below 0.05 and the co-efficient value (0.985083) of the DMB loan to the manufacturing sector is favourable proves this. In other words, a one-unit rise in the amount of money in which financial bodies like banks lends tothe manufacturing sector as deposit rises GDP by 0.985083 in the long term. In addition, the ARDL model's short-run estimations illustrated that a favourable long-term link exists between Nigeria's GDP and loans from deposit money bank to the manufacturing sector. The fact that the probability-value (0.0010) is below 0.05 at lag one and the co-efficient value (0.587964) of the DMB loan to the manufacturing sector are favourable indicators of this. This means that in the near term, there will be a 0.587964 rise in GDP for every one unit rise in the amount of money in which financial bodies like banks lends tothe manufacturing sector as deposit.

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Deposit Money Bank Loan to Mining and Quarrying Sector (BMQS) and Gross Domestic Product (GDP)

Additionally, the ARDL model's long-term estimations illustrated that the mining and quarrying sector's access to DMB loans had a favourable and statistically substantial link with Nigeria's GDP over the long-term. The fact that the probability-value (0.0062) is below 0.05 and the co-efficient value (1.367729) of the DMB loan to the mining and quarrying industry is favourable proves this. This means that in the long term, a one-unit rise in the amount of money in which financial bodies like banks lends tothe mining and quarrying industry would lead to a 1.367729 unit rise in GDP. There is a favourable and statistically substantial long-term association between loans from deposit money bank to the mining and quarrying industry and Nigeria's GDP, as attested by the short-run estimations of the ARDL model. The fact that the probability-value (0.0036) is below 0.05 at lag one and the co-efficient value (0.449525) of the DMB loan to the mining and quarrying industry are favourable indicators of this. In the near term, this means that there will be a 0.449525 rise in GDP as a result of a one unit rise in the DMB loan to the mining and quarrying industry.

Deposit Money Bank Loan to SMEs (BLS) and Gross Domestic Product (GDP)

In addition, the ARDL model's long-term estimations illustrated that a favourable long-term link exists between Nigeria's GDP and loans from deposit money bank to SMEs. The probability-value (0.0001) is below 0.05, and the favourable co-efficient value (0.167737) of the DMB loan to SMEs proves it. This means that in the long term, a one unit rise in the amount of deposit money in which financial bodies like banks lends toSMEs would lead to a 0.167737 rise in GDP. Additionally, the ARDL model's short-run estimations illustrated that a favourable long-term link exists between Nigeria's GDP and loans from deposit money bank to SMEs. A probability-value of 0.0003, which is lower than 0.05, and a favourable co-efficient value of 0.197077) for loans from deposit money bank to the mining and quarrying industry make this point clear. In the near term, this means that a one unit rise in the amount of money in which financial bodies like banks lends toSMEs would lead to a 0.197077 rise in GDP.

Interpretation of CointEq(-1) Result

Figure 3 displays the outcomes of the error correction model's estimations of the short-run dynamic co-efficient linked to the long-term connections. There is congruence between the indications of the long-term connection and those of the short-term dynamic exchanges. Inferring a rather rapid return to equilibrium after a shock, the calculated error correction co-efficient of -0.371568 (with a probability-value of 0.0005) is both statistically substantial and correctly signed. If this is correct, then around 37% of shock disequilibria return to the long term equilibrium this year.

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Interpretation of Adjusted R-Squared (Adj. R2) Value

Table 3 shows the upshots of the short-run estimates of the ARDL model. The estimated model is well-fit with an Adjusted R-squared value of 0.675599. This means that the model adequately describes the data, with the explanatory variables (DMB loan to agricultural sector, DMB loan to manufacturing sector, DMB loan to mining and quarrying sector, and DMB loan to SMEs) explaining about 68% (R-squared) of the variation in GDP, and other variables or factors accounting for 32% of the variation.

Interpretation of Durbin-Watson Statistic Value

Finally, there is no serial autocorrelation since the Durbin-Watson statistic is 2.631372, which is bigger than 2.

Post-Estimation Tests

The outcomes of the diagnostic tests are delineated and analysed below:

Table 4: Post-Estimation Test Upshots

Test	Null Hypothesis	Test Type	F-stat.	Prob.
Normality Test	Normal distribution exists	Jarque-Bera Test	0.238674	0.887509
Serial correlation Test	Serial correlation does not exist	Breusch-Godfrey LM Test	1.187243	0.1101
Heteroscedasticity Test	Homoscedasticity exists	Breusch-Pagan-Godfrey	1.506257	0.2255
Functional form Test	Model is stable	Ramsey RESET	1.125394	0.3096

Source: *Authors' Computation (2025), E-views 12.0*

We can not rule out the possibility of a normal distribution as the probability value (0.887509) is higher than the 0.05 threshold of significance, as attested by the Jarque Bera (Normality) test result in Table 4. Because of this, we may infer that the model follows a normal distribution and accept the null hypothesis. Table 4 displays the upshots of the Breusch-Godfrey Serial Correlation LM test. The probability values suggest that there is no serial correlation, which is not possible to reject since they are more than the 0.05 threshold of significance. Because of this, we may infer that the model does not have a serial correlation issue and accept the null hypothesis. In Table 4, we can see the upshots of the Breusch-Pagan-Godfrey heteroskedasticity test. The probability values are 0.2255, which is higher than the 0.05 threshold of significance. Therefore, we cannot reject the null hypothesis of homoscedasticity. Because of this, we may infer that the model exhibits homoscedasticity and accept the null hypothesis. So, it seems like we did not leave out any important factors. Finally, looking at Table 4's Ramsey RESET test upshots, we can see that the probability

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values (0.3096) are higher than the 0.05 levels of significance, which means that we cannot reject the null hypothesis of accurately stated. This proves the model is well-specified as it calls for accepting the null hypothesis. This verifies the accuracy of the model in its functional form.

Discussion of Findings

The impact of bank loan sectoral distribution on GDP growth in Nigeria from 1985–2023, as estimated applying the ARDL method, is the subject of this empirical study's time series data analysis. The first important takeaway from this research is that agriculture sector DMB loans substantially boost Nigeria's GDP. Bank loans to the agricultural sector had a favourable impact on the human development index (HDI), which is a measure of economic progress in Nigeria, as attested by Abina (2020). The second important takeaway from this research is that manufacturing sector DMB loans substantially boost Nigeria's GDP. Otubu (2019) also discovered that bank loans to the manufacturing sector in Nigeria augmented manufacturing sector production, thus our upshots are in line with theirs. Thirdly, the research found that the mining and quarrying industry gets a favourable and considerable boost to Nigeria's GDP from DMB loans. Idachaba, Olukotun, and Elam (2019) also discovered that the mining and quarrying industry had a favourable and considerable impact on Nigeria's GDP, and our upshots are in line with theirs. Finally, the research found that a healthy and statistically substantial rise to Nigeria's GDP was associated with loans from deposit money bank to SMEs. Similarly, Cookey, Akidi, and Oladosu (2023) discovered that bank lending to SMEs considerably and favourably affected SMEs' production, therefore our upshots are in line with theirs.

5.0 CONCLUDING REMARKS AND RECOMMENDATIONS

The study's upshots illustrated that a variety of deposit money bank loans had a favourable impact on Nigeria's GDP, comprising those to the agricultural sector, the manufacturing sector, the mining and quarrying sector, and SMEs. As attested by the study's assumptions, the Nigerian economy benefits greatly from the sectoral distribution of bank loans. As per the upshots of this investigation, we suggest the following actions:

1. In an effort to boost the real sector's growth rate in Nigeria, deposit money institutions should consistently lend more money to the agriculture industry.

2. The regulatory authorities in Nigeria should promote efficient bank intermediation so that the manufacturing sector receives more credit, since this has been shown to favourably correlate with GDP growth in the country.

3. It would be beneficial for the Nigerian economy and private investment if deposit money institutions kept lending to SMEs.

4. Nigeria's regulatory bodies need to mount awareness campaigns across all industries on the advantages and prerequisites for obtaining bank loans.

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5. It is important for banks to keep an eye on their outstanding loans so they can quickly discover any loans that borrowers do not pay back when they should.

Competing Interest

The author has declared that no conflicting interest exist in this paper.

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