JOURNAL OF MONEY, BANKING AND FINANCE
Vol. 8, No. 2, 2023, pp. 141-157
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Effect of Commercial Banks' Loans and Advances to Agricultural Sector on Agricultural Value Added Growth Rate in Nigeria

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To Cite this Article

Zwingina, Christy Twaliwi, U.C. Anochie & Chukwu, Peter Damain Ezechi (2023). Effect of Commercial Banks' Loans and Advances to Agricultural Sector on Agricultural Value Added Growth Rate in Nigeria. *Journal of Money, Banking and Finance,* 8: 2, pp. 141-157.

Abstract: This study was carried out to evaluate the effect of commercial banks' loans and advances on agricultural sector on agricultural value added growth rate in Nigeria between 2003 and 2022 using annual time series data sourced from Central Bank of Nigeria Statistical Bulletin and World Bank Development. Agricultural value added growth rate was used as the dependent variable while commercial banks' loans and advances to agriculture was used as the independent variable. Auto Regressive Distributed Lag (ARDL) Model was used to analyze data. The results of ARDL Model revealed that commercial banks' loans and advances to agricultural sector had a significant positive relationship with agricultural value added growth rate in Nigeria. The researchers' therefore recommended that Commercial banks should encourage agricultural sector value added growth by granting loans and advances when needed to intending entrepreneurs to venture in agriculture value added activities, among others.

Keywords: commercial banks' loans and advances, agricultural value added, agricultural financing, agricultural sector, Auto regressive distributed lag model

INTRODUCTION

The majority of the poor in sub- Saharan Africa relies on agricultural activities for a livelihood and hence that sector is fundamental to spurring growth, enhancing food security, alleviating poverty and generating income (Awotide et al., 2012). In order to deal with the challenges of the high rates of poverty, unemployment and problems of food insecurity among the rural poor in Nigeria effectively as outlined by (Olaolu

Received : 22 July 2023 • **Revised :** 08 August 2023 • **Accepted :** 19 August 2023 • **Published :** 28 December 2023

et al, 2013), it is crucial that agriculturally productive activities be revitalized. A sustainable agricultural sector is responsible for provision of food for a country's increasing population; raw material for industries; employment opportunities; and generation of foreign exchange for economic development. Agriculture is the major driving force for major countries in Sub Sahara African (SSA) countries; it stimulates sustainable rural development and enhances the living conditions of local communities (Corral et al., 2017). It contributes considerably to the growth of GDP, i.e., a unit change in agricultural output brought about 34.4% change in GDP (Olajide et al. 2012). Likewise, (Ogbalubi & Wokocha, 2013) found that agriculture contributed to GDP of countries like Argentina, 1.1%; China, 13%; Egypt, 13.5%; South Africa, 9%; the United States, 1.1%; and Nigeria, 26.8%. However, it provides labor force in Israel, 3.7%; Egypt, 32%; Brazil, 32%; and Nigeria, 70%. This infers that the richer the country, the lesser the agricultural contribution to GDP. Agricultural development is the foundation for economic growth and provides a primary means of food security, employment generation and poverty reduction for Nigerians (Onumadua & Inyang, 2015).

Agriculture is the science of cultivation of soil for crops and the rearing of animals. Agriculture is as old as man himself as it was the first occupation of mankind. Even with the evolvement of modern civilization, it still remains an essential part of the growth and development of any extant economy (Anthony-Orji et al., 2020; Orji et al., 2019 and Ogbuabor & Nwosu, 2017). In Nigeria, the agricultural sector is a major sector that drives economic development and industrialization because of its importance in the provision of food for the increasing population, the supply of raw material to the growing industrial sector, generation of foreign exchange earnings, creation of employment opportunities, and provision of market for the product of the industrial sector (World Bank, 2016). Nigeria is endowed with large expanse of arable land and favourable climate for agriculture. As at 1990 the estimated arable land was 81 million hectares out of the Nigerian total land of 91 hectares of which 18 million hectares of this land was classified as permanent pasture for livestock production. This enables the production of a wide variety of crops, livestock, forestry and fishery products (Ewetan et al., 2017). The 1962–1968 development plan was the first national plan of Nigeria post-independence and among its many objectives, the introduction of modern agricultural methods, agricultural extension services and the supply of better farm implements were greatly emphasized.

This national plan was to a large extent achieved and Nigeria became the leading producer of export crops such as cocoa which was produced in the western region,

palm oil which was largely produced in the southern region and groundnut which was produced majorly in the northern region. According to the Central Bank of Nigeria (CBN) reports, in the 1960's, agriculture contributed about 60 percent to the Gross Domestic Product (GDP) of the nation (CBN, 2016). The National Bureau of Statistics (NBS) reported that agriculture was the most important sector in terms of its contribution to the to the country's output, employment and foreign exchange earnings (NBS, 2014).

However the success of the sector was short-lived and its share of contribution to the GDP of Nigeria declined drastically to 25 percent between 1975 and 1979 and later rose up to 38 percent in 2002 but later fell again to 20 percent in 2010. There hasn't been a significant change in agriculture's share to the GDP since then. This fall in agricultural production was owed greatly to the oil boom the economy experienced in the 1970's.

The 1970's brought about the emergence of the oil industry as the main driver of economic growth and since then, agricultural production has been progressively declining in terms of its annual contribution to Nigeria's GDP. The Nigerian economy became over-dependent on the oil sector and this caused the decline in the revenue generated by the agricultural sector overtime. The Nigerian government has recognized how detrimental the over dependence on only one sector can be to the economy and has recently started to seek for diversification of the economy through the development of other productive sectors aside from the oil sector.

The government has brought into cognisance the importance and prospects of the agricultural sector and it is one the major sectors it seeks to develop. There are other sources of generating employment and economic growth but only a few can be compared with agriculture in its ability to reduce poverty and enhance economic growth especially at the early stages of development. For example in Zambia and Nigeria, mineral wealth has not provided a platform for wide range of employment opportunities, poverty reduction and economic growth as agriculture has proven to have done. Without the increasing income and affordable food that a dynamic agricultural sector provides, economic transformation will be slow and economies will remain trapped in a cycle of low growth and poverty (Department for International Development, 2005).

It is a known fact that for the successful development of any sector, adequate financing is essential. Credit plays an essential role in the development of the agricultural sector of economy. The agricultural sector depends more on credit as a source of finance compared to any other sector in the economy due to the seasonal variation in

the returns of farmers and a changing trend from subsistence to commercial farming (Abedullah et al., 2009). The provision of suitable financial policies and enabling institutional finance for both subsistence and commercial agriculture has prospects of enhancing agricultural development, hence, increasing the contribution of the sector in the generation of employment, foreign exchange earnings and increasing the income of economic agents engaged in agricultural practices (Olomola, 2010).

Since the 1970's the government has established and implemented several agricultural financing policies, some of the early agricultural policies established include, National Accelerated Food Production Program established in 1972, Agricultural Development Program Established in 1975 and Operation Feed the Nation established in 1976 among many others. A lot of these policies didn't last long to achieve its set objectives. Over the years, inadequate finance has been identified to be a major limiting factor to the development of the agricultural sector in most developing countries including Nigeria (Orji et al., 2014, 2020). The use of crude and obsolete tools, poor agricultural infrastructure such as poor transport facilities has been an obvious characteristic of the sector. These appalling characteristics are attributed to the lack of financial resources needed to acquire modern and improved farm implements, new farming methods and enhance the infrastructural facilities. The government sees this limitation and has since the 1970's introduced and implemented various agricultural financing policies in order to achieve an effective system of sustainable agricultural financing schemes, programs and institutions that can provide credit facilities to agricultural producers, processors and marketers at all level (Eze et al., 2010). Even with all these policies and strategies of the government and other institutions to broaden the framework of sustainable growth, the performance of the agricultural sector is still suboptimal.

Agriculture in Nigeria is dominated by small scale farmers and it is largely subsistent with low production capacity, stagnancy and over 90 percent of agricultural output is accounted for by farmers with less than two hectares of land available for crop production (Federal Ministry of Agriculture and Rural Development, 2008). Many of the policies have been ineffective either because of poor management or macroeconomic policies affecting exchange rates, inflation and cost of capital has drowned its impact.

1.2. STATEMENT OF THE PROBLEM

In spite of the natural endowments which the Nigerian soil is blessed with, the agricultural sector has continued to record a decline in productivity. The low

availability of credit facilities as well as corruption and sharp practices in financing agricultural development in Nigeria has hindered the potential of agricultural sector to boost economic growth and development as well as alleviating poverty in Nigeria. Other factors hindering the development of agriculture in Nigeria include social-economic and structural problems such as: Poor and inefficient allocation of adequate funds to the agricultural sector, Unavailability of credits to local farmers, Lack of capacity building on the part of the famers which often result to loan default, High interest rates on loan facilities which affects the borrowing ability of farmers in Nigeria and the inability of farmers to utilize credits granted due to inadequate formal training. Having realized the declining role of agriculture to economic development, which resulted to increase in poverty rate over the years, government over the years has put in place certain policy measures and programmes with a view of increasing the growth and development of agriculture which will in turn bring about enhanced agricultural output and agricultural value assed in Nigeria. However, an evaluation of federal government capital expenditure on agriculture compared to the total federal government capital expenditure on other sector shows that agricultural sector needs more funding and this portrays a gloomy future for the sectors development in the country. From 1980 to 2011, the federal government capital expenditure on agriculture were below 10% except in the following years; 1981, 1982, 1983 (the highest), 1985, 1986, 2001, 2002, 2004, 2005, 2007, 2008 and 2009 because these were the years that coincides or the year after with different government agricultural development policies and programmes such as the Green Revolution in 1980, the structural adjustment programme (1986), The Directorate of Foods, Roads and Rural Infrastructure (1987) although it was 5.7% but increased to 7.1% the following year, food for all programme in 1987, the better life for rural women programme also in 1987, the Rural Agro-Industrial Development Scheme.

Others include; Agricultural credit guarantee scheme fund (ACGSF) which have features such as the self-help group linkage banking, trust fund model and interest draw back. Other schemes include; the Agricultural Credit Support Scheme (ACSS), Commercial Agriculture Credit Scheme (CACS. Under the current administration of President Muhammadu Buhari, budgetary allocation for agriculture rose from 1.8% in 2017 to 2.0% in 2018, then fell to 1.56% in 2019 and 1.34% in 2020 before recording a slight increase in 2021. In 2022, the government have budgeted 1.8% of annual budget to agricultural sector. But this is still way short of the 10% yearly budget allocation proposed by African Union Maputo Declaration (AUMD) of 2003. Commercial banks in Nigeria do still prefer the service and commerce sectors for lending and even when

such loans are given out to the farmers, there is no guarantee that such money will be utilized for agricultural purpose. Also, interest rate charged by commercial banks is also on a high side an average of 27% in the last six months and discourages potential borrowers. As much as getting startup capital is difficult; the financial institutions in Nigeria are always reluctant to finance Agribusiness projects despite the fact that there is always a ready market for Agricultural produce. The excuse is that Agricultural production is too risky for them to invest in rather they prefer to invest in the processing aspect of Agribusiness because it falls under manufacturing. Additionally, the process of acquiring a loan entails a lot of paperwork and many bureaucratic procedures that lead to extra transaction costs. These institutions show a preference for large-scale transaction over small-scale transaction and non-agricultural over agricultural loans. This begs the question if agriculture is adequately financed in Nigeria and to ascertain the extent to which this finance impacts on economic growth and development in Nigeria. Consequently, there is a need to undertake a study on this note to provide clear perspectives on the impact of agricultural sector financing on agricultural value added growth rate in Nigeria.

OBJECTIVE OF THE STUDY

The objective of the study is to evaluate the effect of commercial banks' loans and advances to agricultural sector on agricultural value added growth rate in Nigeria.

RESEARCH HYPOTHESIS

H_{01}: *Commercial banks' loans and advances to agricultural sector does not have significant impact on agricultural value added growth rate in Nigeria*

Concept of Agriculture Value Added

Before explaining the term agriculture value added, it is imperative to define adding value. (Boland, 2009) put it as the process of changing or transforming a product from its original state to a more valuable state. He gave an instance of the intrinsic value in commodities like field corn grown, harvested and stored on a farm and then fed to livestock on that farm has value. Thus the value of a changed product is added value, like processing wheat into flour. It can be referred to as a product by changing its current place, time and from one set of characteristics to other characteristics that are more preferred or desired in the marketplace. Agriculture value-added involves the changing of raw agricultural products into a new structure through processing, packaging, drying, cooling, cleaning, or any other type of process or

technique that differentiates the product from its original raw form (Mellissa, 2007). It entails transforming or converting raw materials into finished or semi-finished products and/or maintaining product quality. According to the (U.S. Department of Agriculture, Rural Business Development, 2015), Value-added products are defined as follows: "A change in the physical state or form of the product (such as milling wheat into flour or making strawberries into jam), the production of a product in a manner that enhances its value, as demonstrated through a business plan (such as organically produced products) and the physical segregation of an agricultural commodity or product in a manner that results in the enhancement of the value of that commodity or product (such as an identity preserved marketing system)". While value added agricultural business is refer to as any activity an agricultural producer performs outside of traditional commodity production to receive a higher return per unit of commodity sold. Activities like agri-tourism and entertainment agriculture. Examples of value added agricultural products include garlic braids, bagged salad mix, artisan bread, lavender soaps and sausages. Adding value to agricultural products is a worthwhile endeavor because of the higher returns that come with the investment, the opportunity to open new markets and extend the producer's marketing season and new recognition for the farm.

Concept of Commercial Banks' Credit

Commercial banks play a crucial role in providing credit to the agricultural sector in Nigeria. This is because agriculture is a significant contributor to Nigeria's economy, employing a large proportion of the population and generating a substantial portion of the country's foreign exchange earnings .To facilitate lending to the agricultural sector, the Central Bank of Nigeria (CBN) has established several policies and initiatives aimed at increasing credit access to farmers and other participants in the agricultural value chain. These policies include the Agricultural Credit Guarantee Scheme Fund (ACGSF), which provides credit guarantees to banks to encourage lending to the sector, and the Anchor Borrowers Program (ABP), which provides loans to smallholder farmers at low-interest rates (Udih, 2014).

In addition to these initiatives, commercial banks in Nigeria have also developed specialized agricultural financing products to cater to the specific needs of farmers and agribusinesses. These products may include working capital loans, asset finance, and trade finance facilities, among others. Banks may also provide technical assistance to farmers to help them improve their productivity and profitability. However, despite the various initiatives and products available, access to credit for

farmers and agribusinesses in Nigeria remains a significant challenge. This is partly due to the high risk associated with agricultural lending, as well as the inadequate infrastructure and institutional support in the sector. To address these challenges, there is a need for continued collaboration between the government, commercial banks, and other stakeholders in the agricultural value chain to promote sustainable lending and development of the sector.

AGRICULTURAL FINANCING

Agricultural financing is the financing of agriculture-related activities, from production to market. It refers to financial services ranging from short-, medium- and long-term loans, to leasing, to crop and livestock insurance, covering the entire agricultural value chain - input supply, production and distribution, wholesaling, processing and marketing (Tiffin, 2012). Agriculture finance refers to (public or private) resources (in form of equity, gift or loan) for improving social welfare through development of agricultural sector (Shreiner and Yaron, 2011). It encompasses not only government funds but also funds of non-governmental organizations that use matching grants to attempt to promote community and sector development, income equality and local empowerment. The study by Adesina (2016) stated that agriculture finance provides an increased productivity, economic sustainability, poverty reduction, business opportunities, institutional changes, innovation incentives and improvement of economic growth in Nigeria.

Agriculture's contribution to GDP (%)

Agriculture is broadly divided into four sub-sectors in Nigeria; crop production, fishing, livestock and forestry. Crop production remains the largest segment and it accounts for about 87.6% of the sector's total output. This is followed by livestock, fishing and forestry at 8.1%, 3.2% and 1.1% respectively. Agriculture remains the largest sector in Nigeria contributing an average of 24% to the nation's GDP over the past seven years (2013 –2019). In addition, the sector employs more than 36% of the country's labour force, a feat which ranks the sector as the largest employer of labour in the country (Oyaniran, 2020).

Challenges of the Nigerian Agricultural Sector

According to Oyaniran (2020), the following are the challenges of the Nigerian Agricultural Sector; Violent conflict, due to the desertification and water depletion in the northern part of Nigeria, nomadic herdsmen are now shifting towards the

south of the country in search of grazing fields and water for their animals. This has resulted in violent conflict with crop farmers in the south. Increased violence in the food producing states is causing decline in Nigeria's food production output; Resource shortages, over the past years, Nigeria has dealt with very low yields per hectare due to shortages in the supply of inputs such as seedlings and fertilizers as well as inadequate irrigation and harvesting systems, which hinders productivity and yield rates; Lack of access to finance, although the Nigerian government has provided several facilities through the Central Bank of Nigeria (CBN) such as the Anchor Borrower's Programme to help provide small-scale farmers with adequate financing, the farming industry still lacks adequate access to finance; Insufficient supply to meet population growth and food demand, with a population of roughly 200 million people, Nigeria's agricultural productivity is insufficient to meet the food demanded of its growing population thus increasing the demand and supply gap in Nigeria; Absence of value addition and supply chain linkages, Nigeria focuses mostly on food production, thus neglecting the processing and manufacturing segment of the value chain (Oyaniran 2020).

THEORETICAL FRAMEWORK

Theory of Financial Intermediation

This study is anchored on theory of financial intermediation. The Theory of Financial Intermediation as explained and modernized by (Bekun, 2015), in a research paper submitted to Institute of Graduate Studies, Eastern Mediterranean University, North Cyprus as a channel through which huge amounts of credit are available for spontaneous economic expansion. This theory was shown as the supply-leading role of financial institutions. (Robison, 2001) stated that the theory specifically postulates rural economic growth with an emphasis on agricultural financing. The implication is that the financial sector provides upfront loans for farm products through subsidized credits and other agricultural inputs. The hypothesis took into account the limitations farmers, growers, and tillers encounter in obtaining farm inputs and other agricultural implements, as well as bank interest while (Robison,2001) argued that finance is a handmaid to economic expansion, that increase in productivity promotes the demand for the financial instrument. Through financial institutions, (Nnamdi & Torbira, 2015) asserted that resources are efficiently and effectively channeled to the needed sectors, such as agriculture, for optimal performance. A long-term association between economic growth and

credit disbursement was cited by (Nwakanma et al., 2014), showing that as more and more credits are made available to farmers, production increases leading to positive economic growth in Nigeria. The capacity of financial institutions the finance farm products via the banking system, according to Schumpeter (1934), promotes the growth and development of any nation. (Demetriades & Hussein, 1996), and (Rajan & Zingalas, 1996) found solid evidence that the expansion of the financial sector aids the growth of the country's economic sectors. (Capiro & Demirguc-kunt, 1998) cited long-term credit connection with strong production and growth. However, (Obansa & Maduekwe, 2013) noted, that the flow of credit to the agricultural sector via financial institutions became necessary due to dynamic changes in land tenure systems and new farming techniques.

Empirical Review

(Tsegai, et al., 2020) analyzed the impact of credit access on productivity and food security of smallholder farmers in Ethiopia using survey research design. The dependent variables used were are productivity and food security, while the independent variables were various credit access available to agricultural sector in Ethiopia. The results indicate that credit access has a positive impact on productivity and food security, which in turn can contribute to poverty reduction.

(Kenny, 2019) examined the impact of agricultural sector performance on economic growth in Nigeria. The research findings revealed that there is a significant long run relationship between agricultural output and Agricultural Credit Guarantee Scheme Fund, federal government current expenditure on agriculture, total employment and trade liberalization. The VECM result indicated that 35 per cent speed of adjustment of the endogenous growth model which includes Agricultural Credit Guarantee Scheme Fund, Federal Government current expenditure, total employment and trade liberalization on agricultural domestic production implies that interventions in agriculture will take a while for its effect to be significant on agricultural output in Nigeria.

(Ikpesu & Okpe, 2019) employed ARDL model in examining the effect of capital inflows and exchange rate on agricultural productivity in Nigeria from 1981 to 2016. The study used agricultural output as proxy for agricultural productivity, and private capital inflow, public capital inflow, investment, labor and real effective exchange rate as explanatory variables. The study found that the variables were co-integrated. It further indicates that in the short run and long run, private capital inflow and public capital inflow positively influenced Nigeria's agricultural performance. In

addition, it was discovered that exchange rate depreciation caused a reduction in yield of agricultural produce in the short and long run.

(Ademola, 2019) empirically assessed agricultural finance and its effect on Nigeria's economic growth process. The research used ordinary least squares (OLS) regression model to analyze the data. The study discovered that investment in agricultural production contributed significantly to its output and economic growth in Nigeria and this suggests the need to increase loans and advances for farming activities to improve output and develop the sector.

(Okunlola et al., 2019) studied the guaranteed agricultural financing of crops, animals and fishery units on real gross domestic product in Nigeria using data set from 1981 to 2017. Time series data were sourced from the Central Bank of Nigeria statistical bulletin, various issues.

Autoregressive Distributed Lag (ARDL) model was employed in the determination of the effect of explanatory variables on real gross domestic product in Nigeria. The inferential results revealed that guaranteed agricultural finance used in the production of crops, animals and fishery units was not statistically significant in influencing real gross domestic product.

(Emenuga, 2019) examined the effect of deposit money banks' loans to the agricultural sector on the development of agricultural sector in Nigeria from 1981 to 2017. Data on deposit money banks' loans to agricultural sector, interest rate, Agricultural Credit Guarantee Scheme and agricultural contribution to GDP were obtained from statistical bulletin of Central Bank of Nigeria, various issues. ADF unit root test, Johansen co-integration test and error correction model were used as analytical tools. The study discovered long-run relationship between bank loans and agricultural development in Nigeria. The study also found that Agricultural Credit Guarantee Scheme fund has positive relationship with agricultural development while interest rate was found to be negatively related to agricultural development in Nigeria.

Research Design

This study adopted the ex-post facto research design. The method of data collection for this study was the desk survey method of collecting data. It is concerned with the collection of data from existing sources to get initial ideas about research interest.

Model Specification

Based on the theoretical framework, objectives and the hypothesis of this study, a model showing the effect and relationship amongst/between the variables of

interest were specified. Based on this, the model showing the effect and relationship between /amongst the variables of interest were transformed into functional and econometric equations. Thus:

AP = f (AF) 1

Where:

AP = Agricultural production (proxied by agriculture value added growth rate (AVA))

AF = Agricultural financing (proxied by commercial banks to agricultural sector (CBLA))

Therefore, given the models and their corresponding proxies, the econometric equations after the ordinary least square (OLS) dynamics shall be thus:

Equation one: AGRICULTURE VALUE ADDED GROWTH RATE (AVA)

$$Log AVA = b_o + b_1 logCBLA + et$$

DATA ANALYSIS AND FINDINGS

Table 4.1: Descriptive Statistics

	AVA	CBLA
Mean	4.597095	443.1268
Median	4.188437	330.0304
Maximum	7.412883	1457.822
Minimum	2.122603	48.56150
Std. Dev.	2.013052	421.8808
Skewness	0.062137	1.176465
Kurtosis	1.380544	3.407258
Jarque-Bera	2.198401	4.751780
Probability	0.333137	0.092932
Observations	20	20

The descriptive statistics presented in Table 4.1 shows that CBLA had a mean value of N4.43 billion, while AVA had a mean value of approximately 4.6. Note that the Mean describes the average value for each data series in the model. From the analysis, CBLA had a Standard Deviation of 421.8 implying that it is the more volatile variable than AVA in the model which has standard deviation of 2. The Table further reveals that both variables with positive skewness values are skewed a little to the right. Kurtosis measures the peakness or flatness of the distribution of a series. The kurtosis of a normal distribution is 3. If it exceeds 3, it means that the distribution is peaked or leptokurtic relative to the normal. Conversely, if it is less than 3, it shows that the distribution is flat or platykurtic relative to the normal.

Table 4.1 further reveals that AVA with kurtosis value of 1.38 is flat or platykurtic since its kurtosis value is less than 3. While that of CBLA is platykurtic since its kurtosis value is 3.40, which is greater than 3. Jarque-Bera (JB) tests whether the series is normally distributed or not. The test statistic measures the difference of the skewness and kurtosis of the series with those from a normal distribution. In JB statistic, the null hypothesis which states that the distribution is normal is rejected at 5% level of significance. From the results of the analysis presented in Table 4.1 above, all the variables had Probability values of greater than 0.05, as such, we conclude that all the variables a normally distributed. The number of observation is twenty, signifying the number of years of the study.

INFERENTIAL RESULTS

ARDL Model result with logAVA as Dependent Variable

Table 4.2: Result of ARDL Model for model (1)

Variable	*Coefficient*	*Std. Error*	*t-Statistic*	*Prob.**
LOG(AVA(-2))	0.382460	0.213209	1.793828	0.1031
LOG(CBLA(-1))	0.725731	0.265678	2.731622	0.0211
C	8.858661	2.740576	3.232408	0.0090
R-squared	0.926126	Mean dependent var		1.370431
Adjusted R-squared	0.874415	S.D. dependent var		0.477666
S.E. of regression	0.169275	Akaike info criterion		-0.413481
Sum squared resid	0.286541	Schwarz criterion		-0.017760
Log likelihood	11.72133	Hannan-Quinn criter.		-0.358916
F-statistic	17.90948	Durbin-Watson stat		1.681182
Prob(F-statistic)	0.000066			

Source: Researchers' analysis with e-views 10 output (2023)

The Auto Regressive Distributed Lag (ARDL) Model result as shown in the Table 4.2 above suggests that government expenditure on agricultural sector (CBLA) has a significant positive relationship with agricultural value added growth rate in Nigeria. A one period lag percentage increase in CBLA would bring about approximately 73 percent increase in AVA. A keen observation of the result showed that the R-squared and Adjusted R-squared was approximately 0.93 and 0.87respectively. This means that the explanatory variables accounted for about 93% variations in the explained variable. Put differently, about 93% variation in agricultural value added growth rate was explained by the independent variables, while the remaining 7% may be attributed to variables not captured in the model (stochastic variables).

POST ESTIMATION TEST

Table 4.3: Test for Auto-correlation

Autocorrelation	*Partial Correlation*		*AC*	*PAC*	*Q-Stat*	*Prob**
. |* . |	. |* . |	1	0.200	0.200	0.8513	0.356
.** | . |	*** | . |	2	-0.319	-0.374	3.1408	0.208
.** | . |	. | . |	3	-0.214	-0.062	4.2437	0.236
. | . |	. | . |	4	0.061	0.017	4.3403	0.362
. |* . |	. | . |	5	0.091	-0.030	4.5682	0.471
. | . |	. | . |	6	-0.016	-0.024	4.5759	0.599
. | . |	. |* . |	7	0.047	0.108	4.6478	0.703
. | . |	. *| . |	8	-0.038	-0.104	4.6993	0.789
. *| . |	. *| . |	9	-0.176	-0.135	5.9334	0.747
. | . |	. | . |	10	-0.058	0.010	6.0823	0.808
. |* . |	. | . |	11	0.080	-0.031	6.4152	0.844
. *| . |	.** | . |	12	-0.116	-0.251	7.2284	0.842

Source: Researchers's analysis with e-views 10 output (2023)

This test is carried out to further test for auto correlation. The result of Correlogram Q-Statistic in Table 4.3 suggest that the variables are free from auto correlation.

The correlogram Q- Stat. table indicates that all p-values were >5% hence the conclusion that the model was free from auto correlation.

TEST FOR SERIAL CORRELATION

Table 4.4: Test for Serial Correlation

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.934533	Prob. F(2,6)	0.4433
Obs*R-squared	4.275371	Prob. Chi-Square(2)	0.1179

Source: Researchers's analysis with e-views 10 output (2023)

The Breusch-Godfrey Serial Correlation LM Test above in Table 4.4 above showed that the probability values of 0.4433 and 0.1179 are statistically insignificant at 5% level of significance. The shows that the model is free from serial correlation.

TEST OF HYPOTHESIS

Decision Rule: The researchers' used critical values like p-value as the basis for acceptance and rejecting of null hypotheses. Where the critical p-value computed is less than 5% significance level, the variable was taken as being significant, hence it was rejected.

H_{01}: Commercial banks' loan and advances to agricultural sector does not have significant impact on agricultural value added growth rate in Nigeria

Wald Test *Equation: Untitled*			
Test Statistic	Value	df	Probability
F-statistic	6.057153	(3, 10)	0.0128
Chi-square	18.17146	3	0.0004

Source: Extracted from Appendix i

The test of hypothesis ($H0_1$) using wald test revealed that the p-value of LOGCBLA is less than 0.05 significance level, with a probability value of 0.0128. The researcher therefore rejects the null hypothesis. This result indicates that Commercial banks' loan and advances to agricultural sector had significant impact on agriculture value added growth rate in Nigeria.

CONCLUSION AND RECOMMENDATION

The study evaluated the impact of Commercial banks' loan and advances on agricultural value added growth rate in Nigeria with the use of annual time series data within the period of 2003-2022. The study made use of Auto Regressive Distributed Lag (ARDL) Model ascertain the extent to which Commercial banks' loan and advances influenced agricultural value added growth rate in Nigeria empirical result revealed that Commercial banks' loan and advances to agriculture had significant effect on agricultural value added growth rate in Nigeria. This study concluded that there is significant effect of Commercial banks' loan and advances on value added growth rate in Nigeria within the referenced period. The researchers' recommended that Commercial banks should encourage agricultural sector value added growth by granting loans and advances when needed to intending entrepreneurs to venture in agriculture value added activities, among others.

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