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Agricultural Sector Financing and Agricultural Sector Performance in Nigeria

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Abstract

The study examined the effects of agricultural finance on agricultural sector performance in Nigeria using annual time series data. The data for the study are from the Statistical Bulletin of the Central Bank of Nigeria (CBN). The contribution of agriculture to GDP was used as a proxy for agricultural sector performance, while agricultural loans from commercial banks, rainfall, government expenditure on agriculture and interest rates were used as proxies for explanatory variables. After uniting in the order of integration, Johansen's cointegration approach was used to control for the long-run relationship between the variables. Vector autoregressive estimation of the vector correction mechanism is used to examine the speed of adjustment of the variables from short-run dynamics to long-run equilibrium. The study found that there is a long-term relationship between the variables. More specifically, the agricultural credit guarantee scheme has a significant and long-term effect on the contribution of agriculture to GDP. Lending by commercial banks to agriculture has shown a positive and significant effect on the contribution of agriculture to GDP during the reporting period. The coefficient of multiple determination explains the variation in the dependent variable explained jointly by the independent variables. The study recommends that there should be an increase in the amount that the Agricultural Credit Guarantee Scheme injects into the sector on an annual basis and that appropriate supervisory measures be implemented to ensure the effective application and use of the money, which commercial banks encourage growth. of the agricultural sector by providing loans and advances when necessary to encourage citizens to engage more in commercial agriculture, for the federal government to intervene in the agricultural sector with a massive irrigation project that will provide a lasting solution to the problem of water supply, filling the gaps often created by dry seasons and allowing agricultural production to be spread throughout the year, that the government will also improve the spending of its agricultural sector to always benefit from the advantages of the sector in terms of fertilizers and heavy machinery.

Key Words: *Central Bank of Nigeria, Government Expenditure, Commercial Banks' Loans, Interest Rate, Volume of Rainfall, Agricultural Sector.*

Background to the Study

Agriculture contributes immensely to the Nigerian economy in various ways, especially in the provision of food for the increasing population, supply of adequate raw materials and provision of market for the products of the growing industrial sector, a major source of employment and generation of foreign exchange earnings (Okumadewa, 2007).

The support for agricultural development is widely driven by the public sector, which has established institutional support in the form of agricultural research extension, commodity marketing, and input supply as well as land use legislation to fast-track the growth of agriculture in Nigeria. Several measures were designed in the 1970's preceding the structural Adjustment programme (SAP) which stimulates the growth and development of the agricultural sector. Such measures includes subsidized low interest rate policy, of 1970's and early 80's. Establishment of specialized institutions to lend solely to the sector, input subsides and producers price setting through commodity board (Kargbo, 2006). Following the adoption of the structural adjustment programme (SAP), a unified system of agricultural extension was also adopted to enhance the dissemination of improved husbandry practices and research findings to farmers.

More universities of agriculture and research institutes were established to broaden and strengthen agricultural research in Nigeria. Also, international and nongovernmental agencies including the World Bank, food and agricultural organization of United Nations contributes towards the enhancement of farmers productivity inform of finance, input supply and strengthening of technical capacity macroeconomic policies that tend to promote agricultural growth, such as credit channeling, financial policies, price stability, monetary and exchange rate polices and other fiscal policies such as tax exemptions for agricultural business were all effected (Markuser, 1995). In spite of these measures, the performance of the agricultural sector has generally been considered as abysmally low and the expected significant contribution it has to make towards the attainment of the Nigerian economic and socials goals remains largely and expectation (Ukpong 1993).

The Nigeria Agricultural cooperative and Rural development Bank was the single largest development finance institution in Nigeria. It was established through the successful merger of the former people's Bank of Nigeria (P.B.N) and the defunct Nigeria Agricultural and cooperative Bank (NACB) Ltd that was established in 1973. Thus, Nigeria Agricultural Cooperative and Rural Development Bank were re-established in the year 2000 which commenced full operations in 2001. The bank is dedicated primarily to agricultural financing at both rural and urban level as well Micro financing of small and medium scale enterprise in Nigeria. This research seeks to address the challenges militating against agricultural growth and development in Nigeria by determining the impact of the activities and performance of the Nigeria agricultural cooperative and rural development Bank Plc. (NACRDB).

In spite of the natural endowments which the Nigerian soil is blessed with, the agricultural sector has continued to record a declining productivity. The low availability of credit facilities as well as its poor managements towards agricultural growth in Nigeria, the capacity of the agricultural sector to boost economic growth and development has been perceived to be constrained by myriad of 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 due to inadequate knowledge which often result to loan default, High interest rates on loan facilities which affects the borrowing ability of farmers in Nigeria, Rural-urban migration, Ineffective institutions saddled with policy implementations which generates all forms of ill practices, social discrimination and fund embezzlement among others, the inability of farmers to utilize credits granted due to illiteracy and inadequate formal training, excess importation of food into the country in spite of the large hectares of land and abundant natural resources in Nigeria as well as inadequate and inefficient infrastructural facilities in Nigeria.
Therefore, this research seeks to proffer solutions that will improve the level of agricultural financing and trade in Nigeria.

Review of Related Literature

Agricultural 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, 2001). 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. Public funds are subsidized funds and private funds regardless of their price, are not subsidized, unless a contribution is tax free or the market price is affected by an explicit or implicit state guarantee of the liabilities of a development finance institution (Shreniner and Yaron, 2001).

In order to solve the problem of agricultural financing and poor agricultural output, the Nigeria government established various schemes, institutions and programmes to support the agricultural sector production capacity (Nwakwo, 2013). Agricultural financing schemes are the various financial arrangements or plan put in place by the government at all levels to provide easy access to funds by farmers to increase agricultural production. The schemes provide insurance coverage and financial support to the farmers in the events of crop failure as a result of natural calamities, pests and diseases and also encourage farmers to adopt progressive farming practices, high-value inputs and higher technology (Adejumo and Bolarinwa, 2017). One of the most important schemes is the Agricultural Credit Guarantee Scheme Fund (ACGSF) was established in 1977. Other schemes, according to Oguoma, Nwosu, Benchendo and Henri-Ukoh (2010), include the establishment of Nigerian Agricultural Cooperative and Rural Development Bank; Rural Banking; River Basin Authorities; Agricultural Development projects in all the states of the federation between 1972 and 1980; crop loans; produce marketing loan schemes; loan against warehouse receipts; agricultural term loans; land development schemes; capital stock loans; farm mechanization schemes; minor irrigation schemes; land purchase loans, among others (see also Egwu, 2016). One of the objectives of the agricultural financing schemes is to encourage banks to lend to farmers by reducing bank exposure to risks in lending and providing fund at a lower cost, apart from promoting farmers access to funds through the various schemes as at when due (Mafimesebi, Oguntade and Mafimisebi, 2009). Kehinde (2012) stated that the importance of agricultural financing scheme is to assist farmers to increase the rate of food production for national food security. Thus, there is a flow of agricultural credit to the agricultural sector to improve the efficiency and effectiveness of the operations of the schemes. This importance encouraged government at all levels; Federal, State and Local governments to come up with their

own version of the schemes to support agriculture, and this has increased agricultural output in Nigeria (Ijaiya, Abdulraheem, Ijaiya and Abdullahi, 2017; Kehinde, 2012). However, Enyim, Ewno and Okoro (2013) observed that agricultural financing has suffered series of setbacks in Nigeria.

Agricultural Credit and Finance

For agricultural practice to be meaningful, one of the enabling factors is addressed by availability of adequate credit to finance agricultural production. The agricultural lending market in any country is made up of the participating financial institutions and units that can effectively lend resources to facilitate the production of farm produce, crops and livestock. These markets are primarily made up of deposit money banks (DMBs) and other financial institutions firms and individuals. However, the market also includes specialized institutions such as Nigeria Agricultural Cooperative and Rural Development Bank (NACRDB), which is the principal institution involved in agricultural financing in Nigeria.

The banks have been playing prominent role and will continue to do so under a package of incentives. The life insurance companies can find useful avenues to invest their long-term funds by buying equipment for hire. The informal financial market which includes the cooperatives, family and friends who can also make funds available to interested farmers will continue to be active as before. The informal financial market had grown out of the financial assistance that farmers received from their different groups (Udry 1993; Steel Aryeetey, Hettige, and Nissanke. 1997). The size of the borrower is of great importance in negotiating the terms and cost of credit and very few farmers are large. In the days of sectorial allocation, the agricultural sector was favoured and banks complied because of penalties (which some preferred to pay than to comply), however this is no longer so under deregulation.

Theoretical framework

The study is anchored on the Structural Change Theory. The Structural Change Theory was developed by Lewis Arthur in the year 1954 and in a study, called it “development with unlimited supply of labour”. The assumption of this theory is that an economy is made up of two sectors. One is the traditional (agricultural or subsistence) sector while the other is the modern (capitalist, industrial or manufacturing) sector. This gave rise to the two-sector model. The theory also assumed that the development of an economy is dependent on the growth of the two sectors. Y = f (AGRIC, IND), Where; Y = Economic development, AGRIC =Agricultural sector and IND = Industrial sector. The agricultural sector and the industrial sector are interrelated. The agricultural sector employs capital inputs, labour expertise and also a final consumer of the output of the industrial sector, while the industrial sector employs labour and output of the agricultural sector. This theory is important to this study because agricultural development cannot be possible without proper funding. The proper funding of agriculture is made possible through proper funding of agricultural schemes; the proper funding of these schemes will lead to increase in agricultural output which will, in turn, lead to economic development. Other reforms or strategies are likely to be ineffective and perhaps even counterproductive unless there are corresponding structural changes that control productivity.

Empirical literature

The interactions between health care expenditure and economic growth have received a lot of attention of researchers. While Rehman, Jingdung, Du, and Khatoon, (2015), in a study examined the effect of agricultural production on Nigeria's economic growth employing error correction model approach. Findings revealed that agricultural production sector requires adequate capital as the determinant of all other resources on which farmers depend. Agricultural financing boosts capital formation, increases productivity, operations, farming innovations, among others (Kareem, 2010); Joseph and Daniel, (2013) in a study, examined the effect of bank credit and macro-policy variables on agricultural output in Nigeria using co-integration approach. The result revealed presence of co-integration and shows that past value of gross domestic product exerted significant positive impact on agricultural output, while inflation rate, lending rate and exchange rate had significant inverse relationship with agricultural output. Bassey, Akpaeti, and Udo (2014) investigated the impact of bank credit financing on agricultural output in Nigeria between the periods of 1970-2011. Employing Ordinary Least Square (OLS) regression method, the result shows that in order to boost agricultural GDP, emphasis should be directed towards proper funding of the sector by the government and other financial stakeholders. Basir, (2012) in a study, identified banks' traditional roles to include financing of agriculture, manufacturing and syndicating of credit to productive sectors of the economy and opined that credit of banks to the Nigerian economy has been increasing over the years.

Ogbanje, Yahaya and Kolawole (2012) equally studied the relationship between commercial banking sector loans and agricultural development in Nigeria from 1981 to 2007 using descriptive and inferential statistics. The result revealed that during 1981-1991, there was substantial increase in commercial banks' loans to the agricultural sector, while the loans more than tripled during the subsequent periods. Thus, commercial banks showed great concern for the growth of the agricultural sector in Nigeria. Result also revealed that commercial banks' loan to the agricultural sector considerably and progressively affected agricultural sector contribution to GDP in Nigeria. Agunuwa, Inaya and Proso (2015) studied the impact of commercial banks' credits on agricultural productivity in Nigeria employing the Ordinary Least Squares (OLS) technique for analysis. The result indicates positive connection between commercial banks' credit, government spending and agricultural productivity while there is adverse relationship between interest rate and agricultural productivity. While Obilor (2013) assessed the impact of deposit money banks' credit to agricultural sector under the Agricultural Credit Guarantee Scheme Fund (ACGSF) in Nigeria using the Ordinary Least Square (OLS) method. The result shows that joint action of deposit money banks credit to the agricultural sector, agricultural credit guarantee loan, government financial provision to agricultural sector and agricultural produce prices are significant elements that can impact agricultural production in Nigeria. Udensi, Orebiyi, Ohajianya and Eze (2012) also examined the effect of macroeconomic variables on agricultural sector in Nigeria using the Two-Stage Least Squares (TSLS) regression technique. The study discovered that nominal interest rate, government expenditure on agriculture and world prices of Nigeria major agricultural commodities are positively related to the index of agricultural sector, while the level of inflation is negatively related to the index of agricultural sector in Nigeria. Mamman and Hashim (2014) studied the effect of bank lending on economic growth in Nigeria for the period 1987 to 2012 using multiple regression model and found that bank lending is significant in determination of growth. In a related

study by Obasi, P. (2015), covering the periods of 1992 – 2012 discovered that the commercial bank credit has significant progressive impact on the economic growth of Nigeria.

Methodology

This study is undertaken to examine the effect of agricultural finance on the performance of agricultural sector in Nigeria from. An *ex post facto* (after - the- fact) research design was used for the. The importance of *ex- post- facto* research have been up held in empirical and theoretical studies by Christev, *et al..,* (2005) and Chowdhury (1993) stating that such research provides a systematic and empirical solution to research problems, by using data which are already in existence.

Data for this study was sourced from the Central Bank of Nigeria's Statistical Bulletin as well as annual reports and statement of accounts.

Model Specification

The empirical model employed in this study is similar to that used by Arize (2004), Abbott (2004), Adebayo and Ogunrinola (2006), Adubi, and Okunmadewa (2007) in their empirical analysis of the relationship between agricultural finance and trade flows in Nigeria as well as the likely revenue losses. The functional form of the adopted model is specified thus:

IAP = *f*(FGRE, FGCE, OAC, SDCML) ……. (3.1)

The econometric form of their model was specified as follows:

$IAP = \alpha_0+\alpha_1FGRE +\alpha_2FGCE + \alpha_3OAC + \alpha_4SDCLML +\mu_t$……... (3.2)
Where;
IAP = index of agricultural production
FGRE = Federal Government Recurrent Expenditure on Agriculture
OAC = Operation of Agricultural credit Guarantee Scheme Fund.
SDCML = Sectorial Distribution of Bank loan to the Agricultural sector

This study will employ modified version of the model and definitions as employed by the above authors. Subject to the agreement with previous studies, our models will therefore be specified mathematically as follows in relation to each of the hypotheses:

AGDP = F(,ACGS, CBLA, ARF, GEA, INT) …….. (3.3)

The econometric form of the model to be employed in this study was specified as follows:

$AGDP_t = \beta_0+\beta_1 \log ACGS_t+\beta_2 \log CBLAt+\beta_3 \log ARF_t+ \beta_4 \log GEA_t + \beta_5 \log INT_t +\mu_i$…… (3.4)

Where:

AGDP = contributions of agriculture to GDP

ACGS = Agricultural credit guarantee scheme

CBLA = commercial banks credit to agriculture

ARF = annual rain fall (measured in millimeter)

GEA = government expenditure on agriculture

INT = lending interest rate

While $\beta_0,\beta_1,\beta_2 \ldots \beta_5$ are parameter or the coefficients, μ = error term and *t* time variables.

The equations are standard reduced form of the long-run solutions of the behavioural demand and supply functions for exports and imports respectively (Arize 2004 and Adubi, and Okunmadewa 2000).

Technique for data estimation

This study employed several estimation techniques in the analysis of the effect of agricultural finance on the performance of agricultural sector in Nigeria. Such techniques include Augmented Dickey –Fuller (ADF) unit root test, Johasen cointegration test. The econometric technique was based on the Johansen maximum likelihood estimation procedure and the vector error correction model (VECM);

Data presentation and analysis

The results of the data analysis are presented in tables. The variables are annual time series data from both Central Bank of Nigeria Statistical bulletin and annual reports as well as the Nigerian Bureau of statistics (comprising both explained and explanatory variables) while AGDP was used as proxy for dependent variable, Agricultural credit guarantee scheme, commercial banks loans to agriculture, government expenditure on agriculture, annual rain fall and lending interest rate were used to proxy the explanatory variables.

Table 1: Augmented Dickey Fuller (ADF) and Phillips Perron (PP) Test for unit root

Variables	**Augmented Dickey Fuller (ADF)**			**Phillips Perron (PP)**		
	Level	**First Difference**	**OI**	**Level**	**First Difference**	**OI**
AGDP	-1.418157	-4.691036***	I(1)	-1.024165	-4.862289***	I(1)
Agricultural credit gurantee scheme	-2.343551	-7.512540***	I(1)	-2.185458	-8.866598***	I(1)
Commercial banks loan to agriculture	1.672373	-3.500676***	I(1)	1.797566	-3.783945***	I(1)
Annual rain fall	-2.427334	-10.34271***		-2.427334	-12.60189***	I(1)
Government expenditure on agriculture	-3.123423	-9.346835		-3.002690	-20.27406***	I(1)
Interest rate	-3.026997	-6.789002***	I(1)	-2.917101	-8.410107***	I(1)
Test critical values:	-3.621023	-3.626784		-3.621023	-3.626784	
	-2.943427	-2.945842		-2.943427	-2.945842	

-2.610263	-2.611531	-2.610263	-2.611531

Source: *,**,*** indicate statistical significance at 1%, 5%, and 10% respectively. OI signifies order of integration

Table 1 shows that all the variables are not stationary at level. This can be seen by comparing the observed values (in absolute terms) of the Augmented Dickey fuller (ADF) test and Phillips Perron test statistics with the critical value (also in absolute terms) at 1 percent, 5 percent and 10 percent level of significance. As a result of this, the variables were differenced once and all the variables became stationary at first difference, that is, they are integrated of the same order I(1)

The result therefore implies that the co-integration analysis is applicable in this research.

Johansen Maximum Likelihood test of Co-integration

Co-integration is the next step to determine the existence of long-run relationship among variables after confirming the order of integration of the variables. The Johansen cointegration test was applied to a vector Autoregressive (VAR) version of VAR equation for order K given as:

$\Delta y_t = \boldsymbol{\pi} y_{t-1} + \sum_{i=1}^{k} r_i \Delta y_{t-i} + \beta x_t + \varepsilon_t$

Where: Δ is the difference operator, Y_t is a vector of non-stationary variables (n)

The aim of this test is to find out whether a linear combination of the integrated variables can become stationary in the long-run, if this hold sway, then it means cointegration exists among the variables, this further implies that there exist a long run relationship among the variables. The Johansen cointegration test commenced with the test for the number of cointegrating relations or rank using Johansen's maximum Eigen value and the trace test. The results for export model are shown in table 2:

Table 2 Johansen co-integration test for agricultural growth model

No. of co-integrating equation	**Trace statistics**		**Maxi-Eigen value**	
	Statistic	**5 percent CV**	**Statistic**	**5 percent CV**
None *	123.9687	95.75366***	49.09599	40.07757***
At most 1 *	74.87270	69.81889**	29.00901	33.87687***
At most 2	45.86369	47.85613*	23.19072	27.58434
At most 3	22.67296	29.79707	12.82561	21.13162
At most 4	9.847356	15.49471	8.145797	14.26460
At most 5	1.701559	3.841466	1.701559	3.841466

Source: Computed by the Author using e-view 10.0. Note: ***, ** and * represented 1%, 5% and 10 levels of significance respectively.

In table 2, the result from both Max-Eigen value and Trace statistic tests was presented with their levels of significance. The trace test rejected the null hypothesis (H0) that there is no co-integrating relationship between the variables and the test based on the maximum Eigen value also rejected the null hypothesis. They both indicate evidence supporting one co-integrating equation at the 5 percent level of significance. The result of the co-integration test showed that Agricultural GDP, agricultural credit scheme (ACGS), agricultural loan loans and advances (CBLA), annual rain fall

(ARF), government expenditure on agriculture (GEA) and interest rate respectively have equilibrium condition which keeps them in proportion to each other in the long run. The study proceeded with the long run vector autoregressive estimate for the agricultural growth model to observe the relationship among the variables as stated in table 4.5 below:

Long-run vector Autoregression estimate for the agricultural growth model

Since our model was expressed in logarithm form, the co-efficient estimates can be interpreted in terms of long run elasticity and the t-statistics and probability were used to determine the statistical significance of each variable. Based on the rule of thumb, a variable is said to be statistically significant if the absolute value of its t-statistic is approximately 2 or more.

Table 3:Long-run Relationship (Agricultural growth model)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AGDP(-1	0.680837	0.230464	2.954202	0.0071***
AGDP(-2)	0.432462	0.261202	1.655663	0.1114
ACGS(-1)	0.030121	7.18E-05	3.679932	0.0065***
ACGS(-2)	9.08E-05	8.53E-05	1.064729	0.2980
ARF(-1)	0.438255	0.484329	0.904869	0.3749
ARF(-2)	-0.254371	0.479967	-0.529976	0.6012
CBLA(-1)	0.205415	0.271275	2.357220	0.0166**
CBLA(-2)	-0.511598	0.259518	-1.971343	0.0608*
GEA(-1)	0.000889	0.011277	0.078854	0.9378
GEA(-2)	0.011766	0.010944	1.075115	0.2935
INTR(-1)	-0.919051	36.71564	-0.025032	0.9802
INTR(-2)	-1.279436	36.44390	-0.035107	0.9723
C(-1)	-613.9126	2013.481	-0.304901	0.7632
R-squared	0.991712	Mean dependent var		6058.600
Adjusted R-squared	0.987388	S.D. dependent var		6930.935
F-statistic	229.3480***	Durbin-Watson stat		2.354660
Prob(F-statistic)	0.000000			

Source: Computed by the author using E-view 10 econometric and statistical package with data obtained from CBN statistical bulletin and IMF. Note: *** = significant at 1%; ** = significant at 5%.

The long run Vector Auto regression result presented in table 4 showed that agricultural GDP indicated positive and significant changes in the previous period than in the recent years. This is an indication that in the earlier years, agricultural sector performed better than in the later years. Agricultural credit guarantee scheme was equally statistically significant and elastic in relation to agricultural sector performance. This imply that in the long run, a change in agricultural credit guarantee scheme will cause a proportionate change in agricultural sector on the other hand, the

result showed that commercial banks loan to agriculture was equally statistically significant in the long run this shows that commercial banks loan to agriculture had an elastic influence on the performance of agricultural sector in Nigeria; while rain fall indicated negative but statistically significant effect on the performance of agricultural GDP in the long run, interest rate does not significantly contribute to changes in agricultural GDP in this study. Specifically, the coefficient value 0.030121 of agricultural credit guarantee scheme at 5 percent level implies that a unit change in agricultural credit will lead to 3% decrease in agricultural sector performance in Nigeria within the reference period. On the other hand, commercial bank loan to agricultural showed a coefficient of 0.205415 at 5% significant level implying that a unit change in commercial banks loan to agriculture will rather lead to 20.54% increase in agricultural sector in Nigeria within the reference period. This result disagrees with a priori/theoretical expectation of positive relationship between agricultural loans and growth in the agricultural sector in Nigeria. The coefficient determination (R^2 = 0.9917) explains the total variation in the dependent variable jointly explained by the explanatory variables included in the model, the Durbin-Watson stat value of 2.354 depicts the absence of serial correlation in the model. it can be deduced from the result that agricultural financing have the capacity to contribute to the increase or decrease in the growth Nigerian agricultural sector in the long run. This result is consistent to study conducted by Iganiga (2011) and Kareem, (2010) who all demonstrated that changes in agricultural credit had a significant effect on total export for commodity exporting countries and Nigeria respectively.

Vector error correction model

The ECM coefficient is known as the speed of adjustment factor, it tells how fast the system adjusts to restore equilibrium. It captures the reconciliation of the variables over time from the position of disequilibrium to the period of equilibrium. The result of the vector correction model (VECM) is shown on table 5; the basic criteria for analyzing VECM are:

1. The VECM must lie between 0 and 1;
2. It must be negative for it to be meaningful. If it is positive there is no error correction and therefore diverges; and
3. The t-statistic must be significant.

Table 4: Vector Error Correction Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ECM(-1))	-0.186237	0.026564	-7.010825	0.0000***
D(AGDP(-1))	-0.654380	0.165094	-3.963688	0.0007***
D(AGDP(-2))	-0.474878	0.174713	-2.718052	0.0129**
D(ACGS(-1))	-0.020249	5.60E-05	-4.442866	0.0002***
D(ACGS(-2))	-0.010199	5.96E-05	-3.337409	0.0031***
D(ARF(-1))	-0.124046	0.276896	-0.447986	0.6588
D(ARF(-2))	-0.754052	0.294877	-2.557170	0.0184**
D(CBLA(-1))	0.522954	0.192152	2.721566	0.0128**
D(CBLA(-2))	0.376676	0.192322	1.958569	0.0636*
D(GEA(-1))	-0.028804	0.006363	-4.526833	0.0002***
D(GEA(-2))	-0.018589	0.006146	-3.024594	0.0064***
D(INTR(-1))	-18.09514	20.02492	-0.903631	0.3764
D(INTR(-2))	-14.65940	19.07672	-0.768445	0.4508
C(-1)	898.7139	135.6780	6.623872	0.0000***
R-squared	0.811127	Mean dependent var		513.2589
Adjusted R-squared	0.694206	S.D. dependent var		862.6659
F-statistic	6.937384***	Durbin-Watson stat		2.084126
Prob(F-statistic)	0.000054			

Source: Computed by the author using E-view 10 econometric and statistical package with data obtained from CBN statistical bulletin and IMF. Note: *** = significant at 1%; ** = significant at 5%.

The result in table 4 presented first the coefficient of error correction mechanism ECM(-1) -0.186237. The VECM is correctly signed with the coefficient lying between 0 and 1. Satisfying these criteria signify that the model has the capacity to correct errors generated in the immediate periods as it approaches its long run equilibrium path. Precisely the error correction model in this equation means that about 18.62 percent of errors generated between each period are correlated in subsequent periods. Since errors are short lived in our model, it implies that the long run relationship obtained is sustainable and our result is reliable.

The result indicate that the model estimated is statistically significant, as confirmed by the F-statistic (6.9373 at 5% level of significance). The coefficient of multiple determinations, (R^2 = 0.811127) describes the total variations in the dependent variable that was explained by the independent variables. It equally explains adequacy of the variables included in the model. While agricultural GDP was statistically significant implying high level of flexibility and proneness to yield returns within shortest possible period, agricultural credit guarantee scheme was statistically significant but negatively relates to agricultural GDP in the short-run at 1 percent level of significance, this implies that a unit decrease in agricultural credit guarantee scheme will lead to 20% and 10% proportionate decreases in agricultural sector performance.
The result showed that commercial banks loan to agricultural was positive and statistically significant at 5% level in the short run. This implies that any increase in commercial banks loan to

agricultural will lead to 57% and 37% proportionate increases in agricultural GDP used to proxy agricultural sector performance in this study. On the other, annual rain fall showed negative but statistically significant effect on agricultural sector performance. The coefficient of was -0.7540 at 5% level of significance implying that a unit decrease in rain fall will cause agricultural sector performance to decrease by 75% within the reference period. Again, government expenditure on agriculture contributed negatively to the changes in agricultural GDP. The coefficient of GEA (-0.2880 and -0.018589 at 5% levels of significance respectively) imply that reductions in government expenditure on agriculture contributed significantly to the inefficiency in the performance of agriculture in the country within the reference period to. Virtually all the variables (except lending interest rate) were significant in explaining changes in the agricultural GDP within the short run. This means that the variables are capable of making reasonable impact in the performance of the sector if subsequently improved upon. However, this result is consistent with the empirical study by Iganiga and Unemhilin (2011).

Decision findings

The study showed that the value of t-test [-4.526833] for GEA is greater than the critical value of critical t at 5% level of significance, with a probability values of 0.0002. Based on this, the study rejected the null hypothesis H_0; accepted the alternative hypothesis H_A: and concluded that GEA has significant effect on AGDP in Nigeria within the study period.

Summary, Conclusion and Recommendation

The study examines the effect of agricultural financing on agricultural sector in Nigeria using time series and employed vector error-correction model. The study is unique following previous studies not only due to the fact that it applied unrestricted vector Autoregressive estimate (VAR) to measure the transmission rate between variables, it also aligns with existing standard model formations in literature via inclusion of most recent data from CBN statistical bulletin World Bank making the study period sufficient enough to uncover recent issues.

This study concluded that there is significant effect of agricultural finance on the performance of agricultural sector in Nigeria within the referenced period.

1. The study recommend that there should be increase in the amount which the agricultural credit guarantee scheme inject into the sector on annual basis and proper supervisory measures should be constituted in order to ensure efficient application and use of the money.
2. banks should encourage agricultural sector growth by granting loans and advances when needed in order to encourage citizens to go more into commercial farming.
3. The federal government should intervene in agricultural sector by taking up a massive irrigation project that would provide lasting solution to the problem of water supply, cover the gaps often created by dry seasons and make agricultural production cut across all the seasons of the year.
4. The government should equally improve in their expenditure on agriculture so as to always leverage the sector in terms of fertilizer and heavy machineries. This will invariably boost productivity in the sector.

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