

The Central Bank of Nigeria (CBN) in collaboration with the Federal Ministry of Agriculture and Water Resources (FMA&WR) established the Commercial Agriculture Credit Scheme (CACCS) in 2009 to provide finance for the country's agricultural value chain (production, processing, storage and marketing). Increased production arising from the intervention would moderate inflationary pressures and assist the Bank to achieve its goal of price stability in the country. The primary objectives of the Scheme are to:

- Fast-track the development of the agricultural sector of the Nigerian economy by providing credit facilities to large-scale commercial farmers at a single digit interest rate;
- Enhance national food security by increasing food supply and effecting lower agricultural produce and products prices, thereby promoting low food inflation;
- Reduce the cost of credit in agricultural production to enable farmers exploit the untapped potentials of the sector; and
- Increase output, generate employment, diversify Nigeria's revenue base, raise the level of foreign exchange earnings and provide input for manufacturing and processing on a sustainable basis.

The Scheme which is a sub-component of the Federal Government of Nigeria's Commercial Agriculture Development Programme (CADP) is financed through a N200billion Bond raised by the Debt Management Office (DMO). Loans to eligible entities under the Scheme are disbursed at a maximum interest of 9 percent

(<http://corporatefinanceinstitute.com/resources/knowledge/finance/prime/rate,2021>)

2.2 Theoretical Framework

The theories on which this study is based are; Structural Change and Multiple Lending Theories

2.2.1 Structural Change Theory

The structural change theory designed by Nobel laureate W. Arthur Lewis in the mid-1950s was subsequently changed and redesigned and used by economist in developing agriculture activities. This actually reduce the over reliance on small peasant means of agricultural production in most of the developing countries (Orok and Ayim, 2017). Another aspect of this theory mentioned that has continuous improvement in agricultural productivity could be achieved when there is a good supporting structure to develop and gives the required motivations and opportunities to the agricultural sector.

2.2.2 Multiple Banks lending Theory

Multiple Bank Lending Theory by Diamond (1984) view that banks should be more concerned with equity, mergers and acquisitions which increase their lending capacities and they should be

less inclined to share lending. This will reduce the need for greater diversification and monitoring. This however, is obtainable in the presence of a well developed equity market.

Banks should be less inclined to share lending (loan syndication) in the presence of well developed equity markets and after a process of consolidation. Both outside equity, mergers and acquisitions increase banks multi-lending capacities, thus reducing their need of greater diversification and monitoring through share lending (Carletti, 2009). This theory has a greater implication for banks in Nigeria in the light of the recent 2005 consolidation and recapitalization exercise in the banking industry.

2.3 Empirical Review

Jonathan, Christiana and Daniel (2020) analyzed the effect of Agricultural Credit Guarantee Scheme Fund (ACGSF) on farmers' agricultural output (GDP) in Nigeria. Secondary data were sourced from Central Bank of Nigeria bulletins, National Bureau for Statistics data base and other financial bulletins. The data were analysed using descriptive and inferential statistics. It was found that funds guarantee to crop-sub sector increased steadily from 1998 to 2009. The result shows that credit supplied to livestock sub-sector by ACGSF rose consistently in the period under review but initially declined from 1998-2007. The study concludes that ACGSF has a positive effect on agricultural output in Nigeria. Hence, it is recommended that government, agricultural agencies and allied bodies should give more preference to the scheme to boost agricultural production.

Oparinde, Amos and Adeeseluka (2017) in their research on influence of ACGSF on fishery development in Nigeria affirmed that less fund was allocated to fishery sub-sector than crop sub sector of agricultural production. The Gross Domestic Product (GDP) and agricultural output in the crop sector was said to have been increased tremendously with the ACGSF in Nigeria

Ogbuabor and Nwosu (2017) examined the impact of deposit money bank agricultural credit on agricultural productivity in Nigeria using an error correction model and annual time series data for the period 1981-2014. The results indicate that an equilibrium relationship exists between the variables. In addition, we find that deposit money bank's agricultural credit impacts positively and significantly on agricultural productivity in the long-run.

Udih (2014) investigated banks credit and agricultural development. The paper used primary and secondary sources of information that were extracted from five (5) banks and ten (10) agricultural enterprises in Delta State. A simple random sampling technique through the lottery method was adopted to select the samples. The data were analysed using percentage, mean, and Standard Deviation and Pearson product moment correlation to test the hypotheses. The research

findings include among others: that banks' credits and advances to agricultural entrepreneurs promotes agricultural development and productivity, and that regulated banks' credits to the agricultural entrepreneurs has no or little impact on the entrepreneurship performance, and thus, suggested that adequate bank credits should be granted to small scale agricultural farmers to increase productivity: and their farms land should be used as collateral instead the of usual banks loan security to promote entrepreneurship performance.

3.0 Methodology

3.1 Research Design

Ex-post factor design was adopted for this study. *Ex-post* design was applied on the premise that the study depended on the past events which were beyond the manipulation of researchers. This means that the relevant dependent and independent variables that were used for analysis cannot be subjected to any control whatsoever by the relevant data as collated by the institutionalized agencies charged with such statutory task. Therefore, *ex-post facto* design suited the objectives of this study. We proxies the dependent variable as Agricultural Gross Domestic Product (AGDP) and the independent variables as Bank Prime Lending Rate and Commercial Agricultural Credit Scheme (CACs)

3.2 Nature and Sources of Data

This study utilized Nigerian annualized time –series data that were secondary in nature spanning the period from 1986 to 2020. The data were collected from diverse sources, including CBN statistical Bulletin, world development index (WDI) and Debt Management office (DMO).

3.3 Model specification

This study attempted to ascertain the impact of deficit financing on real gross domestic product covering the time 1986-2020. For this purpose, the model used by Onwe (2014) that carried out similar study in Nigeria for the period the period 1970-2013 was employed as our models with little adjustments, and therefore specified as hereunder:

$$Y_t = \beta_0 + \beta_1 X_{t1} \dots + \beta_n X_{tn} + \mu_t \text{ -----(1)}$$

Rewriting the above econometric models to regression models, we have

$$AGDP_t = \beta_0 + \beta_1 BPLR_t + \beta_2 CACs_t + \beta_3 INFR_t + \mu_t \text{ ----(2)}$$

Where,

Y_t = Agricultural Gross Domestic Product (Dependent variable)

X_{t1} = Bank Prime Lending Rate . (Explanatory variable)

X_{t2} = Commercial Agricultural Credit Scheme (Explanatory variable)

X_{t3} = Interest Rate (Control variable)

t =Time series

μ_t = Error or disturbance term

Rewriting the above econometric models to regression log form models, we have.

$$Y = f(X1, X2, X3)$$

$$\text{LnAGDP}_t = \beta_0 + \beta_1 \text{LnBPLR}_t + \beta_2 \text{LnCACSt} + \beta_3 \text{LnINFR}_t + \mu_t \text{----- (equ3.2)}$$

Where,

LnAGDP_t = Agriculture Gross Domestic Product.

LnAGDP_t = Agriculture Gross Domestic Product.

LnBPLR_t = Bank Prime Lending Rate

LnINFR = Interest Rate

t = Time Series

μ_t = Error or Disturbance Term

The variables in the model were log-transformed so as to keep them at the same level of measurement and make provision for easy interpretation. Hence, log-transforming the variables in equation 2 to log form their real terms is given:

Descriptions of model variables

4.1 Presentation of Data

Data Presentation, 1992-2019

Year	AGDP	BPLR	CACS(billions)	INFR
1986	2,986,835.38	1830.3	68.4174	9.96
1987	2,891,672.33	2427.1	102.1525	13.96
1988	3,174,567.62	3066.7	118.611	16.62
1989	3,325,947.09	3470.5	129.3003	20.44
1990	3,464,716.26	4221.4	98.4945	25.30
1991	3,590,837.44	5012.7	79.1074	20.04
1992	3,674,792.83	6978.9	91.9531	24.76
1993	3,743,665.81	10753	80.8458	31.65
1994	3,839,675.45	17757.7	104.463	20.48
1995	3,977,381.94	25278.7	164.1331	20.23
1996	4,133,548.21	33264.1	225.5195	19.84
1997	4,305,679.63	27939.3	242.0283	17.80
1998	4,475,241.38	27180.7	219.1442	18.18
1999	4,703,643.68	31045.7	241.839	20.29
2000	4,840,971.20	41028.90	361.449	21.27
2001	5,024,542.11	55846.10	728.545	23.44
2002	7,817,084.50	59849.70	1050.982	24.77
2003	8,364,832.10	62102.80	1151.015	20.71
2004	8,888,573.40	67738.60	2083.744	19.18

2005	9,516,991.54	48561.50	9493.854	17.95
2006	10,222,474.98	49393.40	4262.430	16.89
2007	10,958,469.13	149578.90	4425.461	16.94
2008	11,645,370.98	106353.80	6497.958	15.14
2009	12,330,325.55	135701.30	8328.565	18.99
2010	13,048,892.80	128406.00	6567.356	17.59
2011	13,429,378.77	255205.30	10189.604	16.02
2012	14,329,705.62	316364.00	9332.484	16.79
2013	14,750,523.21	343696.80	9256.676	16.72
2014	15,380,389.34	478911.78	12997.004	16.55
2015	15,952,220.14	449311.22	11441.978	16.85
2016	16,607,337.33	525953.42	8104.810	16.87
2017	17,179,495.29	528244.13	5268.029	17.55
2018	17,544,147.74	556670.35	4377.626	16.90
2019	17,958,889.58	680033.12	5137.027	15.38
2020	18,003,555.44	720634.00	3600.008	16.17

Source: CBN Statistical Bulletin, CBN Annual Report, 2021

- **AGDP** = Agricultural Gross Domestic Product
- **BPLR** = Bank Prime Lending Rate
- **CACS** = Commercial Agricultural Credit Scheme
- **INFR** = Inflation Rate

4.2 Descriptive statistics

Table 4.2

	LAGDP	LCACS	LBPLR	LINFR
Mean	15.81900	6.958404	10.89857	2.914682
Median	15.93955	7.048399	10.93035	2.879198
Maximum	16.70608	9.472474	13.48789	3.454738
Minimum	14.87735	4.225627	7.512235	2.298577
Std. Dev.	0.655078	1.924202	1.794457	0.200239
Skewness	-0.012756	-0.115214	-0.261575	-0.069034
Kurtosis	1.364021	1.321118	2.020705	5.059467
Jarque-Bera	3.904073	4.187954	1.797692	6.213182
Probability	0.141985	0.123196	0.407039	0.044753
Sum	553.6651	243.5441	381.4500	102.0139
Sum Sq. Dev.	14.59034	125.8867	109.4826	1.363248
Observations	35	35	35	35

Source: E-views 9 output, 2021

Table 4.3 Unit Root Test Results
Summary of Unit Root Test

Variables	ADF-Stat	5% critical	P-value	Inference
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		value		
LAGDP	-5.502878	-2.954021	0.0001	I(1)
LCACS	-5.293825	-2.954021	0.0001	I(1)
LBPLR	-6.651652	-2.954021	0.0000	I(1)
LINFR	-4.843143	-2.951125	0.0063	I(0)

Source: Author's compilation 2021

The result of the unit root test in table 4.3 reveals the presence of stationarity at 5% critical level. Moreover, all the variables are not integrated of the same order. In other words, the variables attained stationarity at first difference I(1) and at level I(0). In both instances, it is apparent that the calculated ADF value are more negative than critical values for all the variables tested, which confirms that our series has no unit root. To confirm the reliability of this result, the p-value of the calculated ADF values for each of the variables is less than 5% level of significance. Given that there is a mixed order of integration, we are guided to check for co-integration using Bound Co-integration Test in order to determine if the variables have a short-run or long-run relationship.

4.3 Co-integration Test using ARDL Bounds Test

Table 4.4

ARDL Bounds Test

Date: 10/15/21 Time: 09:13

Sample: 1987 2020

Included observations: 34

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	3.813622	3

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.72	3.77
5%	3.23	4.35
2.5%	3.69	4.89
1%	4.29	5.61

Source: E-views 9 output, 2021

Having an F-statistic which is greater than 5% significant level, we can conclude that there is co-integration which means there is a long run relationship between the variables therefore we

estimate the ECM model. But before we do that we need to text for the most appropriate lag length to use

4.4 Text for the most appropriate lag length

Table 4.5

VAR Lag Order Selection Criteria
Endogenous variables: LAGDP
Exogenous variables: C LCACS LBPLR LINFR
Date: 10/15/21 Time: 09:26
Sample: 1986 2020
Included observations: 31

Lag	LogL	LR	FPE	AIC	SC	HQ
0	20.29442	NA	0.020493	-1.051253	-0.866222	-0.990937
1	43.65535	39.18608*	0.004849*	-2.493893*	-2.262605*	-2.418499*
2	43.69764	0.068218	0.005169	-2.432106	-2.154560	-2.341633
3	43.70689	0.014314	0.005527	-2.368186	-2.044383	-2.262634
4	43.82156	0.170165	0.005875	-2.311069	-1.941007	-2.190438

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

From the above table we can see that lag one (1) is the most appropriate lag using AIC: Akaike information criterion as our bench mark

4.5 ECM Regression Model

Table 4.6

Dependent Variable: LAGDP
Method: Least Squares
Date: 10/15/21 Time: 09:39
Sample (adjusted): 1987 2020
Included observations: 34 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.315164	1.297928	4.865575	0.0000
LAGRDP(-1)	0.501087	0.097761	5.125637	0.0000
LCACS(-1)	0.096298	0.020297	4.744508	0.0001
LBPLR(-1)	0.078345	0.021597	3.627652	0.0011
LINFR(-1)	0.035351	0.053819	0.656854	0.5166
ECM	0.315634	0.096841	3.259295	0.0029
R-squared	0.994045	Mean dependent var	15.84575	

Adjusted R-squared	0.992981	S.D. dependent var	0.645245
S.E. of regression	0.054057	Akaike info criterion	-2.838766
Sum squared resid	0.081821	Schwarz criterion	-2.569408
Log likelihood	54.25902	Hannan-Quinn criter.	-2.746907
F-statistic	934.7445	Durbin-Watson stat	2.172993
Prob(F-statistic)	0.000000		

Source: E-view 9 output, 2021

The result in table 4.6 shows the ECM regression results on the influence of Commercial Bank's credit to Agricultural Gross Domestic Product in Nigeria. It reveals that Bank Prime Lending rate to Agriculture has a significant effect on the Agricultural GDP in Nigeria. The results indicated that the coefficients of BPLR, CACS variables were positive and significant at 5% level of significance. The coefficient of BPLR on AGDP was 0.078345 with probability value of 0.0011, meaning that a unit increase in volume of credit supply to Agriculture would lead to 78% increase in the AGDP in Nigeria. The coefficient of the CACS variable was 0.096298 with a probability value of 0.0001, meaning that a unit increase in the volume of credit supply to Agricultural Gross Domestic Product would lead to 96% increase in the AGDP in Nigeria.

4.6 Test of Hypothesis

4.6.1. Test of Hypothesis One

Table 4.6 was used to test hypothesis one

Restatement of the Hypothesis in Null and Alternate forms:

H₀: Bank Prime Lending Rate does not positively and significantly affected Agric Gross Domestic Product in Nigeria

H_a: Bank Prime Lending Rate does positively and significantly affect Agric Gross Domestic Product in Nigeria

Decision Rule

Reject the null hypothesis (H_0), if the p-value of the t-statistics is less than 0.05. Otherwise accept the null hypothesis and reject the alternate hypothesis.

Decision

The effect of Bank Prime Lending Rate on the Agric Gross Domestic Product was tested using this hypothesis. The logarithm of bank prime lending rate has a positive coefficient (0.078345) and significant given a P-Value of 0.0011 which is lower than 0.05. Hence, we reject the null hypothesis and therefore conclude that bank prime rate exerts positive and significant effects on the Agric gross domestic product in Nigeria. The implication of this is that an increase in bank prime rate will bring about increase in the variables under study

4.6.2 Test of Hypothesis Two

Table 4.6 was used to test hypothesis two

Restatement of the Hypothesis in Null and Alternate forms:

H₀2: Commercial Agric Credit Scheme does not positively and significantly influence gross domestic product in Nigeria.

H_a2: Commercial Agric Credit Scheme does positively and significantly influence gross domestic product in Nigeria

Decision Rule

Reject the null hypothesis (H_0), if the p-value of the t-statistics is less than 0.05. Otherwise accept the null hypothesis and reject the alternate hypothesis.

Decision

The hypothesis on Commercial Agric Credit Scheme was formulated to assess whether Commercial Agric Credit Scheme could lead to a higher level of exchange rate measured by gross domestic product. The E-view computed regression results indicated that the P-Value of 0.0001 which is less than 0.05 and positive coefficient of correlation (0.096298) implies that CACS positively affects the variables under study. Hence, we reject the alternative hypothesis and therefore conclude that commercial Agric credit scheme does not positively and significantly affect gross domestic product in Nigeria. The implication of this is that an increase in CACS will bring about a proportionate increase on Agric gross domestic product in Nigeria

4.7 Discussions of Findings

Hypothesis 1 which states that Bank prime lending rate does not have a positive and significance effect on Agricultural Gross Domestic Product in Nigeria was carried out using ECM regression analytical tools. The result obtained revealed that the independent variable Commercial Bank's Credit on Financing Agricultural Productivity in Nigeria. Bank prime lending rate contributes 78% to the variation of the dependent variable. The findings also showed that the study is statistically significant because of the p value of 0.0011 which is less than 0.05 level of significance was enough to reject the null hypothesis and submit that bank prime lending rate actually affected the Agricultural Gross Domestic Product in Nigeria. This result is synonymous with the findings of Onyema and Agada (2018), who examined the contributions of Agricultural Financing through the agency of deposit money bank to the growth of the Agricultural Sector in Nigeria, 1981-2015 using ECM.

Hypothesis 2 which states that Commercial Agricultural Credit Scheme has no positive and significant impact on Agricultural Gross Domestic Product in Nigeria was carried out using ECM regression analytical tools The result obtained revealed a perfect positive co-integration

between CACS and Agricultural Gross Domestic Product in Nigerian as revealed by the findings associated with the scope which are CACS on Agricultural Gross Domestic Product in Nigeria. The findings also indicated that the study is significant with the significant 2-tailed of 0.0001 <0.05 the standard alpha value of the study. This finding is consistent with the findings of Reuben, Nyam and Rukwe, (2020) when they examined the effect of Agricultural Credit Guarantee Scheme Fund (ACGSF) on Famers' agricultural output (GDP) in Nigeria.

4.8 Conclusion

The study examined the impact of commercial bank's credit on financing Agricultural productivity in Nigeria, 1986-2020. The study was motivated because of the low agricultural productivity due to lack of production incentives, especially capital. Although the agricultural sector has the capacity of funding the Nigerian economy and solving socioeconomic problems, lack of financing has been their major challenges. Therefore, the study examined the effect of deposit money banks' credit on agricultural productivity in Nigeria, spanning 1986 to 2020. The dependent variable was proxies by agricultural output, while the independent variable was proxies by credit from commercial banks to the agricultural sector (CACS), bank prime lending rate (BPLR), and agricultural credit guarantee scheme, while inflation controlled the model. The study found a significant effect of commercial banks' credit, prime lending rate, and inflation on agricultural productivity in Nigeria. This implies that credit from commercial banks impacted agricultural productivity output in Nigeria. The bank prime lending rate was found to be attractive enough for agricultural investors to sourced funds from commercial banks.

4.9 Recommendations:

The study recommends the following:

- Government should sustain the current tempo of credit to Agricultural programmes in Nigeria.
- Famers should be encouraged to exploit the gains of establishing Commercial Agricultural Credit scheme to access funds and enhance Agricultural productivity in Nigeria.

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