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THE IMPACT OF AGRICULTURAL FINANCING ON AGRICULTURAL OUTPUT IN NIGERIA: AN EMPIRICAL ANALYSIS

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ABSTRACT

This study examined the impact of agricultural financing on agricultural output in Nigeria from 1986 – 2012. The study used secondary data which were sourced from Central Bank of Nigeria (CBN) and National Bureau of Statistics Bulletins. The data were analyzed using vector error correction technique (ECM). The test for stationary was done using the augmented Dickey-fuller test. The result shows that all the variables were integrated of order one *I(I).* The findings revealed that agricultural financing is statically significant within the period of study (P<0.05). The results also revealed a two-way causation between government spending on agricultural sector and agricultural productivity in Nigeria. It was also revealed that the total value of loan granted to agricultural sector affects the agricultural output. An agricultural raw material import was found to granger-caused government spending. Finally, vector error correction model was specified and estimated. The result of the VECM showed that agricultural financing positively affects the agricultural output of the Nigerian economy in the long-run. Based on these indices, the study recommended that adequate budgetary provision and releases should be made to fund policy initiatives for agriculture and drafting of financing policies that are targeted at some agricultural output.

Keywords: Agricultural financing; Financial exclusions; Credit access

INTRODUCTION

Agriculture constitutes one of the most important sectors of the Nigerian economy. The sector is particularly important in terms of its employment generations and its contribution to gross domestic product (GDP) and export revenue earnings. Nigeria is described as an agrarian economy, before the country shifted focus to oil exports in the 1970s, Agriculture contributes 40% of the Gross Domestic Product (GDP) and employs about 70% of the working population (FMARD, 2012). Despite Nigerians rich agricultural resource endowment, however, the agricultural sector has been growing at a very low rate. In the pre-and post-independence era (1930 to 1965), the Nigerian economy was predicted on agriculture when it employed about 70 to 80% of the countries labour force (Eze, 2010) and contributed 60% of the nations GDP and foreign exchange earnings (CBN, 1985). In

the oil boom era (1966 to 1977) the oil sector became prominent position as an important source of the national revenue contributing 57.6 to the GDP in 1977 and up to 99.7% in 1972. Agriculture, on the other hand, contributed only 12% to the GDP in 1970 which culminated in rising food import bill leading to the persistent huge deficit in the balance of payments over the years (Ugwu, 2007).

In the post oil boom era (1977 to 2002), the price of crude oil started falling and /or fluctuating and there has been growing concern to revitalize the agricultural sector as well as diversify the economy. During this period, only less than 50 percent of the country's cultivable agricultural land is under cultivation (Manyong, Ikpi, Olayemi, Yusuf, Ommona and Idachaba, 2003). Even then, smallholder and traditional farmers who use rudimentary production techniques, with resultant low yields, cultivate most of this land. The smallholder farmers are constrained by many problems, including poor access to modern inputs and credit, poor infrastructure, inadequate access to markets, land and environmental degradation, inadequate research and extension services and so on.

The role of agricultural financing as a factor of improving agricultural production to facilitate economic growth and development cannot be over emphasized. According to Olomola (1997), the agricultural credit guarantee system is often considered as an effective policy instrument for improving the production and distribution of agricultural commodities. Nnanna, (2004) affirms that credit finance is more than just another resource such as labour, land, equipment and raw-materials since it can be used to acquire all others. Iheanacho et al. (2012) suggested that inadequate financing agricultural sector has caused a decline in agricultural production. If these claims are true it raises doubts about effectiveness of the agricultural finance institutions and programmes which are introduced from time to time to specially provide guaranteed credits to farmers to enhance agricultural production.

Among the established agencies to support agricultural financing to boost agricultural production and ensure food security, were the Nigerian Agricultural Cooperative Bank (NACB) established in 1990 as an agricultural financing institution. In the year 2000, Federal Government also established the Nigerian Agricultural Financing Institution to facilitate agricultural production through the provision of affordable credit facilities to micro, small and medium scale farmers, (Mustapha, 2006) now known as Bank of Agriculture (BOA).

Despite the establishment of agricultural financing agencies over the years, the inability of the agricultural sector to expand as well as to contribute meaningfully to the growth of Nigerian economy has been hugely due to inadequate financing to improve on the situation to facilitate agricultural credit (CBN, 2010). According to the CBN (2007), about 65% of the Nigeria's economically active population lacks access to formal financial service, and much recently, out of the 84.7 million adults, 46.3% were financially excluded while 53.7% were financially served. Hence, the continuous efforts by the government and researchers to address the issue are imperative. The situation raises the need for inquiry into the impact, of agricultural finances on agricultural production. It is therefore against this background that this research work seeks to examine the impact of agricultural financing on agricultural productivity in Nigeria using a time series data from 1986 to 2012. The study therefore intends to examine the causal relationship between agricultural financing and agricultural productivity in Nigeria and to examine the effect of agricultural financing on agricultural output in Nigeria.

Conceptual Framework

Agricultural Output

Agricultural output refers to the total amount of agricultural produce by farmer in a given period of time. Over the years, the inability of the agricultural sector to expand and as well contribute meaningfully to the Nigerian economy was due to inadequate financing to improve on the situation that is, facilitating agricultural credit. Also, the problem of rapid agricultural development in Nigeria indicates that efforts directed at achieving expanded economic base of the rural farmers were frustrated by the scarcity of and restrictive access to loanable fund. One of the reasons for the decline in the contribution of agriculture to the GDP is lack of formal national credit policy and paucity of credit institutions which can assist farmers (CBN, 2010).

Agricultural Financing/Finance

Agriculture finance can be defined as the mobilization of resources at all levels in order to increase production and productivity in agriculture. Agriculture financing in emerging economy could have positive effects on the growth of domestic products (GDP). It brings about growth and solves the problems militating against the agricultural sector's productivity, economic sustainability, poverty reduction, business opportunities, institutional changes, innovation, incentives as well as growth (Raji, 2008).

Overview of Agricultural Finance in Nigeria

Since independence in 1960, successive Nigerian government has made efforts to address the problems of lack of access to credit to the rural poor. In recognition of the vital role of small-scale farmers in wealth creation, the Government of Nigeria has experimented with various financing initiatives.

The Federal Government of Nigeria established many institutions, programmes and schemes aimed at providing the financial needs of the rural farmers. The major institutions established to provide credit facilities for agricultural growth and development in Nigeria were the defunct Nigerian Agricultural and Co-operative Bank (NACB), 1973, River Basin Development Authority (RBDA), 1977, Directorate of Food and Rural Infrastructure (DFRRI), 1986 and Nigerian Agricultural Insurance Corporation (NAIC), 1987. The above institutions were complemented by the following programmes; Agricultural Development Programme (ADP), 1975, Operation Feed the Nation (OFN) 1976, Rural Banking Programme (1977), Green Revolution, 1980, defunct Family Economic Advancement Programme (FEAP), 1997 and the National Poverty Eradication programme (NAPEP), 1999. The major agricultural financing schemes were the Agricultural Credit guarantee scheme fund (ACGSF), 1978 and the Agricultural Credit Support Scheme (ACSS), 2006 (World Bank, 2009).

To enhance the provision of the support services in all parts of the country, government established the Agricultural Development Projects in all state of the federation and established the National Agricultural Land Development Authority. With the growth in the number of government agricultural development programmes, one expected meaningful agricultural output growth, positive change in farm sizes and general development in the

sector over time. Unfortunately, the index of real agricultural sector GDP shows complete absence of any substantial growth. For example, the growth rate in real GDP of agriculture between 1981 and the year 2005 fluctuated between –13 and 65.13. The growth rate in real GDP agriculture was positive in 1982, between 1987 and 2003 and negative by 1983 to 1986, as well as 2004 and 2005. On the other hand, the index of real GDP for agriculture fluctuated from 100 to 98.44 in 1986, from 136.35 in 1987 to 141.37 in the year 2000, increased steadily to 165.13 in the year 2003 and then dropped to 71.79 by the year 2005 (Eze, 2010).

In order to solve the problem of agricultural financing so as to boost agricultural production and ensure food security especially in the rural areas, the Federal Government of Nigeria established the Nigerian Agricultural and Co-operative Bank (NACB) limited in 24th of November, 1972 as an agricultural financing institution. In July, 2001, Nigerian Government finally established the Nigerian Agricultural Co-operative and Rural Development Bank (NACRDB) as an agricultural financing institution to facilitate agricultural production through the provision of affordable credit facilities to micro, small and medium scale farmers.

NACRDB since inception functioned for over ten (10) years in Nigeria as rural financial intermediary with the primary objective of promoting grass root self-reliant economic development through the provision of finance and banking services among others. The capacity of financing agricultural sector in Nigeria would be significantly enhanced through the provision of NACRDB low interest credit facilities to enable farmers start, expand and modernize their farming activities and be self-reliant, self-employed, generate adequate income and investment (Nwankwo, 2012).

Most recently, Micro Finance Bank in 2005 and many other presidential initiatives were established aimed at financing the production and export of certain commodities such as cassava, rice, cocoa and oil Palm. Furthermore, commercial banks in the country were mandated to extend credit to agriculture at a regulated rate of 9 percent per annum.

Theoretical Frameworks

Credit is an important aspect of financial intermediation that provides funds to those economic entities that can put them into the most productive use. Theoretical studies have established that relationship exists between financial intermediation, agricultural production and economic growth. For instance McKinnon (1973) and Shaw (1973) in their studies strongly emphasized the role of financial intermediation in economic growth. In the same vein, Greenwood and Jovanovich (1990) observed that financial development can lead to rapid growth. Becivenga and Smith (1991) explained that development of banks and efficient financial intermediation contributes to growth by channeling savings to increase high agricultural production and reduction of liquidity risks. They therefore conclude that financial intermediation leads to growth. Based on this assertion, this study seeks to examine the extent to which finance intermediation to agricultural sector of the economy has influenced the sector and economic growth in Nigeria.

Anyanwokoro (1999), states that "Financial System, means various financial institution working together to provide the financial services required in an economy". He further stated that the Nigerian financial system comprises the banking system, the non-bank financial institutions, the regulatory authorities, and other financial market participants that play the role of financial intermediation in the Nigerian economy. The

financial system can further be described as a family of rules and regulations within different categories of financial arrangements, institutions, agents and mechanism whereby they relate to each other within the financial sector and the rest of the world (Nwankwo, 2012).

Solow's theory of economic growth also provides a useful framework for analyzing growth drivers. According to Spence (2009), Solow's theory relates to explanation of the sources (determinants) of growth in the supply (production) side of an economy. It starts with the idea of production functions, namely, that the quantity of the output (Q) in any sector is as a function of the amounts and qualities of inputs or factors of production. These typically are land and natural resources (R), labor (L) and physical capital, such as buildings and machines (K):

$Q = f(R,L,K)$

Any residual is attributed to "technological change", that is shift in the production function due to factor outputs.

Economic theory of bank credit pounded in 1920 by Albert Hahn attempts to make clear the role of credit in the modern economy of his contemporaries. According to Hahn the activities of banks consist in functioning as guarantors, i.e to procure trust for debtors. Money and credit markets therefore are nothing else than market on which credit in the literal sense of trust is traded. Following not only Macleod but also Wicksell and SchumpetermHahn denies the traditional idea of the role of the banks to function only as the mediator of credit between savers and investors. Different to Macleod, in whose writings money creation capacity of the private banking sector takes the key role. It is a basic view of this work that the passive business banks are not the presupposition but only the result to credit creation. For Hahn an expansion of credit means nothing else than an increase of demand for goods leading to an expansion of production since, as Hahn implicitly assumes to be the case, unemployed resources are available. Hahn emphasizes as later Keynes, the deflationary consequence of voluntary savings and the positive effect of an expansionary credit policy for innovations and employment. According to Hahn credit constitutes the condition since qua non (indispensible condition) of the production of commodities and all capitals formation in the modern economy.

Empirical Review or Evidence

Ahangar *et al.* (2013) examined mobilization of domestic financial resources for agricultural productivity in India and observed that the institutional credit has been conceived to play an important role in the agricultural development of India. The study reveals that the highest increase in loans issued was in the case scheduled commercial banks while the lowest was in the case of co-operatives on the other hand total number of account holders in schedule commercial banks has increased from 5,841 rupees to 30,538 rupees, whereas the amount of finance increased from 14,516 rupee to 271,670 rupee in the referred period. The total direct and indirect advances to agriculture outstanding by scheduled commercial banks have shown gradual increase from 59,310 rupee to 583,343 rupee during the reference period.

Obilor (2013) evaluated the impact of commercial banks credit to agricultural sector under the agricultural credit guarantee scheme fund in Nigeria. The study revealed that until the mid-seventies, agriculture was the primary foreign exchange earner for Nigeria. Now it has lost its prime position to mineral sector. Of these he argued that certain factors,

such as inadequate capitals is considered as the single most important factor affecting the performance of the sector. It therefore empirically examined the impact of agricultural credit guarantee scheme fund, agricultural product prices, government fund allocation and commercial banks credit to agricultural sector on agricultural productivity. The result revealed that Agriculture credit guarantee scheme fund and government fund allocation to agriculture produced a significant positive effect. The study recommends that farmers should be encouraged to be applying for loans from the participating banks to enhance their agricultural activities and productivity.

`Awe (2013) examines the mobilization of domestic financial resources for agricultural productivity in Nigeria with a view of identifying the contributions of the various sources of finance to agricultural productivity in Nigeria.

To achieve this objective, the paper employed Vector Autoregressive Model (VAR) to analyze time series data from (1980-2009). The study identified the various instrument and strategies used by the government for mobilizing resources for the agricultural sector in Nigeria including subsidy and agricultural credit policies that were financed through Nigerian Agricultural Cooperative Bank (NACB) check correct name and abbreviation, credit facilities form Nigerian bank for commerce and industries at the state level, . The OLS (VAR) result revealed positive relationships between the agricultural financing and agricultural productivity and the variance decomposition measure the proportion of forecast error. Most governments have constantly emphasized that agricultural credit is highly important and necessary. All past Federal Governments have come up with their own version of support services. In this regard, the Government of Nigeria had introduced schemes, programmes and institutions aimed at boosting agricultural production among the rural dwellers for economic development. These measures could not achieve the intended objectives because, agriculture being labour and capital intensive venture requires adequate financing. The study is challenged with the problem of ascertaining agricultural financing in Nigeria and its implication on the agricultural productivity.

MATERIALS AND METHODS

Source of Data

To achieve the stated objectives of the study, secondary data were collected in form of annual time series data from Central Bank of Nigeria (CBN) Statistical Bulletins for period 1986 to 2012.

Model Specification

This study adopted model from Eyo (2008) which found that sustained growth agricultural output is possible through capital accumulation. The output of the agricultural sector is envisaged to be affected by certain variables in an agricultural production model. The study focused on the extent to which agricultural finances have affects both aggregate output of the agriculture sector in Nigeria. Thus the model for this study is specified below:

Definitional form as;

AGOUT = f (AGRMIN, GFCF, VLG, GASG) - - - (1)

Statistically as:

$AGOUT = \beta_0 + \beta_1 AGRMIM + b_2 GFCF + b_3 VLG + b_4 GSAG + U_i$ - - (2)

Where;
AGOUT = Agricultural output (valued in monetary terms NGN),
AGRMIM = Agricultural raw materials imports (NGN)
GFCF = Gross fixed capital formation (NGN),
VLG = Total value of loan granted to agricultural sector by (BOA) (NGN)
GSAG = Governmental spending on agriculture (NGN)
b = Constant intercept,
$\beta_1 - \beta_4$ = slope of coefficients of the explanatory variables that are captured in the model and
U_i = stochastic disturbance term.

Thus, Granger causality test was employed to determine the causal relationship between variables under study. There are three possible outcomes regarding causal relationships: unidirectional, bidirectionaland finally, lack of any causal relationship between variables. It is thus stated as:

$y_t = a_0 + a_1 y_{t-1} + \ldots + a_1 y_{t-1,} + \ldots + b_i x_{t-1} + e_i$ ……………………………………… (3)

$x_i = a_0 + a_1 x_{t-1} + \ldots + a1xt_{-1,} + \ldots + b_i y_{t-1} + u_i$ ……………………………………… (4)

For all possible pairs of series in the group

The ECM incorporates both the short run and long run effects. The purpose of the ECM is to indicate the speed of adjustment from the short-run equilibrium to the long-run equilibrium state. The greater the coefficient of the parameter, the higher the speed of adjustment of the model from the short-run to the long-run state.

Therefore, equation (2) was represented to include ECM to reflect the short-run dynamics.

Apriority Expectation

β_0 is a constant factor and represent the level of agricultural output holding constant all the explanatory variables in the model. This is expected to be positive. $\beta_1$to β_4 are expected to be positive in the model.

RESULTS AND DISCUSSION

Result of Unit Root Tests

The result of the augmented Dickey-Fuller test for all the time series variables used in the estimation are presented in Table 1. The test result indicates that all the variables (AGOUT, AGRMIM, GFCF, VLG, and GSAG) were integrated of order one *I(1)* (no unit root). This is because the ADF statistics of agricultural Raw material Imports, Gross Fixed Capital Formation, Value of loan granted (by Bank of Agriculture) and government

spending on agriculture are: -5720293, -5.814573, -5.445060, and -4.675414 respectively, which are greater than their respective critical values at 5% critical level.

Table 1: Result of unit root test (ADF)

Variables	First Difference	Critical values			Prob.	Order of integration
AGOUT	-5.720293	-3.724070	-3.724070	-3.724070	0.0001	*I(1)*
AGRMIM	-5.814573	-3.724070	-3.724070	-3.724070	0.0001	*I(1)*
GFCF	-5.445060	- 3.724070	-3.724070	-3.724070	0.0002	*I(1)*
VLG	-4.675414	-3.724070	-3.724070	-3.724070	0.0012	*I(1)*
GSAG	-3.834214	3.724070	3.724070	3.724070	0.0078	*I(1)*

Source: computed from the unit root Test (ADF)
Note: these critical values are computed from mackinnon (1996).
If Z(t)≤ ADF (t-statistic), it implies that unit root does not exist.

Causality Test Result

The results of pair wise granger causality revealed that the agricultural output granger caused agricultural raw materials imports and total value loan granted to agricultural sector at 1% critical level while there is a feedback mechanism between government spending on agricultural sector and agricultural output at 5% critical level. The results also revealed that there is bi-directional relationship between gross fixed capital formation and agricultural raw materials imports at 5% critical level while agricultural raw materials imports granger cause government spending on agricultural sector at 1% critical level. Total value of loan granted to agricultural sector granger cause agricultural raw material imports and government spending on agricultural sector at 5% critical level while gross fixed capital formation granger cause total value of loan granted to agricultural sector at 1% critical level.

Table 2: Results of the pair wise Granger Causality Test (Sample: 1986- 2012)

Pair-wise Hypothesis	No of Observations	F-Statistics	P-Value	Decision	Type of Causality
AGRMIM ↗ AGOUT	25	0.83554	0.4482	Do not reject	No causality
AGOUT ↗ AGRMIM	25	10.1507	0.0009	Reject	Unidirectional
GFCF ↗ AGOUT	25	3.29481	0.0580	Do not reject	No causality
GSAG ↗ AGOUT	25	3.47802	0.6269	Do not reject	No causality
AGOUT ↗ GSAG	25	5.60857	0.0117	Reject	Bi-directional
VLG ↗ AGOUT	25	3.78249	0.0404	Reject	Bi-directional

AGOUT ↗ VLG	25	0.38685	0.0842	Do not reject	No causality
GFCF ↗ AGRMIM	25	7.90219	0.0030	Reject	Bi-directional
AGRMIM ↗ GFCF	25	6.19117	0.0081	Reject	Bi-directional
GSAG ↗ AGRMIM	25	5.18269	0.0154	Reject	Bi-directional
AGRMIM ↗ GSAG	25	0.01416	0.01416	Reject	Bi-directional
VLG ↗ AGRMIM	25	14.7696	0.9860	Do not reject	No causality
AGRMIM ↗ VLG	25	6.39621	0.0001	Reject	Unidirectional
GSAG ↗ GFCF	25	1.48527	0.0071	Reject	Unidirectional
GFCF ↗ GSAG	25	1.67306	0.2504	Do not reject	No causality
VLG ↗ GFCF	2525	12.5923	0.2129	Do not reject	No causality
GFCF ↗ VLG	25	2.27536	0.0003	Reject	Unidirectional
VLG ↗ GSAG	25	17.4487	0.1287	Do not reject	No causality
GSAG ↗ VLG	25	7.68625	4.E-05	Reject	Unidirectional

↗ = Does not Granger-cause $\alpha = 0.05$

Source: E-Output, 2015

Johansen Hypothesized Co-integration Result

The Johansen hypothesized Co-integrationwas carried out to determine the number of stationary long-run relationships among the variables included in the study. It offers two tests, with a view to identify the number of co-integrating relationships. Table 3 revealed that there is co-integration among the variables. This is because traces statistic of 118.5037 is greater than the critical value of 69.81889 at 5 % level significance. We reject the null hypothesis of none of the hypothesized number of co-integrating equations. Accordingly, traces statistics test indicates 1 co-integrating equations (at most), we do not reject the null hypothesized as their traces statistics values are less than critical values at 5 percent level of significance.

The Max-Eigen statistics of 44.17811 is greater than the critical value of 33.87687 of one hypothesized number of co-integration at 5% level significance. The null hypothesis of none hypothesized number of co-integrating equation was rejected meaning that at least there is 1 co-integrating equation reported in the Max-Eigen test. Accordingly, the Max-Eigen test indicates 1 co-integrating equation at 5 percent level of significance. Thus, the numbers of hypothesized co-integrating equation (at most 1, 2, 3 and 4) were not rejected

since their Max-Eigen statistics values are less than critical values at 5 percent level significance. This implies that there is a long-run relationship between agricultural financing and agricultural output in Nigeria.

Table 3: Result of unrestricted co-integration rate test (trace)

Null hypothesis	n-r	Hypothesized no of CEs	Eigen value	Trace statistic	Critical value	Prob
R = 0	4	None *	0.829176	118.5037	69.81889	0.0000
R≤ 1	3	At most 1	0.760189	44.32556	47.85613	0.0647
R≤ 2	2	At most 2	0.680501	28.62800	29.79707	0.0537
R ≤ 3	1	At most 3	0.248638	2.956290	3.841466	0.0855
R ≤ 4	0	At most 4	0.111528	2.956290	3.841466	0.0855

Trace test indicates 1 Co-integrating equation (s) at the 0.05 level denotes rejection of the hypothesis at the 0.05 level.Mackinnon-Haug-Michelis (1999) p-values

The Impact of Agricultural Financing and Agricultural Output in Nigeria

In order to determine the nature of the log relationship by using the normalized Johansen Co-integrating Equation this is based on the lowest log like- hood stated as:

$$AGOUT = \underset{(150.9506)}{265.9345}AGRMIM - \underset{(0.73053)}{2.80888}GFCF + \underset{(5.97385)}{21.34181}VLG + \underset{(4.34831)}{24.62344}GSAG$$

SE in parenthesis

The positive co-efficient of AGRMIM concur with the theoretical framework. The coefficient of the Agricultural Raw materials imports is not statistically significant at 5% level. Although it implies that, a unit in AGRMIM will lead to 265.9345 increases in agricultural output (AGOUT). Thus, there is no strong positive and significant relationship between agricultural raw materials imports and agricultural output.

More so, the coefficient of GFCF is not correctly signed (positive). However, the coefficient of the gross fixed Capital Formation is statically significant at 5% level.

Thus, it implies that, a unit change (increase) in GFCF will lead to 2.80888 decreases in agricultural output. This finding contradicts the theoretical underpinnings of the relationship. This may not be connected with the lack of investing these funds properly in productive investments.

Furthermore, the coefficient of total value of loan granted is positive which corresponds with the prior expectation of positivity and statically significant. This implies that, a unit change (increase) in the value of loan granted will lead to 21.34181 percentchange (increase) in agricultural output. There is a statistical significance of the value of loan granted on agricultural output in Nigeria.

Empirical Results of the Dynamic Model (ECM)

Since long-run equilibrium relationship among the variables in the regression model exists it is the short-run that transmit to the long-run. Thus, error correction mechanism ECM is therefore used to correct or eliminate the discrepancy that occurs in the short-run. The coefficient of error-correction model measures the short-run relationship. Thus, the

first order specification of the model VAR is selected with a constant and a time trend. The results are summarized in Table 4.

The short-run estimates in Table 4 shows that, AGOUT in the current period (t) is influenced by 279.843 holding all other variables constant. The coefficient of $AGOUT_{t-1}$ (i.e in the previous year) is correctly signed, being positive. The coefficient agricultural output in the previous year is statistically significant at 5% level. This implies that a unit increase in AGOUT in the previous year will lead to 0.597658 increases in the current AGOUT (i.e$AGOUT_t$). However, the coefficient of $AGRMIM_{t-1}$, $GFCF_{t-1}$, VLG_{t-1} and $GSAG_{t-1}$ are not correctly signed being negative. Besides the coefficient of error correction terms is not significant but with the expected sign and low magnitude (-0.0421754). Its law magnitude indicates that if there is any deviation the long-run equilibrium is adjusted slowly where about 4.18% of the disequilibrium maybe removed each period (i.e each year). This shows that, the speed of adjustment to where the agricultural financing will equilibrate the agricultural output of Nigeria even when there is initial disequilibrium is at the rate of 4.18%

It is obvious from the coefficient of multiple determinations (R^2) that the model has good fits as the independent variables were found to jointly explain 93.28% of the movement in the dependent variable with the R^2-adjusted of 87.17%. The fitness of the model is further shown by the F-statistic which is significant at 5% critical level which explains the overall significance of all the variables incorporated in the model. Although the coefficient of the short run dynamics show that, agricultural financing isnot statistically significant at 5% critical level indicating that, agricultural financing does not significantly affect the agricultural output of the economy in the short-run.

Table 4: Vector Error-Correction Estimates

Variable	Coefficient	Standard errors (t-statistic)
$AGOUT_{t-1}$	0.597658	(0.29052)*
$AGRMIM_{t-1}$	-467.082	(874.526)
$GFCF_{t-1}$	-0.24793	(0.37804)
VLG_{t-1}	-6.558502	(5.82936)
$GSAG_{t-1}$	-1.09993	(4.70739)***
ECM	-0.04175	(0.04085)
C	279.843	(235.832)

*,(***) denotes 5% (10) Significance level
R= 0.932834 R^2 = 0.871264 F-statistic = 15.15096
Akaike information criterion = 96.24032
Schwarz criterion =99.43088

Discussion of the Major Findings

The ADF result showed that all the variables were integrated at order one i.e*I(1)* at 5% critical value. Since there are differing ideas about conditions of stationary for the use of Johansen co-integration test, both trace and Max-Eigen value were conducted to correct the spuriousness of results or the erroneous effect of misapplication of appropriate test statistic.

Granger causality test revealed that there is two-way causation between government spending on agricultural sector and agricultural output in Nigeria while the total value of loan granted to agricultural sector affects agricultural output. More so, agricultural raw materials imports granger cause government spending on agricultural sector while the total value loan granted to agricultural sector granger cause agricultural raw materials imports.

The Johansen co-integration test revealed that agricultural financing is statistically significant in the long-run. This is in line with Ijaiya, and Ijaiya, M.A. (2004) revealed that initial level of government expenditure on agriculture has helped improve agricultural outputs more than the changes experienced in recent time and also Nwankwo (2012) who revealed the relationship between agricultural financing and the growth of Nigerian economy. Adekanye (2005) also reported that in making credit available, banks are rendering as great social services, because through their actions production is increased, capital investment, arte expanded and higher standard of living is realized. This implies that agricultural financing significantly affects agricultural output in the Nigerian economy positively in the long-run.

Although, the government spending on agriculture was statistically insignificant during the time under study in the short run, this might be as a result of the misappropriation of funds directed by the Nigerian government.More so, total value of loan granted was statistically significant in the long-run at influencing agricultural output but not in the short run. This also might be as a result of lack of access to these finances directed to the agricultural sector by individual farmers and co-operate producers. This finding indicates that, funds granted on the basis of loans impact more significantly in influencing positively on the agricultural output in Nigeria however, the government expenditure does not have any significant impact which may not be unconnected with the corrupt nature of our leaders. The findings is not farfetched from the wide gap of the Nigerians that are financially excluded and this can be achieved by financial capability on the part of consumer, and access on the part of financial product, services and advice suppliers as posits by (Transact, 2011).

CONCLUSION

It could be concluded that, Nigerian government expenditure on agriculture impact more significantly than the loans granted to farmers on agricultural production although both were found to be statistically significant. This may be as results of outreach of the funds by the rural farmers since a greater percentage of farmers were financially excluded from accessing the available funds set aside for agricultural loans granting. The study therefore concludes that agricultural financing contributes to agricultural production in Nigeria.

Drafting of financial policies that are targeted at some agricultural output – aimed at improved raw material for industry, reduction in of import, earning of foreign exchange, where the country have comparative advantage.

Supporting facilitation of the transfer of credit from formal institutions through MFIs to small scale farmers could help improve access and repayment rates. Developing awareness of agricultural insurance among small-scale farmers and strengthening the ability of agricultural insurance institutions to carry out their mandates will lower the risk faced by financial institutions is lending to small-scale farmers.

Despite the little assessment of the financial inclusion and exclusion, there is need for further research into determinants of access to or exclusions from financial service in

Nigeria, as well as the efficiency of policy instruments such as BOA and other financial institution in improving farmers' access to credit.

The transaction cost of financial institutions partaking in financing programmes should be reduced by the operators to encourage more borrowers; cooperatives and community based self-help organizations should be included in the credit delivery channel.

Simplification of operational procedure in credit administration to reduce cost and bureaucracy as well as modification of the terms of financing under most policy initiatives, such as interest rates, eligibility, legal rights, etc, to enhance the access.

REFERENCES

Adekanye, F. (2005). Agricultural development: a case study of small-scale food production in Ondo State, Nigeria. *Samaru Journal of Agricultural Education,* 3(1 and 2): 29-35.

Ahangar, G.B., Ganie A.H and M. J. Padder (2013). A study on institutional credit to agriculture sector in India. *International Journal of Current Research and Academic Review*, 1(4): 72-80.

Anyanwaokoro, M. (1999). *Theory and Policy of Money and Banking*, Enugu Hosanna Publications.

Awe, A.A. (2013). Mobilization of domestic financial resources for agricultural productivity in Nigeria. *Australian Journal of Business and Management Research,* 2 (12): 321-340.

Becivenga, V.R. and Smith, B.D. (1991). Financial intermediation and endogenous growth. *Review of Economic Studies*, 58(4): 195-209.

Central Bank of Nigeria (CBN) (2010). "Developments in *the External Sector; External Sector Committee Reports, Quarter 3", Issue 1 No. 3, P. 6.*

Central Bank of Nigeria. (2007). Annual Report and Statement of Accounts December 2007, Abuja- Nigeria.

Central Bank of Nigerian (CBN) (2005): Statistic Bulletin. Vol. 16, December.

Eyo, O. Emmanuel (2008). Macroeconomic environment and agricultural sector growth in Nigeria. *World Journal of Agricultural Sciences,* 4(6): 781-786.

Eze, C.C. (2010). Agricultural Finance policies and Rural Development in Nigeria. Paper delivered at the 84th Annual Conference of the Agricultural Economics society Edinburgh 29-31st, March.

FMARD (2012). Agriculture in Nigeria.The New Policy Thrust. Federal Ministry of Agriculture and Rural Development, Abuja, 2012.

Greenwood J and B. Jovanvic (1990). Financial development, growth, and the distribution of income. *Journal of Political Economic*, 98(5): 1076-1107.

Ihenacho, R.A., Chikaire, J., Ejiogu-Okereke, N. Oguegbuchulam, M.N., Osuagwu, C.O. and Obi, K.U. (2012). Empowerment strategies of cooperative societies for poverty reduction among members in Aboh-Mbaise area of Imo State, Nigeria. *Global Advanced Research Journal of Agricultural Science,* 1(8): 233-239.

Ijaiya, G.T. and Ijaiya, M.A. (2004). Foreign Aid and Poverty Reduction In Sub-saharan Africa: A Cross–Country Investigation. *South African Journal of Economic and Management Sciences,* 7(3):596-613.

Manyong, V.M., Ikpi A., Olayemmi, J.K., Yusuf. S.A., Omonona, R. and Idachaba, F. S. (2003). Agriculture in Nigeria: Identifying Opportunities for Increased

Commercialization and Investment. International Institute for Tropical Agriculture USAID-NIGERIA.

Mckinnon, R. (1973). Money and Capital in Economic Development. Washington, D.C.Brookings Institution

Nnanna, O. J. (2004). Financial sector development and economic growth in Nigeria: An empirical investigation. *Economic and Financial Review*, 42(3):1-17.

Nwankwo, O. (2012). Agricultural financing in Nigeria: An empirical study of Nigerian agricultural and rural development bank (NACRDB): 1990-2010. *Journal of Management Research*, 5(2): 28-44.

Obilor, S.I (2013). The impact of commercial banks' credit to agriculture on agricultural development in Nigeria: an econometric analysis, *International Journal of Business, Humanities and Technology*, 3(1): 85–95.

Odi, N. (2013). Agricultural Financing in Nigeria: An empirical study of Nigerian Agricultural Co-operative and Rural Development Bank (NACRDB)1990-2010, *Journal of Management Research*, 5(2): 28-44.

Olomola, A.S. (1997). Agricultural finance. *In*: A.O. Philips and S. TunjiTitilola (Eds.) NISER, Ibadan, 51-62.

Rhaji, M. A. (2008). An analysis of the determinants of agricultural credit approval/loan size by commercial banks in south-western Nigeria. *Nigeria Agricultural Development Studies*, 1(1): 17-26.

Shaw, E. (1973). *Financial Deepening in Economic Development.* London: Oxford University Press. Publishers, 1345-1348

Spence, R. (2009). Economic growth *In:* Deneulin, S. and Shahani, l. (Eds.) *An Introduction to the Human Development and Capability Approach*, Earth scan/IDRC.

Transact (2011). In brief Financial Exclusion, the National Forum for Financial Inclusion, Resolution Foundation.

Ugwu D.S. (2007). Agricultural extension practice in Nigeria. Readings in agricultural economics and extension. *In*: C.J.C. Akubuilo, Umebali E.E, Mgbada, J.U., Ugwu, D.S, Egwu WE, Awoke MU. (2011). Adoption of improved agroforestry technologies among contact farmers in Imo State, Nigeria. *Asian Economic and Social Society*, 2(1): 2012: 1-9

World Bank (2009). Human Development Report. The world Bank, Washington, D .C.