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Impact of Exchange Rate on Commercial Banks' Credit to Agricultural Sector in Nigeria

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ABSTRACT:- This study was carried out to evaluate the impact of exchange rate on commercial banks' credit to agricultural sector in Nigeria 1981 and 2018. Data employed for this study was elicited from Central Bank of Nigeria Statistical Bulletin of 2018 and World Bank Development Indicators of 2018. This study utilized commercial banks' credit to agricultural sector in Nigeria as independent variable (regressand), while exchange rate, lending rate and inflation rate were employed as regressors. This study employed Auto-Regressive Distributed Lag (ARDL) Model to analyze data. Inferential results pointed out that exchange rate had negative and insignificant impact on commercial banks' credit to agricultural sector in Nigeria within the period under review. The study recommended that monetary authorities in Nigeria (Central Bank of Nigeria) should regulate and peg exchange rate at a level that would promote and enhance economic stability; this will also encourage commercial banks to lend to agricultural sector in Nigeria with a moderate interest rate; Farmers will be more than oblige to take loans since the interest rate is low.

Keywords:- exchange rate, credit to agric sector in Nigeria, inflation rate, lending rate and ARDL Model.

I. INTRODUCTION

1.1 Background to the study

Commercial banks lending to agricultural sector in Nigeria may be hindered and hampered by exchange rate amongst other factors such as interest rate (lending rate), inflation rate and monetary policy rate (MPR). It is imperative to ascertain the impact of exchange rate on commercial bank lending to agricultural sector of the Nigerian economy in order to proffer policy recommendations that would enhance increased credit to agricultural sector of the Nigerian economy.

Exchange rate is the price of one country's currency expressed in terms of some other currency. It determines the relative prices of domestic and foreign goods, as well as the strength of external sector participation in the international trade. Exchange rate regime and interest rate remain important issues of discourse in international finance as well as in developing nations, with more economies embracing trade liberalization as a requisite for economic growth (Olokoyo 2011). The impact of foreign exchange rate fluctuations is generally deep on firms and there should be good methods of hedging against it. Hence, commercial banks need to do careful analysis of these effects on its lending operations before making a decision on how to deal with it.

The role of agriculture in human development cannot be overemphasized. This includes provision of the basic food requirements of human populations; it is the predominant occupation of the working population, especially in agrarian nations; an important way of life, culture and custom of the people (Olagunju and Ajiboye, 2010). Agriculture is the economic mainstay of the majority of households in Nigeria and is a significant sector in Nigeria's economy (Ayeomoni and Aladejana, 2016).

The important benefits of the agricultural sector to Nigeria's economy include: the provision of food, contribution to the gross domestic product (GDP), provision of employment, the provision of raw materials for agro-allied industries, and generation of foreign earnings labour (until the early 1970s; agricultural exports were the main source of foreign exchange earnings) (Ogbonna and Osondu, 2015). Commercial banks have traditionally played an important role in financing agriculture.

Commercial banks are interested in giving out loans and advances to their numerous customers bearing in mind the three principles guiding their operations which are profitability, liquidity and solvency. However,

commercial banks decision to lend out loans are influenced by a lot of factors such as the prevailing interest rate, exchange rate, volume of deposits, the level of their domestic and foreign investment, banks liquidity ratio, Central Bank directives, prestige and public recognition to mention a few (Olokoyo, 2011).

One of the reasons for the fall in agricultural sector to GDP is lack of access to commercial banks credit to enable them to take advantage of economic opportunities to increase their level of output, hence move out of poverty. Credit constraint has plagued poor farmers and rural dwellers for many years and was thought to be a critical part of a package of inputs needed to boost agricultural production. Majority of farmers lack access to formal credit and this has continued to be a constraint limiting farmers' ability to adopt agricultural technologies and increase productivity.

1.2 Statement of Problem

There have been several studies revolving about credit to agricultural sector and agricultural output in Nigeria, but very few studies have been conducted on exchange rate and its impact on commercial bank's lending to agricultural sector in Nigeria. Exchange rate plays a vital role in commercial bank's lending since commercial banks also engage in international transactions that warrant the use of foreign exchange.

In spite of the importance of credit in agricultural production, its acquisition and repayment are fraught with a number of problems. Institutional problems such as high exchange rate and the lending conditions which limit access of investors to credit facilities have not been adequately addressed. A large number of socioeconomic factors all play a role influencing farmers' ability to secure optimum credit. Such factors include risk of loan default, age of the farmers, location, and high interest rate charged by financial providers' (Ajibade, 2011). It is from the foregoing that this study attempts to examine the impact of exchange rate on commercial bank's loan to agricultural sector in Nigeria.

1.3 Purpose of the study

The purpose of this study is to investigate the impact of exchange rate on commercial bank's lending to agricultural sector of the Nigerian economy form 1980 -2018. The specific objectives of this study are:

1. To ascertain the impact of exchange rate on credit to agricultural sector in Nigeria
2. To investigate the impact of lending rate on credit to agricultural sector in Nigeria
3. To evaluate the impact of inflation rate on credit to agricultural sector in Nigeria

1.4 Research hypotheses

$H0_1$: Exchange rate has no significant impact on credit to agricultural sector in Nigeria
$H0_2$: There is no significant impact of lending rate on credit to agricultural sector in Nigeria
HO_3: Inflation rate has no significant impact on credit to agricultural sector in Nigeria

II. LITERATURE REVIEW

2.1 Conceptual review

2.1.1 Concept of agriculture

Agriculture has been defined as the practice or science of farming including cultivation of the soil for the growing of crops, the rearing of animals to provide food and the preparation and marketing of agricultural and agro allied products. Agriculture can also be defined as the cultivation of land and breeding of animals and plants to provide food, fibre, medicinal plants and other products to sustain and enhance life (International Labour Organization 1999).

According to jerzy (2013), agriculture is the form of activity which joins land labour or soil, live animals, plant, solar power and so on; the minister of agriculture is the minister of the beginning of life. So people who are involved in that kind of activities are involved in something special. The Federal Government of Nigeria and the Minister of Agriculture have taken a huge step towards treating agriculture as serious, political and economic investment issue in Nigeria due to its preeminent roe in economic development.

Majority of people in Nigeria live and work in rural areas. About 75% are rurally based compared to less than 25% in the urban areas. Similarly, over 58% of the labour force engage in agriculture. In Nigeria, the agricultural sector contributes about 55% of employment and almost 40% of the share of gross domestic product (GDP), before the discovery of oil, this figure is as high as between 75 to 80% of the GDP. Nevertheless, when compared to the averages of 27% for low income nations in sub-sahara Africa, this current figure for the GDP share of agricultural sector is quite high (World Development Indicators 2010).

2.1.2 Role of agriculture in an economy

Agriculture as a sector constitutes the major contributor in the growth of an economy. Notwithstanding that the sector was abandoned after the discovery of oil in Nigeria, its role in the economy cannot be overemphasized. Some of its vital roles are but not limited to the following:

1. **Provision of food:** Agricultural sector makes available food for consumption and sell to the Nigerian economy. It is the basic source of food for man. This goes along way to providing food for the teeming population of Nigeria.
2. **Employment opportunities:** The agricultural sector by history is the largest employer of labour. It crates employment opportunities. It crates employment to the large section of the populace.
3. **Increasing rural and overall national income:** The agricultural sector through its output when sold provides income to farmers. When output increases, the income of the farmers increases thereby leading to an increase in the standard of living of the people
4. S**ource of raw materials for industries:** The industrial sector depends wholly on the agric sector for its raw materials for production because virtually added for production come from the agric sector.
5. Agriculture sector increases demand for industrial product and thus, necessitating the expansion and development of the secondary and tertiary sector.

2.2 Theoretical review

Loan pricing hypothesis

This theory is of the opinion that banks are always moved to demand high lending rates in order to make more profit. Banks should always have at the back of their mind of loan payment default problem of moral harzard in trying to earn maximum interest income since it's difficult to predict the sincerity of purpose and commitment of the prospective borrower at the start of any banking relationship. Pegging lending rate too high may bring about adverse selection problems because high risk borrowers may develop moral hazard behaviour since they are likely to take on highly risky projects or investments because of their bullish nature of investment (Olokoyo 2011).

Multiple lending hypothesis

This hypothesis is of the opinion that banks should be more concerned with provision of syndicated loan facilities 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 et al. 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.

Boserupian theory of agricultural development

As mentioned by Ekeh (2014), this theory was established by Ester Boserup, a Danish Economist. The Boserupian theory states that the increase in the growth and development of Agriculture is determined by the size of the population (labour Force) involved in agricultural practice. This opposes Malthusian theory which stipulates that the size and growth of the population depends on the food supply and agricultural methods; in times when food is not sufficient for everyone, the excess population will die.

Boserup argued that in those times of pressure, people will find ways to increase the production of food by increasing workforce, machinery, fertilizers.

2.3 Empirical review

Filli, Onu, Adebayo and Tizhe, (2015) analyzed factors influencing credits access among small scale fish farmers in Adamawa State, Nigeria. Primary data on access to credits in the study area were collected from 150 respondents who were sampled using purposive and snowball technique from the study area. The result revealed that the coefficients of linear probability model indicate a high R2 value (0.89) and F-Value was significant at 1% (103.285). Interest rate, farm insurance, payments period, age and subsidy were the positive and significant coefficients, while those of collateral on loan, installment of payment and formalities were negative and significant. The results also indicated that the major problems hindering access to credit were amount acquired, formalities involved and lack of collateral.

Ololade and Olagunju (2013) investigated the impact of macroeconomic policies on agricultural output specifically on crop production in Nigeria using the multivariate Vector Error Correction approach for the series spanning 1978-2011. The study discovered a cointegrating relationship among agricultural output, government expenditure, agricultural credit, inflation, interest and exchange rate, Agricultural output was found responsive

to the explanatory variables (government expenditure, agricultural credit, inflation, interest and exchange rate). One standard deviation innovation on government expenditure and interest rate reduces agricultural output thus threatening food security in both short and long- term period according to the impulse response functions and variance decomposition indicating a significant variations in exchange rate and government expenditure.

Aduralere (2019) investigated the impact of commercial bank credits on agricultural output in Nigeria over the period 1980 to 2015 by setting three specific objectives which are to examine the trend of commercial bank credit and agricultural output in Nigeria; to investigate the effect of commercial bank credit on agricultural output in Nigeria and to investigate the effect of commercial bank credit on subsector of agriculture in Nigeria. The trend analysis and the impact of commercial bank credit on subsector of agriculture in Nigeria make this work unique and different from other studies in this area. Trend analysis was used to achieve the first objective and fully modified ordinary least square (OLS) for objective two and three.

Athanasius (2017) investigated the relationship between Banks‟ Credit and Agricultural Sector Performance in Nigeria from 1980 to 2014. From the empirical analysis made using the Ordinary Least Square (OLS), Error Correction Modeling (ECM) and other properties substantiated to know the impact (significance) of Banks‟ Credit as well as Interest Rate, Foreign Exchange Rate, Government Expenditure on Agriculture & Money Supply on Agricultural output in Nigeria: all the variables were stationary at first difference, there also exists both long run and short run equilibra relationship between the dependent and the independent variables. The study found out that apart from Interest rate that has a negative but significant relationship, Banks‟ Credit to Agriculture (BCRA), Foreign Exchange Rate (FREX), Government Expenditure on Agriculture (GEXA) and Money Supply (MSPL) have a positive and significant relationship with Agricultural Gross Domestic Product (AGDP). We recommended that government should enact viable policies to enhance its capacity in making more loans and advances available to genuine farmers from commercial banks with less hurdles and unbearable red tapes, encourage the export of agricultural produce to the rest of the world through excise duty waiver and also a staunch and consistent agricultural extension services to both the commercial and rural farmers.

Ayodele (2019) empirically assessed the impact of agricultural finance on the growth of Nigerian economy. This paper employed secondary data and econometric techniques of Ordinary Least Square (OLS) of multiple regression estimates. The result of the model used suggests that the productivity of investment will be more appropriately financed with resources administered by the commercial and specialized financial institutions. And also, that there are an urgent and sincere needs to expand the credit size to the agricultural sector in order to enhance the productivity growth of the sector. It is recommended that maintenance of credible macroeconomic policies that is pro-investment in overhauling the Agricultural Sector and debt-equity swap option are necessary for an agricultural-led economic growth.

III. METHODOLOGY

3.1 Research design

This study adopts the *ex-post facto* research design as it deals with event that had taken place and secondary data were readily available for collection. Credit to agricultural sector in Nigeria was adopted as the explained (dependent) variable, while exchange rate, lending rate and inflation rate as the explanatory (independent) variables. The model was estimated using the Ordinary Least Square (OLS) method. Since we are making use of annualized time-series data and the study cover a long sample period, we made sure our data set were not impaired by unit root; hence we tested for stationarity of the series by employing the Augmented Dickey-Fuller (ADF).

3.2 Source of data collection

Data for this study are elicited from Central Bank of Nigeria Statistical Bulletin of 2018. The study period covers 1981 through 2018.

3.3 Method of data analysis

This study used descriptive statistics, unit root test, correlation and Auto Regressive Distributed Lag (ARDL) Model in testing the hypotheses of the study. E-view 9.0 econometric statistical software package was used for the analysis.

3.4 Model specification

This study utilizes a primary model formulated by the authors; the model of this research work is built or structured to establish the functional relationship between exchange rate and commercial banks' credits to agricultural sector of the Nigerian economy, 1981 - 2018. The model tested in this study is a multiple regression model, stated below:

CAS = F(EXR, LR, INF)……(1)

By modifying the functional model in equation (1) into econometric model:

$CAS=\beta_0+\beta_1EXRt+\beta 2LRt+\beta_3IFRt + \mu_t$ ……..……...…… (2)
Where β_0, β_1, β_3 are the parameters
CAS = Commercial banks' credit to agricultural sector in Nigeria
EXR = Exchange rate
LR = lending rate
IFR = inflation rate
μ_t =Stochastic disturbance

3.5 Decision rule

The decision rule is to fail to accept the null hypothesis if the computed p-value is less than 5% significant level. On the contrary, we fail to reject the null hypothesis if the computed p-value is higher than 5% significant level.

3.6 Expected results

Exchange rate is expected to be negatively signed.
Lending rate is expected to be a negatively signed.
Inflation rate is expected to be a negatively signed.

IV. DATA ANALYSIS AND INTERPRETATION OF RESULTS

4.1 Pre-estimation test result (Unit Root Test)

Table 4.1 Unit root test

Variables	Augmented Dickey-Fuller test statistic	Probability Value	Critical value at 5%	Integration order/Inference
CAS	-8.767578	0.0000	-3.540328	I(1)
EXR	-4.136949	0.0127	-3.540328	I(1)
LR	-3.540328	0.0003	-3.540328	I(1)
IFR	3.963066	0.00193	-3.540328	I(0)

Source: Author's analysis using e-view 9 output with data in appendix

The unit root test from table 4.1 above shows that the integration order of the variables were stationary at I(0) and I(1). As such, the appropriate estimation technique to employ for analysis is Auto – Regressive Distributed Lag (ARDL) Model.

4.2 Descriptive statistics

Table 4.2 Descriptive statistics

		CAS	EXR		LR	IFR
Mean		119.4381	104.4552		17.77658	19.33263
Median		37.14650	111.1675		17.57000	12.55000
Maximum		556.6700	306.1000		31.65000	72.84000
Minimum		0.590600	4.536700		8.920000	5.380000
Std. Dev.		172.9772	78.39935		4.843683	17.25014
Skewness		1.502175	0.719999		0.197464	1.743174
Kurtosis		3.763411	3.421495		3.683055	4.839820
Jarque-Bera		15.21412	3.564487		0.985675	24.60431
Probability		0.000497	0.168260		0.610891	0.000005
Sum		4538.648	3969.298		675.5100	734.6400
Sum Sq. Dev.		1107081.	227418.9		868.0669	11009.99
Observations		38	38		38	38

Source: Author's analysis using e-view 9 output with data in appendix

The descriptive statistics presented in Table4.2 shows that CAS has the highest mean value of 119.44, followed by EXR which has 104.46, while LR and IFR have 17.78 and 19.33 respectively. Note that the Mean describes the average value for each data series in the model. The Median explains the middle or centre point for each data series in the model. From the analysis, CAS has the highest Standard Deviation as it recorded 172.9772, implying that it is the most volatile variable in the model as it has the highest percentage of dispersion from the mean. Skewness measures the asymmetry or symmetry of the distribution of the series around its mean. A Skewness of zero (0) depicts a symmetrical distribution. On the other hand, a positive skew portrays an asymmetrical distribution with higher values; it has a long tail to the right. However, a negative skew illustrates an asymmetrical distribution with lower values, which has a long tail to the left. From Table 4.2,

two variables, EXR and LR with 0.72 and 0.20 respectively, are skewed a little to the left, while CAS and IFR which have 1.5 and 1.74 are skewed to the right. In conclusion, LR and EXR meet the rule of thumb of not greater than 1.0 and not less than -1.0. Thus, they have a normal distribution.

Kurtosis measures the peakedness or flatness of the distribution of a series. The kurtosis of a normal distribution is 3. If it exceeds 3, it means that the distribution is peaked or leptokurtic relative to the normal. Conversely, if it is less than 3, it shows that the distribution is flat or platykurtic relative to the normal. From Table 4.2, CAS, EXR, LR and IFR, are peaked or leptokurtic because they have 3.76, 3.42, 3.68 and 4.84 respectively.

Jarque-Bera (JB) tests whether the series is normally distributed or not. The test statistic measures the difference of the skewness and kurtosis of the series with those from a normal distribution. In JB statistic, the null hypothesis which states that the distribution is normal is rejected at 5% level of significance. From the results of the analysis presented in Table 4.2, Jarque-Bera statistic is 15.21 with a Probability of 0.000497 for CAS; 3.56 with a Probability of 0.168260 for EXR; 0.99 with a Probability of 0.610891 for LR and 24.6 with a Probability of 0.000005 for IFR. Therefore, we reject the hypothesis of a normal distribution for CAS and IFR Nevertheless, the hypothesis of a normal distribution is accepted in the case of EXR and LR.

Although these skewness and kurtosis indicate departure from normality, such point is not strong enough to discredit the goodness of the dataset for the analysis in view.

4.3 Correlation analysis

Table 4.3 Correlation matrix

	CAS		EXR	LR	IFR
CAS	1.000000				
EXR	0.826569		1.000000		
LR	-0.058933		-0.242520	1.000000	
IFR	-0.273835		-0.445803	0.367796	1.000000

Source: Author's analysis using e-view 9 output with data in appendix

From the result of correlation analysis in table 4.3 above, CAS recorded a 83% correlation with EXR, approximately -6% correlation with LR and about -27% correlation with IFR. EXR has about 24% correlation with LR and 45% correlation with IFR, while LR has about 37% correlation with IFR.

4.4 ARDL model result

Table 4.4 ARDL result

Dependent Variable: CAS
Method: ARDL
Date: 04/03/20 Time: 09:07
Sample (adjusted): 1983 2018
Included observations: 36 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
CAS(-1)	0.694305	0.168957	4.109349	0.0003
EXR	-0.032956	0.173179	-0.190299	0.8504
LR	-0.187800	1.536889	-0.122195	0.9036
IFR	-0.257223	0.431178	-0.596559	0.5553
C	19.76293	33.12519	0.596613	0.5552

R-squared	0.960908	Mean dependent var	126.0353
Adjusted R-squared	0.954393	S.D. dependent var	175.4432
S.E. of regression	37.46734	Akaike info criterion	10.23583
Sum squared resid	42114.04	Schwarz criterion	10.49975
Log likelihood	-178.2449	Hannan-Quinn criter.	10.32794
F-statistic	147.4848	Durbin-Watson stat	1.870255
Prob(F-statistic)	0.000000		

Source: Author's analysis using e-view 9 output with data in appendix

From the ARDL result in table 4.4 above, the R-squared and Adjusted R-squared were observed to be 96% and 95% respectively. The implication of this result is that the regressors in the model accounted for about

96% variations in the regressand while the remaining 4% may be attributed to variables not captured in the model. The result also revealed that all the independent variables had a negative impact on credit to agricultural sector in Nigeria, such that a unit increase in exchange rate would bring about a -0.033 unit decrease in credit to agricultural sector in Nigeria, while a unit increase in lending rate would bring about a -0.19 unit decrease in credit to agricultural sector in Nigeria and a unit increase in inflation rate would bring about a -0.26 unit decrease in credit to agricultural sector in Nigeria and vice versa.

A further look at the result revealed that Durbin-Watson stat of 1.9 suggested that the variables are free from auto correlation since it is close to the region of 2. The F-statistic of 147.5 as well as its corresponding p-value of 0.0000 suggested that the overall model was a good fit and further buttress the fact that the result elicited from this model can be said to be reliable and robust.

4.5 Test for auto correlation

Table 4.5 Correlogram Q-Statistic

Q-statistic probabilities adjusted for 2 dynamic regressors

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
.|. |	.|. |	1	0.059	0.059	0.1347	0.714
.|*. |	.|*. |	2	0.148	0.146	1.0214	0.600
.|. |	.*|. |	3	-0.063	-0.081	1.1860	0.756
.|. |	.|. |	4	-0.039	-0.055	1.2523	0.869
.|. |	.|. |	5	0.015	0.044	1.2628	0.939
**|. |	**|. |	6	-0.283	-0.287	4.9092	0.556
.|*. |	.|*. |	7	0.140	0.182	5.8383	0.559
.*|. |	.*|. |	8	-0.148	-0.104	6.9026	0.547
.|. |	.*|. |	9	-0.060	-0.145	7.0847	0.628
.*|. |	.|. |	10	-0.117	-0.053	7.7989	0.648
.|. |	.|. |	11	-0.006	0.042	7.8010	0.731
.|. |	.|. |	12	0.072	-0.025	8.0992	0.777
.|. |	.|*. |	13	0.014	0.102	8.1116	0.836
.|. |	.*|. |	14	-0.050	-0.195	8.2640	0.875
.|. |	.|. |	15	-0.037	-0.032	8.3551	0.909
.|. |	.|. |	16	-0.028	-0.014	8.4087	0.936

Source: Author's analysis using e-view 9 output with data in appendix

This test is carried out to further test for auto correlation and to consolidate on the result of Durbin Watson Stat. The result of Correlogram Q-Statistic in table 4.5 above, suggest that the variables are free from auto correlation, since the correlogram Q- Stat. table indicates that all p-values were >5% hence, the conclusion that the model was free from auto correlation.

4.6 Test for serial correlation

Table 4.6 serial correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.555439	Prob. F(2,28)	0.5800
Obs*R-squared	1.373768	Prob. Chi-Square(2)	0.5031

Source: Author's analysis using e-view 9 output with data in appendix

In line with the rule, the Breusch-Godfrey Serial Correlation LM Test table above shows that the probability values of 0.5800 and 0.5031 are statistically insignificant at 5% level of significance. Hence, the null hypothesis that there is serial correlation in the model is rejected. Thus, the model is said to be free from serial correlation.

4.7 Test for heteroskedasticity

Table 4.6 Test for heteroskedasticity

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.028659	Prob. F(5,30)	0.4187
Obs*R-squared	5.268677	Prob. Chi-Square(5)	0.3840
Scaled explained SS	8.425484	Prob. Chi-Square(5)	0.1343

Source: Author's analysis using e-view 9 output with data in appendix

The Heteroskedasticity test above suggests that the variables are free from the problem of Heteroskedasticity since the p-values of F-stat. and Obs*R-squared of 0.4187 and 0.3840 respectively are > 5% significance level. This outcome is further strengthened by the p-value of 0.1343 for the Scaled explained SS which also suggest the absence of Heteroskedasticity.

4.8 Test of hypotheses

4.8.1 Test of hypothesis one

$H0_1$: Exchange rate has no significant impact on credit to agricultural sector in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
EXR	-0.032956	0.173179	-0.190299	0.8504
C	19.76293	33.12519	0.596613	0.5552

Source: Extracted from table 4.4

Since the p-value for exchange rate (EXR) of 0.8504 (85%) is >5% level of significance, the null hypothesis that exchange rate has no significant impact on credit to agricultural sector in Nigeria is accepted.

4.8.2 Test of hypothesis two

$H0_2$: There is no significant impact of lending rate on credit to agricultural sector in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LR	-0.187800	1.536889	-0.122195	0.9036
C	19.76293	33.12519	0.596613	0.5552

Source: Extracted from table 4.4

Since the p-value for lending rate (LR) of 0.9036 (90%) is >5% level of significance, the null hypothesis that there is no significant impact of lending rate on credit to agricultural sector in Nigeria is accepted.

4.8.3 Test of hypothesis three

HO_3: Inflation rate has no significant impact on credit to agricultural sector in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
IFR	-0.257223	0.431178	-0.596559	0.5553
C	19.76293	33.12519	0.596613	0.5552

Source: Extracted from table 4.4

Since the p-value for inflation rate (IFR) of 0.5553 (55%) is >5% level of significance, the null hypothesis that inflation rate has no significant impact on credit to agricultural sector in Nigeria is accepted.

4.9 Apriori economic expectation result

The result is evaluated based on economic theories and literatures inline with what is obtainable the world over.

Table 4.9 Apriori Expectation result

Variables	Expected Signs	Actual Signs	Remark
EXR	Negative (-)	Negative (-)	Conform
LR	Negative (-)	Negative (-)	Conform
IFR	Negative (-)	Negative (-)	Conform

From the table of apriori expectation result above, all the regressors conformed to apriori expectations.

4.10 Discussion of findings

This research was undertaken to evaluate the impact of exchange rate on commercial banks' credit to agricultural sector in Nigeria between 1981 and 2018. The results of data analysis suggested the following inferences: correlation analysis revealed that all the independent variables had a negative relationship with the dependent variable; the result of correlogram Q-statistic showed that the variables were free from auto-correlation; the serial correlation result also revealed that the model was free from serial correlation; heteroskedasticity test result also revealed that the model was free from heteroskedasticity; the Ramsey stability test result suggested that the overall model was stable and as such, any result elicited can be said to be reliable and robust.

The Auto-Regressive Distributed Lag (ARDL) Model further revealed that all the independent variables had negative and insignificant impact on the dependent variables. Put differently, exchange rate, lending rate and inflation rate recorded a negative insignificant impact on commercial banks' credit to agricultural sector in Nigeria. It could be deduced that exchange rate had no significant impact on commercial banks' credit to agricultural sector in Nigeria within the period under review.

The results elicited from this analysis is in contrast with the empirical documentations of Olarinde and Abdullahi (2014), Aduralere (2019) and Ayodele (2019) who investigated the impact of credit to agricultural sector in Nigeria on agricultural output in Nigeria.

V. CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Conclusion

The main objective of this research was to evaluate the impact of exchange rate on commercial banks' credit to agricultural sector in Nigeria from 1981 to 2018. Exchange rate was employed as the dependent variable, while lending rate and inflation rate were employed as control variables. Credit to agricultural sector in Nigeria was utilized as proxy for the dependent variable. The result from the inferential analysis suggested that exchange rate had a negative and insignificant impact on commercial banks' credit to agricultural sector in Nigeria. On the strength of this result that this research concludes that exchange rate had no significant impact on commercial banks' credit to agricultural sector in Nigeria within the period under study.

5.2 Policy recommendations

1. Since exchange rate recorded a negative impact on commercial banks' credit to agricultural sector in Nigeria, it is recommended that monetary authorities in Nigeria (Central Bank of Nigeria) should regulate and peg exchange rate at a level that would promote and enhance economic stability; this will also encourage commercial banks to lend to agricultural sector in Nigeria with a moderate interest rate; Farmers will be more than oblige to take loans since the interest rate is low.
2. Lending interest rate was found to have an inverse impact on commercial banks' credit to agricultural sector in Nigeria. As such, Central Bank of Nigeria should regulate lending rate by directing commercial banks in Nigeria to reduce lending rate, which will in turn encourage farmers to take agricultural loans in Nigeria and boost agricultural productivity.
3. Also, monetary authorities in Nigeria should put mechanism in place to check and curb excess and hyper inflation in the economy, since inflation reduces the volume and impact of commercial banks' credit to agricultural sector in Nigeria.

5.3 Contributions to Knowledge

This study contributes to knowledge by way of currency as this study is conducted in more recent time compared to past studies; the study will also contribute to the literature on the debate bordering exchange rate and commercial banks' credit to agricultural sector in Nigeria.

5.4 Suggestion for further Research

This study suggests that more research should be carried out on the impact of exchange rate on manufacturing sector of the Nigerian economy.

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APPENDIX

Data used for analysis

YEAR	EXR	CAS	LR	IFR
1981	110.39	0.59	8.92	20.81
1982	109.86	0.79	9.54	7.7
1983	109.84	0.94	9.98	23.21
1984	13.20	1.05	10.24	17.82
1985	99.90	1.31	9.43	7.44
1986	51.89	1.83	9.96	5.72
1987	14.72	2.43	13.96	11.29
1988	4.5367	3.07	16.62	54.51
1989	7.3916	3.47	20.44	50.47
1990	8.0378	4.22	25.3	7.36
1991	9.9095	5.01	20.04	13.01
1992	17.2984	6.98	24.76	44.59
1993	22.0511	10.75	31.65	57.17
1994	21.8861	17.76	20.45	57.03
1995	21.8861	25.28	20.23	72.84
1996	21.8861	33.26	19.84	29.27
1997	21.8861	27.94	17.8	8.53

1998	21.8861	27.18	18.82	10
1999	92.6934	31.05	20.29	6.62
2000	102.1052	41.03	21.27	6.93
2001	111.9433	55.85	23.43	18.87
2002	120.9702	59.85	24.77	12.88
2003	129.3565	62.10	20.71	14.03
2004	133.5004	67.74	19.18	15
2005	132.147	48.56	17.98	17.86
2006	128.6516	49.39	16.89	8.24
2007	125.8331	149.58	16.94	5.38
2008	118.5669	106.35	15.14	11.54
2009	148.8802	135.70	18.99	11.54
2010	150.298	128.41	17.59	13.72
2011	153.8616	255.21	16.02	10.84
2012	157.4994	316.36	16.79	12.22
2013	157.3112	343.70	16.72	8.84
2014	158.5526	478.91	16.55	8.06
2015	193.2792	449.31	16.85	9.01
2016	253.4923	525.95	16.97	15.68
2017	305.8000	503.08	17.55	16.52
2018	306.1000	556.67	16.9	12.09

Source: Central Bank of Nigeria Statistical Bulletin of 2018 and World Bank Developmental Indicators of 2018.