

## Monetary Policy and Bank Lending in Nigeria

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**Abstract:** This study investigated the impact of monetary variables on bank lending in Nigeria. Previous studies in Nigeria were reviewed and some of the results of this study were in line while some contradicted the prior works. The study made use of macroeconomic time series variables between 1980-2018. The data obtained were subjected to Autoregressive Distributed Lag (ARDL) econometric technique. The findings of the study revealed inflation rate and interest rate have a significant negative effect on loans and advances; the exchange rate has a positive significant effect on loans and advances while liquidity ratio and money supply have a negative insignificant effect on loans and advances. More so, the Granger Causality test further revealed that the inflation rate does cause the lending rate in Nigeria while the interest rate doesn't cause the inflation rate in Nigeria. Higher inflation rate in the economy could lead to a reduction in the economic output. The monetary authority should, therefore, strive to maintain a reasonable interest rate that will help to achieve an optimal level of supply of money in circulation to avoid inflation in the economy and help in prediction of cost borrowing and lending.

**Keyword:** ARDL; Bank Lending; Interest rate; Inflation rate

**JEL Classification:** C32; E31; G21

### 1. Introduction

Resources allocation for efficient use is one of the challenges faced by all the sectors in the world. Allocation of resources is a very crucial issue, as human wants are unlimited but the means through which these wants can be satisfied are limited. In an economy, one of the means through which the wants could be satisfied despite the limited means is via the intermediation. This affords the disadvantaged individuals in the economy to have access to the idle fund from the surplus sector of the economy through the banks. The banks through its intermediation role link both the surplus and deficit sector.

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The bank lends to the deficit unit from the fund deposited by the surplus sector. Lending is one of the most essential services rendered by the bank to its customers. Bank grants loans and advances to the government, corporate organisation and individuals (Cheboi, 2012). The income earned by banks from the loan and advances issued out to their customers is the major source of income to the bank which is simply called the interest income. Therefore, regardless of the economic condition, banks would always be interested in issuing loans and advances to their customers with the aim of profitability, liquidity, and solvency (Cheboi, 2012).

Banks often charge rates that are not too low because of its profitability and not too high in order not to scare the customers away. Banks are therefore always careful with their decision to lend out due to some factors that may affect the bank adversely such as inflation rate, interest rate, the level of deposit, liquidity of the bank, etc.

The higher the lending rate on loan, the higher the prices of output in the economy will be which will increase the level of inflation in the economy. Keynes (1936) in his work also asserted that as the supply of money increases, the interest rate decreases, if the reduction in interest rate persists, the amount of money in circulation will keep increasing which could lead to inflation in the economy. Conversely, if the supply of money decreases, the interest rate increases, which simply indicates a negative relationship between the supply of money and interest rate which makes the demand curve to be negatively sloppy.

Inflation is a situation of persistent increase in prices of commodities as a result of too much money chasing fewer commodities in an economy. It occurs when the aggregate supply is lower to the aggregate demand of commodities which results in the reduction of the purchasing power of the monetary unit Chioma, Adanma & Clementina (2014). Inflation was viewed as a phenomenon that hits the consumer's pocket by reducing the purchasing power of the currency and sometimes acts as a hidden tax (Smith and Roche, 1999).

Emekewue (2008) asserted that a particular level of inflation is needed for an economy to sustain its growth level, which means inflation has its good side. He further posited that above the certain level required to sustain an economy, inflation may become a hydra-headed monster that will frustrate the economy. Persistence inflation at an undesirable level may, therefore, frustrate both the lender and the borrower in an economy.

The inability of borrowers and lenders to forecast the lending rate on loans and advances is highly challenging to the financial system. The flow of funds will continue between the borrower and lender in viable terms of project and has high yield, in as much as lender and borrower can forecast the lending rate (Caglayan & Xu, 2016).

Empirically, the average inflation rate in 1981 in the developed economy was 11.9% but reduced to 1.4% in 2013. Similarly, in 1981, the average inflation rate in developing economies was 12.7% but reduced to 4.6% in 2013 (World Bank, 2014). The inflation rate in Nigeria in 1981 was 20.81% but reduced to 8.48% in 2013 and rose to 15.7% in 2016, 16.5% in 2017 and 12.09% in 2018 (CBN Statistical Bulletin, 2018). The recent increase in the inflation rate would make it difficult for both the lender and the borrower to forecast the cost of lending and borrowing respectively.

Despite all the efforts devoted to maintaining stability in the lending rate obtainable in Nigeria by the monetary authority, the problem is yet to be resolved as evidenced by the previous studies in Nigeria (Chioma, Adanma & Clementina, 2014; Omondi, 2014; Olokoyo 2011, Somoye & Ilo 2009; Jegede, 2014). This necessitates the specific objective of the study to examine the impact of inflation on bank lending in Nigeria and also examine the relationship between the inflation rate and the lending rate charged by banks in Nigeria.

The rest of the paper is structured as follows, the section two deals with the literature and empirical review, the third section deals with the methodology, the fourth section four deals with the data analysis and findings while the last section is the concluding part.

## **2. Literature and Empirical Reviews**

Monetary policy is the action taken by the Central Bank to stabilize the money supply and the cost in an economy (CBN Annual Report, 2009). Jegede (2014) viewed monetary policy as weapon used by the monetary authority to stabilize the economy.

Inflation can be viewed as the creation of money that increases the price of commodities and at the same time reduces the purchasing power of the currency of the country in question (Oritoni, 1981). Contrarily, the reduction in the purchasing power sometimes should not be worrisome as it was in the case of Nigeria in the early 60s as no nation is free of inflation (Chioma, Adanma and Clementina, 2014). Inflation is present in all the nations of the world; the rate of inflation in each county is what makes the difference among the countries. Inflation rate if it rises beyond single digit is an indication that the economy is in problem as the case of Nigeria today where the inflation rate was 9.01%, 15.7%, 16.5% and 12.09% in 2015, 2016, 2017 and 2018 respectively (CBN Statistical Bulletin, 2018).

Ramady (2009) asserted that to mitigate the inflationary effect of increased money supply, the Saudi Arabian Monetary Agency (SAMA) raised the reserve requirements for commercial banks four times during 2007 and 2008 which reduced the liquidity generated by lower interest rates. This directive increased the statutory amount of money banks have to keep as statutory deposit with the central bank,

which decreases the amount available with the commercial banks for lending, thereby forcing the banks to increase the base lending rate due to the contractionary policy which reduced the credit granted to the customer as well as inflation in the economy.

The allocation of scarce resources to the efficient channel for usage is one of the pressing issues faced by most economies (Caglayan & Xu, 2016). Under the condition of certainty, the price system is viewed to translate to the allocation of resources efficiently but under uncertainty, the price system may not translate to the allocation of resources efficiently in an economy.

Credit is the money lent by a bank to a borrower who admits to paying back in future both the principal plus interest which is a percentage of the principal (Jegede, 2014). Credit from the bank is extended to private individuals, the government and corporate organisations. Credit enables the borrower to finance its deficit and execute viable projects.

Nwankwo (1991) asserted that credit is one of the largest single income-earning assets in the bank's portfolio which explains the reason why banks allocate huge resources in monitoring, estimating and managing credit quality.

Adedoyin & Sobodun (1991) opines that "lending is undoubtedly the heart of banking business". Bank generate profit from the lending activities which could either make or mar the bank depending on the level of administration of the credit.

Bank lending technique can be classified into two; transaction-based lending and relationship lending (Berger and Udell, 2006). Transaction-based lending is lending which verification of borrower's information is easier and faster. Transaction-based lending was further classified by Berger and Udell into four types; financial statement lending, asset-based lending, fixed-asset lending, and credit scoring while relationship-based lending is therefore based on the past relationship between the customer and the bank.

In Nigeria, the lending rate charged by banks on the credit granted to their customer is hardly negotiated between the bank and the customer, when the lending rate is increased by the Central Bank of Nigeria (CBN), most of the bank automatically apply the new rate to the outstanding loan without informing the borrower (Okafor, 2011). Oddly, if the rate is decreased by the CBN, the same bank will hide the information as regards the downward review of the lending rate from the borrower, thereby illegally exposing the customer to payment of a higher interest rate on loan.

Angel, Francisco & Hugo (2014) ascertained the long-run effects of inflation on the dynamics of private sector bank credit and economic growth in Mexico. ARDL-bounds testing approach was used for the estimation. The result of the study shows that inflation rates have contributed negatively to the increase in private credit, liquid

liabilities, and financial development and that the availability of private sector credit exert growth in the economy.

Omondi (2014) examined the relationship between the annual inflation rate and Kenya Commercial Bank base lending rate, new lending volumes and loans defaulting. The findings revealed that there was a positive relationship between inflation rate and the base lending rate charged by the bank. Also, inflation has a negative impact on lending volumes. Lastly, the study found that a rise in inflation leads to a high rate of loan defaulting activities in the bank.

Chioma, Adanma & Clementina (2014) examined the extent to which the profit of banks under the inflationary period affect the lending decision of such banks in Nigeria. A panel regression technique was used. The result revealed that there is a positive insignificant relationship between inflation and bank lending volume (lending decision) of commercial banks in Nigeria.

Jegade (2014) examined the effect of monetary policy on commercial bank lending in Nigeria. Vector Error Correction Mechanism of Ordinary Least Square was used for the estimation. The findings of the study revealed that exchange rate and interest significantly influenced commercial bank lending, while liquidity ratio and money supply exert a negative impact on commercial banks' lending.

Ojeaga, Odejimi, Okhiku & Ojeaga (2014) investigated the effect of bank lending on growth in Nigeria. A quantile regression estimation method was used in the study. The result of the study showed that bank lending, regulation, interest rate all had a negative effect on growth. Bank loan losses and money supply both had a positive significant effect on growth although this effect was weak.

Onaolapo & Habeeb (2017) appraised the impact of monetary policy on commercial banks' lending behavior in Nigeria. Ordinary least square method (OLS), Augmented Dickey-Fuller test (ADF), co-integration test and Error correction model (ECM) were employed as estimation techniques. The result of this study revealed that the volume of deposit has a positive significant impact on loan and advances, foreign exchange and GDP both have a positive insignificant impact on loan and advances, interest rate and reserve requirement both have a negative significant impact on loan and advances.

Eke, Eke and Inyang (2015) examined the effect of interest rate deregulation on the lending operations of Nigerian commercial banks. The Chow test method estimation was used for the analysis. The result obtained for the interest rate regulation era showed that interest rate spread and statutory liquidity ratio had a negative and significant effect on the volume of commercial banks' loans, while fixed exchange rate had a negative and insignificant impact on banks' loans and advances. It was found that the Monetary Policy Rate (MPR) and inflation rate exert a positive and significant impact on banks' loans for the period. For the deregulation era, the result

showed that MPR and the exchange rate had a significant impact on banks' loans and advances. While the former exerted a negative impact, the later had a positive influence on loans and advances. Interest rate spread, statutory liquidity ratio, and inflation rate were found not to have significantly impacted on commercial banks' loans and advances for the period.

Olokoyo (2011) investigated the determinants of commercial banks' lending behavior in the Nigerian context. Vector Error Correction Technique was used for the estimation. The result of this study revealed that the volume of deposits and investment portfolios of banks have a positive impact on bank loans and advances at 1%. Also, the result revealed that Foreign exchange and gross domestic products have a positive statistically significant impact on loans and advances at 10%. The coefficients of lending rate, minimum cash requirement ratio and liquidity ratio all have a positive impact on loan and advances.

Somoye and Ilo (2009) investigated the impact of macroeconomic instability on banking sector lending behavior in Nigeria. Co-integration and Vector Error Correction Modeling techniques were used for the estimation. The result of the study revealed that increases in broad money supply and inflation decreases bank lending, exchange rate depreciation increased bank lending, more so, deposit mobilization capacity of banks and bank size were the most important bank characteristics that explained their lending behavior.

### 3. Methodology

The data used for this study is mainly secondary data and time series from 1981-2018, which were obtained from the Central Bank of Nigeria (CBN) and the World Bank Development Index (WDI). Bank loan is proxy by commercial bank loans and advances which is the dependent variable while the independent variables are inflation rate, interest rate, foreign exchange rate, liquidity ratio, and money supply growth. The study makes use of inferential analysis with the Phillips-Perron test (P-P) for unit root and the Autoregressive Distributed Lag (ARDL) to determine the existence of a long-run relationship among the variables. The error correction model (ECM) was also used to determine the short-run relationship between the dependent and independent variables.

#### Model specification

The model for this study was adopted from the work of Eke, Eke & Inyang (2015). The model is explained mathematically as follows:

$$LOA = f(MPR, IRS, SLR, EXR, INF) \dots \dots \dots (3.1)$$

The Econometrics model is written as:

$$\ln LOA = \alpha_0 + \alpha_1 MPR + \alpha_2 IRS + \alpha_3 SLR + \alpha_4 EXR + \alpha_5 INF + U \dots \dots \dots (3.2)$$

Where:

LOA is commercial banks' loans and advances

MPR is the monetary policy rate

IRS is interest rates spread (Deposit minus lending rate)

SLR is the Statutory Liquidity ratio

EXR is the exchange rate and

INF is the inflation rate

The model for this study is therefore specified to examine the effect of inflation rate on bank lending in Nigeria is presented as

$$\ln LOA = \alpha_0 + \alpha_1 INF + \alpha_3 INT + \alpha_4 FER + \alpha_5 LIQ + \alpha_6 MOS + U \dots (3.3)$$

Where:

LOA is commercial banks' loans and advances

INF is inflation rate

INT is interest rate

FER is foreign exchange rate

LIQ is Liquidity ratio

MOS is money supply growth

The study further ascertained the direction of Causality between inflation rate and interest rate

$$INF_t = \sum_{i=1}^m \alpha_i INT_{t-i} + \sum_{j=1}^n \delta_j INF_{t-j} + \varepsilon_{1t} \dots \dots \dots (3.4)$$

$$INT_t = \sum_{i=1}^m \gamma_i INF_{t-i} + \sum_{j=1}^n \varphi_j INT_{t-j} + \varepsilon_{2t} \dots \dots \dots (3.5)$$

Where *INF* inflation rate and *INT* is interest rate,  $\varepsilon_{1t}$  and  $\varepsilon_{2t}$  are the disturbances which are assumed to be uncorrelated. In this framework, there are four possible hypotheses.

*Case 1: Unidirectional causality from INF to INT. This is indicated if  $\sum \alpha_i \neq 0$  and  $\sum \delta_j = 0$*

Case 2: Unidirectional causality from INT to INF. This is indicated if  $\sum \gamma_i = 0$  and  $\sum \psi_j \neq 0$ .

Case 3: Bilateral causality. This is indicated if  $\sum \alpha_i \neq 0$  and  $\sum \delta_j \neq 0$ .

Case 4: No causality. This is indicated if  $\sum \alpha_i = 0$  and  $\sum \delta_j = 0$ .

Table 1 below shows the variables of the model and description of each variable.

**Table 1. Variables Description and Measurement**

	<b>Variables</b>	<b>Description</b>	<b>Measurement/Justification</b>
<b>Dependent</b>	LOA	Loan and advances	This is the money lent by bank to borrower (private individual, corporate organisation or government) which will be repaid in future
<b>Independent</b>	FER	Foreign exchange rate	This is the rate at which foreign currency will be exchanged for a local currency.
	LIQ	Liquidity ratio	This measures the ability of the bank to meet up with its obligation to the customers
	INF	Inflation Rate	Inflation is the persistent increase in a nation's general prices levels
	MS	Money supply	This is the measure of the broad money in circulation in an economy
	INT	Interest rate	Interest rate is the proportion of the principal which compensated the owner of fund for time and risk taken

*Source: Authors Compilation, 2019.*

The table below shows the variables of the model, and expected effect of the various variables on bank lending.



**Table 2. Variables, Denotations and Expected Signs**

Variable	Denotation	Unit	Expected sign
Foreign exchange rate	FER	Rate	(+)
Liquidity ratio	LIQ	Ratio	(+)
Inflation rate	INF	Rate	(-)
Money supply	MS	Naira	(+)
Interest rate	INT	Rate	(-)

Source: Authors Compilation, 2019.

## 4. Data Analysis and Findings

### 4.1. Unit Root Test

The unit root test helps to determine the nature of data used to prevent spurious results and it will help in determining the technique appropriate for analysis. Phillips-Perron Test (P-P) was employed for this study to determine the order of integration of the time series data. The unit root result was presented in table five (3) below.

**Table 3. Unit Root Test: Phillips-Perron Test (P-P)**

Variables	Level T-Stat	Critical Value @ 5%	First Difference T-Stat	Critical Value @ 5%	Order of Integration
LOA	-2.594494	-2.943427	-8.873145	-2.945842	I(1)
INT	-3.135315	-2.943427	-7.974725	-2.945842	I(0)
INF	-2.756391	-2.943427	-9.447935	-2.945842	I(1)
FER	2.360795	-2.943427	-3.324554	-2.945842	I(1)
LIQ	-3.223066	-2.943427	-9.466231	-2.945842	I(0)
MOS	-2.212247	-2.943427	-5.839320	-2.945842	I(1)

Source: Authors compilation, 2019

The Phillips-Perron (P-P) unit root result showed that variable INT and LIQ are stationary at level but LOA, INF, FER, and MOS are all non-stationary at levels but after first differencing, they become stationary at first difference I(1) and none of the variables is integrated at order 1(2). ARDL method was used to investigate both short and long-run relationships among the variables. This will help to avoid spurious results.

## 4.2 Optimal Lag Length Selection

The implication of the lag length selected explains the effect of the outcome of the previous year on the current year. The selection of an optimal lag length is very essential before carrying out the Autoregressive Distributed Lag (ARDL) test, the result of which is presented in table 4 below.

**Table 4. Lag length selection criteria**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-704.4699	NA	5.69e+10	41.79235	42.06170	41.88420
1	-535.0022	269.1545	22973847	33.94131	35.82681	34.58432
2	-469.8317	80.50472*	5094380.	32.22540	35.72705*	33.41956
3	-426.9552	37.83227	6332444.	31.82089	36.93869	33.56621
4	-347.3499	42.14395	2390379.*	29.25588*	35.98982	31.55234*

Source: Authors compilation, 2019

The result in table 4 shows different lag length criteria (LR, FPE, AIC, SC, and HQ). The Schwarz information criterion depicting lag order length of (2) for the model is selected. After establishing the lag order length, the ARDL, short and long-run equation results were estimated and explained in the next section.

**Table 5. Autoregressive Distributed Lag (ARDL) Estimates**

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
lnLOA(-1)	0.726891	0.305822	2.376843	0.0288
lnLOA(-2)	0.315531	0.319028	0.989038	0.3358
INF	0.005724	0.003480	1.644627	0.1174
INF(-1)	-0.003373	0.002946	-1.144834	0.2673
INF(-2)	0.003598	0.003639	0.988912	0.3358
INT	0.021614	0.013063	1.654650	0.1153
INT(-1)	-0.010488	0.012088	-0.867633	0.3970
INT(-2)	0.003430	0.010959	0.312976	0.7579
FER	-0.001838	0.001693	-1.085813	0.2919
FER (-1)	0.004349	0.002556	1.701776	0.1060
FER(-2)	-0.004121	0.002218	-1.858022	0.0796
LIQ	0.002599	0.003903	0.666049	0.5138
LIQ(-1)	-0.008282	0.004223	-1.960982	0.0655
LIQ(-2)	0.005928	0.004218	1.405584	0.1769
MOS	0.035829	0.010183	3.518504	0.0025
MOS(-1)	-0.013324	0.008685	-1.534122	0.1424
MOS(-2)	-0.002651	0.008525	-0.310992	0.7594
C	-0.512246	0.549761	-0.931762	0.3638
R-squared	0.998698	Mean dependent var		6.451611
Adjusted R-squared	0.997467	S.D. dependent var		2.601105
S.E. of regression	0.130900	Akaike info criterion		-0.921912
Sum squared resid	0.308427	Schwarz criterion		-0.130153

Log likelihood	34.59442	Hannan-Quinn criter.	-0.645567
F-statistic	811.8749	Durbin-Watson stat	2.251163
Prob(F-statistic)	0.000000		

*Source: Authors compilation, 2019*

The result of ARDL from table 5 revealed that the first period lag of LOA has a significant positive effect on LOA and the second period lag of LOA has a positive significant effect on the present LOA. INF has an insignificant positive effect on LOA in Nigeria; the first period lag of INF has a negative insignificant effect on LOA while the second period lag of INF has a positive insignificant effect on LOA. INT has a positive insignificant effect on LOA, the first period lag of INT has a negative insignificant effect on LOA while the second period lag of INT has a positive insignificant effect on LOA. FER has a negative insignificant impact on LOA, the first period lag of FER has a positive insignificant effect on LOA while the third period lag of FER has a negative insignificant effect on LOA. LIQ has a positive insignificant effect on LOA, the first period lag of LIQ has a negative insignificant effect on LOA while the second period lag of LIQ has a positive insignificant effect on LOA. MOS has a positive significant effect on LOA, the first period lag of MOS has a negative insignificant effect on LOA while the second period lag of MOS has a negative insignificant effect on LOA and the first period lag of MOS has a positive significant and negative significant impact on LOA respectively.

The Durbin Watson value of 2.251163 indicates no serial autocorrelation among the explanatory variables in the model. The R-Square of 99.86% implies that 99.86% variation in the dependent variable can be explained by the independent variables. The Adjusted R-square depicts that if an additional variable is added to the independent variable, the independent variable will still be able to explain a 99.74% variation in the dependent variable. The F- statistics (811.8749) which is greater than its prob(F-statistics) 0.000000 at a 5% level of significance indicates that the linear relationships between the independent and dependent variables are statistically significant (i.e. the overall model).

### 4.3. ARDL Cointegration and Long Run Result

The ARDL Cointegration long-run analysis will help to determine the existence of long-run relationship among the variables in question. If the variables are cointegrated, this means that the variables have a stochastic trend in common.

**Table 6. Cointegrating Form**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(lnLOA(-1))	-0.315531	0.319028	-0.989038	0.3358
D(INF)	0.005724	0.003480	1.644627	0.1174
D(INF)	-0.003598	0.003639	-0.988912	0.3358
D(INT)	0.021614	0.013063	1.654650	0.1153
D(INT(-1))	-0.003430	0.010959	-0.312976	0.7579
D(FER)	-0.001838	0.001693	-1.085813	0.2919
D(FER(-1))	0.004121	0.002218	1.858022	0.0796
D(LIQ)	0.002599	0.003903	0.666049	0.5138
D(LIQ(-1))	-0.005928	0.004218	-1.405584	0.1769
D(MOS)	0.035829	0.010183	3.518504	0.0025
D(MOS(-1))	0.002651	0.008525	0.310992	0.7594
<b>ECT (-1)</b>	<b>-0.042421</b>	<b>0.034202</b>	<b>1.240318</b>	<b>0.0408</b>

Source: Authors compilation, 2019

The result from table 6 shows the ARDL Cointegration result. The estimated coefficient of the **ECT-1** is -0.042421. The error correction term is the short-run estimate and has a negative significant value of (-0.042421). This means that the error correction term is the speed of adjustment correcting back the shock at the rate of 4.24 percent annually. This means that a 4.24% gap between long-run equilibrium value and the actual value of the dependent variable (LOA) has been corrected. The negative sign signifies the existence of cointegration among the variables. The negative significant vector shows that the vector is in line with the *a priori expectation* and statistically significant.

The short-run coefficient further showed that the previous LOA has a negative insignificant impact on the LOA. INF has an insignificant negative effect on LOA which implies that a percentage increase in INF will lead to 0.003598 unit decrease on LOA. INT has a positive insignificant impact on LOA while the first period lag of INT has a negative insignificant impact on LOA which means a unit increase in INT will lead to 0.021614 and 0.003430 increase and decrease LOA respectively. FER has a negative insignificant impact on LOA which implies that a percentage increase in EXC will lead to 0.005049 unit decrease in LOA; the first period lag of FER has a positive insignificant impact on LOA which means that a percentage increase in EXC will lead to 0.004121 unit increase in LOA. LIQ has a positive insignificant impact on LOA which implies that a ratio increase in LIQ will lead to 0.002599 while the first period lag of LIQ has a negative insignificant impact on LOA which implies that a ratio increase in LIQ will lead to 0.005929. MOS has a positive significant impact on LOA which implies that a unit increase in MOS will lead to 0.035829 unit increase in LOA while the first period lag of MOS has a positive insignificant impact on LOA which implies that a unit increase in MOS will lead to 0.002651 unit increase in LOA

**Table 7. Long Run Coefficients**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF	-0.140246	0.129532	-1.082717	0.0392
INT	-0.343133	0.428595	-0.800600	0.0338
FER	0.037965	0.012469	3.044638	0.0070
LIQ	-0.005799	0.153856	-0.037688	0.9704
MOS	-0.467992	0.452233	-1.034848	0.3144
C	12.075199	13.352723	0.904325	0.3778

Source: Authors compilation, 2019

The long-run coefficient further showed that INF has a significant negative effect on LOA which implies that a percentage increase in INF will lead to 0.140246 unit decrease in LOA. This finding is in line with the findings of Somoye & Ilo (2009) but contrary to the findings of Eke, Eke & Iyang (2015) and Omondi (2014). This result is also in line with the *a priori* expectation of negative impact.

INT has a negative insignificant impact on LOA which implies that a percentage increase in INT will lead to 0.343133 unit decrease in LOA. This finding is in line with the findings Onalapo & Habeeb (2017) but contrary to the findings of Eke, Eke & Iyang (2015). This result is also in line with the *a priori* expectation of negative impact.

FER has a positive significant impact on LOA which implies that a percentage increase in FER will lead to 0.037965 unit increase in LOA. This finding is in line with the findings of Jegede (2014) but contrary to the findings of Somoye & Ilo (2009). This result is also in line with the *a priori* expectation of negative impact.

LIQ has a negative insignificant impact on LOA which implies that a ratio increase in LIQ will lead to 0.005799 unit decrease in LOA. This finding is in line with the finding of Jegede (2014). This result is contrary to the *a priori* expectation of positive impact.

MOS has a negative insignificant impact on LOA which implies that a unit increase in MOS will lead to 0.467992 unit decrease in LOA. Jegede (2014) and Somoye & Ilo (2009). This result is contrary to the *a priori* expectation of positive impact.

The study also went further to investigate the relationship between the inflation rate and the lending rate in Nigeria. The relationship was estimated with the granger causality test but before the estimation, the appropriate lag length needs to be determined to ascertain the effect of the outcome of the previous year on the current year.

**Table 8. Lag Length Selection Criteria**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-238.4706	NA	4767.661	14.14533	14.23512	14.17595
1	-227.1523	20.63938	3102.629	13.71484	13.98420*	13.80670
2	-220.5723	11.22464	2674.770	13.56308	14.01201	13.71617
3	-216.8344	5.936685	2737.172	13.57849	14.20699	13.79283
4	-209.3597	10.99218*	2262.377*	13.37410*	14.18217	13.64968*

The result in Table 8 shows different lag length criteria (LR, FPE, AIC, SC, and HQ). The Schwarz information criterion depicting lag order length of one (1) for the model is selected. After establishing the lag order length, the Granger causality test will be estimated and explained in table 9 below.

**Table 9. Granger Causality Test Result**

Null Hypothesis:	F-Statistic	Prob.	Decision Rule
INT does not Granger Cause INF	0.89323	0.4826	Fail to reject Null
INF does not Granger Cause INT	4.69092	0.0058	Reject Null

*Source: Authors compilation, 2019*

The result from the Granger causality test was shown in table 9 above. It revealed that INF does cause INT in Nigeria. The result further revealed that INT doesn't cause INF in Nigeria which implies that the lending rate does not cause the inflation rate in Nigeria. The monetary authority should endeavor to encourage and maintain a stable rate of inflation as this will contribute to the level of the interest rate applicable in Nigeria. This will also encourage more investment in the market.

The result revealed that the inflation rate does cause the lending rate in Nigeria which led to the rejection of the null hypothesis based on the p-value (0.0058). The result also showed that the lending rate doesn't cause inflation rate in Nigeria which informed the failure of rejecting the null hypothesis based on the p-value of (0.4826).

## 5. Conclusion and Recommendation

The study examines the impact of inflation on bank lending in Nigeria for the periods of 1980 to 2018. Previous studies were reviewed on inflation and bank lending in Nigeria to ascertain the relationship between the dependent and independent variables as well as their respective impact. Previous researches revealed that several measures have been used to proxy the independent variable which differs from country to country with mixed results. However, previous studies in Nigeria have employed various methodological techniques; this study employed the Autoregressive Distributed lag (ARDL) as dictated by the stationarity level of the data. The long-run result revealed that the inflation rate and interest rate have a significant negative effect on loans and advances; the exchange rate has a positive

significant effect on loans and advances while liquidity ratio and money supply have a negative insignificant effect on loans and advances. More so, the Granger Causality test further revealed that the inflation rate does cause the lending rate in Nigeria while the interest rate doesn't cause the inflation rate in Nigeria.

Persistency of a higher inflation rate in the economy could lead to a reduction in the economic output due to limited funds that will be available for lending as large amount of money will be chasing fewer goods in the economy. This result could also be related to Keynes's assertion that as the supply of money increases, the interest rate decreases if the reduction in interest rate persists, the amount of money in circulation will keep increasing which could lead to inflation in the economy. The monetary authority should, therefore, strive to maintain a reasonable interest rate that will help to achieve an optimal level of supply of money in circulation to avoid inflation in the economy.

Therefore, there is a need for the government through the Central Bank of Nigeria to ensure a working monetary policy instrument and make a periodic review of the policies. The study thus opines that the interest rate obtainable in the economy should be stable and at a lower rate as this has a significant impact on lending in the economy. The lower the interest rate, the more borrowers will be willing to borrow from the bank and vice versa. The monetary authority should endeavor to maintain a stable level of inflation rate as this will help maintain favorable economic activities. Monetary authority should manage the lending rate properly for it to be attractive and affordable for investors to borrow money from the bank.

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