

# Determinants of Commercial Bank Credits in Nigeria

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## **ABSTRACT**

*The study examined determinants of commercial bank credits in Nigeria. The specific objectives were to: examine the effect of volume of deposits, interest rate, cash reserve requirement and liquidity ratio on commercial bank credits in Nigeria. Ex-post facto research design was adopted in the study. Secondary sources of data were used as the main methods of data collection. The relevant data for this study were obtained from the Central Bank of Nigeria (CBN) statistical Bulletin. The data were collected on annual basis from 1990 to 2021. Several techniques were employed in this study to test and estimate the relevant equations. These include the unit root test, the cointegration test, granger causality test and the error correction mechanism. Based on the analysis of the study, the following findings were discovered: There was a significant effect of volume of deposits on commercial bank credits in Nigeria, there was a significant effect of interest rate on commercial bank credits in Nigeria, there was a significant effect of cash reserve requirement on commercial bank credits in Nigeria and there was a significant effect of liquidity ratio on commercial bank credits in Nigeria. Based on the findings in this study, the study recommended that commercial banks should focus on how to increase the volume of deposits so as to improve their credit facilities. Finally, Central bank of Nigeria stipulated minimum cash reserve requirement should be considerably low so as to enhance commercial bank credits to private sectors.*

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**KEYWORDS:** *Volume of deposits, commercial bank credits, interest rate, cash reserve requirement, liquidity ratio.*

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## **INTRODUCTION**

Commercial banks are known to be the most important savings mobilization and financial resource allocation institutions. In actualizing this role as financial intermediary, commercial banks possess the scope, prospect, and potentials for mobilizing financial resources and allocating them to productive investments as part of private sector development plan to stimulate economic growth. So, no matter the economic policies of the country or sources of the generation of income, commercial banks would be interested in extending credit facilities to their interested customers on the condition of their major objectives guiding their operations, which are; profitability, liquidity and solvency (Etebong, Ijeoma, Zubair, Nwaogu, Hassan, 2019) However, the decisions of commercial banks to grant credit facility is influenced by lot of factors such as the prevailing interest rate, the volume of deposits, banks liquidity ratio and cash reserve ratio (Levine, 1997). To have a clear understanding on the factors that influence commercial bank credits, studies were conducted for these countries, as well as for others that are similar to them, judging from the level of development or the stages through which they have passed.

Credit loan was very low during early 2000s, the strict policy of credit through the imposition of credit ceilings for banks and the increasing level of non-performing loans (NPL) hindered commercial banks to meet rising demand for credit (Shegeri, 2003). Credit practices in the world could be traced to the era of industrial revolution which increases the speed of commercial and production activities thereby introducing the need for large capital outlays for projects. Some firms in this period were not able to meet up with the sudden improvements in the financial requirements and therefore turn to the banks for assistance.

Prior to the arrival of Structural Adjustment Program (SAP) in the country in 1986, commercial bank credit practices were strictly regulated under the close surveillance of the bank's supervisory bodies. The SAP period brought about some relaxation of the stringent rules guiding banking practices. The Bank and other Financial Act Amendment (BOFIA) 1998, requires banks to report huge borrowing to the CBN.

The CBN also requires that in the case of commercial banks, their total value of a loan credit facility or any other liability in respect of a borrower, at any time should not exceed 20% of the shareholders' funds unimpaired by losses. In order to enhance economic growth and development, other banking enactment stipulated that bank loan credit should be allocated to the preferred sectors of the economy. In Nigeria, following the deregulation of the economy in 1986, the financial sector especially the banking sector had been the most highly regulated financial institution. The role of government intervention in controlling interest rates and channeling credit to priority sectors of the economy inhibited saving mobilization and also hindered the holding of financial assets, capital formation, and economic growth.

Hence, prior to the deregulation of the Nigerian economy, the banking institutions have actively and strongly sought out idle funds and direct same by way of credit to entrepreneurs, businesses, households and government for investments projects and other purposes with a view of return, which stimulates economic growth and development. (Nnanna and Dogo, 1998) Meanwhile, the ability of commercial banks to grant credit is influenced by so many factors and also enhances the availability of credit to the investing public. Following from this, the study is an attempt to evaluate factors that influence commercial bank credits in Nigeria.

Commercial bank credits are very important to the economy of a country, particularly for countries that have experienced several stages of development after the change of economic and political regimes. Credit to the private sector is a criterion to achieve private sector developments which stimulate economic growth. In spite of this, commercial banks in Nigeria are experiencing the era of impressive profit, that is characterized by high competition, huge deposits, commercial banks still find it difficult in meeting its customer's cash drawings. This is applied to a situation where loans and advances are granted out by commercial banks without adequate collateral and backups. Non servicing of loans also reduce profitability and liquidity levels of the affected banks (Dushku, 2010). The specific objectives are as follows:

- i. To examine the effect of volume of deposits on commercial bank credits in Nigeria.
- ii. To examine the effect of interest rate on commercial bank credits in Nigeria.
- iii. To establish the relationship between cash reserve requirement and commercial bank credits in Nigeria.
- iv. To establish the relationship between liquidity ratio and commercial bank credits in Nigeria.

### **Theoretical framework**

This theory is embedded on financial liberalization. It was developed by McKinnon (1973) and Shaw (1973). The hypothesis considers the role of government intervention in the financial markets as a major constraint to savings mobilization, investment and growth. Government's role in controlling interest rates, high reserve requirements and directing credit to propriety sectors of the economy in developing countries inhibits savings mobilization and impedes the holding of financial assets, capital formation and economic growth. Indirectly, ceiling on deposit interest rates discourages financial saving which leads to excess liquidity outside the banking system. According to McKinnon and Shaw (1973), pervasive government intervention and involvement in the financial system through the regulatory and supervisory network, particularly in controlling interest rates, reserve requirements and the allocation of credit, tends to distort the financial markets.

### **LITERATURE REVIEW**

Commercial banking sector credits plays an essential role towards achieving economic growth and development, therefore they are an important savings mobilization and financial resources allocation institution in every economy. In order to actualize these roles, commercial banks must have the potential, scope and prospects of financial intermediation. So, there are three principles guiding their operation which are: profitability, liquidity and solvency. As a matter of fact, the factors that influence commercial bank credits includes: Volume of deposits, their Investment portfolio, the presiding interest (lending) rate, Cash reserve requirement ratio, annual average exchange rate of the naira to dollar, monetary policy rate, inflation rate and Liquidity ratio (Okereke, 2003).

Though the lending practices of banks were highly regulated under the close supervision of the bank's regulatory bodies, but the Structural Adjustment Programmed (SAP) introduced in 1986 brought about some relaxation of some rules guiding banking practices. And the Bank and Other Financial Act Amendment (BOFIA) 1998 required banks to report huge amount borrowing to the CBN. Other banks enactments stipulated that the bank loans should be directed to preferred sectors of the economy (manufacturing, agriculture and power and steel) in other to enhance economic growth and development.

In full consideration of all these regulations the banks resorted to prudential guidelines necessary to avoid failures and to enhance maximum profitability in their banks' lending activities. These generally depend on type of bank, the capital base, the deposit base and density of the deposit, the credit guidelines issued from time to time by the controlling authority and internal policies of the banks since loans and advances accounts for the highest percentage of the total assets of the banks. This study becomes imperative because commercial banks in Nigeria need to understand how to manage these huge assets in terms of their loans and advances. For the banks to balance their main objectives of liquidity, profitability and solvency, lending must be handled effectively and the banks must behave in a way that there are potential customers are attracted and retained.

### **Role of commercial bank credit in the economic system**

There are five major roles of commercial bank credit in the economic system, there are;

1. Commercial bank credit positively affects the level of economic activities in every country. It actually affects what is to be produced, who produces it and how much is to be produced.

2. The realization of aggregate economic performance and economic growth is usually influenced by commercial bank credit facility; it also influences aggregate output and productivity.
3. Commercial bank credit actually affects the level of money supply of a country through the role of monetary authorities in influencing the volume and cost of credit.
4. Commercial bank credits is the most important source of bank income, that is to say that it affects a bank's profitability and long term growth prospects, therefore influencing bank liquidity and non-performing credits.
5. Finally, commercial bank credits promote the activities of bank and non-bank financial institutions and thus affecting the level of growth of the financial system and the economy at large.

### **Empirical studies**

Numerous studies have been conducted to examine factors affecting commercial bank credits both in the developed and developing economies.

Ewert, Schenk and Szczesny (2000) studied the factors that influence commercial bank credit performance in Germany for the period from 1992 to 1998. They used a data set from credit files of six leading German commercial banks and discovered that ratings act as an important factor in the bank's lending policy. They also found that ratings reflecting higher risks led to higher interest rate premium. The study concluded that collateralization is less clear and do not fully support any of hypotheses that are advanced to describe the role of collateral and covenants in credit contracts.

Cotarelli, (2005) studied the long-term relationship between commercial bank credit to the private sector to GDP ratio and a set of economic and institutional variables, this study was carried out for a panel of non-transition developing and industrialized countries. He used these estimates for an equilibrium level of credit to GDP in CEE and the Balkans. Based on the results of the study, he concluded that there is an evidence of a crowding out effect (because of a negative coefficient on the public debt ratio); a positive and significant relation of credit to GDP per capita; inflation above a certain threshold negatively affects the dependent variable; an increase in financial liberalization and transparency in accounting standards lead to higher bank credit to GDP ratio.

Olokoyo (2011) examined the factors that influence commercial bank credits in Nigeria for the period spanning from 1980 – 2005. This study adopted co-integration test and error correction model within the framework of short run equilibrium speed of adjustment. Based on the results of the co-integration test, there exists a unique long run relationship among the variables in the model. The results of the short run estimation showed that foreign exchange rate and gross domestic product positively and significantly affect the factors that influence commercial bank credits in Nigeria. That is, a 1unit increase in foreign exchange and N1 million increases in the gross domestic product will lead to increase in total commercial bank credits by ₦1.1m and ₦2.4million respectively in Nigeria. Further findings showed that interest rate, minimum cash requirement ratio and liquidity ratio have positive relationship with total commercial banks credits in Nigeria. These results were however not consistent with a priori expectation.

Djiogap and Ngomsi (2012) empirically examined the determinants of commercial bank long-term credit using a sample of 35 commercial banks of six African countries over the period 2001-2010. They discovered that a bank's ability to give out long-term business loans

depends on its capitalization, size, availability of long term liabilities and GDP growth. The results introduced the importance of supply side constraints in disbursing vital long-term credit to investors. The multivariate test of cross-countries differences in the commercial bank lending decisions stipulates that smaller banks, less capitalized banks, banks with low levels of long term funding sources, banks with higher nonperforming loans and operate in recession environment are more averse to lend long term.

Tomak (2013) investigated the factors that influence commercial bank credits in Turkey, he used quarterly data from 15 private commercial banks and 3 state-owned banks for the period from 2003-2012, also he adopted the ordinary least squares (OLS) regression technique. Based on the results of the estimation showed, size of bank, total bank liabilities and inflation rate have positive and significant impact on the factors that influence commercial bank credits of private banks in Turkey while non-performing loans to total loans ratio, gross domestic product and interest rate have negative relationship with factors that influence commercial bank credits of private banks in Turkey.

Imran and Nishat (2012) identified the determinants of the commercial bank credit by using time series data from 1971 to 2010 in Pakistan. They used Auto-regressive Distributed lagged (ARDL) modelling based on bound testing approach. Based on the findings of the study, domestic deposits, foreign liabilities, exchange rate, economic growth and the monetary conditions have significant effect on commercial bank credits to the private sector in Pakistan, especially in the long run, while inflation rate and money market rate do not affect the private credit in Pakistan.

Imran (2013) empirically investigated the factors that influence commercial bank credit in Pakistan, employing annual time series data covering from 1971 to 2010 in Pakistan. The study used the Autoregressive Distributed lagged (ARDL) modelling based on bounds testing approach to co-integration. The co-integration test based on bounds testing approach showed that there exist unique long run relationships among the variables. Based on the results of the long run estimation, foreign liabilities, domestic deposits, economic growth, exchange rate, and monetary conditions of the country are the factors influencing commercial bank credits to the private sector in the long run while inflation rate and money market rate does not influence the private credit in the long run. The results based on the short run estimation showed that, short run domestic deposit has an insignificant relationship with private credit; the money market rate has a positive effect on private credit in the short run; financial health and liquidity of the banks are also strong determinants of private loans; economic growth, exchange rate, and monetary conditions of the country are the factors influencing commercial banks credits to the private sector in the short run.

Shijaku and Kalluci (2013) examined the long run factors that influence commercial bank credits to the private sector in the case of Albania by adopting a Vector Error Correction Mechanism (VECM) approach based on demand and supply indicators from quarterly data from 2001 Q1 to 2011 Q4. Based on the co-integration test, there exist unique long run relationships among the variables in the model. The results showed that commercial bank credit is positively and significantly related to economic growth. Further findings of the study revealed that banking and financial intermediation, as well as financial liberalization led to the stimulation of higher credit demand. At the same time, lower cost of credit, diminishing government domestic borrowing and a more qualitative bank credit would create further



lending incentives. Finally, the exchange rate is found to pick up some demand valuation and consumption smoothing effects.

## RESEARCH METHODOLOGY

The study examined factors that influence commercial bank credits in Nigeria. The design that was used for this study is the ex-post facto research design. This design has been adjudged appropriate as the event under study that has already taken place. The researcher has no control over the variables under study simply because they have already been manipulated before they were applied in this study. Unlike the experimental design, statistical technique was applied in the treatment of the events under study. Secondary sources of data were used as the main methods of data collection. The relevant data for this study were obtained from the Central Bank of Nigeria (CBN) statistical Bulletin and the Central Bank of Nigeria (CBN) Annual Reports and Statements of Accounts (various years). The data were collected on annual basis from 1990 to 2021. Several techniques are employed in this study to test and estimate the relevant equations. These include the unit root test, the cointegration test, granger causality test and the error correction mechanism. For the purpose of this study, the empirical models for this study are specified in their functional forms as;

$$\text{BNKCR} = f(\text{VD}, \text{IR}, \text{CRR}, \text{LR}) \dots\dots\dots (1)$$

Where:

BNKCR = Total Commercial Bank Credit, VD = Volume of Deposit

IR = Interest rate, CRR = Cash Reserve Requirement

LR = Liquidity Ratio

$$\text{BNKCR} = a_0 + b_1 \text{VD} + b_2 \text{IR} + b_3 \text{RR} + b_4 \text{LR} + U_t \dots\dots\dots (2)$$

Where:  $a_0$  = Regression Constant,  $b_1, b_2, b_3, \& b_4$  = Regression parameters to be estimated,  $U_t$  = Stochastic Error Term.

### Data analysis

#### Unit root test

Table 1 below shows regression for the purpose of clarifying the result for the augmented-Dickey-Fuller test (ADF) class of unit root test. It was found that not all the variables of the study exhibited unit root process at various critical levels mostly at one, five and ten per cent level of significance except for interest rate (IR) that was stationary at levels. In other words, except for interest rate, all other variables were found to be non-stationary at their levels, at such, their null hypotheses of the presence of unit root cannot be rejected. However, these variables became stationary at their first differences, hence; their null hypotheses can be rejected.

#### Cointegration result

The result of the trace test as presented in table 2 indicates three cointegrating equations at five per cent level. This is because the trace statistic values in each of the three equations are all greater than their critical values at five per cent of significance. Based on the trace test therefore, we can conclude that there is the presence of long-run relationship among the variables in the model.

Similarly, the results of the maximum eigenvalue test are reported in table 3. The result of the maximum eigenvalue test indicates three co-integration equations at five per cent level of significance. This is so because, the maximum eigenvalue statistic values in the three

equations are all greater than their respective critical values at five per cent level of significance. This result based on the maximum eigenvalue test also showed that there is long-run relationship among the variables in the model.

### The long-run estimation

Given that the series are cointegrated, there is need to estimate the long-run coefficients. The long-run coefficient measures the long-run effect of the independent variables on the dependent variable. From the cointegration test analyzed in the preceding section, the normalized long-run estimates are presented and reported in table 4. The result of the normalized long-run estimated as reported in table 4 showed that volume of deposits and liquidity ratio have significant positive relationship with the commercial bank credit in Nigeria in the long-run. This means that an increase in these variables will have a significant positive relationship with changes in determining commercial bank credit in Nigeria in the long-run. On the other hand, interest rate and cash reserve requirement also have significant negative long-run relationship with the commercial bank credit in Nigeria. This implies that an increase in these variables will lead to a decrease in commercial bank credit in Nigeria in the long-run. The result further showed that all variables were statistically significant at five per cent despite the fact that some did not turn out with their expected sign. This means that all variables have significant effect on the determination of commercial bank credit in Nigeria in the long-run; some positive effect and some other negative.

**TABLE 1 Augmented Dickey-Fuller (ADF) unit root test**

Variables	At Level	At 1 <sup>st</sup> or 2 <sup>nd</sup> Difference	Order of integration
<b>LBNKCR</b>	-0.637270	-4.850557	I(1)
<b>LVD</b>	0.020908	-4.234000	I(1)
<b>IR</b>	-4.444937	-	I(0)
<b>CRR</b>	-2.869143	-5.533103	I(1)
<b>LR</b>	-3.176040	-5.358128	I(1)
TEST OF CRITICAL VALUES:			
		1% = -3.699871	
		5% = -2.976263	
		10% = -2.627420	

Source: Researcher's computation from E-views 7.1

**TABLE 2: Unrestricted cointegration rank test (trace)**

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.851604	110.2797	69.81889	0.0000
At most 1 *	0.717693	60.67505	47.85613	0.0020

At most 2	0.435420	27.79132	29.79707	0.0837
At most 3	0.293522	12.92781	15.49471	0.1175
At most 4 *	0.139085	3.893749	3.841466	0.0485

Source: Researcher's computation from E-views 7.1

**TABLE 3**

**Unrestricted cointegration rank test (maximum eigenvalue)**

Source: Researcher's computation from E-views 7.1	Hypothesized	Max-Eigen		0.05
	No. of CE(s)	Eigenvalue	Statistic	Critical Value

**TABLE 4:  
The  
normalized  
long-run  
estimates  
dependent  
variable:  
LBNKCR**

None *	0.851604	49.60462	33.87687	0.0003
At most 1 *	0.717693	32.88373	27.58434	0.0095
At most 2	0.435420	14.86351	21.13162	0.2986
At most 3	0.293522	9.034059	14.26460	0.2833
At most 4 *	0.139085	3.893749	3.841466	0.0485
VARIABLES	COEFFICIENTS		STD. ERRORS	
LVD	0.822788	0.02718		
LR	0.144969	0.00570		
IR	-0.139895	0.03331		



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CRR	-0.166413	0.03010
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Source: Researcher's computation from E-views 7.1

### **Granger causality test**

Since the variables are co-integrated, this suggests that there is some sort of causal relationship among the variables. The Pairwise Granger causality test was employed in order to establish the causality relationship among the variables. From the test result in table 5, it showed a uni-directional relationship between commercial bank total credit and interest rate; commercial bank total credit and cash reserve requirement; volume of deposit and interest rate; volume of deposits and cash reserve requirement.

This means that an increase in commercial bank total credit will result in a positive increase in interest rate but the reverse is not the case. Similarly, an increase in commercial bank total credit will result in an increase in cash reserve requirement, but an increase in cash reserve requirement do not lead to an increase in commercial bank total credit, *ceteris paribus*. The volume of deposit granger-cause interest rate but interest rate does not granger-cause the volume of deposits. The same was the case between the volume of deposits and cash reserve requirement, where the volume of deposits granger-cause cash reserve requirement only.

### **The short-run estimation**

When variables are cointegrated, the Granger representation theorem asserts that, there must also be an error correction model (ECM) that describes the short-run dynamics or adjustments of the cointegrated variables towards their equilibrium values. However, before the short-run error correction model is estimated, the over-parameterized model was first estimated. This model contains more parameters than the original model by including the preceding values of the variables in the model. The aim is to examine the effect of past values of both the dependent and the independent variables on the current value of the dependent variable. The lag value of each variable is set at 3 based on Akaike information criteria (AIC). The results of the over-parameterized model are presented in table 6.

A glance at the results of the over-parameterized model showed that the model has a very high explanatory power. This is given by the high value of the adjusted R-squared of 0.9983 (99.83 per cent) and the adjusted R-squared of 0.9925 (99.25 per cent). The model is also statistically significant at all conventional levels. This is established looking at the high value of F-statistics (174.2644). To estimate the short-run error correction model for short-run dynamics, the statistically significant variables were selected and included in the error correction model, while the insignificant variables were dropped as required by the rule.

**TABLE 5**  
**Pairwise Granger Causality Tests**

Null Hypothesis:	Obs	F-Statistic	Prob.
LVD does not Granger Cause LBNKCR	32	1.23885	0.3092
LBNKCR does not Granger Cause LVD		0.30457	0.7405
IR does not Granger Cause LBNKCR	32	0.88210	0.4280
LBNKCR does not Granger Cause IR		3.69102	0.0415
CRR does not Granger Cause LBNKCR	32	1.86651	0.1783
LBNKCR does not Granger Cause CRR		3.65822	0.0425
LR does not Granger Cause LBNKCR	32	2.73239	0.0871
LBNKCR does not Granger Cause LR		0.59613	0.5596
IR does not Granger Cause LVD	32	0.64872	0.5324
LVD does not Granger Cause IR		4.16531	0.0292
CRR does not Granger Cause LVD	32	0.84891	0.4414
LVD does not Granger Cause CRR		4.04980	0.0318
LR does not Granger Cause LVD	32	1.33817	0.2829
LVD does not Granger Cause LR		0.05229	0.9492
CRR does not Granger Cause IR	32	0.87673	0.4302
IR does not Granger Cause CRR		2.84936	0.0794
LR does not Granger Cause IR	32	1.30399	0.2916
IR does not Granger Cause LR		0.19838	0.8215
LR does not Granger Cause CRR	32	1.39707	0.2684
CRR does not Granger Cause LR		2.97165	0.0720

Source: Researcher's computation from E-views 7.1

**TABLE 6**

**Over-parameterized estimation result**

Dependent Variable: LBNKCR  
 Method: Least Squares  
 Date: 06/14/22 Time: 21:01  
 Sample (adjusted): 1990 2021  
 Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.861676	0.879348	2.117109	0.0878
LVD	0.523134	0.463604	1.128408	0.3104
LVD(-1)	-0.082329	0.706467	-0.116536	0.9118

LVD(-2)	0.199287	0.583155	0.341739	0.7464
LVD(-3)	0.137189	0.400784	0.342301	0.7460
IR	-0.049967	0.015923	-3.137940	0.0257
IR(-1)	-0.007906	0.025947	-0.304678	0.7729
IR(-2)	0.000357	0.016606	0.021497	0.9837
IR(-3)	0.024388	0.021036	1.159357	0.2987
LR	0.006008	0.006667	0.901107	0.4088
LR(-1)	0.004106	0.012071	0.340156	0.7476
LR(-2)	0.012269	0.013583	0.903274	0.4078
LR(-3)	0.020835	0.006662	3.127318	0.0260
CRR	-0.041967	0.024110	-1.740625	0.1422
CRR(-1)	-0.014693	0.024713	-0.594549	0.5780
CRR(-2)	-0.008763	0.027391	-0.319930	0.7620
CRR(-3)	-0.021819	0.021237	-1.027427	0.3513
ECM(-1)	-0.200244	0.518465	-0.386225	0.7152
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R-squared	0.998315	Mean dependent var	7.015731	
Adjusted R-squared	0.992586	S.D. dependent var	1.785514	
S.E. of regression	0.153737	Akaike info criterion	-0.867980	
Sum squared resid	0.118176	Schwarz criterion	0.020667	
Log likelihood	27.98178	Hannan-Quinn criter.	-0.644488	
F-statistic	174.2644	Durbin-Watson stat	2.183415	
Prob(F-statistic)	0.000009			

Source: Researcher's computation from E-views 7.1

**TABLE 7**

**Parsimonious result**

Dependent Variable: LBNKCR  
 Method: Least Squares  
 Date: 06/14/22 Time: 21:04  
 Sample (adjusted): 1990 2021  
 Included observations: 32 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.340721	0.556491	4.206212	0.0006
LVD	0.811655	0.037665	21.54929	0.0000
IR	-0.042556	0.017979	-2.366984	0.0301
LR(-3)	0.030153	0.005474	5.507949	0.0000
CRR	-0.048212	0.015987	-3.015638	0.0078
ECM(-1)	-0.243349	0.494849	-0.390724	0.7009
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R-squared	0.986680	Mean dependent var	7.015731	
Adjusted R-squared	0.982763	S.D. dependent var	1.785514	
S.E. of regression	0.234421	Akaike info criterion	0.156066	
Sum squared resid	0.934208	Schwarz criterion	0.452282	

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Log likelihood	4.205242	Hannan-Quinn criter.	0.230563
F-statistic	251.8609	Durbin-Watson stat	1.719119
Prob(F-statistic)	0.000000		

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Source: Researcher's computation from E-views 7.1

### **Parsimonious short-run analysis**

The results of the short-run dynamics as presented in table 7 above. The results showed that the parsimonious short-run model has a good fit on the data. This is given by the high value of the R-squared of 0.9866 (98.66 per cent) and the adjusted R-squared of 0.9827 (98.27 per cent). According to the adjusted R-squared, about 98 per cent of the systematic variations in evaluating factors that influence commercial bank credits in Nigeria have been explained by changes in volume of deposits (LVD), cash reserve requirement (CRR), interest rate (IR) and liquidity ratio (LR).

In the same vein, the high value of F-statistics (251.860) shows that the overall model is statistically significant. The overall significance of the short-run model implies the joint significance of all explanatory variables in explaining short-run changes in evaluating factor that influence commercial bank credit in Nigeria.

Further examination of the result shows that there is no problem of autocorrelation in the model. This is so because the Durbin-Watson (DW) statistic value of 1.72 falls within the acceptable region of no autocorrelation. From the policy stance, this means that the finding of this study can be applied for policy purposes in the Nigerian banking sector.

Meanwhile, the error correction factor has a negative sign and statistically significant as theoretically expected. The coefficient of the error correction factor shows that about 24 per cent of the short-run disequilibrium has been corrected each year. This is rather an acceptable speed of adjustment from short-run disequilibrium to long-run equilibrium. By this result, 2.88 (0.24 of 12months) months is required to return to the equilibrium position.

Analysis of the short-run estimates further showed that changes in the current period of volume of deposits (LVD) have a positive significant impact on the current value of the commercial bank credit in Nigeria. The result also revealed that changes in the current period of interest rate (IR) have negative and significant effect on evaluating factors that influence commercial bank credits in Nigeria in the short-run. A one per cent increase in the current period of interest rate will result in a negative change in the current value of the commercial bank credit in Nigeria by 0.0425 or 4.250 per cent all things being equal.

Similarly, the variations in the current value of cash reserve requirement (CRR) will lead to a significant but negative effect on evaluating factors that influence commercial bank credits in Nigeria in the short-run by 0.0482 or 4.82 per cent *ceteris paribus*. This means that, a unit increase in the current value of cash reserve requirement would result in a negative change in the current value of the commercial bank credit in Nigeria in the short-run by 4.82 per cent.

Finally, further investigation of the results showed that the previous periods (lagged three) of liquidity ratio (LR) have significant and positive impact on the current value of the commercial bank credit determination in Nigeria in the short-run by 0.0301 or 3.01 per cent. This means that, a unit increase in the current value of liquidity ratio would result in a positive change in the current value of the commercial bank credit in Nigeria in the short-run by 3.01 per cent.

### **Discussion of findings**

From the regression results discussed above, some findings and implications can be highlighted. The results of the ADF unit root test showed that except for interest rate (IR) that was stationary at level, the rest of the variables were non-stationary at levels, hence, the null hypotheses of the unit root cannot be rejected. However, the series was stationary when it was differenced once.

The findings from the Johansen multivariate trace and maximum eigenvalue tests showed that the variables are cointegrated, hence, there is a long-run relationship among the variables as specified in model. Also, from the normalized long-run estimates from the model showed that, only the volume of deposit and liquidity ratio have positive and significant effect with the dependent variable, while interest rate and cash reserve requirement had a negative but significant relationship with the dependent variable.

The findings from the short-run error correction model showed that, the overall level of commercial bank total credit in Nigeria will experience 2.340721 increases when all other variables are held constant. The coefficient of the error correction factor shows that about 24 per cent of the short-run disequilibrium has been corrected each year. This is rather an acceptable speed of adjustment from short-run disequilibrium to long-run equilibrium. By this result, 2.88 (0.24 of 12months) months is required to return to the equilibrium position.

Further analysis of the short-run estimates showed that, changes in the current period of volume of deposits have a significant impact on the current value of the commercial bank credit in Nigeria. This lends voice to Olokoyo (2011) that relationship factors are important in credit decisions of banks. Therefore banks should strive hard to manage their deposits efficiently so that their objective of profitability can be achieved and the multiplier effects maintained to the maximum. This implies that generation of more deposits is tangent to the survival of Nigerian banks as a whole. The result also revealed that changes in the current period of interest rate (IR) have negative and significant effect on evaluating factors that influence commercial bank credits in Nigeria in the short-run. Similarly, the variations in the current value of real cash reserve requirement (CRR) will lead to a significant but negative effect on evaluating factors that influence commercial bank credits in Nigeria in the short-run ceteris paribus. Finally, further investigation of the results showed that the previous periods (lagged three) of liquidity ratio (LR) have significant and positive impact on the current value of the commercial bank credit determination in Nigeria in the short-run.

### **Summary of findings**

Based on the analysis of the study, the following findings were discovered, they are:

- (i) There is a significant relationship between volume of deposits and commercial bank credits in Nigeria.
- (ii) There is a significant relationship between interest rate and commercial bank credits in Nigeria.
- (iii) There is a significant relationship between cash reserve requirement and commercial bank credits in Nigeria.
- (iv) There is a significant relationship between liquidity ratio and commercial bank credits in Nigeria.

## Conclusion/Recommendations

In the banking system, commercial banks remain the dominant factor in terms of its deposit liabilities and total assets. Their total credit in form of loans and advances, a major component of its money creation process and total credits to the private sector, though still on the increase, could become jeopardize with the presence of critical hindrances posed by unstable government regulations, institutional deficiencies and other uncertain macroeconomic variables. Therefore, both government and commercial banks should be mindful of the fact that the environment in which they operate is an important factor in the banks' performance and behavior. Where the environment is conducive and supportive, performance is enhanced and good lending behavior guaranteed. But where the environment is unstable and harsh, the banks' performances suffer.

The result revealed that volume of deposit (VD) and liquidity ratio (LR) are the most effective factors of Commercial bank credits in Nigeria. The implication of this is that a change in these variables will have a great change in banks' total credit facilities. Also, commercial banks should note that even where a sound credit policy and a good measure of macroeconomic stability is achieved, a lot needs to be done by them in order to ensure good credit and lending behavior. Apart from the recommendations that are given in this study, commercial banks should seek enhanced cooperation amongst one another on one hand and the regulators and supervisors on the other hand. Such enhanced cooperation will promote understanding and resolve possible conflict that may arise in the objectives of the regulators and that of operators. It therefore follows that efforts should be made by commercial banks to enforce the most easily realizable policies and good credit management in every situation.

Based on the findings in this study, the following recommendations are proffered:

1. Commercial banks should focus on how to increase the volume of deposits so as to improve their credit facilities.
2. Monetary authorities should evaluate the fluctuations in interest rate movement so as to encourage borrowers.
3. Central bank of Nigeria stipulated minimum cash reserve requirement should be considerably low so as to enhance commercial bank credits to private sectors.
4. Commercial banks should increase their liquidity level so as to meet short term financial obligations.

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