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Effect of Monetary Policy Instruments on Small and Medium Enterprises (SMEs) Financing By Nigerian Deposit Money Banks

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Abstract: Poor funding which incapacitated the Small and Medium Enterprises (SMEs) in Nigeria from assisting in creating employment opportunities motivated this work. This research investigated the effect of monetary policy instruments on SMEs financing by the Deposit Money Banks (DMBs) in Nigeria. It specifically evaluated how monetary policy instruments affect DMBs credit allocation to rural SMEs and also analysed the effect of total money supply on credit allocation to private sector. The study relied on secondary data from the Central Bank of Nigeria's Statistical bulletin and World Bank Financial Indicators with a duration of 30 years (1991- 2020). The data comprised of rural DMBs' Credit to rural SMEs, total credit to private sector, total money supply, liquidity ratio, cash reserve ratio, bank rate, Deposit rate, Inflation rate and Gross Domestic Product. Data was analysed using Auto-Regressive Distributed Lag (ARDL) Bond test approach. The results showed that credit to rural SMEs and its determinants co-moved in the long run significantly; money supply positively and significantly affects private sector in the long run. In contrast, there is no long-term relationship between bank lending to SMEs and their determinants. It is therefore recommended that DMBs should adequately grant credit to rural SMEs customers for productive purposes. Also, monetary policy makers should continue to maintain adequate level of money supply so as to consistently influence credit to private sector positively.

Keywords: Money supply, cash reserve ratio, liquidity ratio, deposit rate, gross domestic product.

Introduction

Small and medium scale enterprises (SMEs) have contributed significantly in the course of industrial development and advancement of the economy, by creating jobs, generating income and facilitating development in urban and rural areas of most countries. World economies due to SMEs are capable of reducing unemployment, decreasing poverty, and enhancing efficiency thereby leading to growth of the economy. In Nigeria, the roles of SMEs in its economic development have been acknowledged ([Olorunshola, 2001](#); [Eneh et al., 2011](#)). Recognizing their contribution to the country's economic growth, Nigerian

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governments have shifted their focus from highly expensive and complex industrialization to favoring SMEs, since the 1980s. Therefore, the growth of SMEs is thus viewed as a critical tool in Nigeria's industrialization process. However, as [Ovat \(2016\)](#); [Afolabi \(2013\)](#) observed, the continued existence of these firms is largely dependent on appropriate and robust economic policies and funding.

World Bank (2013) opined that SMEs of most developing countries are overwhelmed by lack of capital which affects their ability to grow. The Deposit Money Banks (DMBs) credit is known to be one of the most important funding sources for the sustainability of SMEs. DMBs through their intermediation role provide financial leverage for SMEs, thereby aiding their growth. However, extension of credit to SMEs by DMBs is contingent upon prime lending rate and reserve ratio and these can only be accessed through monetary policy instruments. Monetary policy is a key economic stabilization tool that is used to regulate the amount, price, accessibility, and direction of credit and currency in an economy in order to achieve certain macro-economic policy objectives. [Uwazie and Aina \(2015\)](#) defined monetary policy as measures employed by the monetary authorities to influence the amount of money and credit in circulation in order to maintain economic growth rate, stable prices, and balance of payments.

As a result, monetary policy employs various monetary instruments to control growth in the economy, inflationary trend, foreign exchange rates and unemployment. However, these instruments influence the services of DMBs in granting loans and advances to the public especially SMEs ([Ademokoya, Sanni, Oke, & Abogun, 2020](#)). Central banks use these instruments to regulate the amount of the money supply, interest rates, security prices, credit availability, and the formation of DMBs liquidity. The Central Bank controls bank reserves through its monetary policy instruments. Bank reserves are controlled by the Central Bank through its various instruments of monetary policy. These instruments are the cash reserve requirement, liquidity ratio, open market operations and primary operations which affect bank reserves. They have an impact on bank operations, their ability to generate adequate liquidity, and the cost of borrowing.

For instance, [Nto, Mbanasor, and Osuala \(2012\)](#) affirmed that the central bank employs monetary policy parameters to exert strict control over money supply in circulation, as well as interest rates charged to credit borrowers, including SMEs. Furthermore, the exchange rate affects the prices where the SMEs can obtain supplies such as raw materials from overseas nations for their innovative and profitable activities, and the CBN policy objective is to maintain a sound financial system so that SMEs can invest more. As a result, the purpose of this study is to investigate the effect of monetary policy on the allocation of loans and advances by DMBs to SMEs in Nigeria.

SMEs contributes substantially to the social transformation processes in both developing and developed economies Apart from increasing per capita income and economic output, they also create jobs, improve regional financial stability through manufacturing distributions, and create efficient resource utilization when it comes to economic advancement ([Udechukwu, 2003](#)). Despite the significant contributions of SMEs, their development is ubiquitously unnatural by derisory finance and pitiable administration.. Fact asymmetries in lending money to these entities suggest that banks have curtailed the flow of funding to SMEs ([Asaolu, Oladoyin, & Oladele, 2005](#)); whereas, SMEs must con-

sistently enjoy development by increasing efficiency and size of the market.

The Central Bank of Nigeria (CBN, 2005) posited that banks have been currently undergoing cumulative credit growth to the economy, but the proportion of bank lending to SMEs has continued to decline over time. [Nto et al. \(2012\)](#) also remarked that, notwithstanding the CBN's special initiatives to encourage banks to lend to SMEs, the opposite appears to be the case, as evidenced by CBN (2010) reports that the percentage of total credit to SMEs fell from 48.8% in 1992 to 9.0%, 8.6%, and 2.7% in 2000, 2002, and 2005, respectively. It is thus critical to ascertain the extent to which monetary variables influence SMEs financing in Nigeria. As a result, variables such as total credit to the private sector and total money are used in this study.

Moreover, rural SMEs are often left behind in credit allocation by DMBs. Most of the studies on SMEs and private sector financing paid little attention to the effect of monetary policy on the allocation of loans and advances by DMBs to rural SMEs in Nigeria ([Onoh & Nwachukwu, 2017](#); [Awoniyi & Ogundipe, 2021](#)). However, this study will fill the gap by investigating the effect of monetary policy on the allocation of loans and advances by DMBs to both rural and urban SMEs in Nigeria

Literature Review

Conceptual Review

Monetary Policy

[Nwoko, Ihemeje, and Anumadu \(2016\)](#) defined monetary policy as set of actions designed to normalize the supply, cost, and value of money in accordance with the state of an economy. It is also viewed as a tool for managing economic activity so that the economy grows and prices remain stable. Monetary policy is the predetermined action of the controller of economy to impact the volume and cost of money towards achievement of macroeconomic objectives. It is also defined as the principal economic management tool that the controller of an economy uses to determine economic performance ([Udoh, Gbande, & Acha, 2018](#)). For most economies, the goals of monetary policy include price stability, maintenance of balance of payments equilibrium, promotion of employment and output growth, and sustainable development ([Folawewo & Osinubi, 2006](#)).

Theoretical Review

Monetarism Theory

The theoretical framework considered to be pertinent to this work is monetarist theory. It is a macroeconomic theory that rose to prominence in the 1970s and the beginning of the 1980s and is primarily credited to Nobel Prize winning economist Milton Friedman. According to this theory, the primary predictor of GDP in the short run and the price level over longer time periods is the money supply, or the total amount of money in an economy. It underlines that by focusing on the growth rate of the money supply, governments

may promote economic stability. The basic idea behind this statement is that economic growth is largely determined by the overall volume of money in a country's economy.

It then can be inferred that money supply in an economy determines to a large extent on the capability of DMBs in allocating credit to SMEs, whether in rural or urban areas. This theory explains how funds are raised for the operations and expansion of rural SMEs in Nigeria through the DMBs' credit. In reality, SMEs interact with monetary policy in order to adapt to the opportunities present in the economy. As a result, certain assumptions from this theory will be accurate in particular circumstances.

Empirical Review

Researchers, both in the developed and developing countries, have examined how different instruments of monetary policy affect the amount of credit made available to the SMEs over the years. [Gambacorta and Iannotti \(2007\)](#) investigated how Italian bank interest rates changed in response to changes in monetary policy between 1985 and 2002. It was discovered that, banks change loan prices (deposits) more quickly when there is a tightening of the financial system. [Sulaiman \(2020\)](#) investigated the monetary policy of Central Bank of the Republic of Turkey on SMEs financing between 2003 and 2011. Findings indicated that money supply has a significant impact on lending volume to the manufacturing sector. Additionally, an increase in loan volume extended to large firms has insignificant impact on the credit volume extended to SMEs.

[Younus and Akhtar \(2009\)](#) researched on the implication of Statutory Liquidity Requirement (SLR) as a tool for monetary policy in Bangladesh. It was discovered that lower SLR has a favorable effect on bank loan and investment made before the 1990s. SLR and Cash Reserve Requirement (CRR) were crucial measures for containing inflation as well as in conditions of severe imbalance brought on by significant shocks. [Amidu and Wolfe \(2008\)](#) researched on the impact of monetary policy on bank lending in Ghana between 1998 and 2004. Findings showed that banks' lending behavior have substantial impact on Ghana's economy as money supply changes. Their findings also showed that prime rate had a negatively significant while inflation rate had a negatively insignificant effect on bank lending. The nexus between fiscal and monetary policies and their connections with growth of Ghanaian SMEs. The result revealed that monetary and fiscal policies influenced growth potentials of SMEs in Ghana. [Abuka, Alinda, Minoiu, Peydró, and Presbitero \(2019\)](#) asserted that when monetary policy contracts, it reduces money supply thus impacting negatively on SMEs growth in Uganda. Findings showed that CRR significantly promoted accessibility to credit by SMEs. [Sharma and Gounder \(2012\)](#) investigated how monetary policy instruments and macroeconomic variables affect credit growth in six Pacific Island countries and observed that lending and inflation rates enhanced credit expansion in all the countries investigated.

In Nigeria however, [Onoh and Nwachukwu \(2017\)](#) examined how monetary policy instruments affect credit provided by DMBs in Nigeria from 1980 to 2015. Results revealed that CRR stimulated the amount of banks credit while LQR has an adverse effect on banks credit. Similarly, [Awoniyi and Ogundipe \(2021\)](#) examined the effect of monetary policy instruments on credit to the SMEs in Nigeria. Findings is in tandem with [Onoh and](#)

Nwachukwu (2017) that LQR significantly and negatively affected credit to the SMEs. Also, Adeleke and Awodumi (2018) analysed the factors affecting credit to the private sector in Nigeria with focus on the demand side instruments from 1970-2015. Findings showed that money supply and economic growth positively affected credit to the private sector while increased inflation creates leakage to the credit available.

Moreover, Gbenga, James, and Adeyinka (2019) investigated the determinants of private sector credit in Nigeria from 2000 to 2017. Findings indicated that money supply remains a significant predictor of credit to the private sector. Using vector error correction model, Sulaiman (2020) assessed the impact of monetary policy variables on credit to private sector and SMEs in Nigeria between 1986 and 2019, the study observed a long term correlation between credit to private sector and other predictors. Contrarily, it was observed that CRR do not affect availability of credit to the SMEs, however, CRR affects private sector funding positively.

Methodology

Causal research design is adopted for the study. This is considered appropriate because it determines the relationship that exists between two or more quantifiable variables. The study employs secondary data obtained from Statistical Bulletin of the Central Bank of Nigeria and World Development Indicator (WDI) of the World Bank between 1991 and 2020 on rural credit to SMEs, credit to SMEs, DMBs credit to the private sector, money supply, LR, DR, CRR, LQR, inflation, and economic growth. Autoregressive Distributed Lag (ARDL) Bond test approach was employed for the analysis based on the following advantages. First, the ARDL approach helps in estimating both long and short-run parameters simultaneously. Secondly, it assist in handling variables of mixed order of integrations. Since most financial and economic variables are known to be of different orders, it is imperative to adopt a technique that handles such attributes to have reliable and unbiased results.

Model Specification

Effect of monetary policy instruments on DMBs credit allocation to Rural SMEs

$$cal_rsmet = (drt, crrt, lrt, lqrt, zt) \quad (1)$$

Where: *cal_rsmet* represents total credit provided by DMBs to the rural SMEs, *drt*, *crrt* represents deposit rate and cash reserve ratio respectively, *lqrt* represents liquidity ratio and *zt* refers to other control variables that influence availability of credit to rural SMEs.

Unlike the previous studies (Sulaiman, 2020; Ademokoya et al., 2020) that focus strictly on bank specific variables, the present study takes cognizance of other factors also affect the capability of DMBs to provide credit to rural SMEs apart from the monetary policy instruments. Thus, the study incorporates economic growth and inflation to capture the impact of macroeconomic environment (Assefa, 2014; Adeleke & Awodumi, 2018). While economic growth is used to control for the aggregate economic activity in the model,

the inflation rate is employed to reflect the degree of macroeconomic instability on the amount of credit provided by the DMBs to the rural SMEs. If inflation and economic growth are incorporated in equation 2, we have

$$cal_rsmet = (drt, crrt, brt, lqrt, inf_t, grwt) \quad (2)$$

Where inf_t and $grwt$ are inflation and economic growth respectively
Thus, it becomes,

$$cal_rsmet = \alpha_0 + \alpha_1 dr_t + \alpha_2 crrt + \alpha_3 lr_t + \alpha_4 lqr_t + \alpha_5 inf_t + \alpha_6 grwt + \epsilon_t \quad (3)$$

Here, ϵ_t is the error term which captures the effects of other variables that can affect the dependent variables.

Effect of monetary policy instruments on DMBs credit to urban SMEs

The econometric model for achieving objective two is given in equation 4 as follows:

$$bc_smet = \beta_0 + \beta_1 dr_t + \beta_2 crrt + \beta_3 lr_t + \beta_4 lqr_t + \beta_5 inf_t + \beta_6 grwt + \mu_t \quad (4)$$

Where bc_smet is deposit money bank credit to SMEs. Other variables maintain their initial definitions.

Effect of money supply on Private Sector Credit

The study modifies the models from the work of [Ademokoya et al. \(2020\)](#) and specifies the nexus between credit to the private sector and total money supply in circulation as presently below:

$$bc_pst = \varphi_0 + \varphi_1 ms_t + \varphi_2 crrt + \varphi_3 lr_t + \varphi_4 lqr_t + \varphi_5 inf_t + \varphi_6 grwt + \mu_t \quad (5)$$

Where bc_pst is the credit to the private sector, ms_t is the total money supply in circulation while the other variables retain their initial definitions.

Description of variables

1. Liquidity Ratio (LR): This is the ratio of bank's liquid assets to its liabilities. It shows whether a company's present assets will be enough to cover its debt when it becomes due.
2. Cash Reserve Ratio (CRR): This is a predetermined minimum percentage of the total deposits of customers, which DMBs are required to maintain as reserve either in cash or as deposits with the central bank. CRR is set in accordance with a nation's central bank's policies.
3. Bank Rate (BR): This is the interest rate at which bank lends money to other banks, frequently in the form of relatively short-term loans, is known as the "bank rate."

4. Deposit Ratio (DR): Deposit ratio is a typical metric for evaluating bank liquidity by dividing the banks total loans by its total deposits. This number is expressed as a percentage. If the ratio is too high, it means that the bank may not have enough liquidity to cover any unforeseen fund requirements, and conversely, if the ratio is too low, the bank may not be earning as much as it could be.
5. DMBs Credit to SMEs: Banks must ensure that their credit offers to SMEs are efficient and effective in order to support their growth and development. They also must make the credit available at a lower rate.
6. Money Supply: This refers to the total amount of money that the economy is holding at any given time.
7. Gross Domestic Product (GDP): This is the sum of all finished goods and services produced in a nation over a given time period.
8. Inflation: Inflation can be defined as a general increase in prices and decline in the purchasing power of money

Results and Discussion

Descriptive Statistics

Measures of descriptive statistics such as mean, median, skewness, kurtosis and Jarque-Bera statistics are highlighted in Table 1. Findings show that all the series are highly consistent as values of the mean and median are close to each other and fall between the minimum and maximum values except the credit variables (CAL_SMEs, BC_SMEs and BC_PS). Results further indicated that the average values of credit to rural SMEs, SMEs and the private sector are N105.8 billion, N36.3 billion and N7,879.7 billion respectively. This indicates that credit allocation to SMEs is low compared with other types of credit over the study period. On the monetary policy instruments' variables, evidence suggests that the average money supply as a proportion of GDP was 17.9%, LR was 18.9% compared with the DR of 5.8% within the same period. This suggests a spread rate (LR minus DR) of 13.1% on average. Thus, a higher spread rate would impose a constraint on the amount of credit available for SMEs in the country.

Results showed that all the series are positively skewed, almost all the variables have kurtosis that exceeds 3 except bank credit to the private sector, money supply as a ratio of GDP and CRR. For the Jarque-Bera (J-B) statistics, findings revealed that the null hypothesis of the normal distribution is accepted for variables such as bank credit to the private sector (BC_PS), CRR, LQR, money supply (MS_PER) and economic growth (GRW) whose probability are greater than 5%.

Table 1
Results of Descriptive Statistic

	CAL_RSME	BC_SME	BC_PS	CRR	DR	LQR	LR	MS_PER	INF	GRW
Mean	105.775	36.36	7879.742	10.735	5.777	48.202	18.981	17.907	18.457	4.094
Median	16.335	29.04	2064.505	9.52	4.09	46.515	17.872	15.844	12.716	4.431
Maximum	988.59	123.93	29051.61	27.5	16.66	81.42	31.65	27.379	72.836	15.329
Minimum	1.6	10.75	41.35	1	1.41	26.39	13.642	9.063	5.388	-2.035
Std. Dev.	232.964	26.944	9296.399	7.492	4.448	13.27	3.585	6.023	16.796	3.907
Skewness	2.785	1.466	0.871	0.783	1.426	0.633	1.646	0.086	2.085	0.439
Kurtosis	9.733	5.113	2.35	2.516	3.552	3.178	6.458	1.408	6.195	3.544
Jarque-Bera	95.434	16.323	4.319	3.362	10.546	2.045	28.497	3.205	34.498	1.335
Probability	0	0	0.115	0.186	0.005	0.36	0	0.201	0	0.513
Observations	30	30	30	30	30	30	30	30	30	30

Note: ***, **, * denotes 1%, 5% and 10% level respectively

BR = Banking rate, CRR= Cash reserve ratio, GRW = Growth rate, LQR= Liquidity ratio, LR= Lending rate,

DR= Deposit rate, MS_PER = Money supply

Note: 1. CAL_RSME is credit allocation to rural SMEs, BC_SME is credit to the SMEs BC_PS is credit allocation to the private sector

2. All the variables are expressed in percentage except credit to rural SMEs, SMEs and private sector that are expressed in N'Billion

Unit Root Test

Augmented Dickey-Fuller (ADF) and Philip and Perron tests with intercept option were employed to examine stationary property of the variables as depicted in Table 2.

Table 2
Results of the Unit Root Tests

Variables	ADF Test			PP Test		
	Level	1st Diff	Order	Level	1st Diff	Order
LCAL_RSME	-1.057	-3.764***	I(1)	-2.234	-15.815***	I(1)
LBC_SME	-1.803	-5.041***	I(1)	-1.943	-5.020***	I(1)
LBC_PS	-2.582	-3.949***	I(1)	-2.553	-3.886***	I(1)
LBR	-3.560**	-	I(0)	-3.278**	-	I(0)
LCRR	-1.919	-4.274***	I(1)	-1.398	-4.291***	I(1)
LDR	-1.729	-4.912***	I(1)	-1.729	-4.911***	I(1)
LLQR	-2.523	-6.276***	I(1)	-2.548	-7.392***	I(1)
LLR	-1.753	-5.966***	I(1)	-1.753	-6.097***	I(1)
LMS_PER	-0.995	-3.768***	I(1)	-0.839	-4.080***	I(1)
LINF	-4.011**	-	I(0)	-2.341	-5.626***	I(1)
GRW	-2.489	-7.233	I(1)	-2.49	10.221***	I(1)
Critical value	1%	5%	10%			
	-369%	-297%	-263%			

Note: ***, **, * denotes 1%, 5% and 10% level respectively

BR = Banking rate, CRR= Cash reserve ratio, GRW = Growth rate,

LQR= Liquidity ratio, LR= Lending rate, DR= Deposit rate, MS_PER = Money supply

It was discovered that all the variables in the study are not stationary at levels under the ADF test. More importantly, there is consistency in the outcomes of both tests for all the variables except the inflation rate. However, all the non-stationary variables are differenced once, and are thus I(1) variables except the bank rate and inflation that are I(0) series. Thus, the mixed order of integration justifies usage of the ARDL model.

Bound Test

In order to determine the existence of co-integration among the variables in the model, Bound test is employed as highlighted in Table 3. Findings showed that the value of computed F-statistics (2.180) is below the lower bound of the critical value indicating that there is an absence of long run relationship among the variables. Thus, the study will conduct an estimation of the short run and error correction model.

Table 3		
Bound Test Results		
Model: LBC_SME LDR LCRR LLQR LLR LINF GRW		
F statistic: 2.180		
Pesaran et al. critical values		
Significance	I(0)	I(1)
10%	2.334	3.515
5%	2.794	4.148
1%	3.976	5.691

Effect of monetary policy instruments on credit provided for urban SMEs in Nigeria

Result of the short-run effect of monetary policy instruments on credit to urban SMEs is presented in Table 4. Findings revealed that the lagged coefficient of the error correction term is statistically significant at 1% level of significance. Also, the lagged value of credit to the SMEs is positive and significant suggesting the evidence of memory effect on bank credit to SMEs. This suggests that credit provided by the DMBs in the previous year affects the amount of credit that will be made available to the SMEs in the current year. Similarly, monetary policy instruments such as DR and LQR are SMEs' credit-enhancing in the short term as 1% increase in LR and LQR extends credit to SMEs by approximately 1.9% and 0.7% respectively.

On the contrary, the contemporaneous effect of the CRR on credit to SMEs is insignificant though positive. Although, the one-year lag of the monetary policy instruments enhances credit to SMEs in the short term, suggesting that it takes an average of one year lag before the effect of CRR is felt on the quantity of credit to SMEs in Nigeria. Again, the contemporaneous effect of inflation rate on credit to SMEs is not statistically significant in the short run. However, its lag value significantly promotes SMEs' credit.

Lastly, findings suggest that economic growth substantially increases the availability of credit to urban SMEs in the short term. Given the magnitude of economic growth (0.19), 1 unit increase in economic growth will stimulate credit to SMEs by approximately 0.2% in the short run. Findings align with [Sharma and Gounder \(2012\)](#); [Imoughale et al. \(2014\)](#).

Bound test Result

In order to determine the existence of co-integration among the variables in the model, Bound test is employed as highlighted in Table 5. Findings showed that the value of computed F-statistics (295.947) is higher than the upper critical bound at 1% level significance. Thus, signifying the existence of a long run relationship among the variables.

Table 4
Short Run and Error Correction Results

Dependent variable: LBC_SME			
Selected Model: ARDL (2, 2, 2, 1, 2, 2, 2)			
Variables	Coefficients	Std error	Prob.
D (LBC_SME (-1))	0.389**	0.143	0.026
D(LDR)	1.863***	0.326	0.000
D (LDR (-1))	-0.898***	0.259	0.009
D(LCRR)	0.211	0.143	0.178
D (LCRR (-1))	-0.366**	0.139	0.030
D(LLR)	-4.610***	0.815	0.001
D(LLQR)	0.729**	0.290	0.036
D (LLQR (-1))	3.236***	0.421	0.000
D(LINF)	0.191	0.142	0.214
D (LINF (-1))	0.853***	0.172	0.001
D(GRW)	0.224***	0.030	0.000
D (GRW (-1))	0.095***	0.018	0.001
ECT (-1)	-0.571***	0.100	0.000

Table 5
Bound Test Results

Model: LCAL_RSME LDR LCRR LLQR LLR LINF GRW		
F statistic: 295.947***		
Pesaran et al. critical values		
Significance	I(0)	I(1)
10%	2.2334	3.515
5%	2.794	4.148
1%	3.976	5.691

Effect of monetary policy instruments on credit provided for rural SMEs in Nigeria

After establishing long term relationships among the variables, the study conducts an estimation of the long run ARDL. The outcome is presented in Table 6. Findings indicate that deposit and LR though insignificant affected credit to rural SMEs adversely while CRR and LQR positively and significantly affected credit to rural SMEs in Nigeria. Specifically, a 1% increase in cash reserve ratio promotes credit to rural SMEs by 0.5%. In the same vein, a 1% rise in liquidity ratio increases the credit to rural SMEs by 11% over the study period. Furthermore, economic growth has no impact on rural SMEs' access to credit while inflation rates affect rural SMEs positively and significantly suggesting that a 1% rise in inflation rate increases loan extension to rural SMEs by approximately 5.7%.

The findings are in tandem with [Olokoyo \(2011\)](#); [Onoh and Nwachukwu \(2017\)](#) who found that CRR makes credit available to SMES in Nigeria. In addition, the outcome corroborate the findings of [Younus and Akhtar \(2009\)](#). The positive effect of LQR indicates that increase in banks LQR makes credit available to the SMEs. However, the result negates the conclusion of [Ajayi and Atanda \(2012\)](#) that CRR does not significantly affect the quantity of credit available to SMEs in Nigeria. On the other monetary policy instruments, findings revealed that DR and LR though insignificant affects credit to the rural sector adversely, suggesting that movement in deposit and lending rates do not alter the amount of credit available to rural SMEs over time. Notwithstanding, DR and LR substantially enhances credit to rural SMEs in the short term. The implication is that any policy

geared to increase DR and LR would have an immediate impact on credit availability to the rural SMEs in Nigeria. However, results on the positive effect of LR conflicts with the expectation and empirical studies of [Ajayi and Atanda \(2012\)](#); [Orji, Ogbuabor, Okeke, and Anthony-Orji \(2018\)](#) as it is expected that an increase in LR would reduce SMEs demand for the loanable fund which will, in turn, reduce the amount of credit provided by the DMBs to the rural sector. Nonetheless, the results could be interpreted to mean that an increase in LR would encourage DMBs to make more money available to the rural SMEs to increase banks' profit margin in the short term. This finding conforms to [Anigbogu, Okoli, and Nwakoby \(2015\)](#); [Assefa \(2014\)](#).

Table 6
Long run results

Dependent variable: LCAL_RSME			
Variables	Coefficients	Std error	Prob.
LDR	-2.452	0.769	0.193
LCRR	0.529*	0.069	0.083
LLR	-12.797	2.397	0.118
LLQR	11.041*	0.93	0.054
LINF	5.683**	0.384	0.043
GRW	0.104	0.078	0.411
C	-13.979	7.572	0.316

Bound test Result

In order to determine the existence of co-integration among the variables in the model, Bound test is employed as highlighted in Table 7. Findings showed that the value of computed F-statistic (12.103) is higher than the upper critical bound at 1% level significance. Thus, signifying the existence of a long run relationship among the variables.

Table 7
Bound Test Results

Model: LBC_PS LMS LCRR LLQR LLR LINF GRW		
F statistic: 12.103***		
Pesaran et al. critical values		
Significance	I(0)	I(1)
10%	2.234	3.515
5%	2.794	4.148
1%	3.976	5.691

Effect of money supply on credit to private sector in Nigeria

The result of the long run model is presented in Table 8 and findings showed that money supply has long term, positive and considerable effect on private sector credit. The estimate of money supply indicates that private sector credit would rise by 2.7% for every 1% increase in the money supply. In the same way, other monetary policy instruments- CRR and LQR exerted positive and significant influence on DMBs credit to the private sector over the long term. By implication, 1% increase in CRR extends credit to the private sector by 0.5% while a percentage increase in LQR enhances private sector credit by 0.05% over time.

In contrast, LR adversely affected private sector credit in the long term. This implies that a 1% increase in the LR will result in a 7.7% decrease in credit to the private sector. Inflation and economic growth, the two macroeconomic factors, have a favorable and considerable impact on credit to the private sector. This suggests that increasing economic activity levels in Nigeria considerably encourage loans to the private sector. Focusing on the focal variable, money supply, as a major instrument of monetary policy, significantly promotes credit to the private sector over time. This implies that expansionary or loose monetary policy influences credit to private sector. This is an indication that when money supply increases, there will be a downward movement in the LR which will consequently attract the SMEs to borrow from the bank for productive activities. The finding validates the outcome of the previous studies including (Gbenga et al., 2019; Sulaiman, 2020; Ademokoya et al., 2020).

Table 8
Long run results

Dependent variable: LBC_PS			
Variables	Coefficients	Std error	Prob.
LMS_PER	2.712	0.391	0.000
LCRR	0.531	0.141	0.004
LLR	-7.738	1.143	0.000
LLQR	0.049	0.331	0.046
LINF	1.278	0.448	0.017
GRW	0.228	0.040	0.000
C	17.969	3.693	0.001

Summary and Recommendation

This research investigated the effect of monetary policy instruments on SMEs financing by the DMBs in Nigeria. It specifically evaluated the effect of monetary policy instruments on DMBs credit allocation to rural SMEs and also analysed the effect of total money supply on credit allocation to private sector. Secondary data collected from Statistical Bulletin of the Central Bank of Nigeria and World Development Indicator (WDI) of the World Bank for years 1991 to 2020 were utilized. Autoregressive Distributed Lag (ARDL) Bond test approach was employed for the analysis.

Findings showed that credit to rural SMEs and its determinants co-moved in the long run and were significant; money supply positively affected private sector in the long term. On the contrary, there was no long-term correlation between bank credit to SMEs and its predictors. Results showed that liquidity ratio significantly affected credit to SMEs growth in Nigeria. However, expansionary or loose monetary policy encourages credit to the private sector in Nigeria. Conclusively, it can be inferred from the study that money supply to the economy have positive influence on credit availability to the private sector and rural SMEs in Nigeria. It is recommended that rural branches of DMBs should cultivate the habit of giving out adequate credit to rural SMEs for productive purposes. Also, monetary policy makers should continue to maintain adequate level of money supply so as to consistently influence credit to private sector positively.

Contribution to Knowledge

The study significantly added to the corpus of existing knowledge by investigating how monetary policy instruments affect DMBs' credit extension to rural SMEs in Nigeria which existing authors have not given attention over the years. Moreover, most of the researches which covered the nexus between DMBs and SMEs, credit to private sector take their findings up to 2019. This study extended the timeframe of data collection to 2020 in order to determine the current trend on credit allocation to private sector and rural SMEs in Nigeria.

Suggestion for further studies

Further studies should be carried out on how fiscal policy instruments affect credit extension by DMBs to rural SMEs in Nigeria

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