

Does Monetary Policy Affect Economic Growth in Nigeria?

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Abstract

This paper investigates the effects of Cash Reserved Ratio (CRR) and Monetary Policy Rate (MPR) on the economy of Nigeria from 1999–2020. The Real Gross Domestic Products (RGDP) represents the dependent variable while CRR and MPR represent the explanatory variables, which are monetary policy tools employed by the Central Bank of Nigeria (CBN) to manage the volume and flow of money in circulation. Prime lending rate (PLR) of the deposit money banks is included as a control variable. The study employs Auto Regressive Distributed Lag (ARDL) bound test for cointegration to determine the long-run relationships between the variables, while unit root was tested with Augmented Dickey Fuller (ADF) to determine the variations in the variables. Durbin Watson technique was employed to detect serial correlation in the variables. The results of the study reveal the long-run dynamics of the relationship between RGDP and the explanatory variables CRR, MPR and PLR. There exists a negative and significant relationship between RGDP and CRR, which indicates that a long-run relationship exists between RGDP and CRR. The study comes to the conclusion that CBN should take the monetary policy holistically to achieve the goal of stimulating banks' credit to the desired economic agents, which will spur economic growth.

Keywords: Cash Reserve Ratio, Monetary Policy Rate, Gross Domestic Product

I. INTRODUCTION

The impact of the monetary policy of the Central Bank of Nigeria (CBN) on the economic growth of the country has been the subject of research works. The Cash Reserve Ratio (CRR), one of the monetary policy tools of the CBN, is aimed at influencing the volume of credit that the deposit money banks can create in the economic. The CBN increases the rate when it aims to reduce the volume of money in circulation and curtail inflation while the rate is reduced when money creation to stimulate growth is being targeted. Similarly, the regulator uses its monetary policy rate (MPR) to signal to the market, banks and other financial institutions, its interest rate and its sentiments concerning the economic targets for the period.

The important role of the financial industry in the economic development of any nation is significant. The correlation between economic development and financial development has been a subject of research

by economists and finance scholars over decades. The focus of scholars in the relationship was primarily whether development in the financial sector precedes development in the real sector, leading to two types financial developments; demand following, and supply leading (Patrick, 1994).

Financial intermediation has been organized in two formats; commercial banking or transactions banking, comprising intermediation between funds owners and savers and short-to-medium term loans without the participation of the fund users. To stimulate lending, the monetary authority resort to its statutory functions which involve employing monetary policy techniques and tools that affects the direction, volume and cost of credit to the productive sector of the economy. The relationship between economic growths of the statutory limits lending that banks are allowed through their cash reserve ratio (CRR) as well as the rate at

which the CBN pegs its lending to the deposit money banks in Nigerian (MPR) are the focus of this study.

The Central Bank of Nigeria (CBN) employs the CRR to stimulate economic growth; by allowing deposit money banks access to a large pool of funds for lending to their customers; and, to curtail inflation; by reducing the amount of cash allowed for lending to the economy. These are intended to reduce the cost of funds to the real sector of the economy.

The real sectors; manufacturing, mining, agriculture, fishery, construction and SMEs; are the growth drivers of the economy since increase in production capacity through loans and advances leads to increase in employment and capacity building, which eventually leads to economic growth. The real sectors of the Nigerian economy had suffered from paucity of funds and high interest rates over the years due to the structure of financial institutions, which was organized more to facilitate short-term funding of merchandise than for long-term - in spite of the CBN's best efforts in raising the loan deposit ratio benchmark to 80 percent (Omotola, 2019).

At 27.5 percent, the Nigerian commercial banks' regulatory induced CRR is one of the highest of such around the world. The capacity of the lenders to avail their customers with loanable funds for productive uses is invariably hampered by the restrictions to place huge sums of money with the CBN (Kola-Oyeneyin & Kuyoro, 2020).

The Problem

The long-term financing of manufacturing, mining, agriculture, construction and entrepreneurial sectors was near absent or grossly inadequate to meet the yearning of the productive sectors of the economy as a result of the poor execution of the monetary policy of the CBN. Subsequently, investment in expansion, new acquisition of plants, hiring of competent staff and research and development (R&D) had suffered (Sanusi, 2003). Sanusi (2010) argued that banks

concentrated on the asset management, investment advisory and capital market operations, neglecting the role of intermediation in the productive sectors of the economy.

In view of the persistent poor performance of banks in creating and directing credit to the productive sectors of the economy, which are needed for increased economic activities leading to economic growth, and as the economy continues to grapple with low credit access and financial inclusion it has become imperative for a new look into the effects of the monetary policies of the regulatory institution charged with the duty to superintend the financial institutions. This study measures the impact of CRR and MPR on the GDP growth of Nigeria in the period 1981 to 2020.

II. LITERATURE REVIEW

Early finance theorists Schumpeter (1934, 1939) and Gerschenkron (1962) placed banks at the center of economic growth and as catalysts for industrialization based on studies of European economies regarded as the most successful emerging economies. Banks promote economic growth and innovative activities through selection and funding of entrepreneurship, (Fohlin, 1985; Al Jarhi, 2005).

The causal relationship between finance and economic growth model developed by Greenwood and Smith (1997) and Boyd and Smith (1996) linked the emergence of financial markets to the period after some real development and their expansion fuel further growth.

These models imply that exogenous creation of an advanced financial system may not lead to real growth. In the view of the former, these models provide distinctions showing that growth rates obtained in economies with either banks or equity markets exceed those of economies without financial intermediaries.

King and Levine (1993) specified the channels by which financial system affects

productivity growth: screening prospective entrepreneurs for the most promising projects, mobilizing capital to fund investments, diversifying investors' portfolios to eliminate risks revealing the potential benefits of productivity-enhancing activities. Thakor (1997) identified six overlapping links between the financial system and the real economy; screening, credit rationing, liquidity transformation and bank runs, loan commitments by banks, debt restructuring and the feedback role of financial markets. Koivu (2002) discovered that qualitative development in the banking sector is significantly and positively related to economic growth. McKinnon (1973) and Shaw (1973) emphasized the possibility of economic growth and the financial sectors negative correlation. Calderon, Cesar and Lin Liu (2002) examined the direction of causality of financial development and economic growth and found that, financial development generally leads to economic growth; Granger causality flows from financial development to economic growth and vice versa; financial deepening contributes more in developing countries than industrial countries; the longer the sampling interval, the larger the effect of financial development on economic growth; financial deepening propels economic growth through faster capital accumulation and productivity growth.

The role of the banking system in the economic activities has dominated the public and industry concerns and has triggered regulatory responses in Nigeria in the past decades. Balogun (2007) observed that in the furtherance of its regulatory mandate, the CBN in 2004 introduced the bank consolidation process, which aimed at solving, for the last time, the problems of shallow depths of the capital market, inaccurate returns submitted to monetary authorities by the banks, lack of harmony between fiscal and monetary policies, and poor loans repayments and bad debts. Other studies (Awoyemi, 2000; Aburime, as cited in Okolo, 2015; Okagbue & Aliko, 2005) focused on financial sector consolidation, distress in the banking sector, post consolidation banking sector period, i.e.

2005 banking in Nigeria and the concentration impact of the CBN consolidation exercise respectively.

Gerschenkron Hypothesis

The Gerschenkron hypothesis holds that the role of financial institutions in industrialization depends on the extent of economic backwardness on the eve of industrial takeoff. Financial institutions play important role in the industrialization of moderately backward economies. In extremely underdeveloped countries, the role of financial institutions was inadequate to support the transition to modern industrialized economy and needed to be supplemented by centralized institutional intervention, mostly from government (Gerschenkron, 1962).

Da Rin and Hellman (2002) developed a new theory of the role of financial institutions – particularly banks, in promoting industrialization in emerging economies, starting from a “big push” model where there are two *Pareto-rankable equilibria*. A bank can induce the economy to move from the low to the high equilibrium, by mobilizing a “critical mass” of firms. Banks will only play a catalytic role if they are sufficiently large to invest in a critical mass of firms and have enough market power to recoup their costs. The costs of mobilizing the critical mass are reduced if banks are allowed to own equity through which they can have a share in the value they create.

Banks would be potential candidate for coordination; firstly, the availability of external finance directly influences entrepreneurs' decisions to set up firms. Secondly, funds provided by banks are essential input for most firms. Moreover, banks interact with many entrepreneurs and thus have a unique opportunity to induce coordination. Finally, they have a financial self-interest in the emergence of new markets.

Empirical Review

Opoku, Ibrahim and Sare (2019) discovered independent evolutions of financial development and economic growth in 47

African countries. Analysis showed that both the demand following and supply leading hypotheses are present in the African countries reviewed. Nevertheless, data attested to strong neutrality hypothesis, whereby financial development and economic growth are independent of each other.

Ajibola and Adeyemi (2018) examined the impact of monetary policy on economic growth in Nigeria. The study employed multi variable regression method to analyze data using money supply, exchange rate, interest rate and liquidity ratio as independent variable while GDP at constant prices served as the dependent variable. Other necessary tests such as unit root tests, error correction model were carried out on the data. Results showed that money supply and exchange rate had a positive but insignificant impact on economic growth.

On the effect of financial repression on savings, investments and economic growth, Oloyede (1998) discovered that the impact of financial repression on the economy is generally negative. It was found that the real interest rate was negative and greatly repressed the level of savings, investments and the economic growth rate.

Chandler (1990) found that the representatives of the German *Grossbanken* participated to a greater extent in the top-level decision making of new industrial companies than did representatives of financial institutions in the US and Britain. Indeed, his findings reveal that banks are well represented in firms' decision making process at the early years of the firms' history, often responsible or partly responsible for investment decisions, drafting administrative procedures, in selection of top and middle level managers and involvement in internal financial management of firms that they finance.

Dakasku, Jelilov, Isik and Akyuz (2020) considered the impact of monetary policy tools on the Nigerian economic growth for years 1986-2018. The study used the ARDL

estimation technique to determine the short-run and long run dynamic relationship between money supply, interest rate and exchange rate and the GDP. Result showed that long run model of the log of money supply has positive impact on the log of GDP.

It also indicated that the current period exchange rate is inversely related to the dependent variable while the one period lag has positive impact on the GDP. Similarly, the current value of interest rate has positive and significant impact on the GDP. The short-run one period lag of the target variable positively affected the current value, while exchange rate in its current and one period lag has significant negative relationship with the GDP. The coefficient of the error correction model indicated 19 percent for the speed of adjustment of the variables to equilibrium.

Sanusi (2003) identifies money laundering and other criminal activities perpetrated by bank employees and directors for the failure of banks to stimulate the real sector. He opines that bank workers collude with criminal elements in the society to launder the proceeds of illicit money made through narcotic sales, fraud and public sector financial misappropriation. Proceeds of these monies were used to ship in "goods" from outside the country leading to "dumping", which hinders the growth of the real sector. In addition, many CEOs and other directors bought property abroad with the proceeds of financial fraud.

The result of the study conducted by Okoh and Otene (2020) revealed that monetary policy, with money supply as a proxy, has a positive impact on the real GDP in Nigeria. However, other monetary policy variables such as interest rate, M2, exchange rate and liquidity ratio showed non-significant negative correlation with inflation. Similarly, the result of an empirical study by Idris (2019) showed a long-term relationship existing between real GDP and monetary policy variables of money supply, interest rate and exchange rate. While money supply has a positive effect on the dependent variable, the opposite was the

case with exchange rate and interest rate, which have negative effect on real GDP.

Using Ordinary Least Square (OLS) regression technique on time series data of variables representing economic growth and monetary policy, Daniel and Inim (2020) found a long-run relationship running between the proxies for economic growth and monetary policy. The result showed a positive relationship between the GDP and interest rate, open market operations (OMO) and exchange rate while a negative relationship exist between the GDP and cash reserve ratio. In view of the foregoing, the research hypothesis for the study is stated as follows:

H₀: There is no significant relationship between cash reserve ratio, monetary policy rate and economic growth in Nigeria.

Model Specification

The study presents the following basic specifications for the model functions:

$$RGDP = f(CRR, MRR, PLR) \dots \dots \dots (1)$$

$$\Delta \ln RGDP_t = \alpha_0 + \sum_{i=1}^p \alpha_{1i} \Delta \ln CRR_{t-1} + \sum_{i=1}^p \alpha_{2i} \Delta \ln MPR_{t-1} + \sum_{i=1}^p \alpha_{3i} \Delta \ln PLR_{t-1} + \lambda ECT_{t-1} + e_t \dots \dots \dots (2)$$

Where: $\Delta \ln RGDP$ = Log of Real Gross Domestic Product; $\Delta \ln CRR$ = Log of Cash Reserve Requirement; $\Delta \ln MPR$ = Log of Monetary Policy Rate; $\Delta \ln PLR$ = Log of Prime Lending Rate; λECT = Error correction term; λ = Speed of adjustment parameter; e_t = Error term; $\alpha_0, \alpha_1, \alpha_2$ = Coefficients.

The dependent variable is RGDP, while CRR, MPR and PLR represent the independent variables. Equation 2 treats the null hypothesis. The variables represent the

III. METHODOLOGY

The ARDL technique of regression analysis was used to estimate, analyze and interpret the specified. The study employs Auto Regressive Distributed Lag (ARDL) bound test for cointegration to determine the long-run relationships between the variables, while unit root was tested with Augmented Dickey Fuller (ADF) to determine the variations in the variables. Durbin Watson technique was employed to detect serial correlation in the variables. The results of the study reveal the long-run dynamics of the relationship between GDP and the explanatory variables CRR, MPR and PLR. The period range from 1981 to 2020. This period represents years of consistent application of MPR by the CBN. Data was sourced from the CBN Statistical Bulletin for various years in the period.

parameters in measuring the volume and cost of credit in the financial system on one hand and the growth of the economy on the other.

IV. RESULTS AND DISCUSSION

Hypothesis H₀: There is no significant relationship between GDP growth and CRR and MPR.

Table 1: Descriptive Statistics

	LNRGDP	LNCRR	LNMPR	LNPLR
Mean	4.511567	0.810397	1.0928970	1.224339
Median	4.417838	0.897592	1.122139	1.240039
Maximum	4.857900	1.352183	1.414973	1.474216
Minimum	4.209823	0.000000	0.778151	0.889302
Std. Dev.	0.228110	0.384367	0.136001	0.122902
Skewness	0.313193	-0.356596	-0.478623	-0.695519
Kurtosis	1.541773	2.167126	3.350150	3.690614
Jarque-Bera	4.197978	2.003867	1.995632	4.019887
Probability	0.122580	0.367169	0.368684	0.133996

Source: Author's computation (2021)

The basic characteristics of the variables under study were shown in Table 1 above in form of descriptive statistics. The average of RGDP is 4.511567. Similarly, the average of CRR is 0.810397. Also, the average of MPR is 1.092897 and that of PLR is 1.224339 for the period of the study. On the other hand, the minimum value for the GDPDR is 4.209823 and its maximum value stood at 4.857900. For the CRR, the minimum value was 0.000 and its maximum value was 1.352183. Further, the minimum value for the MPR was 0.778151 with a corresponding maximum value of 1.414973 for the period and for PLR was 0.889302 and 1.474216 for minimum and maximum respectively. The standard deviation of

0.228110; 0.384367; 0.136001 and 0.122902 for RGDP, CRR, MPR and PLR respectively.

In terms of skewness, RGDP is positively skewed with a value of 0.313193. This implied that RGDP exhibited normal distribution with a right long tail. For CRR, MPR, and PLR the skewness values are -0.356596; -0.478623; and -0.695519 respectively, which show that these variables are negatively skewed. In terms of Kurtosis, RGDP has a value of 1.541773, CRR has a value of 2.167126 and MPR has a value of 3.530150 also PLR has a value of 3.690614 implying that the series exhibited flatness.

Table 2: Correlation Matrix

	LN RGDP	LN CRR	LN MPR	LN PLR
LN RGDP	1			
LN CRR	0.4801	1		
LN MPR	-0.0927	0.2918	1	
LN PLR	0.1126	-0.0408	0.6553	1

Source: Author's computation (2021)

The correlation results from Table 2 shows the relationships between the monetary policy ratios and economic growth in Nigeria. The table shows that there is a moderate and positive relationship between RGDP and CRR with correlation coefficients of 0.4801. This result implies that cash reserve ratio and real GDP have a direct relationship. Similarly, coefficient between RGDP and PLR is 0.1126 indicating a positive and low relationship between the variables. Which means that prime lending rate and real GDP have a direct relationship. However, the correlation

coefficient between RGDP and MPR is -0.0927 indicating a weak negative relationship between the variables. These results clearly imply that monetary policy rate and real GDP are inversely related. However, the relationship between CRR and MPR is a positively weak relationship with a correlation coefficient of 0.2918. Similarly the relationship between MPR and PLR is a positively moderate relationship with a correlation coefficient of 0.6553. Finally, the table shows that the relationship between CRR and PLR is a negatively weak relationship with a correlation coefficient of -0.0408.

Table 3: Stationarity Test

VARIABLE	LEVEL	FIST DIFFERENCE	REMARK
LN of RGDP	-1.0414 (0.7291)	-3.7823 (0.0065)***	I(1)
LN of CRR	-1.5095 (0.5184)	-5.4590 (0.0001)***	I(1)
LN of MPR	-3.1887 (0.0283)**		I(0)
LN of PLR	-3.4532 (0.0149)*		I(0)

Source: Author's computation (2021)

- (*)Significant at the 10%; (**)Significant at the 5%; (***) Significant at the 1%; (no) Not Significant
- Lag Length based on AIC

Table 3 above shows the summary results of the stationarity test for the variables. As indicated in the table, all the values of Augmented Dickey-Fuller test statistics shows that RGDP and CRR the variables are stationary at first difference i.e.

I(1) while MPR and PLR which was stationary at levels i.e. I(0). This implied that the data are stationary and using them would not lead to a spurious regression result. Hence, since the stationarity of all the data are at different

integration order. This therefore emphasizes the need to conduct a cointegration test to see if a long-run relationship exists among the variables using bounds test approach.

Table 4: Lag Selection

Lag	LNL	LR	FPE	AIC	SC	HQ
0	74.4131	NA	$2.61e^{-07}$	-3.806179	-3.632026	-3.744782
1	211.2899	236.7578*	$3.82e^{-10}$	-10.33999	-9469228*	-10.03302*
2	227.4001	24.38296	$3.93e^{-10}$	-10.34595*	-8.778570	-9.793375
3	240.4344	16.90938	$5.02e^{-10}$	-10.18564	-7.921650	-9.387479

Source: Author's computation (2021)

*Indicates lag order selected by the criterion; LR: sequential modified LR test statistic (each test at 5% level); FPE: Final prediction error; AIC: Akaike information criterion; SC: Schwarz information criterion;

HQ: Hannan-Quinn information criterion

Table 4 shows the recommended optimal lag selection by various information criterion. This analysis makes use of the Akaike information criteria (AIC) with optimum lag selection at lag 2.

Table 5: Bound Test for Cointegration

Critical Value	F Statistic	Lower Bound Value	Upper Bound Value
10%	4.190773	2.27	2.2
5%		2.79	3.67
2.5%		3.15	4.08
1%		3.65	4.66

Source: Author's computation (2021)

Table 6: ARDL Estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob*
LNRGDP(-1)	1.313542	0.156527	8.391811	0.0000
LNRGDP(-2)	-0.363187	0.158862	-2.286181	0.0314
LNCRR	-0.011949	0.016449	-0.726447	0.4746
LNCRR(-1)	0.038283	0.015286	2.504435	0.0195
LNMPR	-0.072131	0.040880	-1.764446	0.0904
LNMPR(-1)	-0.042016	0.036747	-1.143384	0.2642
LNMPR(-2)	-0.072768	0.029967	-2.428284	0.0230
LNMPR(-3)	0.052972	0.030607	1.730726	0.0963
LNMPR(-4)	-0.058198	0.024813	-2.345472	0.0276
LNPLR	0.085671	0.031881	2.687168	0.0129
LNPLR(-1)	0.071872	0.036508	1.968649	0.0606
C	0.231472	0.129224	1.791252	0.0859
R-squared	0.997588	Mean dependent var		4.541047
Adjusted R-squared	0.996483	S.D. dependent var		0.221125
S.E. of regression	0.013114	Akaike info criterion		-5.569035
Sum squared resid	0.004128	Schwarz criterion		-5.041196
Log likelihood	112.2426	Hannan-Quinn criter.		-5.384805
F-statistic	902.4376	Durbin-Watson stat		2.235896
Prob(F-statistic)	0.000000			

Source: Author's computation (2021)

*Note: p-values and any subsequent tests do not account for model selection

As mentioned before the bound test is the test to determine if there is a long-run relationship as a null hypothesis says that; there is no long-run relationship, according to the value of F-statistics, first case; if this value lower than $I(0)$ we don't reject the null hypothesis and there is no long run relationship, second one; if this value greater than $I(1)$ we reject the null hypothesis and we can indicate that there is long relationship, the last case; if this value lies between two bounds we cannot judge. Here, we are in second case as the value of F-statistic greater than upper bound which include that there is a long-run relationship at all level of significance 1%, 5%, and 10%.

Explicitly, the computed F-statistic of 4.190773 is greater than the higher critical bound value of 3.2 and 4.67 of 10% and 5% respectively, thus indicating the existence of a long-run relationship among the variables.

From the table, the R^2 (co-efficient of determination) indicates that about 99.7% of the variations in RGDP is explained by the independent variables. This is however a good fit. To further confirm the goodness of fit of the model, the adjusted R^2 shows that 99.7% of the variations in RGDP will still be explained by the explanatory variables.

Also, the Durbin Watson statistics of 2.26 (approximately) suggests the absence of serial correlation. This indicates that there is no correlation among the error term of each of the variables. The F-statistics is highly significant at 1% level of significance. In this model, the dependent variable is RGDP while the independent variables are CRR MPR and PLR.

Table 7: Long-run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNCRR	0.417852	0.079651	5.246013	0.0000
LNMPR	-1.148809	0.297776	-3.857957	0.0005
LNPLR	1.095421	0.315432	3.472767	0.0014
C	4.087304	0.287666	14.20851	0.0000

Source: Author's computation (2021)

Table 8: Short-run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.008212	0.003741	2.195429	0.0355
D(LNRGDP(-1))	0.479153	0.157631	3.039715	0.0047
D(LNCRR(-1))	-0.005913	0.016531	-0.357668	0.7229
D(LNMPR(-1))	-0.004796	0.036495	-0.131425	0.8963
D(LNPLR(-1))	0.024262	0.035658	0.680409	0.5011
ECT(-1)	0.020752	0.022206	0.123949	0.0021
R-squared	0.279025	Mean dependent var	0.015397	
Adjusted R-squared	0.166373	S.D. dependent var	0.019643	
S.E. of regression	0.017934	Akaike info criterion	-5.060263	
Sum squared resid	0.010292	Schwarz criterion	-4.801697	
Log likelihood	102.1450	Hannan-Quinn criter.	-4.968267	
F-statistic	2.476869	Durbin-Watson stat	2.293947	
Prob(F-statistic)	0.052630			

Source: Author's computation (2021)

Table 7 shows the long-run dynamics of the relationship between RGDP and the other explanatory variables are CRR, MPR and PLR. There is a negative and significant relationship between RGDP and MPR, which

indicate that a long run relationship exists between RGDP and MPR. Specifically, a unit change in MPR, increases RGDP by -1.149, indicating that as MPR decreases, RGDP increases in the long run. However, a unit

change in CRR, increases RGDP by 0.418. This indicates that as MPR increases, RGDP increases in the long run. Also, a unit increase

in PLR increases RGDP by 1.095 hence, as PLR increases RGDP also increases.

The ECT shows how much of the disequilibrium is being corrected, that is, the extent to which any disequilibrium in the previous period is being adjusted in current point. A positive coefficient indicates a divergence, while a negative coefficient indicates convergence. If the estimate of ECT = 1, then 100% of the adjustment takes place within the period, or the adjustment is instantaneous and full, if the estimate of ECT

= 0.5, then 50% of the adjustment takes place each period/year. ECT = 0, shows that there is no adjustment, and to claim that there is a long-run relationship does not make sense any. In our case the ECT is positive and highly significant which indicate divergence and we can conclude that there is short run relationship between the dependent variable and the independent variable.

Diagnostic Test

Table 9: Heteroskedasticity Test - Breusch-Pagan-Godfrey

F-statistic	2.152630	Prob. F(5,32)	0.0844
Obs*R-squared	9.564303	Prob. Chi-Square (5)	0.0886
Scaled explained SS	9.737939	Prob. Chi-Square (5)	0.0830

Source: Author's computation (2021)

The heteroskedasticity test for Breusch-Pagan-Godfrey in table 9 above of 0.0844 indicates that the probability value is greater

than 5% level of significance, thus the decision is that we reject the H_0 and conclude that the variables are homoscedastic.

Table 10: Breusch-Godfrey Serial Correlation LM Test

F-statistic	6.703946	Prob. F(2,30)	0.0039
Obs*R-squared	11.73749	Prob. Chi-Square(2)	0.0028

Source: Author's computation (2021)

As shown in Table 10, the null hypothesis that there is no serial correlation is not rejected at level 0.05, which means that there

is no evidence for serial correlation in the residuals term of the estimated model.

V. CONCLUSION AND RECOMMENDATIONS

Findings from the study show that the R^2 (coefficient of determination) indicates that about 99.7% of the variations in RGDP are explained by the independent variables, while the adjusted R^2 shows that 99.7% of the variations will be explained by the explanatory variables. Also, the Durbin Watson statistics of 2.24 (approximately) suggests the absence of serial correlation. This indicates that there is no correlation among the error term of each of the variables. The F-statistics is highly significant at 1% level of significance.

The study also reveals the long-run dynamics of the relationship between RGDP and the other explanatory variables; CRR, MPR and PLR.

There is a negative and significant relationship between RGDP and MPR, which indicates that a long run relationship exists between RGDP and MPR. Specifically, a unit change in MPR increases RGDP by -1.149, indicating that as MPR decreases, RGDP increases in the long run. However, a unit change in CRR increases RGDP by 0.418. This indicates that as MPR increases, RGDP increase in the long run. Also, a unit increase in PLR increases RGDP by 1.095; hence as PLR increases RGDP also increase.

The impact of CRR on the growth of the economy of Nigeria is such that cash reserve ratio of the deposit money banks significantly impact the amount of liquidity available to the banks for lending to the economy. A higher

ratio signifies that productive sectors of the economy are stifled of funds, which affects the performance of the GDP. This correlates with Kola-Oyeneyin and Kuyoro (2020) with. Contrarily, the monetary policy rate (MPR) of the CBN has significant positive impact on the growth of the economy. This could be a result of other sectors in the economy taking advantage of the CBN rate to invest in the capital market for instance.

Based on the findings in this study, it is established that the CBN monetary policy tools have significant impact of the growth of the economy, howbeit in opposite directions. The cash reserved ratio failed to stimulate significant credit to the right channel in the economy that should have generated increased capacity and employment in the system. Therefore, the following suggestions and recommendations are made:

It is well known that commercial banks source their funds on short-term basis, which curtail their ability to lend to the productive sectors on long-term basis. However, Nigerian commercial banks should devise other lending practices such as continuous rollover of short-term credit to performing firms in order not to starve them of funds and to guarantee their survival. The survival of firms is crucial to the survival of banks; therefore banks should encourage proper application of revolving loan.

Monetary authority should formulate a review and assessment framework, based on timeline, for the financial intermediation model adopted in time to determine the effectiveness and prompt response.

A prompt review of CRR is necessary. MPR as a tool should be applied bearing in mind that foreign portfolio investments, which it attracts are not sustainable for the Nigerian economy in the long-term. A more critical posture of the role of the monetary authorities in aggregating local and foreign investable funds to the productive sectors of the economy to stimulate growth and employment should be explored.

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