African Journal of Integrated Knowledge and Technology Vol. 4 No. 1 June 2024
Print ISSN: 2814-2802 e-ISSN: 3027-0553 www.ajikt.org

THE IMPACT OF MONEY SUPPLY ON REAL GROSS DOMESTIC PRODUCT (RGDP) OF NIGERIA, 2000-2021

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Abstract

The study examined the impact of money supply on real economic growth of Nigeria. The general objective is to find out the impact of money supply on real Gross Domestic Product (GDP). In the model specified, real gross domestic product is the regressed while real money supply, real exchange rate and real interest rate are the regressors. Secondary data used were collected from the CBN statistical bulletin for the period of 2000-2021. The statistical technique used for the analysis is ordinary least square (OLS) technique. From the analysis, real money supply and real interest rate are not significantly related to real GDP while exchange rate is statistically significant. The model has 61% explanatory power and the Durbin-Watson statistic does not reveal any autocorrelation among the variables used. One percent increase in real money supply will reduce real GDP by 0.16%, one percent increase in real exchange rate will also reduce real GDPby0.03% and 1% increase in real interest rate will increase real GDP by 0.05% approximately. The study recommend that government should utilize the contractionary monetary policy to reduce the excess money in circulation for a robust economy.

Key words: Real GDP, Real money supply, Real Exchange rate, Real interest rate, Economic growth.

Introduction

The major aim of every economy all over the world is to achieve high growth rate of output and stability in general price level. This has been the target of every economic policy. Historically, money supply, money supply (M2) has been considered to be a key factor that drives economic performance and business cycles. There has been a lot of focus on money supply by a good number of macroeconomic schools of thought due to its significant effect on macroeconomic profiles particularly as it relates to interest rate, inflation and business cycles. Monetarists believe that money supply is a tool that gives boost to economic growth based on unexpected increase in money stock (Jawarid, Qadri & Ali, 2011) while Keynesians argue that money supply has a limited influence on economic growth (Twinoburgyo & Odhiambo, 2017).

An increase in money supply typically lowers interest rate which in turn generates more investment and put more money in the hands of consumers, thereby stimulating spending,

businesses respond by ordering more raw materials, increase production and increase employment; while the opposite occurs when money supply falls; growth rate declines, businesses reduce production and labour demand become low, which in turn reduces consumers spending. But in Nigeria the reverse is the case. An increase in money supply does not stimulate economic growth.

Based on the above background, the study aims to investigate the impact of money supply on real economic growth in Nigeria as well the relationship between money supply and real Gross Domestic Product (GDP) in Nigeria.

Objective of the study

The specific objectives include:

- To find out the impact of money supply on real growth rate in Nigeria
- To ascertain the relationship between money supply and real growth rate in Nigeria
- To recommend ways in which money supply could be used more effectively.to enhance growth rate in Nigeria.

Research Hypotheses

The following hypotheses were made to guide the study

Ho_1: There is no significant impact of money supply on real growth rate in Nigeria

Ho_2: There is significant impact of money supply on real growth rate in Nigeria.

Significance of the Study

This research work will help to disclose the relevance of money supply to the economic growth of Nigeria and to ascertain the relationship between money supply and real gross domestic product. It will also add to existing knowledge concerning the relationship between some macroeconomic variables like money supply, real interest rate, real exchange rate and real gross domestic product,

This study will help formulate policies capable of enhancing economic growth and stability. It will help students, government, policy makers to understand the relationship among money supply, real interest rate, real exchange rate and real gross domestic product in Nigeria.

Literature Review

Money supply is the amount of money within a specific economy available for purchasing goods or services. A country's money supply is known as its "stock of money". the money supply of a country is defined as the sum of all commodity money(s), fiat money and bank money that are held by non-banking public at given period of time (Abdullahi, 2009). Money supply is a monetary policy instrument that is extremely important to improve a nation's economic development. Central Bank of Nigeria (2018) defined broad money supply (M2) as a measure of the quantity of money consisting of narrow money (M1) plus savings and small-time deposits, overnight commercial bank deposit plus non-institutional money market account.

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Economic growth is an increase in the monetary value of goods and services produced by a country over a period of time, usually a year. According to Anyanwocha (1993), the rate of economic growth measures the percentage increase in real national output during period of time, usually a year over the preceding year's level. Jhingan (2003), defines economic growth as a process whereby the real per capital income of a country increase over a long period of time.

Exchange rate is defined as the rate at which one currency exchanged for another (Jhingan 2006). According to Ibenta (2012) exchange rate is defined as the price of the unit of one country's currency quoted in terms of another country's currency. the real exchange rate is defined as the relative price of domestic products in terms of foreign products (Meshulam & Sanfey, 2019).

A real interest rate is defined as a nominal interest rate connected for a measure of expected inflation. Therefore. It measures the anticipated real return of an investment, (FCB 1999). According to Glossary (2024) real interest rate is the lending interest rate adjusted for inflation as a measured by the GDP deflator.

Empirically, Chukwu (2009) study on measuring the effects of monetary policy innovations in Nigeria using a structural vector Autoregressive (SVAR) approach to trade the effects of monetary policy shocks on output and price in Nigeria. The study conducted the experiment using three alternative policy instruments, that is broad money (M2), MRR and REER, Chukwu (2009) found evidence that monetary innovations carried out on the quantity based nominal anchor (M2) has modest effect on output and price with a very fast speed of adjustment. The study conclude that manipulation of the quantity of money (MV) in the economy is the most influential instrument for monetary policy implementation., Chukwu (2009) recommends that central banks should place more emphasis on the use of the quantity-based nominal anchors.

Chipote and Palesa (2014) employed Error Correction Model and Johnson co-integration to examine the impact of monetary policy on economic growth in South Africa for a period of 2000 to 2010. The finding revealed that money supply as a monetary policy tool had insignificant influence on economic growth in South Africa. Also, Havi and Emi (2014) examined the relative importance of monetary policy and fiscal policy on economic growth in Ghana from 1988-2012. The study utilized ordinary least Squares (OLS) method which revealed that money supply had a significant positive impact on the economic growth of Ghana.

Omodevo (2019) investigated the effect of money supply in enhancing economic growth in Nigeria and Ghana in the period 2009 to 2018. The study used ordinary least square regression technique for the analysis. The result reveals that broad money supply (M2) has an insignificant negative influence on RGDP in Nigeria, but in Ghana, the impact is significant and positive. Broad money supply (M3) exerts insignificant positive influence on RGDP in Nigeria, but significant negative impact on RGDP in Ghana while credit to private sectors (CPS) has insignificant positive influence on RGDP in both Nigeria and Ghana. Nwanne (2014) investigated the relationship between money supply and economic growth in Nigeria for periods 1987 to 2010. The study used ordinary least square (OLS) technique for the analysis. The result found that there is a positive and significant relationship between money supply and economic growth in Nigeria. This implies that M2 has dominant influence on output and prices.

Omankhanlen, Samuel-Hope and Ehikioya (2022) investigated the effect of money supply on economic growth in Nigeria between the 1990 and 2018. Autoregressive distributed lag (ARDL) data was adopted. The empirical results show that broad money supply indicates positivity, yet weak significant to determine the economic growth in Nigeria, credit to private sector is inversely and statistically significant. Inflation and interest rate both have inverse effect. Ufoeze, Odimgbe, Ezeabalis and Alajekwu (2018) investigated the impact of monetary policy on economic growth in Nigeria by using natural GDP Lags as dependent variables: monetary policy rate, money supply, exchange rate, lending rate and market-controlled investment for the period 1986 to 2016. The research followed the ordinary least squared technique and also carry out root and co-integration tests for the unit. The analysis showed that there is a long-term relationship between the variables. Also, monetary policy rates, interest rates and investment have a substantial positive impact on Nigeria economic development.

Eze, Ogbonnaya and Elom (2020) examined the impact of monetary policy on economic growth of Nigeria for the period 1980 to 2018. The augmented Dickey fuller unit root test, Johansen's cointegration test and Vector Error Correction were used for the analysis. The result that % increase in money supply leads to 0.40% increase in RGDP in the long run and 0.62% decrease in RGDP in short run. A % increase in inflation rate leads to 4.57% decrease in RGDP in long run and 1.05% increase in RGDP on average in short run.

Methodology

Research Design

The study employed descriptive research design. This helps in gathering information about the existing status of the phenomena in order to describe what exists with respect to variables.

Data Requirement and Sources

Secondary **d**ata was collected for the analysis from 2000 to 2021. The data were sourced from the central bank of Nigeria (CBN) bulletins.

Mode Specification

Based on the objective of the study, to capture the impact of money supply on real gross domestic product in Nigeria and to determine the relationship among the variable, the model is specified below using real gross domestic product as the regressed while real money supply, real exchange rate and real interest rate as the repressors.

They are expressed functionally as;

RGDP = F (M2, REXC, RINR)

Where RGDP = Real gross domestic product

M2 = Money Supply

REXC = Real exchange rate

RINR = Real interest rate

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Transforming the equation into a linear function.

RGDP = $\beta_o + \beta_1 M2 + \beta_2 REXC + \beta_3 RINR + \mu i$

Where Bo = The intercept

$\beta_1, \beta_2, \beta_3$ = Coefficients of explanatory variables

μi = The error term

The error term (μi) is used to capture other variables that are not included in the model.

Data analysis

From the Augmented Dickey Fuller Unit Root Test, the extracted results are given in the table below:

Table 1: Augmented Dickey Fuller Unit Root Test

Variables	t-statistic @ 1(0)	t-statistic @ 1(1)	Order of integration
m2	-3.70921	-	1(0)
REXC	-	2.848704	1(1)
RGDP	-4.768366	-	1(0)
RINR	-3.401334	-	1(0)
Test Critical Values:			
1%	-3.831511	-2.699769	
5%	-3.029970	-1.961049	
10%	-2.655194	-1.606610	

Source: EViews Version 9

The information in the above table shows that the variables in use are of heterogeneity in their order of integration. They are stationary at level and first differencing. Because they are stationary, they will produce robust results needed for correct inferences. However, because of the heterogeneity in order of integration, it has to be ascertained whether cointegration exists among the variables. The most appropriate econometric method to adopt in this case is the Autoregressive Distributed Lag Bounds Test to ascertain if there is any long run relationship between the variables. The Ordinary Least Square statistical technique will be adequate in the analysing the relationships between the variables only when the bounds test result is revealed. The result of the ARDL Bounds Test is given below:

ARDL Bounds Test

Date: 02/21/24 Time: 19:23

Sample: 4 21

Included observations: 18

Null Hypothesis: No long-run relationships exist

Table 2: ARDL Bounds Test

Test Statistic	Value	K
F-statistic	30.31698	3

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	3.47	4.45
5%	4.01	5.07
2.5%	4.52	5.62
1%	5.17	6.36

Source: Eviews version 9

From the above table, it could be seen that the F-Statistic value is greater than the upper bound critical value at 5% level of significance. This implies the rejection of the null hypothesis of no cointegration and the acceptance of the alternative that confirms the existence of long run relationships among the variables. The long run relationship is shown in the table below:

Long Run Relationship

Dependent Variable: RGDP

Method: Least Squares

Date: 02/21/24 Time: 19:00

Sample: 1 21

Print ISSN: 2814-2802 e-ISSN: 3027-0553 www.ajikt.org

Included observations: 21

Table 3 Long Run Relationship

Variable	Coefficient	Std. Error	t-Statistic	Prob.
M2	-0.162856	0.170155	-0.957106	0.3519
REXC	-0.031086	0.010134	-3.067406	0.0070
RINR	0.046254	0.128001	0.361358	0.7223
C	13.88820	2.316675	5.994886	0.0000

R-squared	0.612763	Mean dependent var	5.308095
Adjusted R-squared	0.544427	S.D. dependent var	3.819316
S.E. of regression	2.577892	Akaike info criterion	4.901465
Sum squared resid	112.9740	Schwarz criterion	5.100421
Log likelihood	-47.46538	Hannan-Quinn criter.	4.944643
F-statistic	8.966909	Durbin-Watson stat	1.997944
Prob(F-statistic)	0.000873		

Source: Eviews Version 9

Information in the above table suggests that only real exchange rate is significantly related to real gross domestic product in the long run. Broad money, and real interest rate are not. The model has 61% explanatory power and the Durbin-watson statistic does not reveal any autocorrelation among the used variables.

Summary of Findings

1. The model has 61% explanatory power and the Durbin-Watson statistic does not reveal any autocorrelation among the variables used.
2. 1% increase in real money supply will decrease real gross domestic product (RGDP) by 0.16% and its statistically insignificant.
3. 1% increase in real exchange rate (REXC) will decrease RGDP by 0.03% and its statistically significant.
4. 1% increase in real interest rate (RINR) will increase RGDP by 10.05% and its statistically insignificant.

5. Money supply has a negative and insignificant relationship with RGDP which do not conform with a prior expectation.

Conclusion

Over times, there has been argument on the effect of money supply with economic growth. The monetarists believe that money supply is a tool that gives boost to economic growth based on unexpected increase in money stock while the Keynesians argue that money supply has limited influence on economic growth. Other scholars found that money supply exerts insignificant influence on economic growth thereby substantiating the Keynesian view.

However, money supply has an influence on economic growth either positively or negatively depending usage. When there is too much money in the economy, money losses its value, and inflation sets in which is detrimental to any nation. Here, contractionary monetary policy is required. But if the reverse is the case, expansionary monetary policy is required.

Recommendation

1. Government should checkmate the money stock in the economy to avoid inflation.
2. Government should understand that money supply has impact on growth rate, therefore should come up with monetary policies that will enable money supply to enhance economic growth.
3. Government should utilize the contractionary monetary policy to reduce the excess money in circulation for a robust economy.

Print ISSN: 2814-2802 e-ISSN: 3027-0553 www.ajikt.org

References

Abdullahi, H. (2009). *Monetary Economics: theory policy and the millennium global financial crisis*. Usman Danfodio University, Sokoto, Nigeria.

Anyanwocha, R.A.I. (1993): Fundamentals of Economics Onitsha, Nigeria: African First Publishers.

Central Bank of Nigeria (2018). Code of Corporate Governance for Bureau De change in Nigeria.

Chuku, A.C. (2009). Measuring the effect of monetary policy innovations in Nigeria: A structural Vector Autoregressive (SVAR) *Approach African Journal of Accounting Economics, Finance and Banking Research*, **5**(5): 122-129.

European Central Bank (1999). Key Issues for the Analysis of Real Interest Rate in the Euro Area. Retrieved May 17, 2024. From https://www.ecb.europaeu/pul/pdf/other/ml 199903-focus 01.en.pdf.

Eze, I. S., Ogbonnaya, P.O. & Elom, S.O. (2020). EmpiricalAnalysis on the Impact of Monetary Policy on Economic Growth of Nigeria.*Journal of Management Science & Entrepreneurship*,**15** (7).

glossary/DataBank-World Bank. retrieved May 17, 2024. From https://databank.worldbank.org/metadataglossary/world-development-indicators.

Havi, E.D.K. & Enu, P. (2014). The Effect of Fiscal Policy and Monetary Policy on Ghana's Economic Growth: which Policy is more Potent? *International Journal of Empirical finance*, 3(2): 661-75.

Ibenta, S. N. O. (2012). *International Trade and Finance*. Ezu Book.

Jawaid, S.T., Quadri, F.S. & Ali, N. (2011). Monetary-Fiscal-Trade Policy and Economic Growth Pakistan: Time Series Empirical Investigation. *International Journal of Economics and Financial Issues*, 1(3), 133-138.

Jhingan, M. L. (2005). *International Economics 5th Edition*, Vrinda Publication.

Jhingan, M.L. (2003). *Advanced Economic Theory*. Vrinda Publication.

Mankiw, N. G. (2016). *Macroeconomics, Ninth Edition*. Worth.

Meshulam, D. C. & Sanfey P. (2019). The Determinants of Real Exchange Rates in Transition Economics. https:www.esrd.com/documents/oce/thedeterminants-of-real-exchange-rates-in-transition-economies

Nwanne, T.F.I. (2014) Impact of Broad Money Supply on Economic Growth British. *Journal of Marketing Studies*, 3(9): 49-56.

Omankhanlen, A.E., Samuel-Hope, D.C., & Ehikioya, B.I. (2022). The Impact of Money Supply on Economic Growth in Nigeria. *Journal of Management Information and Decision Sciences*, 25 (4):1-14.

Omodero, C.O. (2019). Effect of Money Supply on Economic Growth: A Comparative Study of Nigeria and Ghana. *International Journal of Science Studies*, 7 (3): 16-23.

Twinoburyo, E.N. & Odhiambo, N.M. (2017). Monetary Policy and Economic Growth: A Review of International Literature. *Journal of Central Banking Theory and Practice*, 2: 123-137.