



EFFECT OF MONETARY POLICY ON THE GROSS DOMESTIC PRODUCT OF NIGERIAN MANUFACTURING SECTOR

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ABSTRACT

This research looked at the impact of monetary policy on manufacturing industry production in the Nigerian economy. According to the findings of the study, the monetary policy rate and cash reserve ratio have a considerable influence on the manufacturing sector production in Nigeria. The impact of monetary policy on Nigeria's manufacturing sector production was examined using exploratory and analytical methodologies. The data utilized are annual observations of monetary policy and industrial sector production. The National Bureau of Statistics and other statistics bulletin issues published by the Central Bank of Nigeria served as the data's primary sources. The time series model was then estimated using the ordinary least squares (OLS) method in order to determine the individual and combined impacts of monetary policy on the expansion of the manufacturing sector from 2009 to 2019. According to the findings, there is a relationship between monetary policy and the manufacturing sector that fosters a wide range of outcomes, including increased productivity, increased GDP, price stability, preservation of the balance of payments' equilibrium, creation of jobs, output growth, and sustainable development, as well as a decrease in national inflation.

KEYWORDS: Monetary policy (MP), monetary policy ratio (MPR), Cash Reserve Ratio (CRR)

1. INTRODUCTION

In order to achieve proper economic growth and development, price stability, and balance of payments equilibrium, many nations have been searching for an economic plan. Through technical innovation, a stable macroeconomic environment, and a financially viable framework capable of sustaining the sector's growth and goals, significant efforts have been made in Nigeria to revive the manufacturing industry. The government has recently placed a lot of attention on raising manufacturing productivity. This is due to the industry's standing as a sizeable non-oil sector that may diversify the economy and make crucial contributions by generating employment, distributing income, reducing poverty, and promoting exports (Adekunle, 2021).

Since the Central Bank Act of 1958, which mandated that the Central Bank of Nigeria be allowed the authority to develop and administer it, monetary policy has been utilized in Nigeria. Thanks to this stance, which has allowed for the establishment of an active money market, Treasury Notes, a financial instrument used for open market operations and debt raising for the government, have increased in volume and value and are now a significant source of liquidity for market balance. The distribution and control of the nation's currency are under the control of the Nigerian Central Bank. In order to promote price stability, low inflation, full employment, and increased overall income, the central bank controls the money supply. Since money is a means of exchange, spending must be adjusted whenever supply or demand changes. The manufacturing industry in Nigeria is more dynamic than other sectors, according to statistics from the Central Bank of Nigeria Statistical Bulletin, as a result of the government's dynamic fiscal and monetary policies, on which it heavily depends for growth.

The current shocks and dwindles in the Nigerian manufacturing sector, particularly the global pandemic experienced in 2020, as well as a seemingly collapse in the entire socio-economic infrastructures of the economy, have significantly slowed the manufacturing sector's growth rate (Ogiriki, Atagboro, & Ogoun, 2020). According to the Nigerian Bureau



of Statistics, total production in the industrial sector would fall by -2.75 percent in 2020, suggesting a negative growth following a two-year positive rise. Despite this, the sector has suffered from gross neglect as a result of poor governance, with a series of inconsistent policies and policy somersaults from successive military and civilian governments, as well as corruption and mismanagement of public funds, weak budgetary allocations, policy reversals, and policy somersaults (Emmanuel, 2022).

Manufacturing is one of Nigeria's essential industries since it increases productivity in terms of import substitution and export growth, has the ability to earn foreign currency, boosts employment and per capita income, and results in distinctive consumption patterns. The Nigerian government has put in place a variety of programs to deal with the issue as a result of these developments. Some of the policies made use of monetary policy. One of the instruments a nation's monetary authority use to control its economy and produce desired results is monetary policy. It consists of actions done by the Central Bank to affect loan availability and pricing (Nnanna, 2018). Monetary policy assists a country in fostering long-term economic growth by regulating the general quantity of money that is accessible to the banks, consumers, and enterprises of the country. Monetary policy is a system of regulations that controls the quantity, value, and movement of money in an economy in line with forecasts for economic activity. The goals of monetary policy in Nigeria include maintaining the balance of payments, promoting employment, output growth, and sustainable development. These goals are required in the long run to create internal and external balance and advance economic development. Price stability is essential due to the detrimental impact of price volatility, which makes it more difficult to achieve other fantastic macroeconomic goals in terms of price stability. Everyone agrees that lowering domestic prices and limiting investment and progress will lower the value of money (Folawewo & Osinubi, 2016). A high degree of confidence in maintaining price stability so that the economic infrastructure can satisfy the expectations of market players is provided by the circumstances on the financial market and the institutions. In practice, weak macroeconomic core objectives are challenging to attain and maintain when the financial sector is unstable or crisis-driven, which reduces the effectiveness of the monetary policy mechanism. This is so that consumers and investors can understand market signals at a time of price stability. When there is significant inflation, investors tend to have a short-term perspective and focus on investments that will yield immediate returns without being affected by inflation (Busari, 2017).

Monetary policy is also seen as a countercyclical tool of choice. The approach will may lead to the planned expansion of output and employment could also result in a price increase since it suggests an increase in the availability of money, which might cause inflation in the long run. In approaching full-service production, the economy will bring pressure on input costs and notably labor, as demand increases. Workers will use their new revenues to buy more goods and services, increase prices and push inflation (Koshy & Mathia, 2017). By analyzing the effects of the monetary policy rate and cash reserve ratio, this study aims to determine the influence of monetary policy on the production of the Nigerian manufacturing sector. So, in this research, we investigate the responses to the following queries:

- i. How much does the monetary policy rate influence the GDP of manufacturing?
- ii. To what extent does cash reserve ratio affect manufacturing gross national product?

From the above discussions, the following hypotheses are drawn

Ho1. Monetary policy rate does not have a significant impact on Nigeria's manufacturing gross national product.

Ho2. Cash reserve ratio does not have a significant impact on Nigeria's manufacturing gross national product.

2.RELATED LITERATURE

2.1 Conceptual Review

Monetary Policy

The term monetary policy is defined by experts from various points of view. The CBN (2020) annual newsletter describes the concept for monetary policy as a blend of economic value, money supply and cost of management measures in line with the contemplated economic activities. Monetary policy is the government's official endeavor to manage money to meet certain economic goals. Onyido (2015) described monetary policies as a measure aimed to manage the flow of money supplies to make the cash flow equal in credit rates, inflation, and interest rates and to increase the money supply based on the economic circumstances of the era. Busari, (2017). Monetary policy is the process by which the Central Bank or monetary authority of a country administers money supplies, availability of money and cost or interest rates, in order to fulfill a set of economic and stability-oriented objectives in terms of volume, cost, accessibility and direction of money and credit in the economy.



Monetary policy is helping the manufacturing sector achieve its goal by keeping interest rate low, ensure that the currency of the country remains stable and its international reserve status is safeguarded, the domestic pricing level is mostly consistent, the economic growth is at a sustainable pace, there is high levels of jobs and production continuously, full employment and price stability, exchange rate stability among others.

Monetary Policy Rate

The central bank adjusts this rate to influence a number of monetary variables, such as the consumer price index, the exchange rate, and credit expansion, among others. It refers to how quickly the central bank distributes the banknotes that the mint banks provide. The interest rate at which banks lend their customers a cue from their central bank rate when too much money is in circulation will increase, so as to discourage people from borrowing and this limits the lending capability of deposit money institutions. If the money supply is low, the central banks will reduce the bank rate for this purpose. This also lowers the bank credit rates and promotes borrowing by customers. This may lead to money deposit by the bank. The price or interest rate you pay for borrowing will increase in response to an increase in the monetary policy rate, and vice versa (Batini, 2016).

Cash Reserve Ratio

This is the percentage of a bank's total deposits that it needs to maintain as liquid cash. The cash ratio has been developed to help the banks re-establish liquidity and restrict the amount of loans to commercial banks. A change in the reserve ratio required changes in the ratio of an expenditure through multiplier effect. If you boost the required reserve ratio, the multiplier reduces and reduces the position of bank liquidity Ogunjimi, (2017).

Inflation rate

This is the pace at which prices rise over time, causing the buying power of money to diminish. Inflation raises the cost of goods and transportation, causing producers to respond and raise prices and budgets across the board. Customers' anxious purchasing patterns will force the firm to make modifications as inflation rises. High inflation rate reduces the purchasing and production power of the manufacturer Kogar, (2017).

Interest Rate

This is the additional amount a lender charges a borrower over and above the principle amount. The minimal rediscount rate (MRR), which is offered to economically viable deposit money institutions, is the best interest rate. The MRR specifies how the currency interest rate system is to be established, which has an impact on Nigeria's lending, saving, and quantity of money available for investment. Higher interest rates translate into more expensive borrowing, which results in less demand for credit, which will slow the expansion of lending in the economy. Inversely correlated with interest rates is the demand for capital; when rates increase, less people want loans, which lowers investment and output in the manufacturing sector (Wrightsmann, 2016).

Manufacturing Sector

Therefore, manufacturing involves transforming raw materials into finished consumer goods, intermediate goods, or producer commodities. Similar to other industrial activities, manufacturing creates jobs, supports agriculture, and diversifies the economy. It also enables the nation to build its foreign exchange reserves and gives local employees an opportunity to advance their skills. It lowers the danger of becoming overly dependent on global trade and encourages the most effective use of already available resources. Modern industrial processes are characterized by high technological modernizations, the development of management and entrepreneurial capabilities, and improvements in technical skills, all of which boost productivity and lead to better living conditions, claims (Fasanya, 2016). According to Adekunle (2019), the manufacturing sector acts as both a catalyst for economic transformation and an engine of growth. When a nation's gross domestic product (GDP) is at least 25% produced domestically, manufacturing output in the industrial sector has increased, and one-tenth of the population has more jobs in the industrial sector of the economy as a result, the nation is said to be industrialized. Because of this, the existence of this in an economy shows that the manufacturing sector is regarded as having the largest sectoral contribution to the GDP of the country.

The manufacturing sector in Nigeria is facing a lot of monetary challenges which affects its productivity. Adekunle (2019) said while inflation obviously affects prices, there has also been sharp decline in cash flow in the manufacturing sector due to high capital facilities rate. Onyido (2015) on how upfront cost has also become an issue as the cost of



vital material increases. Held up supply chain and the resulting shortage in materials necessary for work to take place has driven up cost of everything as a result, the price client pay for finished goods must be increased. Samuelson, (2020) mentioned that the increased cost of living has caused manufacturing sector to underproduce and not met their set targets. Manufacturing is one of the primary industries that monetary policy is being utilized to promote. Manufacturing has long been seen as a tool for industrialization and is a crucial sector of the contemporary economy. By creating wealth and income via the utilization of economic resources, the sector has the ability to completely transform the economy.

2.2 Theoretical Framework

The Keynesian Theory

Keynesians believe that the expansionary monetary policy improves bank lending availability and leads to a fall in interest rates. The reduced interest rate typically improves total investment goods and sensitive consumer goods expenditure, leading to real GNP growth. Therefore, monetary policy may influence real GNP indirectly. The Keynesian model adopts a tight economy and a competitive market with a fair value of total supply. Model for keynesians Economy should also not exist in the balance of employment and work simply in the short term, because, as Keynes accurately notes, "we will be dead in the long run." The notion of Keynesia is based on price rigidity and the probability of a level of output, revenues and jobs that is below full jobs

The Neoclassical growth theory

The neoclassical growth theory describes how the interaction of three key factors—labour, capital, and technology—leads to steady economic expansion. Rising GDP is viewed as a transient phenomena brought on by technological development or as a transient equilibration process during which an economy approaches its long-term equilibrium. The neoclassical paradigm holds that industrial development is a wholly separate process that accounts for the majority of economic advancement. According to neoclassical theory, emerging nations have particularly high rates of return on investment due to their low capital-labor ratios. On the basis of this supposition, it was projected that the free market reforms pushed by the World Bank and the International Monetary Fund on highly indebted countries would lead to increased investment, rising productivity, and raising living standards. Even yet, many manufacturing sectors suffered from little to no expansion after the requisite trade and domestic market liberalization, failing to draw in new foreign investment or stop the outflow of local capital.

2.3 Empirical literature

Iverendi and Yildirin (2013) used the natural log of GDP as the dependent variable and the descriptive monetary policy as the independent variable to study the impact of monetary policy on economic growth in Nigeria. The unit root, co-integration, and ordinary least squares approaches were used to analyze the market-controlled time series data from 1986 to 2016. The study found a long-term connection between the variables.

Adeolu (2018) assessed the influence on economic growth and growth of Nigeria's fiscal and monetary policy. The analysis suggests that cutting fiscal discipline in government is far more essential than enshrining fiscal management standards in our status books. The reason is that the statute books are replete with dormant regulations. It stresses that the balance between economic growth and budgets is moderate over the long run in Nigeria. The article recommends that several key stakeholders, powerful enough to face the economic irresponsibility of the government, must advance to achieve major progress towards fiscal modesty.

Hameed (2018) talked about how the activities of monetary authorities are impacted by macro variables including GDP, money, interest rates, exchange rates, and inflation. The improvement of public well-being is the primary goal of monetary policy. For price stability, economic growth, BOP management and a decrease of the ratio between the variables analyzed, it is important. Tight monetary policy has a considerable negative impact in terms of increasing interest rates on output. The supply of money has a strong beneficial impact on good output inflation, as well as negative exchange rate output. Research has shown that the Bank can best contribute to a country's health by eliminating price uncertainty associated with inflation.

Chuwkuigwe (2018) investigates the monetary and fiscal policy effects of the 1974-2017 Nigeria exports of non-oil. The research indicated the negative impacts of non-oil exports on both interest rates and currency rate, with



conventional estimates of the smallest squares. The study has recommended that a new methodology must be devised to handle these problems - budget deficits - representative for fiscal performance. This strategy would have been based on macroeconomic stability, promotion of exports and a simplified role for the Government, enhancement of infrastructure and stimulation of product and service demand, thereby generating an invigorating investment climate. To conclude, the general outcomes of the study examined in detail demonstrate that a widespread consensus exists that monetary policy is directly connected to economic progress. Although the robustness of the majority of studies assessed may be applauded greatly, it is notable that certain shortcomings in others may possibly hinder their conclusions and the research seeks to address them.

Borio (2018) investigated the monetary policy's lending channel in researching the 14 industrialized countries' non-governmental credit structure and its affecting factor. The credit structure was mainly driven by the interest rate as well as the elements that effect loan availability, such as collateral value and rationing, defined as a denial of credit, as necessary under observable circumstances of interest and non-interest.

Gertler and Gilchrist (2016) found the existence of the credit channel. They examined the conduct of small manufacturing companies as part of monetary transformation. The data suggest that lending to small businesses reduces, and that small companies react over monetary-policy periods to changes in banking aggregate (i.e. broad money) over large corporations. The monetary policy instruments acquire their shape directly or indirectly. The examples of these include direct tools such as aggregate credit constraints, deposit ceilings, currency trading, limits on government deposits, special deposits and securities for stabilization while indirect tools include OMOs, discount rates, cash flow and selective loan policy.

Kogar (2017) maintains that monetary policy is an instrument to successfully impact demand. He argued that the low inflation rate was a direct result of sustainable development. The link between financial innovation and monetary regulation was investigated. He found that central banks can't implement effective money policy in a changing financial structure without the development of new long-standing procedures and instruments, since profit for financial institutions is changing or new instruments are created to evade rules or to react to economic conditions.

Nnanna (2018) examined how monetary policy trends were relatively successful and successful in Nigeria in the last four decades, but monetary management in Nigeria was the critical factor in influencing monetary policy outcome. This includes the legislative framework under which Nigeria's Central Bank operates. He noted that the CBN might boost its operational efficacy via the provision of autonomous instruments to meet its primary monetary policy objective, which is price stability.

Folawewo and Osinubi (2018) explored how inflation control and monetary policy intervention goals affect inflation and actual exchange rate volatility in the financing of fiscal deficits. His approach is based on a reasonable framework of expectations including the fiscal function of the currency rate. The monetary policy endeavor has been developed to have an influence on fiscal deficit funding, by establishing an inflation rate, both on the rate of inflation and on the real currency, which generates volatility. The study reveals that inflation has an influence on own rate volatility as well as on the real currency. The research's political consequences are objective and well outlined.

3.METHODOLOGY

Design and Method

Analysis and exploration will be used in the study technique. The information utilized consists of annual observations of monetary policy and industrial sector output. The National Bureau of Statistics and other statistics bulletin releases from the Central Bank of Nigeria will be used to compile the data. The time series model was then estimated using the ordinary least squares (OLS) method in order to determine the individual and combined impacts of monetary policy on the expansion of the manufacturing sector from 2009 to 2019.

Model Specification

Based on Keynes' (1936) theory of monetary policy, this research model assumes that monetary policy is used by the government to regulate economic activity across different sectors and the economy as a whole. This study's structural model is as follows:



$$MGNP = f(M_2, MPR, CRR, DR)$$

$$LMGNP = \beta_0 + \beta_1 M_2 + \beta_2 MPR + \beta_3 CRR + \beta_4 DR$$

Where: MGNP = Manufacturing Gross National Product M2 = Broad Money Supply

MPR = Monetary Policy Rate CRR = Cash Reserve Ratio DR = Deposit Rate μ = Error of Terms β_0 = Constant/Fixation $\beta_1 \dots \beta_4$ = Independent variable coefficients

4.RESULTS AND DISCUSSION

Table 1 Data presentation

The study's data is shown in Table 4.1 below. Manufacturing GDP, broad money supply, cash reserve ratio, monetary policy rate, and deposit ratio from 1992 to 2019.

YEAR	MGDP N'B	CRR %	MPR %	DR %
1992	909.8033	0.0	17.50	22.10
1993	1259.0700	0.0	26.00	23.99
1994	1762.8130	0.0	13.50	15.00
1995	2895.2010	0.0	13.50	13.96
1996	3779.1330	0.0	13.50	13.43
1997	4111.6410	0.0	13.50	7.46
1998	4588.9900	0.0	14.31	9.98
1999	5307.3620	0.0	18.00	12.59
2000	6897.4820	0.0	14.00	10.67
2001	8134.1420	0.0	20.50	9.98
2002	11332.2500	0.0	16.50	16.50
2003	13301.5600	0.0	15.00	13.04
2004	17321.3000	0.0	13.00	13.32
2005	22269.9800	0.0	15.00	10.82
2006	28662.4700	0.0	10.00	8.35
2007	32995.3800	0.0	9.50	8.10
2008	39157.8800	3.0	9.75	11.84
2009	44285.5600	1.3	6.00	12.85
2010	54612.2600	1.0	6.25	5.67
2011	62980.4000	8.0	12.00	4.70
2012	71713.9400	12.0	12.00	7.18
2013	80092.5600	12.0	12.00	5.54
2014	89043.6200	20.0	13.00	9.16
2015	94144.9600	20.0	11.00	8.68
2016	101489.500	22.5	14.00	6.22
2017	113711.600	22.5	13.50	10.88
2018	127736.830	22.5	14.00	10.41
2019	144210.490	22.5	13.50	9.48

Source: Central Bank of Nigeria (CBN) Statistical Bulletin 2019



Table 2 Descriptive Statistics

	MGDP N'B	CRR %	MPR %	DR %
Mean	42453.86	5.975000	13.58250	11.13929
Median	25466.23	0.000000	13.50000	10.54000
Maximum	144210.5	22.50000	26.00000	23.99000
Minimum	909.8033	0.000000	6.000000	4.700000
Std. Dev.	43839.57	9.004263	3.947998	4.494861
Skewness	0.855454	1.051305	0.853900	1.159981
Kurtosis	2.469564	2.336491	5.324857	4.489557
Jarque-Bera Probability	3.743333 0.153867	5.671418 0.058677	9.708463 0.007795	8.867836 0.011868
Sum	1188708.	167.3000	380.3100	311.9000
Sum Sq. Dev.	5.19E+10	2189.073	420.8405	545.5020
Observations	28	28	28	28

Source: Eviews 9.0 output

Table 2 shows a median value N42453,86 billion in gross national product (GNP) with a high amount of N144210.5 billion in fiscal 2019 and a lowest value in N909,8033 billion for same time in 1992. The Cash Reserve Ratio (CR Ratio), with a maximum rate of 22.5% in 2019 and a minimum rate of 1% in 2010, during the period under investigation has a mean rate of 5.96%. Monetary policy rate (MPR) is 13.58 per cent average with a high rate in 1993 of 26 per cent and a minimum rate in 2009 of 6 per cent for the period being studied. The averaging rate for the DR is 11.14% with a high of 23.99% in the year 1993 and 4.7% in the year 2001 for the period under investigation. The average of DR is 23.99%. statistically, from Jarque-Bera, gross domestic product (GDP), and the CRR are generally allocated in 0.153867 and 0.156507 probabilities and the currency policy rate (MPR) and the rate of deposit (DR) are normally not altered.

Table 3 Results of Regression Parameter Estimates

Dependent Variable: LOGMGDP
 Method: Least Squares
 Date: 02/06/21 Time: 22:17
 Sample: 1 28
 Included observations: 28

Variable	Coeff.	Std. Error	t-Statistic	Prob.
C	2212.018	4640.961	0.476629	0.6381
LOGCRR	-191.4997	366.9899	-0.521812	0.6068
LOGMPR	273.1982	316.4405	0.863348	0.3969
LOGDR	-294.9419	248.0054	-1.189256	0.2465
R-squared	0.992153	Mean dep. var		42453.86
Adj. R-squared	0.990788	S.D. dep. var		43839.57
S.E. of regression	4207.703	Akaike info criterion		19.68765
Sum sq. resid	4.07E+08	Schwarz criterion		19.92555
Log likelihood	-270.6272	Hannan-Quinn criter.		19.76038
F-statistic	726.9835	Durbin-Watson stat		1.971249
Prob(F-statistic)	0.000000			

Source: Eviews 9.0 output



From table 4.3, monetary policy rate (MPR) is positively related to manufacturing gross domestic product (MGDP) with coefficients of 273.1982, while cash reserve ratio (CRR) and deposit ratio are negatively related to manufacturing gross domestic product (MGDP) with coefficient of -191.4997 and -294.9419 respectively. The relationship can be represented by the following regression equation.

5.SUMMARY, CONCLUSION AND RECOMMENDATIONS

Findings

The findings show that a unit change in the explanatory variables explains for nearly 99 percent of changes in the dependent variable (manufacturing gross domestic product), according to r-squared values of 0.992153 and modified r-squared values of 0.990788. Furthermore, the F-statistic is 726.9838 with a probability of 0.000000, which is significant at 5%, showing that the explanatory factors have a substantial influence on the dependent variable when considered together. This suggests that monetary policy factors have a substantial impact on the expansion of Nigeria's manufacturing sector.

The monetary policy rate is insignificant, as shown by the t-statistic of 0.863348 and probability value of 0.3969 in table 4.3, both of which are more than 0.05. The null hypothesis is thus disproved. The study demonstrates that the growth of Nigeria's manufacturing sector is significantly influenced by monetary policy rates.

Table 4.3 shows that the cash reserve ratio is insignificant, with a t-statistics of -0.521812 and a probability value of 0.6068, both more than 0.05. The null hypothesis is thus disproved. The study's conclusions indicate that the cash reserve ratio has a significant impact on the expansion of the Nigerian economy.

Conclusion

Nigeria's manufacturing GDP is shown to be significantly affected by the cash reserve ratio and the monetary policy rate. Exploratory and analytical methods were used to investigate the effect of monetary policy on industrial production in Nigeria. Annual observations of monetary policy and manufacturing sector production are utilized as the basis for the analysis. Information from the National Bureau of Statistics and other statistics bulletins released by the Central Bank of Nigeria were used to produce these numbers. Next, the ordinary least squares (OLS) method was used to estimate the time series model, which analyzed the effect of monetary policy on the expansion of the manufacturing sector from 2009 to 2019. The research shows that there is a link between monetary policy and the manufacturing sector that promotes numerous positive outcomes, such as higher productivity and GDP growth, lower inflation and inflationary pressures at the national level, and the maintenance of the balance of payments.

Recommendations

- i. There should be General stability on the provision of money supply and stable liquidity situation to help boost the economy.
- ii. Government should implement a stable effective and efficient monetary policies to regulate the interest rate, flow of available money to the manufacturing sectors of the economy.
- iii. An enabling policy tools and methods for raising the monetary policy rate and powerful suitable monetary policy rate should be introduced.
- iv. A friendly monetary policy and cash flow policy should be implemented
- v. The introduction of a mandatory "cash reserve ratio" would go a long way toward eliminating poverty and fostering a healthy economic climate.

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