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MONETARY POLICY AND PERFORMANCE OF SELECTED SECTORS OF NIGERIA ECONOMY

Kenechukwu O. Chukwu,
Department of Banking and Finance, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria.
Email: mojes2005@gmail.com

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Abstract
This study examined the effect of monetary policy on selected sectors of Nigeria economy (2000-2021) using secondary data from Statistical bulletin of Central Bank of Nigeria. The research work selected Nigeria as its sample and used the ARDL Auto-regressive Distributed lag models to test the effect of the independent variables (Cash Reserve Ratio, Monetary Policy Rate and Liquidity Ratio) on the dependent variable (Nigeria manufacturing sector, Nigeria Agricultural sector and Banking sector).The study found that monetary policy has insignificant effect on manufacturing and agricultural sector but significant effect on banking sector in Nigeria. The study therefore recommends among others the need to improve communication channels between the central bank and stakeholders in the manufacturing, agriculture, and banking sectors. Tailor monetary policy instruments to address specific challenges faced by each sector. Adopt a flexible monetary policy framework that recognizes the unique needs and characteristics of each sector. Coordinate monetary policy with fiscal policy to ensure a comprehensive and synergistic approach.

Key Words: *Monetary policy, Nigeria economy, Performance, Selected sectors.*

Introduction
Monetary policy refers to the blend of measures designed to adjust the value, supply and cost of money in an economy, to tie with the level of economic activities (CBN, 1992). The main aim of monetary policy is to ensure that money supply is at a level that is consistent to spur growth. Thus, according to Owolabi and Adegbite (2014), monetary policy is seen as a critical instrument for the attainment of macroeconomic stability, often viewed as pre-requisite to achieving sustainable output growth. These are usually undertaken to restore or maintain stability within an economy and such policies can either be expansive or restrictive with Central Banks using interest rates, inflation rate and money supply as monetary policy instruments (Bissoon, Seetanah, Bhattu-Babajee, Gopy-Ramdhany & Seetah, 2016).Arguably, monetary policy in Nigeria has gone through several phases and transformations since the country's independence in 1960. These changes have been driven by economic and political factors, as well as global economic trends. In the early post-independence years, Nigeria primarily adopted a fixed exchange rate regime, pegging its currency, the Nigerian pound, to the British pound. The Central Bank of Nigeria (CBN) was established in 1958 and became fully operational in 1960. It played a key role in implementing monetary policy (CBN,2021). Nigeria experienced an oil boom in the 1970s, which led to a surge in oil revenue. This era saw significant government spending and monetary expansion. The Nigerian Naira (NGN) replaced the Nigerian pound in 1973.High inflation became a major concern during this period, driven

by excessive money supply growth. In response to mounting economic challenges, Nigeria adopted Structural Adjustment Programs (SAPs) in the mid-1980s under the leadership of the International Monetary Fund (IMF) and the World Bank. SAPs aimed to liberalize the economy, including reforms in exchange rate policies and monetary management (Obansa & Effiong, 2018).

In 1986, Nigeria officially adopted a floating exchange rate system, allowing the Naira to be determined by market forces. The government also embarked on a series of economic liberalization measures. In the early 2000s, Nigeria undertook significant banking sector reforms, leading to the consolidation of banks and the strengthening of the financial system. The CBN introduced new monetary policy tools and frameworks to enhance price stability and financial sector stability (Sanusi,2012). The CBN formally adopted an inflation targeting framework in 2006 as part of its monetary policy strategy. The objective was to maintain single-digit inflation rates. Global Financial Crisis (2008): Like many other countries, Nigeria faced economic challenges in the wake of the global financial crisis in 2008.The government and the CBN implemented measures to stabilize the financial sector and support the economy. Multiple Exchange Rate System (2017-2020): Nigeria introduced a multiple exchange rate system to manage foreign exchange shortages. This led to disparities in exchange rates, with a more flexible rate for investors and exporters, while a fixed rate was used for essential goods. COVID-19 Pandemic (2020-Present):The COVID-19 pandemic disrupted Nigeria's economy, leading to a contraction in economic activity. The CBN implemented various measures, including interest rate cuts and loan moratoriums, to mitigate the economic impact of the pandemic. Monetary policy in Nigeria has evolved in response to changing economic conditions, global trends, and domestic challenges. The country continues to grapple with issues such as inflation, exchange rate stability, and economic diversification as it seeks to achieve sustained economic growth and development (Adedokun & Akpokighe,2020). Nigeria has implemented various monetary policies with the aim of influencing economic variables such as inflation, exchange rates, and economic growth. However, the effectiveness and impact of these monetary policies on selected sectors of the Nigerian economy remain a matter of concern and investigation.

Empirically, several studies have been done on the effect of monetary policy on sectors of Nigerian economy in Nigeria and the results has been inconsistent. The studies of (Nwoko, Ihemeje & Anumadu ,2016; Akpunonu & Orajaka ,2021; Adigwe, Echekoba & Onyeagba ,2015; Adongo, Otieno, Zeph & Muyima ,2020; Ismaila & Imoughele ,2014) shows that monetary policy has significant effect on selected sectors of the economy while the studies of (Ufoeze, Odimgbe, Ezeabalisi, & Alajekwu ,2018; Bertram, Nwankwo & Onah ,2018; Ajibola & Adeyemi ;2018; Oludayo & Adekunle ,2021) indicates that monetary policy has insignificant effect on selected sectors of Nigeria economy. This shows that there is still much to be determined experimentally about how monetary policy affects sectors of the economy in Nigeria. Studies in these areas thus seem to have mixed results. Reexamining the effect of monetary policy on Nigeria's selected sectors of Nigeria economy from 2000 to 2021 is necessary since the disparate findings of the empirical studies prevent the researchers from drawing a clear conclusion on the issue. This article's content is divided into segments. Section one provided a thorough introduction, and Section two reviewed pertinent literature. Theoretical framework for the third section. Section four described in detail the methodology used. Sections five, results and

explanation of the data analysis's and section six, the study's conclusion and its implications for policy, follow.

Literature Review

Monetary Policy

Monetary policy, defined from various perspectives, encompasses measures aimed at controlling the cost, availability, and supply of credit, as noted by CBN (2006). It involves regulating money supply and interest rates to curb inflation and stabilize economic activity flow (CBN, 2006; Nwoye, Obiorah & Ekesiobi, 2015). Wikipedia (2015) characterizes monetary policy as the mechanism through which a country's monetary authority manages the money supply to maintain price stability and bolster currency trust, often through actions like interest rate adjustments and reserve requirements. Jhingan (2002) labels it as credit measures implemented by a central bank, while Okwo et al. (2012) frame it as a formal government effort to manage an economy's money supply to achieve specific economic objectives. Ogunjimi (1997) identifies three fundamental types of monetary policy decisions: controlling money circulation, setting interest rates, and overseeing credit markets and the banking system.The combination of these measures is designed to regulate the value, supply and cost of money in an economy, in line with the level of economic activity.

Instruments of Monetary Policy

Monetary policy tools in the other hand are various tools/instruments of monetary policy which are classified into two; direct tools and indirect or market-based tools.

Direct tools of monetary policy, as defined by Anyanwaokoro (1999), enable the Central Bank of Nigeria to directly influence interest rates and allocate bank credit without market intermediation. In a free market economy, price determination relies on the interplay of demand and supply forces, with increased demand raising prices and surplus supply leading to price reductions. The Central Bank employs direct tools like interest rate policies, directives, moral suasion, and stabilization securities. Conversely, indirect or market-based monetary policy tools encompass open market operations (OMO), variations in reserve requirements, and discount window operations. The aim of monetary policy is to regulate the money supply to attain objectives like price stability, full employment, and income growth. This is essential, as fluctuations in money demand relative to supply necessitate spending adjustments. The specific instruments employed by the Central Bank depend on the level of economic development, particularly in the financial sector (Anyanwaokoro, 1999).

Reserve Requirement: The Central Bank may require Deposit Money Banks to hold a fraction (or a combination) of their deposit liabilities (reserves) as vault cash and or deposits with it. Fractional reserve limits the amount of loans banks can make to the domestic economy and thus limit the supply of money. The assumption is that Deposit Money Banks generally maintain a stable relationship between their reserve holdings and the amount of credit they extend to the public (CBN). This reserve ratio is expressed as percentage of commercial banks deposit liabilities and promissory notes, which must be kept by banks a cash deposits with Central Bank of Nigeria. Each year, the Central Bank of Nigeria give cash ratio to be maintained by banks. The base on which the given ratio is calculated currently include the banks total liabilities (i.e demand savings and time deposits) Certificates of Deposit (CDS) and promissory notes held by the non-bank public.

Thus, the cash reserve to be kept with CBN by each Bank (CR) is given as follows:
Cash Reserve Deposit: DD+SD+TD+CDS+ PNp X CR

Where;
DD= Demand deposit
SD= Savings Deposit
TD= Time Deposit
CDS= Certificate of Deposits
PNp =Bank Promissory Notes held by non-bank public and
CR = The legal cash reserve ratio (Anyanwaokoro, 1999)

Open Market Operations: The Central Bank buys or sells (on behalf of the Fiscal Authorities (the Treasury) securities to the banking and non-banking public (that is in the open market). One such security is Treasury Bills. When the Central Bank sells securities, it reduces the supply of reserves and when it buys (back) securities-by redeeming them-it increases the supply of reserves to the Deposit Money Banks, thus affecting the supply of money.

Interest Rate: The Central Bank lends to financially sound Deposit Money Banks at a most favourable rate of interest, called the minimum rediscount rate (MRR). The MRR sets the floor for the interest rate regime in the money market (the nominal anchor rate) and thereby affects the supply of credit, the supply of savings (which affects the supply of reserves and monetary aggregate) and the supply of investment (which affects full employment and GDP). This is the price for money and credit. Those who supply money and credit (lenders and depositors) charge interest rate as compensation to them for parting with their funds and forgoing present consumption. Those who demand credit (borrowers) for investment and consumption spending pay interest for the use of credit. An increase in interest rates discourages people from borrowing from banks. A reduction in interest rate encourages people to borrow from banks.

Types of Interest Rates
These are; deposit rates, lending rates, re-discount rates, inter-bank rate, and treasury.
Direct Credit Control: The Central Bank can direct Deposit Money Banks on the maximum percentage or amount of loans (credit ceilings) to different economic sectors or activities, interest rate caps, liquid asset ratio and issue credit guarantee to preferred loans. In this way the available savings is allocated and investment directed in particular directions.
Moral Suasion: The Central Bank issues licenses or operating permit to Deposit Money Banks and also regulates the operation of the banking system. It can, from this advantage, persuade banks to follow certain paths such as credit restraint or expansion, increased savings mobilization and promotion of exports through financial support, which otherwise they may not do, on the basis of their risk/return assessment.

Liquidity Ratio: The liquidity Ratio is the percentage of bank deposit which must be maintained in the form of specified liquid assets by the bank. Both Commercial and Merchant banks maintain this ratio. The base on which the liquidity ratio is calculated currently- comprises the entire deposit and promissory notes held by non-bank public. The amount to be kept in liquid asset is calculated as follows:

Required Liquidity Assets: LRx(DD+SD+TD+CDS+PNp)

Where:

LR is the specified liquidity ratio for the year. The actual liquidity ratio maintained by each bank is arrived at by expressing the banks specified liquidity assets as a percentage of its deposit liabilities and promissory notes.

Actual Liquidity Ratio = Specified Liquidity Assets = Deposit Liability +CD +non-bank promissory notes (CBN, 2010).

Performance of selected Sectors of Nigeria Economy

Manufacturing Sector

The manufacturing sector plays a pivotal role in a nation's economy, driving structural transformation, economic diversification, and reducing dependence on foreign goods and resources for sustainable growth and development (Kayode, 1989). In Nigeria, this sector contributes approximately 10% to the annual GDP and employs about 12% of the formal labor force (Saibu, Nwosa & Agbeluyi,, 2011). Monetary policies in African countries, including Nigeria, have aimed at enhancing the productivity of the manufacturing sector to stimulate economic growth (Olorunfemi, Tomola, Felix, & Ogunleye, 2013). However, despite these efforts, the manufacturing sector's contribution to the Nigerian economy remains relatively small compared to the dominant oil and agricultural sectors (CBN, 2008).

Agricultural Sector

The rural economy in Nigeria heavily relies on agriculture as the primary economic activity, supplemented by secondary activities such as handcrafts and small-scale production (Court, 1981). Agriculture constitutes approximately one-third of the GDP and employs about two-thirds of the labor force, playing a vital role by providing food, raw materials, employment, and foreign exchange earnings (Oyeyinka, 2002). However, the agricultural sector's significance has declined due to rural neglect, resulting in increased food imports and decreased local food production. To address this, policies aim to broaden financial access to underserved populations, including rural farmers, and integrate the informal sector into the national financial system.

Banking Sector

The banking sector is a vital component of any economy, serving as a bridge between surplus and deficit economic agents, thereby facilitating economic growth (CBN, 2010). The Central Bank of Nigeria (CBN) Act of 2007 mandates the CBN to promote financial system stability, which it achieves through reforms, enhanced financial access, capacity building, and corporate governance practices (CBN, 2010). This stability is crucial as the failure of financial institutions, particularly banks, can erode public confidence, disrupt the money supply, reduce savings and investments, and threaten the payment system, all of which can adversely affect the real economy (Oboh, 2014). Consequently, maintaining financial system stability aligns with the central objective of ensuring price stability (Oboh, 2014).

How Monetary Policy Affects Different Sectors of the Economy

Monetary policy, which is managed by a country's central bank, primarily influences the economy through the control of the money supply and interest rates. The impact of monetary policy can vary across different sectors of the economy, including

manufacturing, banking, agriculture, and industrial sectors. Here's how monetary policy can affect each of these sectors:

1. **Manufacturing Sector:**
   i. **Interest Rates:** Lowering interest rates through expansionary monetary policy can stimulate investment in the manufacturing sector. Lower borrowing costs encourage businesses to invest in new equipment, expand production capacity, and create jobs.
   ii. **Exchange Rates:** Monetary policy can influence exchange rates, which, in turn, affect the competitiveness of exports. A weaker domestic currency resulting from lower interest rates can make exports more competitive, benefiting manufacturing firms that rely on international markets.
2. **Banking Sector:**
   i. **Interest Rates:** The banking sector is highly sensitive to changes in interest rates. When a central bank lowers interest rates, it reduces the cost of borrowing for banks. Banks can then potentially offer lower interest rates on loans to businesses and consumers, which can boost borrowing and economic activity.
   ii. **Reserve Requirements:** Central banks may also adjust reserve requirements, influencing the amount of money banks must hold in reserve. Lowering reserve requirements can provide banks with more funds to lend to businesses and individuals, further supporting economic activity.
3. **Agriculture Sector:**
   i. **Interest Rates:** Changes in interest rates can affect the cost of financing for farmers. Lower interest rates can reduce the cost of agricultural loans and improve the financial condition of farmers.
   ii. **Inflation:** Monetary policy aims to maintain price stability. Low and stable inflation rates are beneficial for the agriculture sector, as they provide price predictability for agricultural products.

It is important to note that the effectiveness of monetary policy in influencing these sectors can vary depending on other economic conditions, including fiscal policy, external trade dynamics, and the overall economic environment. Additionally, the transmission of monetary policy to the real economy may take time, and its impact can be influenced by behavioral factors and expectations of economic agents. Central banks carefully monitor economic indicators and adjust monetary policy to achieve their macroeconomic objectives, which typically include price stability, full employment, and sustainable economic growth. The specific impact of monetary policy on each sector may depend on the prevailing economic conditions and the central bank's policy actions.

Theoretical Framework

The Keynesian Theory

The Keynesian theory of monetary policy focuses on the indirect impact of money supply changes on the economy, primarily through interest rates. An increase in the money supply leads to a decrease in interest rates, encouraging people to hold more money. This, in turn, can stimulate investment, which raises income and output levels through the multiplier effect, ultimately boosting economic activity. The Keynesian transmission mechanism emphasizes a detailed analysis of aggregate demand and a thorough portfolio adjustment process, with interest rates playing a central role as an indirect link between monetary policy and fiscal demand. In practical terms, when the Central Bank of Nigeria (CBN)

conducts open market operations (OMO) by purchasing government securities, it increases commercial bank reserves (R), prompting banks to extend new loans and expand credit. These new loans create additional demand deposits, increasing the money supply (MS). As the money supply rises, interest rates (r) fall, influencing commercial bank behavior and stimulating investment due to expected profitability.

Keynesians reject the notion of a direct and proportional relationship between money and prices, instead emphasizing the indirect influence of interest rates. They also challenge the idea that the economy consistently operates near the natural level of real GDP, and they don't assume a constant velocity of money circulation. Keynesians contend that expansionary monetary policy, by increasing the supply of loanable funds, lowers interest rates, leading to increased investment and interest-sensitive consumption, ultimately driving up real GDP. Hence, monetary policy can have an indirect impact on real GDP in the Keynesian framework (CBN, 2006).

The Monetarist View of Monetary Policy

The monetarist view of monetary policy, championed by Milton Friedman, emphasizes the significance of the money supply in determining economic well-being. Friedman (1963) stressed that a stable monetary policy is crucial for economic stability. Monetarists advocate for a fixed rate of money supply growth to promote consistent economic growth, as opposed to discretionary adjustments by monetary authorities. Friedman also recognized that money can be held in various forms, including bonds, equities, goods, and human capital, each with distinct characteristics and yields. These holdings can affect aggregate money demand and output positively. Monetarists acknowledge that the economy may not always operate at full employment levels of real GDP. In the short run, they argue that expansionary monetary policies can boost real GDP by increasing aggregate demand. However, in the long run, when the economy is at full employment, monetarists maintain that the quantity theory remains a valid framework to understand the relationship between money supply, price levels, and real GDP. Long-term expansionary monetary policies, in their view, primarily result in inflation without affecting real GDP levels. In essence, the monetarist perspective underscores the importance of a stable money supply growth rate in ensuring economic stability and avoiding inflationary pressures (Friedman, 1963).

Empirical Review

Nwoko, Ihemeje and Anumadu (2016) studied the impact of monetary policy on the economic growth of Nigeria and made use of money supply, interest rate, average price and labour force as independent variable and gross domestic product as dependent variable using multiple regression analysis of the ordinary least square (OLS) as method and discovered that average price and labour force have significant influence on gross domestic product while money supply was not significant. Interest rate was negative and statistically significant and it recommended that central bank monetary policy could be an effective tool to encourage investment, reduce unemployment, reduce lending rate and stabilize the economy of Nigeria.

Akpunonu and Orajaka (2021) studied the effect of monetary policy on industrial growth in Nigeria and made use of treasury bills rate, monetary policy rate and cash reserve requirement as independent variables and manufacturing sector output as dependent

variable using multiple regression analysis and OLS regression technique as method and the findings showed that Open market operation(OMO) measured by Treasure bill rate had positive and significant effect on the Nigerian manufacturing domestic sector gross product, Cash reserve ratio has positive and significant effect on the Nigerian manufacturing sector gross domestic product and monetary policy rate has a negative and significant effect on the Nigerian manufacturing sector gross domestic product and it recommended that the monetary authority should ensure a lower MPR that can drive up investment and thus boost growth of the industry.

Ufoeze, Odimgbe, Ezeabalisi, and Alajekwu (2018) investigated the effect of monetary policy on economic growth in Nigeria. The natural log of the GDP was used as the dependent variables against the explanatory monetary policy variables: monetary policy rate, money supply, exchange rate, lending rate and investment. The time series data is the market-controlled period covering 1986 to 2016. The study adopted an Ordinary Least Squares technique and also conducted the unit root and co-integration tests. The study showed that a long run relationship exists among the variables. In addition, the core finding of this study showed that monetary policy rate, interest rate, and investment have insignificant positive effects on economic growth in Nigeria. Money supply however has a significant positive effect on growth in Nigeria. Exchange rate has a significant negative effect on GDP in Nigeria. Money supply and investment granger cause economic growth, while economic growth causes interest rate in Nigeria. On the overall, monetary policy explains 98% of the changes in economic growth in Nigeria. Thus, the study concluded that monetary policy can be effectively used to control Nigerian economy and thus a veritable tool for price stability and improved output.

Adigwe, Echekoba and Onyeagba (2015) examine the impact of monetary policy on the Nigerian economy. In doing this, the Ordinary Least Square Method (OLS) is used to analyse the data between 1980 and 2010. The result of the analysis shows that monetary policy represented by money supply exerts a positive impact on GDP growth but negative impact on the rate of inflation. The recommendations are that monetary policy should facilitate a favourable investment climate through appropriate interest rates, exchange rate and liquidity management mechanism and the money market should provide more financial instruments that satisfy the requirements of the ever-green sophistication of operators.

Adongo, Otieno, Zeph and Muyima (2020) examines the impact of monetary policy on the performance of agricultural sector in Kenya and made use of broad money supply, central bank rates, cash reserve ratio and exchange rate as variables using OLS regression model and discovered that broad money supply has positive influences on agricultural GDP while exchange rate displayed a negative impact on the performance of agricultural sector and it recommended government's increase of budgetary allocation to support agriculture and monetary policy commission commitment to maintain exchange rate volatility are necessary to realize full potential of agricultural sector.

Imoughele and Ismaila (2014) studied the impact of monetary policy on Nigeria's manufacturing sector performance for the period 1986-2012. Their Ordinary Least Square analyses revealed external reserve, exchange rate and inflation rate significantly impacted on manufacturing sector's output while broad money supply and interest rate had no

significant impact on manufacturing sector's output. However, they found that interest rate, exchange rate and external reserve impacted negatively on the sector output but broad money both in the short-run and long-run. They established that stabilization policy has a great impact on manufacturing sector performance and that if certain adjustments are made, it would better the lots of the people by developing the sector, through Government fiscal policy and its monetary policy measures.

Ajibola and Adeyemi (2018) examine the impact of monetary policy on economic growth in Nigeria and made use of money supply, exchange rate, interest rate and liquidity ratio as variables using augmented dicker-fuller (ADF) unit root test, Johansen cointegration test, vector error correction mechanism method and discovered from our result, two variables (money supply and exchange rate) had a positive but fairly insignificant impact on economic growth. Measures of interest rate and liquidity ratio on the other hand, had a negative but highly significant impact on economic growth.

Adekunle (2021) examined the manufacturing sector impact of monetary policy frameworks: Evidence from Nigeria and made use of manufacturing sector output, monetary policy rate, cash reserve ratio, broad of money supply, exchange rate, inflation rate as variables using unit root based on augmented dickey-fuller and Phillips-Peron tests as method and discovered that monetary policy channels determines manufacturing sector output in the long run and recommended that monetary policy frameworks should be maintained and sustained, while cash reserve ratio of banks should be reviewed to support lending to the manufacturing sector.

Bertram, Nwankwo and Onah (2018) examine monetary policy tools/instruments and economic development in Nigeria and made use of cash reserve ratio, interest rate, liquidity ratio and treasury bill rate as dependent variables while economic growth as independent variable using ordinary least square (OLS) method, augmented dickey-fuller (ADF) unit root test, Johansen cointegration test and error correction method and it discovered that monetary policy tools had a negative and less relationship with economic growth in Nigeria.

Methodology

The study adopted an ex-post facto research design and obtained data from CBN annual report, NDIC annual report and Central Bank of Nigeria Statistical Bulletin 2021 for the period 2000 - 2021. The study however adapted and modified the model by Bertram, Nwankwo and Onah (2018) who modeled real GDP as a function of Exchange Rate (EXCH), Foreign Reserve (FOR), Inflation Rate (INFR), Trade Openness (TRO), and Foreign Direct Investments (FDI).

The model of Onomereroso (2021) is; expressed as follows

RGDP = *f*(EXCH, FOR, INFR, TRO, FDI)……3.1

The models for this study will be

NAS = f(CRR, LQ,MPR)……..3.2

NMS=f(CRR, LQ,MPR)…….3.3

ROA= f(CRR, LQ,MPR)……3.4

Where NAS = Nigeria Agricultural sector

NMS = Nigeria manufacturing sector

ROA = Return on Equity proxy of the banking sector
CRR = Cash Reserve Ratio
LQ = Liquidity Ratio
MPR = Monetary Policy rate

Result and Discussion

The variables for the analysis were subjected to unit roots test to determine whether there are unit roots or stationary series. In conducting this test, Augmented Dickey-Fuller (ADF) unit root test with intercept would be employed to determine the stationarity of data. The unit root text from table 1 to table 2 shows that the variables are stationary at first difference and second difference which allow for ascertaining the cointegration relationship.

Table 1: Result of ADF Unit Root Test at 1st Diff

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
CRR	-3.969765 (0.0071) **	-3.808546	-3.020686	Stationary
LQ	-5.576663 (0.0002) **	-3.808546	-3.020686	Stationary
MPR	-6.084761 (0.0001) **	-3.808546	-3.020686	Stationary
NAS	-1.238835 (0.6361) **	-3.808546	-3.020686	Not
NMS	0.331654 (0.9739)	-3.808546	-3.020686	Not
ROA	-9.588809 (0.0000) **	-3.808546	-3.020686	Stationary

Source: Author's Computation

Table 2: Result of ADF Unit Root Test at 2nd Diff

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remark
CRR	-7.756187(0.0000) **	-3.831511	-3.029970	Stationary
LQ	-8.430954 (0.0000) **	-3.831511	-3.029970	Stationary
MPR	-7.609076 (0.0000) **	-3.831511	-3.029970	Stationary
NAS	-5.447906 (0.0003) **	-3.831511	-3.029970	Stationary
NMS	-4.538762 (0.0023) **	-3.831511	-3.029970	Stationary
ROA	-11.62494 (0.0000) **	-3.831511	-3.029970	Stationary

Source: Author's Computation

ARDL Co-integration Relationship

The affirmation of the non-stationarity of the data through the unit root test of ADF and PP permit for the determination of the co-integration relationship between the dependent and explanatory variables in the models. The ARDL was chosen as against the traditional Johansen co-integration because it is structured in such a way that it takes into account the different order of integration of financial time series data. Co-integration test For Long-run Effect

Pesaran and Shin (2001) showed that cointegrating systems can be estimated as ARDL models; it has the advantage to estimate cointegrating relationship on variables that are either I(0) or I(1). According to Pesaran *et al.* (2001), the asymptotic distribution of the F-statistic is non-standard regardless of whether the regressors are I(0) or I(1), and provide two adjusted critical values that establish lower and upper bounds of significance. The bound test follows the critical criterion at the lower bound and upper bound value for decision at the three levels of significance in 1%, 5% and 10%.

Table 3: ARDL Bounds Tests for Cointegration

Test Statistic	Value	k
Nigeria Agricultural Sector		
F-statistic	43.30289	3
Nigeria Manufacturing Sector		
F-statistic	5.732990	3
Banking Sector		
F-statistic	10.14297	3

Source: Author's Computation Using E-Views 12 Software

Given a computed F statistics Value of 43.30289, 5.732990 and 10.14297 which are greater than the lower and upper critical bound values at 1%, 2.5%, 5% and 10% respectively, thus indicating the existence of a steady-state long-run relationship among the variables. This suggest that the various selected variables have a long run relationship with selected sectors of the economy.

Decision: We reject null hypothesis of the co-integration relationship to accept the alternative that there is Co-integration. We thus, conclude that monetary policy instrument as represented by Cash Reserve Ratio, Monetary Policy Rate and Liquidity Ratio have a long-run effect on sectors of the economy.

Nature of Long Run Relationship/ARDL Error Correction Model

The ARDL result has proven that selected sectors of the economy, Cash Reserve Ratio, Monetary Policy Rate and Liquidity Ratio are co-integrated/related in the long run. Consequently, the determination of the nature of the long run relationship becomes necessary as well as the speed of the adjustment to equilibrium.

Table 4: ARDL Co-integrating and Error Correction
NMS→CRR+MPR+LQ

ARDL Error Correction Regression				
Dependent Variable: D(NMS)				
ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)*	-0.274713	0.045893	5.985916	0.0000
R-squared	0.436387	Mean dependent var		2519.626
Adjusted R-squared	0.436387	S.D. dependent var		3409.706
S.E. of regression	2559.809	Akaike info criterion		18.57970
Sum squared resid	1.31E+08	Schwarz criterion		18.62944
Log likelihood	-194.0869	Hannan-Quinn criter.		18.59050

Durbin-Watson stat	1.642817			
* p-value incompatible with t-Bounds distribution.				
F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	5.732990	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Source: E-views 12.0 version data output

Table 5: ARDL Co-integrating and Error Correction
NAS→CRR+MPR+LQ

ARDL Error Correction Regression				
Dependent Variable: D(NAS)				
ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)*	-0.077537	0.004713	16.45123	0.0000
R-squared	0.790093	Mean dependent var		1886.555
Adjusted R-squared	0.790093	S.D. dependent var		1350.033
S.E. of regression	618.5261	Akaike info criterion		15.73900
Sum squared resid	7651491.	Schwarz criterion		15.78874
Log likelihood	-164.2595	Hannan-Quinn criter.		15.74980
Durbin-Watson stat	1.917400			
* p-value incompatible with t-Bounds distribution.				
F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	43.30289	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Source: E-views 12.0 version data output

Table 6: ARDL Co-integrating and Error Correction
ROA→CRR+MPR+LQ

ARDL Error Correction Regression				
Dependent Variable: D(ROA)				
ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CointEq(-1)*	-1.505479	0.189083	-7.962008	0.0000
R-squared	0.760134	Mean dependent var		-0.055142
Adjusted R-squared	0.760134	S.D. dependent var		4.428206
S.E. of regression	2.168762	Akaike info criterion		4.432638
Sum squared resid	94.07055	Schwarz criterion		4.482377
Log likelihood	-45.54270	Hannan-Quinn criter.		4.443432
Durbin-Watson stat	1.976176			
* p-value incompatible with t-Bounds distribution.				

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	10.14297	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Source: E-views 12.0 version data output

Tables 4, 5 and 6 revealed that the model moves toward equilibrium following disequilibrium in the explanatory variables. The ECM is significant and negatively signed with a coefficient of -0.274713, -0.077537 and -1.505479 a suggestion that -27.47%, -7.7537% and -150.5479% of error generated in previous period is corrected in current period.

Short Run OLS Relationship

In estimating the short run nexus between quantitative monetary policy instruments and employment rate, the OLS regression was applied and the result depicted in Tables 10. The outputs were interpreted using the coefficients of the individual variables, Adjusted R-square, f-statistic and Durbin Watson.

Table 7: OLS Regression: Nigeria Manufacturing Sector and Monetary Policy Instruments

Dependent Variable: NMS				
Method: ARDL				
Selected Model: ARDL(1, 0, 0, 0)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
NMS(-1)	1.274713	0.164625	7.743130	0.0000
CRR	-196.6021	231.1246	-0.850633	0.4075
LQ	35.23524	45.59908	0.772718	0.4510
MPR	235.7368	386.4253	0.610045	0.5504
C	-3961.756	3986.199	-0.993868	0.3351
R-squared	0.968668	Mean dependent var		18346.25
Adjusted R-squared	0.960835	S.D. dependent var		14461.46
S.E. of regression	2861.953	Akaike info criterion		18.96065
Sum squared resid	1.31E+08	Schwarz criterion		19.20935
Log likelihood	-194.0869	Hannan-Quinn criter.		19.01463
F-statistic	123.6642	Durbin-Watson stat		1.642817
Prob(F-statistic)	0.000000			
*Note: p-values and any subsequent tests do not account for model selection.				

Source: Author's E-view 12 computations

Table 8: OLS Regression: Nigeria Agricultural Sector and Monetary Policy Instruments

Dependent Variable: NAS				
Method: ARDL				
Selected Model: ARDL(1, 0, 0, 0)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
NAS(-1)	1.077537	0.053453	20.15851	0.0000
CRR	16.23957	62.36690	0.260388	0.7979
LQ	29.79786	10.71292	2.781488	0.0133
MPR	-63.33888	103.5725	-0.611541	0.5494
C	-199.4980	1145.373	-0.174177	0.8639
R-squared	0.996884	Mean dependent var		16195.50
Adjusted R-squared	0.996105	S.D. dependent var		11080.13
S.E. of regression	691.5332	Akaike info criterion		16.11996
Sum squared resid	7651491.	Schwarz criterion		16.36865
Log likelihood	-164.2595	Hannan-Quinn criter.		16.17393
F-statistic	1279.611	Durbin-Watson stat		1.917400
Prob(F-statistic)	0.000000			
*Note: p-values and any subsequent tests do not account for model selection.				

Source: Author's E-view 12 computations

Table 9: OLS Regression: Banking Sector and Monetary Policy Instruments

Dependent Variable: ROA				
Method: ARDL				
Selected Model: ARDL(1, 0, 0, 0)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
ROA(-1)	-0.505479	0.212133	-2.382843	0.0299
CRR	-0.000177	0.073014	-0.002419	0.9981
LQ	0.011375	0.035846	0.317328	0.7551
MPR	0.411801	0.191759	2.147488	0.0474
C	-3.231312	2.398534	-1.347203	0.1967
R-squared	0.356927	Mean dependent var		1.611945
Adjusted R-squared	0.196159	S.D. dependent var		2.704468
S.E. of regression	2.424749	Akaike info criterion		4.813590
Sum squared resid	94.07055	Schwarz criterion		5.062286
Log likelihood	-45.54270	Hannan-Quinn criter.		4.867564
F-statistic	2.220138	Durbin-Watson stat		1.976176
Prob(F-statistic)	0.112759			
*Note: p-values and any subsequent tests do not account for model selection.				

Source: Author's E-view 12 computations

Text of Probability

The probability values presented in Tables 7, 8, and 9 reveal distinct patterns in the effect of monetary policy variables on selected sectors in Nigeria. According to Table 7, none of the monetary policy variables exhibit a significant effect on the country's manufacturing sector. However, in Table 8, it is noteworthy that only the liquidity ratio emerges as having a notable impact on the agricultural sector, while the other variables are deemed

insignificant. Furthermore, Table 9 indicates that among the monetary policy variables, only the monetary policy rate demonstrates a significant effect on the banking sector. This underscores the idea that alterations in the monetary policy rate directly influence overall interest rates within the economy. Given that banks function as financial intermediaries, they experience direct repercussions from fluctuations in interest rates. Specifically, an elevated policy rate can result in increased borrowing costs for banks, subsequently influencing their lending practices.

In contrast, the manufacturing and agricultural sectors appear to be influenced by a myriad of factors beyond interest rates, including demand dynamics, input costs, technological advancements, and government policies. Consequently, interest rates emerge as just one among several factors that contribute to shaping the performance of these sectors.

Conclusion and Recommendations

There has been a prevailing belief in the efficacy of monetary policy as a tool for controlling the money supply and fostering economic growth and development in various sectors of the Nigerian economy. However, the empirical investigation of this notion in Nigeria has yielded contradictory findings. In light of this, the study seeks to examine the effect of monetary policy instruments on selected sectors of the Nigerian economy from 2000 to 2001. The analysis began with assessing the stationarity of the variables, revealing that they were integrated at orders I(1) and I(2). Consequently, the study employed auto-regressive distributed lag (ARDL) models. The findings indicate that monetary policy has a positive yet insignificant effect on the manufacturing and agricultural sectors, while it has a significant effect on the banking sector. This aligns with the monetarist school of thought, emphasizing the pivotal role of money supply in influencing economic well-being and supporting the necessity of effective monetary policy for economic stabilization. The observed insignificant effect on the agricultural and manufacturing sectors suggests that these industries are influenced by a multitude of factors beyond interest rates, encompassing demand dynamics, input costs, technological advancements, and government policies, with interest rates representing just one element in shaping their performance.

To enhance the effectiveness of monetary policy across manufacturing, agriculture, and banking sectors, a multifaceted approach is recommended. First, clear communication channels between the central bank and stakeholders should be improved, ensuring transparent dissemination of policy objectives and decisions for informed decision-making. Tailoring monetary policy instruments to address sector-specific challenges, such as using targeted credit facilities or interest rate adjustments for manufacturing and agriculture, is crucial. Adopting a flexible monetary policy framework that recognizes unique sectoral needs and adjusting policies based on economic conditions is essential. Additionally, coordinating monetary policy with fiscal measures, implementing financial inclusion initiatives, establishing credit guarantee schemes, maintaining policy flexibility, and conducting regular monitoring and evaluation contribute to a comprehensive strategy for maximizing the impact of monetary policy on these sectors.

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