

EFFECTS OF MONETARY POLICY ON THE PERFORMANCE OF BANKING INDUSTRY IN NIGERIA (1991-2023): A TIME SERIES ANALYSIS

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Abstract

The objective of the paper is to study examines the effects of monetary policy on the performance of the banking industry in Nigeria from 1991 to 2023. Using a combination of descriptive statistics and econometric analysis, we investigate the impact of monetary policy variables on banking sector performance indicators. The analysis uses secondary data from the Central Bank of Nigeria (CBN) Statistical Bulletin and considers three independent variables: money supply, credit to private industry, and liquidity ratio. Methods like the Augmented Dickey-Fuller (ADF) test, Johansen cointegration test, Auto Regressive Distributed Lag (ARDL), and Vector Error Correction Model (VECM) were used to analyse the data. Our findings suggest that monetary policy has significant effects on banking sector performance, particularly in terms of lending and credit, deposit liabilities, profitability, and stability. The Granger causality test shows no causal relationship between bank performance and the independent variables. We recommend that policymakers strengthen the regulatory framework, improve monetary policy transmission, and promote effective risk management practices among banks.

Keywords: GDP; MRR; Monetary Policy; CBN; Banking Industry; Interest Rate; Exchange Rate; Liquidity Ratio; CPS.

Introduction

The presence of any banking industry is necessary for every economy, whether it is a developed or developing economy. Banks stimulate investment and employment, facilitate international trade and payments, and are crucial for economic development. This is why there's economic interest in the study of monetary policy's effects on the banking sector.

Monetary policy plays a crucial role in shaping the performance of the banking industry. In Nigeria, the Central Bank of Nigeria (CBN) has implemented various monetary policy measures to promote financial stability and support economic growth. This study aims to investigate the effects of monetary policy on the performance of the banking industry in Nigeria.

Banks contribute significantly to the national economy by promoting efficient payment systems, fostering positive banking habits, and facilitating overall economic development. They act as financial intermediaries, collecting savings from those with excess funds and lending to those in need of long-term investment. Due to their vulnerability to financial abuse, banks are subject to extensive regulations designed to minimize risks and the cost of failures. A stable financial system is essential for rapid economic growth and social development, making the banking industry more regulated compared to other sectors.

The Central Bank, in conjunction with the central government, is responsible for designing and implementing monetary policy. In Nigeria, the Central Bank formulates, implements, and appraises monetary policy, with the government's approval. Monetary policy is the process by which the Central Bank controls short-term borrowing costs or the monetary base, often targeting inflation or interest rates to ensure price stability and confidence in the currency.

According to Ezaudoji (1994), monetary policy management relies on controlling the money supply to influence broad economic objectives such as sustainable growth, balance of payments, stable exchange rates, and low inflation. These goals are pursued using appropriate monetary policy tools, which vary based on the economy's development level. This paper aims to examine the effects of money supply on the Nigerian banking industry's performance, evaluate the impact of credit to private industry, and determine the impact of liquidity ratio on bank performance in Nigeria, focusing on the period from 1991 to 2023.

Conceptual / Literature Review

Conceptual Review

Previous studies have examined the impact of monetary policy on banking sector performance in various contexts. For example, Ogunleye, (2012) found that monetary policy has significant effects on banking sector performance in terms of lending and credit. Similarly, Akinlo, (2017) observed that monetary policy affects banking sector stability.

Monetary Policy Definition and Concepts:

According to Johnson (2008), monetary policy uses the Central Bank's control over the money supply to achieve economic objectives. Bello (2016) explains that monetary policy combines government actions and the regulation of money flow. Akani (2009) refers to monetary policy as credit policy or money management. The objectives of monetary policy can be enunciated as follows;

- i. **Rapid Economic Growth:** Keynes (1936) and CBN Economic and Financial Review highlight that monetary policy aims for rapid economic growth by influencing interest rates to boost investment. For example, the Central Bank of Nigeria (CBN) can lower interest rates to encourage investment, promoting economic growth and stability.
- ii. **Price Stability:** Robert (2000) states that all economies face price instability, leading to inflation and deflation. Monetary policy seeks to stabilize prices, maintain the value of money, and reduce income and wealth inequality.
- iii. **Exchange Rate Stability:** Keynes (1936) argues that stable exchange rates are crucial. Fluctuations can harm international confidence in the economy. Therefore, monetary policy strives for exchange rate stability to maintain economic stability.
- iv. **Balance of Payment Equilibrium:** Developing countries like Nigeria often struggle with balance of payment issues. The CBN uses monetary policy to achieve equilibrium, managing the balance between surplus (excess money supply) and deficit (money shortages).
- v. **Full Employment:** Following Keynes's "General Theory" (1936), full employment means everyone who wants a job can get one. Monetary policy can help achieve full employment by expanding credit supply, generating jobs across various industries.

- vi. **Neutrality of Money:** Robertson (2000) believes money should play a neutral role in exchanges. Monetary policy should regulate money supply changes to prevent monetary disequilibrium.
- vii. **Equal Income Distribution:** While fiscal policy traditionally addresses economic equality, modern economists argue that monetary policy can also provide long-term, low-cost credit to neglected sectors like agriculture and small industries, promoting economic development and equality.

Theoretical Review

According to Johnson (2008), monetary policy employs the Central Bank's control of the supply of money as an instrument for achieving the objective of the economy. According to Bello (2016), monetary policy is best understood by breaking down the two different concepts which are policy and monetary. "Policy" is the action, intention, or decision of government over a particular public matter or solving a public problem, while "monetary" is the activity that deals with the circulation of money and other activities of the government in the country that deals with the flow of money in circulation. According to Akani (2009), the term monetary policy is also known as the credit policy or money management policy. In the Keynesian revolution, many people accepted the significance of monetary policy objectives some of which include: i) Rapid Economic Growth: According to Keynes (1936) and CBN Economic and Financial Review (31(4): 321 – 339), rapid economic growth is one of the vital objectives of monetary policy. As a result, monetary policy is capable of influencing economic growth by controlling some premeditated aspects of the economy like the interest rate and its resultant effect on investment. For rapid economic growth, the Central Bank of Nigeria (CBN) can opt for a cheap or easy credit policy by reducing the interest rate, while the investment level in the economy can be encouraged. Thus, an increase in investment will later speed up economic growth. Therefore, faster economic growth and development are possible if the monetary policy record success in maintaining income and price stability. Financial standard (2006). Monday, March 6. ii) Price Stability: Robert (2000) explained that all economies suffer from inflation and deflation due to instability in price. Inflation is detrimental to the country's economy thus, one of the objectives of monetary policy is price stability which is an attempt to keep the value of money stable and it helps in reducing the income and wealth inequalities. An Exchange Rate Stability: Keynesian (1936), opined that the rate of stability of the exchange is the price at which a country's currency is expressed in terms of any foreign currency. In the situation that the exchange rate is unstable due to the frequent volatility in the exchange rate market, there is a tendency for the international commodity to lose confidence in the economy. iii) Balance of payment equilibrium: According to Keynes (1936), developing countries like Nigeria have suffered from an imbalance in the Balance of Payment. The Central Bank of Nigeria (CBN) through its monetary policy measures, tries to maintain equilibrium in the balance of payment. The balance of payment (BOP) has two aspects i.e., the "BOP surplus and the BOP deficit". The balance of payment surplus is defined as the excess in money supply in the domestic economy, while the balance of payment deficit stands for the stringency of money, if the monetary policy succeeds in maintaining monetary equilibrium, the balance of payment equilibrium can be achieved. iv) Full employment: The concept of full employment was much discussed after Keynes publicised the "General Theory (1936), which refers to the observation of voluntary employment. In simple words, full employment stands for a situation in which everybody who wants a job gets the job. However, it means there is zero unemployment. In this sense, full employment is achieved. Monetary policy can mostly be used for attaining full employment especially if the expansion of monetary policy is greater than the credit supply. In

that case, it can help in generating more jobs in different industries of the economy. v) The neutrality of Money: Robertson (2000) opines that money being a passive factor is expected to play a major role in exchange in the society, therefore, monetary policy should regulate in all cases as long as the supply of money and the change in money supply with its tendency to create monetary disequilibrium. Monetary policy has to regulate the supply of money by neutralizing the effects of monetary policy. vi) Equal income Distribution: Economists have constantly justified the role of fiscal policy in maintaining economic equality. However, Economists in the 21st century have given the opinion that monetary policy can make special provisions for the neglected area of supply such as agriculture, small and medium scale industries, etc, by providing these sets of economic development industries with cheaper credit for long term. This will provide them with a high standard and the ability to re-fertilize and come up to contribute to the development of the economy.

Theoretical Issues and Review of Literature

According to Adams (2009), several monetary policy instruments were explained:

Reserved Requirements:

Deposit Money Banks are required to maintain the reserved requirement on average over a fourth night period. The amount of reserve requirement to be held by each bank is determined as a percentage of its reserve base.

Lending policy is another notable function of the Central Bank which provides credit to Deposit Money Banks.

Interest Rate is one of the functions of CBN in lending to financially upright Deposit Money Banks at a most satisfactory rate of interest, called the Minimum Rediscount Rate (MRR).

Moral Suasion: This is the so-called 'jaw-bone' technique. The monetary authority often appeals indirectly and informally to the financial community to adhere to its monetary policy guidelines. Such appeals have been made by CBN governors on such occasions as the Institute of Bankers' annual dinner party. Since the era of indigenization, appeals have been made to Nigerian bankers to increase their loans to indigenous businesses, the agricultural sector, etc. To the extent that bankers are sensitive to public opinion, such appeals have often been heeded. In 1980, for instance, more loans were given to indigenous businesses (88%) than was officially stipulated (70%). The effectiveness of moral suasion is, however, never guaranteed.

Exchange Rate, in this case, is capable of throwing the balance of payment into deficit balance or in surplus and each of these cases has a serious effect on the monetary base, hence putting the money supply in one direction or the other. In the sales or purchase of foreign exchange, the Central Bank certifies that the exchange rate is at levels and will not affect the domestic money supply in an undesired direction, through the balance of payment exchange rate.

Open Market Operation (OMO): In conducting an open market operation, the Central Bank undertakes transactions in the financial market to affect the aggregate level of reserve balances (financial institution deposits at the Central Bank) and therefore affect the short-term market interest rate. Open market operations. (OMO) are the most actively used instrument to maintain monetary policy rates (Ojo, 2004).

Among the early writers that explained how money affects economic and financial activities was Fisher (1963). He believed like other neo-classical writers that in the short-run interest rates dictated the monetary influence on the economy. According to him, these rates are strictly at the

initial stage even though rising subsequently and the channel of influence in the real cash balances. He opined that when money stock increases, it follows an increase in gold stock and a rise in reserve. This trend would lead to a decline in profit and investment. However, if for any reason, excess reserve rises again, maybe as a result of a rise in food stock and the interest rate falls to a lower level, the declining phase of the business cycle would be reserved with money stock resuming growth and leading to increase in commodity price and profit followed by a rise in business investment loan demand and further increases demand deposits, money stock, price level, profit, and investment.

Ezeudufi and Babalola (2009) highlighted the channels through which monetary policy affects the performance of the banking industry in Nigeria, for example, the profitability and asset base as the traditional measure of banks' performance in Nigeria. However, they suggested the use of indices such as the number of services as an additional measurement of bank performances. Odufalu (2005) adopted gross profit as the measure of the profitability of banks directed on monetary policy variables and their effects on banks' profitability. He developed a bank profitability structural model in which the reduced form had profit before interest and tax as the liquidity ratio, cash ratio, and income. Odufalu (2005) succeeded only in ascertaining the monetary determinants of banks' profitability and not precisely how changes in monetary policy affect profitability.

Uchendu (1995) asserted that interest-earning, rate of return on capital as the dependent variable as measures of banks' profitability affect the performance of monetary policy. However, in the final analysis, he only identified and estimated the number of banks' profitability determinations but failed to explain what changes in profitability result from changes in monetary variables. This review has shown that monetary policy influences the banking industry performance directly, and while applying the above-mentioned instruments, a monetary control framework starts by establishing a link between the instrument and the ultimate targets from output growth, inflation, and balance of payments, since a direct relationship is not strictly possible as opined by the immediate target such as the level of growth of money supply or bank credit. Ojo (2004), further stressed that the appropriate level of the money supply is determined by the public demand for money which itself is dependent on income, wealth, interest rates, and the level of inflation.

Also, under a regime of the indirect monetary framework, the intermediate targets such as the money demand function have been estimated and the monetary survey was undertaken in an indirect monetary control regime only the operating variable which is related to the part by intermediate target variable are not under the direct control of Central Bank. The operating variable, particularly the monetary base (reserve money) which is directly under the control of the Central Bank is managed by the bank while leaving the market apparatus to determine interest rates as well as allocations of credit. He concluded that the Central Bank uses the indirect instrument of open market operations, reserve requirements, and discount mechanisms to influence the monetary base. Afolabi (2009), explained that the monetary authorities will bear in mind the technical characteristics of each instrument, the operational time lag, the side effects of the compatibility with other policies, and the issue of structural superiority bore identifying the monetary instrument. He opines that some of the instruments or tools are quantitative, while others are selective quantitative tools that are traditionally identified as the open market operations, the legal reserve ratio, the bank rate, special deposits, and stabilization security. These tools are quantitative controls because their main aim is to regulate the quantity of money in circulation and the volume of credit that could be created by the banking system since these credits constitute part of the money supply. The selective credit control involves the Central Bank

monitoring the economy by giving directives to banks or priorities to be observed in virtually all areas of their operations.

The management of monetary policy with regards to credit ceiling and industrial credit guidelines was better. According to the Central Bank of Nigeria (2009), commercial and merchant banks were given credit ceiling guidelines during the period under review because CBN abolished the credit ceiling in 2007. The monetary and credit development indicated that there had been a substantial injection of liquidity into the economy and this led to high levels of excess reserves in the banking system. The increase was due to a large divergence of government fiscal operations and financing needs for the projections as well as the high growth rate of commercial and merchant bank credit to private industries. This development further led to an increase in CBN financing of deficit level of ways and means of advances. During the period under review, the banking industry witnessed rapid growth in terms of structural development and contribution to overall performance. These changes were a result of the consolidation of the banking industry, but later in 2009, the management of monetary and credit policy became worrisome because the Nigerian economy has been significantly monetized; hence, the frequent issue of stabilization securities, exchange rate, interest rate and the administrative allocation of the dwindling foreign exchange resource made the banking environment very challenging. This resulted in a reduction in the number of commercial and merchant banks in operation during the period under review.

According to CBN briefs (2010), it is apparent that the economy has been significantly monetized. The overall supply of money to the economy increased from N385.5 billion in 2007 to N544 billion in 2010 with the private industry having the greater share of credit allocation. Output also expanded by 4.9% in 2010. However, external debt rose from \$37.5 billion in 2007 to \$42.6 billion in 2008 and later fell to \$30.3 billion in 2010. The rate of inflation was reduced to a single-digit unit of 8.5% in 2010 after a series of increases from 2007 - 2010 and started declining in 2010. The rapid increase in the inflationary rate between 2007 and 2009 could be a result of the expansion in the output of the economy. This problem could further have been compounded by excessive production costs which emanated from the flow of foreign exchange and the impact of the floating exchange rate (Nigerian being an import-pendent country). The foreign exchange management during the period of 2007 - 2010 brought noticeable changes in Nigeria's financial economy with recognized operators (unlike before) embracing all commercial banks, the bureau de change, the parallel market, and the Central Bank of Nigeria at the Apex. The incendency was further created through the foreign exchange deal and this allowed for new entries into the banking system since the economy had begun to respond positively to adjustment policies. The above appraisal has shown that monetary policies during this period (2009 and 2010) performed fairly better than in the previous period.

The monetary management during this period was based on an indirect or market combination of some selected administrative control measures with a monetary market-based approach.

Monetary policy in Nigeria has two vital goals the promotion of maximum sustainable output, and employment, and maintaining a sustainable price level in the economy. The estimation of the current economic condition is not the most up-to-date data on key variables like employment, growth, productivity, etc., largely reflects the condition in the past Monetary policies reflect the maintenance of relative price stability (reduction of the inflationary rate to a single unit rate), stimulation of output and employment and a healthy balance of payment position, as well as the acceleration in the pace of economic development to achieve the above objectives. The market-based approach entails open market operation, cash reserve requirement, liquidity ratio, stabilization securities, interest rate policy, moral suasion, and discount window operation.

According to Odozi (2008), for more effective monetary management, several other measures were adopted to strengthen the banking system. In 2004, Soludo (CBN Governor) increased the minimum paid-up capital for commercial and merchant banks to N25 billion and N50 billion respectively, as well as the introduction of risk-weighted assets in 2009.

The deregulation of interest rates provided the banks freehand to determine their deposits and lending rates funds. The CBN rediscount rate was reviewed upward in 2008, this made interest rates on treasury bills (securities) move up to motivate the private non-banking public to key into government securities. The rate was reduced to 13.55% in 2009 and it has stabilized at the rate from then to 2010. The interest rates movement addressed the problem of widespread rates on bank deposits and lending that had characterized a deregulated interest rate regime in Nigeria. Issuance of stabilization securities and the introduction of cash reserve ratio for merchant banks were aimed at reducing the ability of banks to create credit was indirectly reduced further by raising the minimum liquidities ratio of commercial and merchant banks.

The Central Bank of Nigeria, like others in the world, has the "end" of achieving price stability and sustainability. Thus, economic growth through the "means" of monetary policy is embedded in the triple objective of (i) full employment; (ii) Maintaining stability in interest rates, and (iii) Pursuing optimal exchange rate targets.

To accomplish these numerous objectives, the CBN functions through a system of targets. These are the operational targets, the intermediate targets, and the ultimate target in the conduct of monetary policy, as contained in the CBN Act 2007, which is vested in the Monetary Policy Committee (MPC). The Act empowers the MPC to have responsibility within the Bank for formulating monetary and credit policy. It also requires the MPC to meet at least four (4) times a year with the provision to hold special meetings as the need arises. The MPC consists of twelve (12) members, namely: the CBN Governor (Chairman), the four (4) Deputy Governors of the Bank, ten-executive members of the Bank's Board of Directors, three (3) members appointed by the President, and two (2) members appointed by the Governor. The CBN Monetary Policy Department provides the Secretariat for the Committee (Ibeabuchi, 2007).

The Monetary Policy Rate (MPR) was established as a complement to the MRR in the year 2006 to establish an interest rate corridor of plus or within two percentage points of the prevailing MPR. As far back as 2007, the rate has been held between 6% and 10.25%. Despite the empirical evidence found for the efficacy of monetary policy with market-based

The effect of the global financial and economic crises on the soundness of the Nigerian banking system, especially on the liquidity condition of the banks, the CBN in conjunction with the Nigeria Deposit Insurance Corporation (NDIC) conducted a special audit on the deposit money banks (DMBs) in the second half of 2009. The outcome revealed an acute liquidity shortage in the banking system. In addition, the audit revealed a huge portfolio of non-performing loans amounting to N3.3 trillion and the consequent capital base erosion, as well as poor corporate governance in some banks, this presented 13.22% of GDP and 36.9% of N89 trillion gross credits.

According to Sanusi (2012) to mitigate the liquidity shortages in some banks, the CBN injected a total of N620 billion (in form of Tier-II capital), amounting to 2.5 of GDP, to boost the liquidity of the banking system. In addition, the Executive Directors and Chief Executive Officers of eight (8) of the most affected banks were removed and replaced with the CBN-appointed Management Teams, while those found to have compromised their positions were further referred to the Economic and Financial Crimes Commission (EFCC). The list of major beneficiaries of the non-performing loans was also circulated through print and electronic media, and concerted efforts

were made to recover the loans. However, the banks with liquidity problems whose capitals were not impaired were advised to recapitalize no later than June 2011 (Sanusi; 2013). In the first half of 2010, the policy focus was to ensure the provisions or adequate liquidity to the banking system, promote activities in the interbank market and reduce interest rate volatility and level to enhance the availability of credit to the domestic economy. Consequently, several quantitative easing measures were introduced including, the establishment of the N200 billion Asset Purchase Facility Fund (APF) and a 24 billion infrastructure facility for on-lending by the Bank of Industry (BOT) at concessionary interest rates to projects in the power and aviation sub-industries as well as Small and Medium Enterprises SMEs). Also, the Asset Management Company of Nigeria (AMCON) Bill was passed into law by the National Assembly and subsequently assented to by the President of the Federal Republic of Nigeria.

Emefiele (2015) (new CBN Governor), unveiled his monetary policy agenda, vowing to gradually slash interest rates, suspend bank charges on cash deposits, publish names of serial debtors, and treasury bills yields and Naira falls on government policy stance. His decision to lower interest rates signals a departure from the hawkish monetary stance of his predecessor, Sanusi - Lamido Sanusi, who kept the Monetary Policy Rate (MPR) unchanged at 12% for two years and cut inflation to single digits. Monetary Policies would be people-centered and foreclosed on the devaluation of the Naira, pledging to maintain exchange rate stability. Interest rates have been stuck at 12% since late 2011, and several measures have been made to tighten liquidity, which has been credited with gradually bringing inflation down. But businesses had complained that lending rates were too punitive. What could be considered a popular move, tinkered with the cashless policy introduced by Sanusi by ordering the immediate suspension of all charges associated with limits imposed on cash deposits in commercial banks and calling for a review of the ongoing practice where all fees associated with limits on withdrawals accrued to banks alone.

Furthermore, the CBN would determine what percentage of fees charged on excess withdrawal would be redeemed by commercial banks while the rest would be remitted to the Central Bank. The CBN, in its plan to minimize the high cash holdings in its possession, discourages situations where customers created various means to avoid the charges by opening multiple accounts among other disingenuous means aimed at undermining the objective of the policy, lowering interest rates, and maintaining exchange rates, which are very daunting twin goals, hence, make it possible to ensure that these goals are mutually achieved. Issue of unemployment affecting the progress of monetary policy decisions.

CBN prefers to continue the maintenance of the monetary policy stance to reflect the liquidity conditions in the economy as well as the potential fiscal expansion. Nigeria, when compared with other emerging countries of the world, has one of the highest treasury bill rates including South Africa, Brazil, India, China, Turkey, and Malaysia, a condition which according to Lemo (2014), "creates a perverse incentive for commercial banks to enable them to buy virtually, risk-free government bonds rather than lending them to the real industry This was done by foreclosing the possibility of devaluing the nation's currency soon noting that the country remains a largely import-dependent with considerable infrastructure challenges: "It is not possible to consider depreciation at this time until we look into problems that shoot up import bills. At this time, it is not an option, referring to the country's foreign reserves: he noted that the country still had enough ammunition to contain the exchange rate (Alade, 2015).

Emefe (2015) observing the downturn in the economy of the country, said that the CBN would strive to maintain exchange rate stability and aggressively shore up foreign exchange reserves by maintaining a healthy external reserve position and ensuring external balance. The Central Bank

would identify and work with specific industry(s) which have the potential to create jobs on a mass scale to reduce poverty in the economy specifically. Also, Emefiele (2014) opines that the monetary policy measures which would see a reduction in interest rates including policies that would create jobs for the youths and help them access finance and get them out of poverty would be considered. Emefiele (2014) notes that the CBN will collaborate with commercial banks to significantly improve the credit culture in the Nigerian banking system to curb a zero-tolerance monetary policy, especially by fraudulent borrowers in the financial system.

He warned that though the CBN would be fair and just in policy decisions, it would be firm on implementation, as policies must adhere to the CBN plans to boost funding to small and medium-scale enterprises through a business approach, which would demand greater private industry participation. The effect of the unfolded plans is to have a scheme where individuals could access up to N50,000 loans from the banking system without collateral. The CBN, in its effort to readdress the objectives and implementation of its intervention programmes in the industry, to ensure that high-value addition is obtained from funds provided, interventions in agriculture would be directed at improving productivity in areas with high domestic demand and where opportunities exist, to improve domestic supply such as in Rice, fish, wheat, and sugar to conserve foreign exchange, given that the four commodities resulted in gulping a whopping sum of N1.6 trillion in the importation of food in the year 2015 alone.

According to Barau (2015), the risk-based supervision (RBS) mechanism of Nigerian banks would be strengthened to ensure the overall health and financial system stability, adding that banks would be asked to proffer remedial actions where weaknesses are observed specifically in the examination reports of the RBS to avoid further build-up of non-performing loans (NPLs). Thus, if banks provide inadequate remedies, the CBN would advance its solutions and insist on compliance. While monetary policy has not been able to play a crucial role in the case of reduction in the level of unemployment, it has generated a specified fixed goal for employment. Inflation is a monetary policy determinant, while non-monetary factors largely determine the maximum level of employment and the long-run growth rate of the economy. Efforts are being made by the government towards improving employment and output levels consistent with non-monetary fundamentals which would ultimately result in higher inflation which is beneficial to the economy as a whole.

Methodological Issues

Methodology

This study uses a combination of descriptive statistics and econometric analysis to investigate the impact of monetary policy on banking sector performance. The study covers the period from 1991 to 2023 and uses data from the Central Bank of Nigeria (CBN) and the Nigerian Deposit Insurance Corporation (NDIC).

To achieve the objectives of the study, standard time series econometrics techniques were adopted. For preliminary analysis, the Augmented Dickey-Fuller unit root test was used to test for the stationarity of the data. This is carried out to ascertain if the data are stationary or not as it follows the assumptions of the classical linear regression model and also to determine the basis upon which further analysis of the data is carried out. The ARDL Bound testing was used to check for the existence of the long-run relationship between the variables. The Auto-Regressive Distributed Lag (ARDL) bounds testing methodology as developed by Pesaran and Shin (1999) has been favoured above the co-integration analysis developed by Engle and Granger (1987) and

Johansen and Juselius (1990) due to the low power complications relating to the co-integration analysis. It is used in cases of mixed integration (Shrestha and Chowdhury, 2007).

To estimate the impact of monetary policy on banking performance, the study adopts the vector error correction model to measure the short-run relationship between the dependent and independent variables, while the vector autoregressive model is used to test the long-run relationship between the dependent and independent variables. The var equation is written below as:

$$\Delta \log BKPF_{t-1} = \beta_0 + \Delta \beta_1 \log MS_{t-1} + \Delta \beta_2 \log CPS_{t-1} + \Delta \beta_3 \log LR_{t-1} + \Delta \log \mu_{t-1} \dots (3.1)$$

Several diagnostic tests are performed to ascertain the robustness or otherwise of the estimated model. These tests comprise the following: The normality test was carried out which showed that the residual of the model is normally distributed. The auto correlation test was also run to check for the presence of auto-correlation in the model as well as the stability test.

Four (4) variables were captured in the model. These variables are divided into two; namely: dependent variables and independent variables. The variables captured in the model are specified as follows:

- i. Bank performance is the dependent variable used for the research analysis; bank performance represents the performance of the banking industry in the Nigerian economy.
- ii. Money supply which is the total supply of money to the economy was used as a proxy for monetary policy in the determination of the banking performance of banks for the period between 1991 and 2020.
- iii. Credit to private industry is the total value of credit given to the private industry by the banks over the period selected for this research analysis, credit to the private industry was used in this analysis as a proxy for monetary policy and also as an independent variable which can affect the bank performance of the selected banks.
- iv. Liquidity ratio was used in the determination of the ability of banks the payment of current debt obligations without necessary raising external capital; liquidity ratio is used as an independent variable in this analysis as a proxy for monetary policy and is used to test its effect and influence on the bank performance.

Model Specification

In the study, it was assumed that monetary policy which is proxied by money supply, credit to private industry, and liquidity ratio determines the growth of the banking industry in Nigeria. The research model adopted for the study is a time series analysis. Hence, bank performance which is assumed to be the dependent variable is determined by the monetary policy, which is proxied by money supply, credit to private industry, and liquidity ratio. Thus, the model is specified in functional form as follows:

$$BKPF = F (MS, CPS, LR) \dots \dots \dots (3.2)$$

In linear form, eq 3.2 can be written as:

$$BKPF = \beta_0 + \beta_1 MS + \beta_2 CPS + \beta_3 LR \dots \dots \dots (3.3)$$

Equation 3.3 is the mathematical form of the equation. The econometric form of the equation can thus be written as follows:

$$EMP = \beta_0 + \beta_1 MS + \beta_2 CPS + \beta_3 LR + \mu_l \dots \dots \dots (3.4)$$

In equation 3.4 the error term (μ_t) stands as a random variable that has a well-defined Probabilistic property and it is assumed to arrest other exogenous factors that are capable of disrupting banking performance.

The log form of the model can hence be written as follows:

$$\text{Log BKPF}_{t-1} = \beta_0 + \beta_1 \text{Log MS}_{t-1} + \beta_2 \text{Log CPS}_{t-1} + \beta_3 \text{Log LR}_{t-1} + \mu_t \quad \text{----- (3.5)}$$

The model (Equation 3.5) was logged to break them into smaller digits and to avoid the problem of large numbers (outliers) to explain the result in terms of elasticity and to ensure the variables are measured using the same level of measurement. The $t-1$ is the past period, hence the dependent variable, independent variables, and the error term carry the value of $t-1$. Hence, the variables as depicted by the model are defined as follows:

Log BKPF = Log of Bank performance.

Log MS = Log of the Money supply.

Log CPS = Log of Credit to private industry.

Log LR = Log of Liquidity ratio.

μ_t = Error Term

β_0 = Intercept

β_1, β_2 , and β_3 = Slopes and also the coefficients of the independent variables.

From the above-specified model, Log BKPF is regarded as the dependent variable which is expressed as a linear function of Log MSt, Log CPSt, and Log LRT which are the explanatory variables. The apriori expectations are $\beta_0 > 0$, $\beta_1 > 0$, $\beta_2 > 0$, $\beta_3 < 0$. This means we expect a positive relationship between the dependent variable and the independent variables.

Table 1. Statistical Summary of the Data.

Variables	Observations	Mean	Minimum	Maximum
BKPF	33	9266.223	58.0272	34593.89
MS	33	6421.756	38.3568	28604.47
CPS	33	5303.625	27.32642	22459.18
LR	33	45.56667	26.39276	81.42032

Source: *CBN Statistical Bulletin* (2023)

The statistical table shows the summary of the data used in the study such as the mean of variable, the minimum and maximum as well as the number of observations of the data.

(i). Chi-Square

The regression results shown above were used to test the study hypotheses

1. H_0 : That Money Supply has no significant influence on the performance of the banking industry in Nigeria. The calculated $P > \chi^2$ of the money supply from the table above is 0.0000 and this is less than 0.01 (at 1% significant level), it was concluded that the money supply has a significant influence on the performance of the banking industry in Nigeria. Thus, null hypothesis 1 is rejected.
2. H_0 : That credit to private industry has no significant influence on the performance of the banking industry in Nigeria. Here again, the null hypothesis 2 was rejected as the $P > \chi^2$ of credit to private industry is (0.0000) less than 0.01 (at 1% level of significance). The

- finding is that credit to private industry significantly influences the performance of the banking industry in Nigeria. Thus, null hypothesis 2 is rejected.
3. Ho: That Liquidity Ratio has no significant influence on the performance of the banking industry in Nigeria. The calculated $P > \chi^2$ of the liquidity ratio from the table above is 0.0472 and this is greater than 0.01 (at 1% level of significance). It was concluded that the liquidity ratio influences the performance of the banking industry in Nigeria. Thus, null hypothesis 3 is rejected.

(ii). R-Square

1. Money supply $R^2 = 0.8407 \times 100 = 84\%$. This is to say that 84% of variations or changes in the dependent variable (bank performance) are caused by the variations in the independent variable (money supply).
2. Credit to private industry $R^2 = 0.8156 \times 100 = 81\%$. This is to say that 81% of variations or changes in the dependent variable (bank performance) are caused by the variations in the independent variable (credit to private industry).
3. Liquidity ratio $R^2 = 0.2412 \times 100 = 24\%$. This is to say that 24% of variations or changes in the dependent variable (bank performance) are caused by the variations in the independent variable (liquidity ratio).

Empirical Findings and Analysis of Result

a) Unit Root/Stationary Test

A time-series variable is said to be stationary if there is no systematic change in its mean (no trend), no systematic change in variance, and strictly periodic variations have been removed.

The study uses the Augmented Dicker-Fuller Unit root test to check for the stationary of the variables in the data. The results of the stationary tests indicate the presence of unit root at the level values of the variable and even after transformation into the natural log.

However, the first difference values of the variable were stationary. Hence, the variables are integrated in the same order.

Table 2: Augmented Dicker-Fuller Unit Root Test for the Model

Variables	ADF Statistics	Critical Value			Order of Integration
		1%	5%	10%	
BKPF	-3.242	-4.380	-3.600	-3.240	I (1)
MS	-2.292	-4.380	-3.600	-3.240	I (1)
CPS	-4.100	-3.730	-2.992	-2.626	I (1)
LR	-6.137	-3.730	-2.992	-2.626	I (1)

Estimation Procedure

Optimal Lag Selection

The optimal lag selection process is used to determine the number of optimal lags to be included in the Unit root tests, the Vector Autoregressive Model as well as the Vector error correction models of the data used in the study. Hannan and Quinn Information Criteria were used as the major criteria due to the sample size.

The choice of optimal lag length in unit root is very critical to the fact that the size and properties of the unit root tests are sensitive to the number of lags of a series variable used (Acaravci, 2010).

Co-integration Test

The test is used to test for the presence of co-integration and to determine the number of co-integrating vectors. The 0 value of the test is for co-integration while the other values are for the number of cointegrating vectors respectively.

The decision rule is that we reject the Null hypothesis if the test statistics (calculated value), in our case, the trace statistics is greater than the critical value, if not we do not reject the Null hypothesis. The Johansen Co-integration test statistics indicated the absence of co-integration in the data. Hence, we use the Vector Autoregressive Model to estimate the long-run relationship between the variables

As seen from the result below, we do not reject the null hypothesis of no co-integration.

Hypothesized of CE(s)	Eigen value	Trace Statistics	Critical Value
0	-	64.8748	47.21
1	0.6776	32.0336	29.98
2	0.53440	9.8631	15.41
3	0.22686	2.4037	3.76
4	0.07954		

The estimation test gave the result of the Vector Autoregressive Model (VAR). The table of the VAR below shows the long-run relationship of the Lag values of each dependent variable on it as well as the lag values of other variables in the model.

Table 3: Variables

VARIABLES	(1) logbnka
L.logbnka	1.176*** (0.141)
L.logms	-0.0170 (0.232)
L.logcps	-0.180 (0.162)
L.loglr	0.170* (0.0932)
Constant	-0.408 (0.315)
Observations	33

From table 3, the lag value of liquidity ratio has a positive and significant influence on Bank performance while the lag value of money supply (MS) and credit to private industry (cps) has no long-run effect on bank industry performance. The values shown for the Granger causality test showed that money supply (MS) does not granger due to the performance of banks, so also bank performance does not granger cause money supply. In the same measure, credit to private

industry does not granger cause bank performance likewise bank performance does not granger cause credit to private industry.

Similarly, the test indicated no granger causality between liquidity ratio and bank performance, and also bank performance does not granger cause liquidity ratio. The short-term dynamic of the model has been examined by estimating an error correction model. In the short run, the deviation from the long-run equilibrium can occur as a result of the shocks in any of the variables in the model.

Table 4 below is the vector error correction model. It shows the result of the short-run dynamic coefficients associated with the long-run relationship obtained from the error correction model. Various independent variables such as money supply and credit to the private industry are statistically significant at 1%, and have positive coefficients, meaning that they influence bank performance in the short run.

Table 4: Vector Error Correction Model

VARIABLES	(1) D_logbnka	(2) D_logms	(3) D_logcps	(4) D_loglr
L_ce1	0.226*** (0.0533)	0.186*** (0.0589)	0.337*** (0.0722)	-0.225* (0.122)
L_ce2	-0.0602 (0.132)	0.0472 (0.146)	0.667*** (0.179)	0.431 (0.302)
Constant	0.0893** (0.0451)	0.108** (0.0498)	-0.0585 (0.0611)	0.0913 (0.103)
Observations	33	33	33	33

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

The Post-estimation Tests were also carried out and the autocorrelation result was arrived at.

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

The Post-estimation Tests were also carried out and the autocorrelation result was arrived at.

The Lagrange Multiplier test for autocorrelation has a Chi-value of 17.5940 which is significant at 5% (p-value 0.34820).

Interpreting the result, we conclude that there is no presence of autocorrelation in the data.

Jarque- Bera test for normality conducted on the data indicated that the data has a p-value of 0.76619 and t-test of 0.533 indicating no normality problem. The same result was obtained from the Skewness and Kurtosis test statistics for normality with p-values of 0.73610 and 0.50897 respectively and t-test values of 0.096 and 0.436. all indicating no normality problem in the data.

Result of findings

In establishing the effects of Monetary Policy and Banking Sector, research has shown that monetary policy has a significant impact on banking sector stability in Nigeria. A study using the Autoregressive Distributed Lag (ARDL) Bounds testing approach found a long-run relationship between banking sector stability and monetary policy variables

Conclusion

The result of the stability test showed that VECM specification imposes no moduli. Therefore, Vector- Error Correction model satisfies the stability condition and we, therefore, conclude that:

There is a strong relationship between monetary policy and banking industry performance, but the relationship alone cannot determine the level of banking industry performance. The monetary

policy promotes the banking industry; therefore, it should be part of the criteria for improving banking industry performance. Monetary policy formulation does not affect savings but rather it is from the banks

Monetary policies are formulated by experts through the Central Bank of Nigeria i.e., the institution responsible for the formulation of monetary policies in Nigeria. However, monetary policies are not judiciously implemented in Nigeria due to a lack of political will. Consequently, poor implementation of monetary policy can lead to the collapse of the banking industry in Nigeria.

Recommendations

The following recommendations are highlighted as follows

- i. To promote efficiency and effectiveness in the banking industry, the government should ensure that qualified experts are recruited from the apex bank (Central Bank) the major financial institution responsible for the formulation of monetary policies in Nigeria.
- ii. Formulation of good policies is not enough if the policies are not properly implemented. Policies formulated should be supervised and monitored to ensure effective working of the policy towards the improvement of the banking industry performance.
- iii. The government of Nigeria should always demonstrate the political will, especially by ensuring that only those who have the knowledge and zeal are put at the helm of affairs, i.e., at the executive levels of the apex bank, while loan defaulters are dealt with according to the language, they understand using very strict and appropriate punishment as a deterrent.
- iv. Strengthen the regulatory framework to ensure that banks operate within a stable and supportive environment.
- v. Improve monetary policy transmission mechanisms to promote financial stability and support banking sector performance.
- vi. Promote effective risk management practices among banks to mitigate potential risks associated with monetary policy changes.

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