

DO MONETARY POLICIES REALLY INFLUENCE PERFORMANCE OF BANKS IN NIGERIA?

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ABSTRACT

This research looked into how monetary policy can affect bank profitability in Nigeria. To fulfill study objectives, return on equity (ROE) and return on assets (ROA) were utilized to measure monetary policy and performance. The study was descriptive. Secondary data from selected banks' annual financial reports and CBN bulletins from 2016-2020 were used. A simple linear regression was used to assess secondary data. Unlike prior studies, the study found no substantial link between cash reserve ratio and lending interest rate profitability in Nigeria. That monetary policy has no major impact on the profitability of the selected Nigerian banks. As a result, the link between monetary policies and bank performance was established.

Keywords: Monetary Policy, Cash ratio, Return on Equity, Interest Rate and Performance

INTRODUCTION

Monetary policy is a vital tool used by all countries to control the money supply, impact economic activity, and promote sustainable economic growth. Thus, monetary policy plays a vital function in an economy. According to existing research, monetary policy is an important tool for managing macroeconomic variables in open economies. Monetary policy is based on the link between interest rates, or the cost of borrowing money, and the overall quantity of money (Meshack& Nyamute,2016). Most governments modify their monetary policy structure and function to avoid prevalent economic situations.

Monetary policy is a set of measures developed by a country's central bank to control

the availability, value, supply, and cost of credit/money in the domestic economy (Imoisi, Olatunji & Ekpenyong, 2013). Monetarists influence the quantity, cost, and availability of money credit to help stabilize the economy. It was established in 1958 by the Central Bank of Nigeria Act, with the responsibility to promote and preserve monetary stability and sound financial system in Nigeria. The CBN's major monetary policy goals are price stability, full employment, and stable long-term interest and real exchange rates (Osakwe, Ibenta, & Ezeabasili, 2019).

For each country or region, developed and developing countries vary their monetary policies (Macharia, 2013). The monetary authority regulates the economy through monetary policy. These include promoting economic growth and development, price stabilization, full employment, a healthy balance of payments, increased industrialization, and economic stability (Meshak & Nyamute, 2016).

Globally, the banking industry is tasked with allocating capital and distributing risk associated with future economic flows (Meshak & Nyamute, 2016). A healthy banking industry promotes business cycles, which in turn promotes economic growth and wellbeing (Waweru, 2013). Commercial banks' multiple functions give them a good framework for monetary policy management (Borio, Gambacorta & Hofmann, 2015). These tasks involve providing services including currency conversion, payment processing, asset maturity transition, improving quality, and managing and controlling risks. However, the banking industry is a profit-making company that draws funds from stockholders. Bank financial success is linked to characteristics like lending interest rate, CSR, shareholder capital, corporate governance, market capitalization, etc. This study will employ five (5) selected deposit money banks listed on the Nigerian Stock Exchange as case studies: First Bank of Nigeria, Unity Bank, Zenith Bank, Access and United Bank of Africa (UBA). We will look at how monetary policy instruments like cash reserves, policy reserves, and interest rates affect the profitability of these institutions. The impact of Nigerian monetary policy on the financial performance of Nigerian deposit money banks is critical, and this study intends to address that gap.

Recent macroeconomic instability in Nigeria prompted monetary policy changes. In response, most deposit money banks passed the costs onto their clients. Other Punita & Sumaiya (2006) analyze the relationship between monetary policy and bank profitability. Mesheck & Nyamute (2016) explore the impact of monetary policy on the financial performance of commercial banks listed on the Nairobi Securities Exchange (NSE) in Kenya. In their study, they found that the CRR negatively affects the financial performance of commercial banks listed on NSE; Udeh (2015) investigated the effect of monetary policy tools on the profitability of Nigerian commercial banks and found that

the monetary instrument has no effect on bank profitability; Fatima and Samreen (2015) examined the relationship between Reserve Requirement Ratio and Bank Profitability. The interest rate and money supply were employed to represent monetary policy, whereas PBT represented commercial bank performance. The results reveal a link between bank profitability and monetary policies. The study found that Reserve Requirement (CRR) has a substantial unfavorable link with bank financial performance. Identified gaps in current literature and research on monetary policy and its impact on deposit money institutions' financial performance/profitability. The research shows that while the government makes great efforts to affect the money supply through various policy tools, the consequences of such tools on deposit money institutions' financial performance, the most widely employed channel of policy transmission, are unclear. Some claim a detrimental influence while others claim a favorable benefit. The purpose of this study is to fill a knowledge gap on the effects of monetary policy tools (cash reserve ratio and interest rate) on the financial performance of deposit money banks in Nigeria.

This study's main goal was to analyze the impact of monetary policy on First Bank Nigeria Plc's profitability. The study examined the impact of cash reserve ratio on return on equity and interest rate on return on assets of Nigerian money deposit banks.

REVIEW OF RELATED LITERATURE

Concept of Monetary Policies

There are several theoretical and empirical literatures on monetary policy. This section will discuss the conceptual and empirical literature on monetary policy and financial performance. By definition, monetary policy is the set of measures designed to control the volume, cost, and direction of credit in an economy in order to achieve certain macroeconomic policy goals, which can change depending on the country's economic situation. By targeting excess liquidity, Khadijat (2018) means ensuring a non-inflationary macro-economic environment.

As defined by Ibeabuchi, monetary policy is the use of monetary authorities' tools to influence the availability and cost of credit/money (2012). Monetary policy is defined by Onouorah, Shaib, Oyathelemi, and Friday (2016) as an authority's rule to control inflation and achieve economic growth. Onyeiwu (2012) defines monetary policy as a technique of economic management to achieve sustainable economic growth and development. According to Chigbu and Okonkwo (2014), monetary policy is the deliberate effort of the government to use changes in money supply, cost of credit, credit size, and credit direction to influence the level of economic activity.

The Central Bank uses monetary policy to regulate the economy and promote growth and stability (Macharia, 2013). The relationship between the cost of borrowing money and the total amount available is monetary policy (Ekpung, Udude and Uwalaka, 2015). Among the monetary policy tools are the central bank base rate, money supply, cash reserve ratio, inflation, and OMOs. Monetary authorities use monetary policy to control the economy. It involves monetary authorities (the Kenyan Central Bank) regulating money circulation and lending conditions to achieve broad economic goals. It is a powerful economic management tool that governments can use to direct the economy. Monetary policy can help maintain economic and price stability while keeping inflation within target ranges (Waweru, 2013). By stimulating aggregate demand, monetary policy changes the total amount of money available and the cost of borrowing (Adefeso and Mobolaji, 2010).

Monetary Policy in Nigeria

CBN act 1959 clearly states that the objectives to be achieved by the CBN act to include the following: (1) Full employment attainment, (2) Long term interest rate stability 3) Optimal exchange rate target pursuance. According to Onyeiwu (2012) the CBN monetary policy in use has been charged with authority of devising and enforcing monetary policy of the CBN act (1958). (1958). The development of monetary policy is categorized in two stages: (1) direct control era (1959-1986) and (2) market-based controls era (1986-date) (1986-date). Direct control phase was an exceptional time in Nigeria's monetary management period (Khadijat, 2018). (Khadijat, 2018). This is because it aligned with different changes in the structure of the economy. This includes economic base shift from agriculture to petroleum, civil war enforcement, the boom and crash in oil prices in both 1970s and 1980s, with the establishment of the structural adjustment programme. In this era, the monetary policies of the central bank was concentrated on putting in place and managing the rate of interest and exchange, discerning allocation to certain sectors, discount rate manipulations, finally moral suasion. SAP commenced in 1986 and adjustments made to the CBN act in 1991 brought in a new era of implementation of monetary policy in Nigeria. This precisely guaranteed CBN goal autonomy and full instrument. Employing this method, CBN influences parameters in the economy indirectly via its OMO. The activities conducted are mainly on TB and REPOs serving a complimentary role with reserve requirements usage, Liquidity ratio and Cash Reserve Ratio (Khadijat, 2018). (Khadijat, 2018). The above instruments set is employed to cause changes in the quantity base nominal anchor (monetary aggregates) employed in monetary programming. In other way, the cash reserve ratio (CRR) is used as the price based nominal anchor in swaying the direction in the economy cost of fund. Movements in this rate is a signal to the banks' monetary

disposition, either it is pursuing a tightening or an expansionary monetary policy. They are generally placed within 26 percent and 8 percent range from 1986. The CBN latter established in 2006 the monetary policy rate (MPR) to replace CRR which states the rate of interest corridor added and subtract 2 percent point of existing MPR (Khadijat, 2018). (Khadijat, 2018).

Bank Profitability

As Banks act as financial intermediaries in an economy. Banks are the only fund providers, so their stability is vital to the financial system. Thus, understanding the factors that influence their profitability is critical to the economy's stability (Bashir, 2000). Any economy's banking sector promotes growth and development. Banks can play this role by providing financial intermediation, a reliable payment system, and facilitating monetary policy implementation (Abreu, 2002). It is therefore not surprising that governments worldwide strive to create an efficient banking system that protects depositors, promotes competition, maintains system confidence and stability, and protects against systemic risk and collapse. (Rodrigo) Globally, the banking industry has changed dramatically over the last few decades. Factors both domestic and foreign have influenced its structure. Despite the growing trend of bank disintermediation in many countries, banks remain vital in financing economic activity and various market segments (Brock, and Franken, 2002). The determinants of profitability are well studied empirically, though the definition varies. Regardless of profitability measures, most banking studies have noted that capital ratio, loan-loss provisions, and expense control are important factors in achieving high profitability. Internal and external determinants affect bank profitability. Due to their origin in bank accounts (balance sheets and/or profit & loss accounts), internal determinants of profitability could be called micro or bank-specific. The external determinants are variables that reflect the economic and legal environment that affects financial institutions' operations and performance (Loyola, 2000) Profitability is the most important goal of any business, followed by solvency and liquidity. Profit as a goal isn't always clear. It can be confused with cash flow; mistaken for highest income or lowest cost. Profitability is net income minus expenses. Ideally, the difference is large; an evaluation of the major determinants of bank profitability in Nigeria. In addition to bank interest rate, deposit, capital base, credit risk management, liquidity ratio and cash reserves have all been examined or listed as factors that affect bank profitability. This study will examine the effects of the above factors on bank profitability in Nigeria.

Monetary Policy Instruments

The instruments of monetary policy can be categorized into two namely: 1. Direct or

quantitative instruments 2. Indirect of qualitative instruments

Direct Instruments or Qualitative Instruments of Monetary Policy Tools

Though there is an avalanche of instruments available for money and credit control, the instrument mix to be employed at any time depends on the goals to be achieved and the effectiveness of such instrument to a large extent hinges on the economic fortunes of the country (Adelina-geanina, 2010; Khadijat, 2018).

Indirect Instruments or Quantitative Instruments of Monetary Policy

Fiduciary or paper money is issued by the Central Bank on the basis of computation of estimated demand for cash. To conduct monetary policy, some monetary variables which the Central Bank controls are adjusted-a monetary aggregate, an interest rate or the exchange rate-in order to affect the goals which it does not control. The instruments of monetary policy used by the Central Bank depend on the level of development of the economy, especially its banking sector. The commonly used instruments are discussed below (CBN, 2016):

Concept of Bank Profitability and Financial Performance

A bank's profitability is determined by both internal and external factors (Sattar, 2014). (Ongore, 2013; Al-Tamini& Hassan, 2015). Interior determinants of profitability are micro or bank specific because they originate from bank accounts like balance sheet or profit and loss account. External determinants are variables that are not under the control of banks, such as monetary policy interest rates. These macroeconomic factors explain firm performance (profitability) and subsequent investment returns, according to Chen et al. (1996). Gilchris (2013) agrees that financial performance is commonly measured by ratios like ROE and ROA. There are many mathematical measures to assess a company's profitability (Irungu, 2013). Operating income, earnings before interest and taxes, and net asset value are all financial performance indicators (Gilchris, 2013). Irungu (2013) defined financial performance analysis as the process of identifying a firm's financial strengths and weaknesses by properly relating balance sheet and profit and loss account items. It is the process of determining an organization's position, performance, and prospects using financial statements.

Financial performance factors

Financial performance is often considered a barometer of a firm's or bank's performance. A number of factors explain the relationship between interest rates and a commercial bank's financial performance. According to Meshack and Nyamute (2016),

high transaction costs and risks associated with micro lending often blur the lines between sustainability, profitability, and greed. So this section explains some financial performance factors.

Rates

Instability in interest rates has been linked to poor financial performance of selected deposit money banks. A lack of interest rate stability discourages both domestic and foreign investors, diverting resources. In fact, econometric evidence shows that, in addition to conventional factors (past economic growth, real interest rates, and private sector credit), uncertainty and macroeconomic instability significantly and negatively influences private investment. Saidi (2013). Although the relationship between interest rates and profitability is difficult to prove, studies show that interest rate volatility affects commercial banks' profitability. Gillian (2013).

Deposits

Deposits Banks are said to be heavily dependent on the funds mainly provided by the public as deposits to finance the loans being offered to the customers. There is a general notion that deposits are the cheapest sources of funds for banks and so to this extent deposits have positive impact on banks profitability if the demand for bank loans is very high. That is, the more deposits commercial bank is able to accumulate the greater is its capacity to offer more loans and make profits. However, one should be aware that if demands for banks loans are low, having more deposits could decrease earnings and may result in low profit for the banks. This is because deposits like Fixed, Time or Term deposits attract high interest from the banks to the depositors Buyinza (2010).

Bank size

Bank size affects the firm's market share which affects profitability. The bigger the firms market share, the more the sales; so in the case commercial banks are able for example to offer more loans then they stand a greater chance of increasing interest income as well as profits. Market share or size of banks is normally used to capture potential economies or dis-economies of scale in the banking sector. Secondly, the size of banks as a variable control for cost differences and product and risk diversification (Meshack and Nyamute, 2016).

The Relationship between Monetary Policy and Financial Performance

Monetary policy is used to stabilize inflation, promote growth, support long-term debt sustainability, and reduce operational costs by increasing financial access within the

economy (MPS, 2014). The Central Bank Base Rate, Cash Reserve Ratio, OMOs, and Inflation are monetary policy tools. The CBBR is the interest rate charged by the central bank on commercial bank loans. The CBBR is set every two months by the Monetary Policy Committee (MPC) and may change or remain constant. A rise in the CBBR indicates a fall in the bank's lending cost, resulting in less money lending. This reduces the bank's earnings (Mulwa, 2015). Monetary policy regulates money supply and interest rates to maintain a stable economy geared towards full employment or desired output. During recessions, the Central Bank increases the money supply, lowering interest rates and increasing money circulation (Meshak and Nyamute, 2016) Deposits made by commercial banks must be deposited at the Central Bank. The deposits earn no interest in the CRR account.

The lower the CRR, the less cash available for deposit money banks to conduct financial intermediation. Less CRR means more cash for deposit money banks to perform their financial intermediation role, which improves their performance (Cheruiyot, 2012). The relationship between inflation and bank profitability is determined by the rate of increase in operation costs relative to inflation. Similarly, Aigheyisi and Edore (2014) claim that correctly forecasting the relationship between inflation and commercial bank performance influences its direction. When inflation is expected, commercial bank management quickly adjusts interest rates to cushion the impact. This interest rate adjustment could be lower or higher depending on the direction inflation is moving (Kimani, 2018).

Empirical Review

Bottero, Minoiu, Peydro, Polo, Andrea, and Sette (2019) study negative interest rate monetary policy (NIRP) using ECB and Italian administrative data. Through portfolio rebalancing, NIRP expands credit supply and thus the real economy. NIRP affects banks with higher net short-term interbank positions, not banks with higher retail deposits. Banks affected by NIRP rebalance their portfolios from liquid assets to credit, favoring riskier and smaller firms, lowering interest rates. Olusegun (2017) examines the impact of monetary policy on risk asset returns in Nigerian Tier 1 banks. Both Eco and First Bank Nigeria were used. The study spans 30 years, from 1986 to 2014. The multi-variate time series were integrated using the VAR model. Ecobank and First Bank's loan-to-deposit rates and returns on assets were used as variables. Only the Treasury bill rate was statistically significant. The dependent variables explained half of the variation in asset returns. The regression model's estimated parameters were not significant, so the author concludes that monetary policy only partially affects tier one bank returns in Nigeria.

A study by Meshack and Nyamute (2016) looked at the impact of monetary policy on the financial performance of Kenyan commercial banks listed on the Nairobi Stock Exchange. The study used a descriptive survey of NSE-listed commercial banks. As of June 30, 2015, the population included all 11 NSE-listed commercial banks. The study used secondary data from the Central Bank of Kenya and the Nairobi Securities Exchange. A census was made of all listed commercial banks. The study found that monetary policy tools like CBR, CRR, and OMO had varying degrees of relationship with the financial performance of NSE-listed commercial banks. The study also found that OMO rates influenced NSE listed commercial banks' returns. This study also found a positive correlation between OMO rates and NSE listed commercial banks' financial performance, while the central bank and CRR rates had a negative correlation. Theory, practice, and policy contributions

Their study (2015) examines the impact of monetary policy on commercial bank performance in Nigeria using micro-panel data. The interest rate and money supply were used to represent monetary policy, while PBT represented commercial bank performance. The analysis used pooled regression, fixed effect regression, and random effect regression. However, the Hausman test showed that fixed effect regression is best. A positive relationship between bank profits and monetary policies as measured by money supply and interest rate is found. However, interest rates of 1% and 5% were not statistically significant. They examine the impact of monetary policy on the Nigerian banking sector. The study used deposit liabilities as a proxy for bank performance to determine what factors influence bank performance. They examined the relationship between bank deposit liabilities and three indices of banking performance: exchange rate, deposit rate, and minimum discount rate. Overall, monetary policy had an impact on bank deposit liabilities. While the Deposit Rate (DR) and Minimum Discount Rate (MDR) had a negative impact on bank deposit liabilities, the Exchange Rate (EXR) had a positive and significant impact. They concluded that monetary policy is important in determining bank deposit liabilities in Nigeria.

According to Udeh (2015), monetary policy tools affect the profitability of Nigerian commercial banks. From 2005 to 2012, the researcher used Zenith Bank time series data. The monetary policy tools used by Zenith Bank plc are the liquidity rate, interest rate, cash reserve rate, and lowest rediscount rate. The researcher used Pearson product-moment correlation to analyze data and test hypotheses using t-test statistics. The researcher discovered that the lowest rediscount rate has a strong positive correlation with Zenith Bank's earnings before taxes and thus its profitability. Other

factors like liquidity, interest rate, and cash reserve rate have no impact on the sample bank's profitability.

Fatima and Samreen (2015) investigate the RRR and bank profitability in Pakistan. It focuses on the impact of CRR changes on commercial banking profitability, specifically ROE and ROA. The research used secondary quantitative time series data from 2005-2014. The study's empirical analysis is carried out using correlation and linear regression. As a result of the study, CRR has a significant inverse relationship with banks' financial performance as measured by ROA and ROE. They look at the impact of the bank lending rate on Nigerian Deposit Money Banks between 2000 and 2010. It analyzed how bank lending rate policy affects the performance of Nigerian deposit money banks. As a result, both the lending rate and the monetary policy rate have a positive impact on the performance of Nigerian deposit money banks.

Ajayi and Atanda (2012) examine the impact of monetary policy tools on bank performance from 1980 to 2008 in Nigeria. Two stage Engle-granger co-integration approaches were endorsed. The results showed that while bank rate, inflation, and interest rate are credit enhancers, liquidity ratio and cash reserve ratio have adversely impacted total outstanding credit of banks. Again, only cash set aside system and interest rate were statistically significant at 5%.

Younus and Akhta (2009) examine the impact of SLR as a monetary policy tool in Bangladesh. Using descriptive analysis, researchers discovered that SLR has undergone sporadic reforms, and that lower SLR has a positive impact on bank credit and investment in the early 1990s. SLR and CRR were identified as important tools for reducing inflation. In line with its market-adjusted approach, the Bangladesh Bank has frequently used open market operations (OMO) instead of changing the Bank Rate and SLR.

They look at the impact of monetary policy on bank lending in Ghana from 1998 to 2004. Their research revealed that Ghanaian banks' lending decisions are heavily influenced by the country's economic conditions. They found that the prime rate and inflation rate of the Central Bank have a negative impact on bank lending. The prime rate was found to be significant while inflation was not. Their research found that bank size and liquidity have a significant impact on a bank's ability to extend credit when needed.

They look at the impact of monetary policy on bank profitability in India between 1995

and 2000. The monetary variables were banks rate, lending rates, cash reserve system, and statutory ratio. This means that a decrease in lending rates will result in a decrease in bank profitability. Determinants of profitability were found to be bank rate, cash reserve system, and statutory ratio. They found the same thing when they combined the lending rate, bank rate, cash reserve system, and statutory ratio to explain private sector bank profitability and monetary policy instruments.

Using an Auto-regressive Vector Correction Model (AVECM), Gambacorta and Lannotti (2005) examine the velocity and asymmetry of bank interest rate changes (lending, deposit, and inter-bank) from 1985 to 2002. Asymmetric interest rate adjustment in response to positive and negative shocks is shown in the short run, with the idea that long-run equilibrium is restored. They also found that during Italy's monetary tightening, banks adjusted their loan (deposit) prices faster.

Theoretical Frameworks

Several theories will be used to underpin this study; these theories include; Interest Rate Parity Theory, Deflation Theory and Agency Theory

Interest Rate Parity Theory (IPT)

Interest Rate Parity Theory: Keynes's idea (1936). This theory assumes that fluctuations in interest rates in trading partners explain nominal interest rate volatility. Interest rate parity is the difference between foreign and local interest rates. The premium or discount for the forward exchange rate on foreign currency is an indication of the difference in interest rates in two different currencies as provided by the parity condition (Bhole and Dash, 2002).

IRT is relevant in this study because it provides insight into the presence of parity, which is important in banking operations. The role of deposit banks as financial intermediaries is profitable (Borio et al., 2015). The interest rate charged by deposit banks on loans and other financial services determines profits (Buigut, 2010). The higher the interest rate charged, the higher the deposit banks' profits and thus financial performance.

Deflation Theory

Fisher proposed deflation theory (1933). According to the theory, lower inflation rates lead to lower prices, lower business net worth, lower profitability, and thus lower institution bankruptcies. The cycles cause complex fluctuations in interest rates and a depreciation of money. External and internal forces (external and internal factors) impacting the level of over indebtedness among debtors and/or creditors can result in

loan default (Nzuve, 2016).

This theory is relevant to this study because it states that high inflation leads to higher deposit revenues, profitability, and thus better financial performance. Conversely, lower inflation rates lead to lower revenues, profits, and thus poor financial performance of banks, ultimately leading to bank failure (Nzuve, 2016). The expected inflation rate determines the banks' profitability. It also causes a drop in real sales, high operating costs, and a rise in interest rates in the economy, as bank management quickly adjusts interest rates to accommodate changes.

Paul and Conroy (1998) argue that high inflation devalues currency, reducing its purchasing power and eroding value.

METHODOLOGY

Quantitative research designs seek to describe the current state of what is being investigated, as well as where the variables can be obtained and how the objectives can be achieved. This research method was used to investigate the impact of monetary policy on deposit money bank profitability in Nigeria. This study's population includes 22 Nigerian deposit money banks listed on the Nigerian Stock Exchange. This study's sampling technique is stratified and proposing. This study used five out of the 22 listed financial institutions in Nigeria as a sample size. The study used data from annual financial reports from quoted deposit money banks in Nigeria to determine the sampling size. The data were analyzed using regression. Regression is used in studies to determine the causes and effects of the independent variable (monetary policy) on the dependent variable (financial profitability).

Model Specification

This research adapt model which was re-modified to determine the effect of monetary policy instrument on the profitability of the selected bank in Nigeria. In this regard, the study therefore traverses a model to guide its analyses. The model is as follows;

$$Y = \alpha_1 + \beta_1 x_{it} + e_{it}$$

y=independent variable

α_1 = intercept

β = beta

X_n = dependent variable

e_{it} =error term

Model: ROE = f (CRR, IR, MPR).....1

ROE = $\alpha_1 + \beta_1$ (CRR) it + β_1 (IR) + e_{it}2

Where;

CRR = Cash reserve ratio

IR = Interest rate

MPR = Monetary policy rate

ROE = Return on equity

A linear regression has been assumed for simplicity. The econometric model specified for this study is given as

$$ROE_{it} = f(CRR_{it}) + \mu \quad 1$$

$$ROA_{it} = f(IR_{it}) + \mu \quad 2$$

Where;

ROE_{it} = Return on Equity of Bank i in year t

ROA_{it} = Return on Asset of Bank i in year t

CRR_{it} = Cash Reserve Ratio of Bank i in year t

IR_{it} = Interest Rate of Bank i in year t

μ = error term

The logarithm transformation of the model can be explicitly written as;

$$\ln ROE_{it} = \beta_0 + \beta_1 \ln CRR_{it} + \mu \quad 3$$

$$\ln ROA_{it} = \beta_0 + \beta_1 \ln IR_{it} + \mu$$

DATA PRESENTATION AND ANALYSIS

Descriptive Statistics

Table 1: Descriptive Statistics

	ROE	ROA	CRR	IR
Mean	11.1272	1.1142	23.46	2.8496
Std. Dev.	7.260485	0.1999	2.130728	2.559727
Skewness	.2388537	-0.2659	.5542485	2.128323
Kurtosis	1.982003	-0.3004	2.21551	7.2245
Variance	52.71465	0.0399	4.54	6.552204
Observations	5	5	5	5

Table 1 showed that ROE is highly volatile with the highest standard deviation. The table also showed that ROA is negatively skewed and platykurtic in nature since the kurtosis values of $-0.3004 < 3$. This indicated normality of the dependent variable as the value of Kurtosis is close to 1 while ROE and CRR are positively skewed and platykurtic in nature since the kurtosis values of 1.982003 and 2.21551 < 3 . Similarly, IR is positively skewed with skewness value of 2.128323 and also leptokurtic in nature since 7.2245 is > 3

Table 2: Shapiro Wilk Test for Normality on the Original Data

Variable	Obs	W	V	z	Prob>z
ROE	25	0.93475	1.813	1.216	0.11191
CRR	25	0.95068	1.371	0.644	0.25968
ROA	25	0.73155	7.459	4.108	0.00002
IR	25	0.90927	2.521	1.890	0.02937

Hypothesis Statement

H_0 : The data are normally distributed

H_1 : The data deviates from normal distribution

Significant level $\alpha=0.05$

Decision: reject H_0 if the Prob W value $< \alpha$ level otherwise do not reject

Conclusion: since the probability of W values (0.00002, 0.02937) is $< \alpha$ (0.05) for ROA and IR, there is statistical reason to reject H_0 and conclude that ROA and IR are not normally distributed, while ROE and CRR is normally distributed with W values of 0.11191 and 0.25968 respectively. However, logarithm transformation of the original data was done to reduce the influence of the data on each other. The output of Shapiro Wilk test on the transformed data is shown below in Table 3

Table 3: Shapiro Wilk Test for Normality on the Transformed Data

Variable	Obs	W	V	z	Prob>z
ROE	25	0.93087	1.065	0.109	0.45650
CRR	25	0.96495	0.640	-0.995	0.84046
ROA	25	0.96080	1.089	0.175	0.43055
IR	25	0.93087	1.065	0.10	0.45650

Hypothesis Statement

H_0 : The data are normally distributed

H_1 : The data deviates from normal distribution

Significant level $\alpha=0.05$

Decision: reject H_0 if the Prob W value $< \alpha$ level otherwise do not reject

Conclusion: since the probability of W values in all the variables is $> \alpha$ (0.05) there is statistical reason not to reject H_0 and conclude that the data is normally distributed. Thus the data is assumed normal for model fitting after taking the natural logarithms of each variable to reduce influences of the data on each other. Hence, the prediction made on the data is now reliable since the OLS assumption of normality criteria is met.

Regression Analysis

Table 4: Regression Analysis on Effect of Cash Reserve Ratio on the Return on Equity

Variable	Coefficient	Standard Error	t-Statistic	P-Value
C	15.65479	.8633005	18.13	0.000
CRR	-.0759363	.3317237	-0.23	0.825
R-squared = 0.63	Adjusted R-squared= 0.51	Durbin Watson=1.573982		
F-statistic = .3676	P-value= 0.8247			

Substituting the coefficients to the OLS model of the functional relationship as given in eq (1);

$$\ln(ROE_{it}) = 15.65479 - .0759363(CRR_{it}) + \mu$$

Table 5 showed the model given by equation (2). This model gives a reasonable projection of decisions for a unit increase in the explanatory variable CRR which is not statistically significant based on the computed F statistics values of .3676 with P-values of 0.8247 which is greater than 5% level of significant and this equally attest to the overall goodness of fit of the postulated model.

However, the table also indicated that CRR impacted negatively on ROE with an estimate $\beta_1 = -.0759363$. The negative contributions of CRR with probability value of 0.825 were found to be insignificant since it greater than significant level of 0.05. It is also evident that the model is adjudged to be best fit with coefficient of determination

($R^2 = 0.63$) which implies that 63% of the variation in measure of ROE is accounted for by the independent variable CRR. The table further revealed a Durbin Watson value of 1.573982 which lies within an acceptable range of -2 and 2. This indicated that the model was adjudged to be specified correctly.

Table 5: Regression Analysis on Effect of Interest Rate on the Return on Asset

Variable	Coefficient	Standard Error	t-Statistic	P-Value
C	7.53471	6.63243	1.136040	.268
IR	-.37290	.52628	-.23	.486
R-squared = .0213	Adjusted R-squared= -.021	Durbin Watson=1.9982		
F-statistic = .5020	P-value= .48572			

Substituting the coefficients to the OLS model of the functional relationship as given in eq (2);

$$\ln(ROA_{it}) = 7.53471 - 0.37290(IR_{it}) + \mu \quad 6$$

Table 5 showed the model given by equation (2). This model gives a reasonable projection of decisions for a unit increase in the explanatory variable IR which is not statistically significant based on the computed F statistics values of .5020 with P-values of .48572 which is greater than 5% level of significant

However, the table also indicated that IR impacted negatively on ROA with an estimate $\beta_1 = -.37290$. The negative contribution of IR with probability value of .486 was found to be insignificant since it greater than significant level of 0.05. The coefficient of determination ($R^2 = .02$) which implies that 2% of the variation in measure of ROA is accounted for by the independent variable IR. The table further revealed a Durbin Watson value of 1.9982 which lies within an acceptable range of -2 and 2. This indicated that the model was adjudged to be specified correctly.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This study examines "the impact of monetary policy on selected Nigerian banks' profitability." The study's objectives were to determine the impact of cash reserve ratio on return on equity, the impact of interest rate on return on assets, and the impact of monetary policy rate on return on assets of the selected bank. Conclusion: Cash reserve ratio has no significant effect on these banks' equity return on investment; interest rate

has no significant effect on their profitability; and monetary policy has no significant impact in all years studied. As a result of the study, other variables that can be used to proxy monetary policy should be studied. Also, the federal government should review monetary policies frequently to improve banking industry profits and productivity. Finally, the study suggests that future studies should include more time and include other business sectors (conglomerates, construction, insurance, services, oil and gas, etc.).

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