Monetary Policy and Financial Performance of Deposit Money Banks in Nigeria

Yimka S. A. Alalade[1], Ezekiel Oseni[2] & Olusegun A. Adekunle[3]

[1] Department of Finance, School of Management Sciences, Babcock University, Ogun State, Nigeria

[2] Department of Banking and Finance, Faculty of Administration, University of Lagos, Nigeria

[3] Department of Business Administration, Gateway Polytechnic, Sapaade, Ogun State, Nigeria

Correspondence: Yimka S. A. Alalade. E-mail: alalades@babcock.edu.ng

Abstract

This study considered the influence of monetary policy on the financial performance of deposit money banks in Nigeria. The study engaged the use of a time series data for 35 years, from the period 1984 to 2018; all deposit money banks as captured by the Central Bank of Nigeria Statistical Bulletin (2015) were considered. The effect of liquidity ratio, lending rate, loan to deposit ratio and cash reserve ratio were examined on the financial performance of deposit money banks measured by their net worth and total credits. The data was analyzed using descriptive and inferential statistics. Based on the result of stationarity test, the ordinary least square method and the Autoregressive Distributed Lag method were employed. A short run model of net worth and long run model for both the log of net worth and the log of total credits were estimated. The results revealed that the mean of net worth and total credits are 5455.27 and 79608.63 respectively. In the long run, monetary policy variables including liquidity ratio, lending rate, loans to deposit ratio and cash reserve ratio had no significant effect on the log of net worth. However in the short run, variations in the liquidity ratio, loans to deposit ratio and the cash reserve ratio for previous years had significant effect on the log of net worth in the current year. When financial performance is measured as total credits, the liquidity ratio and loans to deposit ratio had positive significant effect in the long run. The cash reserve ratio had a negative significant effect in the long run. The log of lending rate was insignificant in both the long and short run. The study concluded that monetary policy significantly explains the financial performance of deposit money banks both in the short and long run.

Keywords: liquidity ratio, lending rate, loan to deposit ratio and cash reserve ratio, net worth and total credits

1. Introduction

Financial sector of any economy plays a very important role in the economic growth and development of a nation and this cannot be overemphasized. It is simply a channel through which idle funds are made available to the productive sector, thereby enabling the use of savings in the economy to engender job opportunities for the populace and stimulate economic prosperity (Aurangzeb, 2012). The financial sector provides strong confidence for depositors, thereby motivating and encouraging saving in the economy. A strong financial sector also helps to sustain an economy against external shock that may arise from fall in external capital flow.

A well-structured, strong and developed financial sector is required to achieve a sustained growth (Aurangzeb, 2012). More importantly, the financial sector also serves as the avenue through which the monetary policies of the government are carried out. The banking industry is one of the sectors that play an imperative duty in the allocation of capital resources and risk sharing of future flows in any given economy or country. An efficient and effective banking industry in any economy is likely to facilitate increased growth and welfare, and it will smooth business cycles. These functions give banks a central position within the process of saving and investment allocation. However, these functions make banks vulnerable to different sources of shocks, and they have a negative effect on the economy because of banks' central role. Because of the type of functions banks perform, there is need to have in place proper monetary policy involving issues such as barriers to entry, market concentration, the borrower-lender relationship, deposit insurance, and the taxation of financial intermediation in order to improve the performance of the financial sector (Ibrahim & Muritala, 2015).

Monetary policy forms part of the macroeconomic environment that is very critical in enhancing the financial

performance of organizations. The financial development of any economy largely depends on the short run stabilization of the monetary policy of any economy. Financial performance therefore performs a very substantial function in implementation of monetary policy (Amassoma, Nwosa, & Olaiya, 2011). There is a very high degree of interdependence between monetary policy implementation and the financial performance of deposit money banks in an economy (Amassoma, Nwosa, & Olaiya, 2011). However, the banking industry in country faces a number of challenges stemming from unstable macroeconomic environment such as frequently changing interest rates and mandatory deposits. This is likely to affect their financial performance. In view of this foregoing, it is hence appropriate to appraise the influence of monetary policy on the financial performance of the deposit money banks.

1.1 The Problem

The performance of the deposit money banks is a function of majorly the monetary policies adopted in the country and this invariably has a multiplier effect on the economy developmental processes. Deposit money banks are usually considered around the globe as the most appropriate channels for implementing monetary policy by most Central Banks in many countries. Therefore, monetary policy should have an effect on the financial performance of deposit money banks in Nigeria. Despite the steady increase in the net worth of various deposit money banks, there have been several declines in total credit which were recorded for the period of 1984 to 2018, depending on net worth and total credit to measure deposit money banks' performance. Therefore, this study aims at examining the extent to which monetary policy explains the fluctuations in the performance of deposit money banks.

1.2 Purpose and Research Question of the Study

The purpose of this study is to examine the effect of monetary policy on the financial performance of deposit money banks in Nigeria. In order to accomplish the stated objectives above, this study answered the research questions; does monetary policy influence financial performance of deposit money banks in Nigeria. The study hypothesized that; monetary policy has no influence on the financial performance of deposit money banks in Nigeria.

1.3 Significance and Scope of the Study

The study is significant because it provide information and recommendation to assist the government to design appropriate monetary policy that can enhance not only the performance of deposit money banks but the economy at large. The deposit money banks in Nigeria would be able to understand how changes and variations in monetary policy by the existing government are likely to affect or impact on their financial performance. This would enable them to take necessary approaches to react to variations in monetary policy.

This study measured the effect of monetary policy on the financial performance of deposit money banks in Nigeria. The study includes all the deposit money banks in Nigeria as captured by the Central Bank of Nigeria Statistical Bulletin of 2015. The period of the study is 34 years (1984-2018) which were considered relevant to this study because of the availability and accessibility of the data as at the period this study was carried out.

2. Review of Related Literature

2.1 Conceptual Review

2.1.1 Monetary Policy

Monetary Policy specifically refers to the actions taken by monetary authority, such as the apex bank of a nation, to regulate the value of money; supply and cost of money in the economy with the aim of achieving predetermine macroeconomic objectives. Monetary policy is defined by the Central Bank of Nigeria (CBN) as mixture of processes intended to regulate value supply and interest rate as fees for money in a financial transaction, in agreement with the status of economic accomplishments (Nwoko, Ihemeje, & Anumadu, 2016; Central Bank of Nigeria, 2018). Nwoko, Ihemeje and Anumadu (2016) defined monetary policy as the blend of procedures taken by monetary authorities (e.g. the CBN and the ministry of finance) to influence directly or indirectly both the supply of money and credit to the economy and the structure of interest rate for economic growth, price stability and balance of payment equilibrium. He added that the CBN is empowered by decree 25 of 1991 Act, to formulate and implement monetary policy in Nigeria, in consultation with the ministry of finance subject to the approval of the President. Ufoeze, Odimgbe, Ezeabalisi and Alajekwu (2018) sums it up when he said that monetary policy is therefore applied to influence the availability and cost of credit in order to control the money supply policy.

2.1.2 Financial Performance

Financial performance simply means the act of carrying on financial functions in a firm by manager. In broader sense, financial performance reflects the degree to which financial objectives being or has been achieved during a particular period of time. It is the process of accessing the achievements of a firm's policies and activities in financial terms. It is employed to evaluate firm's total financial sustainability over a given period of time and can also be used to compare and contrast similar firms across the same industry or to compare industries or sectors in aggregation (Ravinder & Muskula, 2013; Yahaya & Lamidi, 2015). Carton (2004); Richard, Devinney, Yip and Johnson (2009) also defines "financial performance as the measure of the variance of the financial state of an organization or the financial outcomes that results from management decisions and the implementation of those decisions by the management of the organization". They further argues that the outcomes are not universal in nature but largely depend on the organizational context therefore selection of the measures that represent performance of a particular organization is done based upon the situation of the organization being rated.

These financial performances are however grouped into five (5) main categories: (i.) The opening category contains profitability measures such as return on equity, return on assets, return on capital, return on sales and operating margin; (ii.) The next category of measures includes growth measures calculated on sales, total assets and total employees; (iii.) The third collection of financial performance measures includes Leverage, Liquidity, and Cash Flow Measures such as Debt to equity ratio, operating cash flow to equity ratio and growth rate of operating cash flow; (iv.) there are also market based measures such as cost of equity capital and price to book ratio; (v.) The final category of measures is referred to as Economic Value Measures such as residual income and Residual income return on investment (Carton, 2004; Crane, n. d.).

2.2 Empirical Review of Related Studies

Fatade (2004) studied the influence of monetary policy on banks' performance in Nigeria; a number of observations are made. The main essence of the study was to establish whether the various monetary policy measures instituted in the country over the years had directly and indirectly affected the performance or the bank sector in Nigeria. The results from the study indicate that various monetary policy measures instituted in the country over the years have directly and indirectly affected performance of the banking firms in a number of ways while includes, banks profitability, deposit/savings mobilization, loans and advances and so on. It is also clear from the findings that the effectiveness of bank's performances depends on the instruments used in macroeconomic policies and the prevailing economic conditions and the deregulation of the sector has led to a number of improvements.

Punita and Somaiya (2006) observed the effect of monetary policy on profitability of banks in India between 1995 and 2000, presented some nonconforming signal that lending rate has a positive and significant affect banks' profitability, which shows a fall in lending rates will decrease the profitability of the banks. It was also discovered that bank rate, cash reserve ratio and statutory ratio significantly influence profitability of banks negatively. Their outcomes were the same when lending rate, bank rate, cash reserve ratio and statutory ratio were combined to explain the relationship between bank profitability and monetary policy instruments in the private sector.

Rao and Somaiya (2006) investigated the impact of monetary policy on the profitability of banks in India between 1995 and 2000. The monetary variables were banks rate, lending rates, cash reserve ratio and statutory ratio, and each regressed on banks profitability independently. Lending rate was found to exact positive and significant impact banks' profitability, which point to a fall in lending rates will decrease the profitability of the banks. Also, bank rate, cash reserve ratio and statutory ratio were discovered to significantly affect profitability of banks negatively. Their findings were similar when lending rate, bank rate, cash reserve ratio and statutory ratio were combined to explain the relationship between bank profitability and monetary policy mechanisms in the private sector.

Paul, Damianus and Shem (2009) examined the income source diversification and financial performance of commercial banks in Kenya. This was a census study of all registered 44 commercial banks in Kenya and relied heavily on documentary secondary data for 5 year study period (2005-2009) and validated by primary data achieved through key informant method.

Kolapo, Ayeni and Oke (2012) examined the influence of credit risk on the performance of commercial banks in Nigeria over the period of 11 years (2000-2010). A total of five (5) deposit money banks were selected on a cross sectional basis for eleven (11) years. Panel model analysis was employed to approximate the elements of the profit function. The results indicated that the consequence of credit risk on bank performance measured by the return on assets of banks is cross-sectional invariant. That is the effect is the same across deposit money banks in

Nigeria, though the extent to which various banks bottom line are destructed, was not explained by the method of analysis used in the study. Based on our findings, it is recommended that banks in Nigeria should enhance their capacity in credit analysis and loan administration while the regulatory authority should pay more attention to banks' compliance to relevant provisions of the Bank and other Financial Institutions Act (1999) and prudential guidelines.

Akanbi and Ajagbe (2012) study examined on monetary policy and commercial in Nigeria, revealed that there is a negative relationship between lending rate and commercial banks' net profit, while a positive relationship exist between cash ratio and liquidity with the net profits of the banks. The study used lending rate, cash ratio and liquidity ratio to measure monetary policy, while banks' net profit was employed to measure bank performance within the scope of 1992-1999.

Ajayi and Atanda (2012) observed the influence of monetary policy instruments on banks performance in Nigeria with the view to determine the presence of long-run relation between 19780 and 2008. The Engle-granger two step co-integration approach was adopted based on the regression model that regress banks total loan and advances on minimum policy rate, cash reserves ratio, liquidity ratio, inflation and exchange rate. The empirical estimates indicated that bank rate, inflation rate and exchange rate are total credit enhancing, while liquidity ratio and cash reserves ratio exert negative effect on banks total credit. Although, it is only cash reserve ratio and exchange rate found to be significant at 5% critical value. However, the co-intregration test indicated that the null hypothesis of no co-integration was accepted. The main conclusion draw is that monetary policy instruments are not effective to stimulate credit in the long-run, while banks total credit is more responsive to cash reserve ratio.

Abata (2014) examined and evaluated banks asset quality and performance in Nigeria using secondary data obtained from the annual reports and accounts of the six largest banks listed on the Nigeria Stock Exchange based on market capitalization with a sample interval of fifteen-year period from 1999 to 2013. The study adopted the use of ratios as a measure of bank performance and asset quality since it is a verifiable means for gauging the firms' level of activities while the data were analyzed using the Pearson correlation and regression tool. The findings revealed that asset quality had a statistically relationship and influence on bank performance. Based on the findings the study recommends policies that would encourage revenue diversification, minimize credit risk, and encourage banks to minimize their liquidity holdings.

Karani (2014) studied the effect of liquidity management on profitability of commercial banks in Kenya. The study engaged all 44 commercial banks in Kenya operating in the years 2009 to 2013 as population. Secondary data obtained from financial statements of the listed banks were employed in terms of return on assets, profitability, cash and cash equivalent, liquidity, capital ratio and deposit ratio. The regression analysis was used to establish the relationship between the study variables. The study discovered that there is a positive relationship between liquidity management and profitability of commercial banks in Kenya. The study revealed that liquidity management is a good determinant of profitability of commercial banks in Kenya. The study recommends that the management of commercial banks endeavor to maintain a balance between the level of liquidity and long term assets to strengthen each of the contradictory objectives of maintaining adequate liquidity and sustainable profitability.

Okaro and Nwakoby (2016) conducted a study to investigate conflicting issues of interest between liquidity and profitability of banks in the Nigerian banking system. The purpose of the study was to ascertain influence of liquidity management on profitability performance of deposit money banks (DMBs) in Nigeria. Relevant data were gathered from CBN and NDIC annual publications for 16 years covering 2000-2015, in order to address the objectives, research questions and stated hypotheses. The data were analyzed using multiple regression analysis by employing E-view 8.0., statistical package. The OLS result depicted there is a negative and significant relationship between liquidity ratio and Deposit Money Banks' profitability. Also, the study revealed that there is a positive and significant relationship between cash to deposit ratio and profitability of the Deposit Money Banks. Based on these findings, the study recommended that banks should refrain from keeping excessive liquidity as a provision of unexpected deposit withdrawals from the customers, by adopting other measures for meeting such requirements which can include overnight and short time borrowing. Banks should endeavor to invest excess of liquidity in their possession that will yield returns that will boast the banks' profitability.

3. Methodology

3.1 Research Design

This is a quantitative study which makes use of secondary data covering the period of 1984 to 2018. The study employed the descriptive and inferential statistics in analyzing the time series data used. The descriptive

statistics involved calculating for the mean and standard deviation of the variables while the inferential statistics involved estimating a multiple regression model.

3.2 Population, Sources and Types of Data

The population for this study is all deposit money banks in Nigeria. This is for the period 1984 to 2018 as captured by the Central Bank of Nigeria Statistical Bulletin, 2015. The data for this study is from the Central Bank of Nigeria Statistical Bulletin for 2015. The data used in the study include net worth and total credits which is the dependent variable and the independent variables which are liquidity ratio, lending ratio, cash reserve ratio and loans to deposit ratio. The data cover the period stated above.

3.3 Model Specification

The model for this study is based on Sangmi and Nazir (2010) Assets Quality Theory which states that the quantity of loan portfolio determines the profitability of banks. This study modifies the theory to observe the effect of monetary policy.

Conventional model is:

$Y = f(X)$

Where:

Y is financial performance. The proxies used are:

　　$Y_1 =$ Net Worth (NW)

　　$Y_2 =$ Total Credits (TC)

X = Monetary policy. The proxies used are:

　　$X_1 =$ Actual Liquidity ratio (LIR)

　　$X_2 =$ Maximum Lending rate (LR)

　　$X_3 =$ Actual Loans to deposit ratio (LDR)

　　$X_4 =$ Prescribed Cash Reserve ratio (CRR)

e = Error term

The long run functional forms are presented below:

$Log (NW) = \beta_0 + \beta_1 LIR + \beta_2 log(LR) + \beta_3 LDR + \beta_4 CRR + e$

$Log (TC) = \beta_0 + \beta_1 LIR + \beta_2 log(LR) + \beta_3 LDR + \beta_4 CRR + e$

Where;

Log (NW) = Log of net worth

Log (TC) = Log of total credits.

LIR = Liquidity ratio (LIR)

Log (LR) = Log of lending rate (LR)

LDR = Loans to deposit ratio (LDR)

CRR = Cash Reserve ratio (CRR)

The Short run Autoregressive Distributed Lag Model is given as:

$Log(NW_t) = \beta_0 log(NW_{t-1}) + \beta_1 LIR_t + \beta_2 LIR_{t-1} + \beta_3 log(LR_t) + \beta_4 log(LR_{t-1}) + \beta_5 LDR_t + \beta_6 LDR_{t-1} + \beta_7 CRR_t + \beta_8 CRR_{t-1} + e_t$

Where:

$Log(NW_t)$ = log of net worth in the current year

$Log(NW_{t-1})$ = log of net worth in the previous year

(LIR_t) = Liquidity ratio in the current year

(LIR_{t-1}) = Liquidity ratio in the previous year

$Log(LR_t)$ = log of lending rate in the current year

$Log(LR_{t-1})$ = log of lending rate in the previous year

(LRD$_t$) = loan to deposit ratio in the current year

(LRD$_{t-1}$) = loan to deposit ratio in the previous year

(CRR$_t$)= cash reserve ratio in the current year

(CRR$_{t-1}$) = cash reserve ratio in the previous year

4. Results and Discussion of Findings

4.1 Data Presentation and Analysis

The data in this study was analyzed using descriptive statistics which involved calculating for the mean, median, skewness, kurtosis, and standard deviation. The inferential analysis involved estimating multiple regression models and the estimation technique was based on the unit root test and co-integration test.

Table 1. Descriptive Analysis

	NW	TC	LIR	LR	LDR	CRR
Mean	5455.27	79608.63	46.44	21.21	67.05	6.87
Median	518.00	41100.40	45.00	21.33	68.62	6.00
Maximum	25947.40	449054.3	65.1	36.09	85.66	20.00
Minimum	11.70	12550.30	29.10	10.00	37.96	1.00
Std. Dev.	8401.41	107465.7	9.80	5.86	12.64	4.81
Skewness	1.35	2.17	0.29	0.06	-0.62	1.01
Kurtosis	3.30	6.75	2.48	3.16	2.72	3.87
Jarque-Bera	10.79	47.85	0.90	0.059	2.33	7.10
Probability	0.00	0.00	0.64	0.97	0.31	0.03
Sum	190934.5	2786302.	1625.28	742.42	2346.85	240.55
Sum Sq. Dev.	2.40E+09	3.93E+11	3263.01	1169.03	5431.85	788.1
Observations	35	35	35	35	35	35

Source: Author's Computation

Net worth had a mean of 5455.3 and a median of 518.00. The maximum value was 25947.40 while the minimum value was 11.70. This can be proven by the low difference between the minimum and maximum values of the series. It had a standard deviation of 8401.41, with regards to the statistical distribution of the series, the result show that net worth was positively skewed. Net worth had a kurtosis that was equal to 3. It has a Jarque-Bera statistical of 10.79 which indicates that the variables not normally distributed as it was greater than 2 with a probability of 0.00. This is reflected in Table 1.

Total credits had a mean of 79608.63 and a median of 41100.40. The maximum value was 449054.3 while the minimum value was 12550.30. This can be proven by the low difference between the minimum and maximum values of the series. It had a standard deviation of107465.7, with regards to the statistical distribution of the series; the result show that total credits was positively skewed. Total credits had kurtosis that was greater than 3. There wasleptokurtic. It had a Jarque-Bera statistical of 47.85 which indicates that the variables are not normally distributed as it was greater than 2 with a probability of 0.00.

Liquidity ratio had a mean of 46.44 and a median of 45.00. The maximum value was 65.10 while the minimum value was 29.10. This can be proven by the low difference between the minimum and maximum values of the series. It had a standard deviation of 9.80, with regards to the statistical distribution of the series, the result show that liquidity ratio was positively skewed. Liquidity ratio had a kurtosis that was less than 3. There was platykurtic. It had a Jarque-Bera statistical of 0.90 which indicates that the variables are normally distributed as it was less than 2 with a probability of 0.64.

Lending rate had a mean of 21.21 and a median 21.33. The maximum value was 36.09while the minimum value was 10.00. This can be proven by the low difference between the minimum and maximum values of the series. It had a standard deviation of 5.86, with regards to the statistical distribution of the series, the result show that lending rate was positively skewed. Lending rate had a kurtosis that was equal to 3. It had a Jarque-Bera statistical of 0.06which indicates that the variables are not normally distributed as it was greater than 2 with a probability of 0.97.

Loans to deposit ratio had a mean of 67.05 and a median 68.62. The maximum value was 85.66 while the minimum value was 37.96. This can be proven by the low difference between the minimum and maximum

values of the series. It had a standard deviation of 12.64, with regards to the statistical distribution of the series, the result show that loans to deposit ratio was negatively skewed. Loans to deposit ratio had a kurtosis that was less than 3. There was platykurtic. It had a Jarque-Bera statistical of 2.32 which indicates that the variables are normally distributed as it was less than 2 with a probability of 0.31.

Cash reserve ratio had a mean of 6.87 and a median 6.00. The maximum value was 20.00 while the minimum value was 1.00. This can be proven by the low difference between the minimum and maximum values of the series. It had a standard deviation of 4.81, with regards to the statistical distribution of the series, the result show that cash reserve ratio was positively skewed. Log net worth had a kurtosis that was greater than 3. There was leptokurtic. It had a Jarque-Bera statistical of 7.10 which indicates that the variables are not normally distributed as it was greater than 2 with a probability of 0.03.

4.2 Inferential Analysis

4.2.1 Test for Stationarity Using the Augmented Dickey – Fuller Test

The stationarity test before logging some variables was estimated using the Augmented Dickey-fuller test. The result of the estimation is presented below.

Table 2. Test for Stationarity at Levels before logging

Variables	Constant	Constant and Linear Trend	None	Order of Integration
Net Worth	0.086 ***	0.320	0.009***	I(0)
Total Credits	0.085 ***	0.067 ***	0.036 **	I(0)
Liquidity Ratio	0.011 *	0.051 **	0.462	I(0)
Lending Rate	0.053 **	0.129	0.832	I(0)
Loans to Deposit Ratio	0.012 *	0.034**	0.466	I(0)
Cash Reserve Ratio	0.876	0.084 ***	0.760	I(0)

Source: Author's Computation   Note: *, **, *** indicate significance at 1%, 5% and 10% levels respectively

Net worth was stationary at level with constant. This was significant at 5 percent. A total credit was stationary at levels with constant and trend. It was significant at 1 percent. Liquidity ratio was stationary at levels with constant and trend. This was significant 5 percent. Lending rate was stationary at levels with constant. This was significant at 5 percent. Loan to deposit ratio was stationary at levels with constant and trend. This was significant at 1 percent. The cash reserve ratio was stationary with trend. This was significant at 5 percent.

The stationarity test after logging some variables was estimated using the Augmented Dickey-Fuller test. The result of the estimation is presented in Table 3.

Table 3. Test for stationarity at Levels after logging

Variables	Constant	Constant and Linear Trend	None	Order of Integration
Log of Net Worth	0.897	0.897	0.974	----------
Log of Total Credits	0.132	0.063**	0.273	I(0)
Log of Lending Ratio	0.073***	0.199	0.919	I(0)

Source: Author's Computation   Note: *, **, *** indicate significance at 1%, 5% and 10% levels respectively

The log of net worth was not stationary at level. The log of total credit was stationary at levels with trend. It was significant at 5 percent. The log of lending rate was stationary at levels with constant. This was significant at 10 percent. The stationarity test after logging some variables was estimated using the Augmented Dickey-Fuller test. The result of the estimation is presented in Table 4.

Table 4. Test for stationarity at 1st Differences after logging

Variables	Constant	Constant and Linear Trend	None	Order of Integration
Log of Net worth	0.016**	0.069***	0.068***	I(1)

Source: Author's Computation   Note: *, **, *** indicate significance at 1%, 5% and 10% levels respectively

From the Tables above, the log of net worth was stationary at 1st differences with a constant and trend. This was significant at 5 percent.

4.2.2 Test for Stationarity Using the Ng- Perron Test

The stationarity test before logging some variables was estimated using the Ng- Perron test. The result of the estimation is presented below

Table 5. Test for stationarity at Levels before logging

Variables	Constant	Linear trend	Order of Integration
Net worth	-9.405 ***	-1.98000 **	I(0)
Total credits	-2.203 **	-2.400 **	I(0)
Liquidity ratio	-2.532 **	-2.581 **	I(0)
Lending rate	-1.711**	-2.305 **	I(0)
Loans to deposit ratio	-3.021**	-3.515 **	I(0)
Cash reserve ratio	-0.746 *	-21.858	I(0)

Source: Author's Computation   Note: *, **, *** indicate significance at 1%, 5% and 10% levels respectively

Net worth was stationary at level with constant and trend. This was significant at 5 percent. A total credit was stationary at levels with constant and trend. It was significant at 5 percent. Liquidity ratio was stationary at levels with constant and trend. This was significant 5 percent. Lending rate was stationary at levels with constant and trend. This was significant at 5 percent. Loan to deposit ratio was stationary at levels with constant and trend. This was significant at 1 percent. The cash reserve ratio was stationary with constant. This was significant at 1 percent. The stationarity test after logging some variables was estimated using the Ng- Perron test at level. The result of the estimation is presented below.

Table 6. Test for stationarity at Levels after logging

Variables	Constant	Linear trend	Order of Integration
Log of net worth	-2.600**	-2.256**	I(0)
Log of total credit	-2.040 **	3.799 **	I(0)
Log of lending rate	0.528 *	-2.016 **	I(0)

Source: Author's Computation   Note: *, ** indicate significance at 1% and 5% levels respectively

The log of net worth was stationary at levels with a constant. This was significant at 5 percent. The log of total credit was stationary at levels with constant and trend. It was significant at 5 percent. The log of lending rate was stationary at levels with constant and trend. This was significant at 5 percent.

4.3 Stationarity Test Comparison

Using both the ADF and Ng-Perron test, the log of total credits which is the dependent variables was stationary at levels as well as all the explanatory variables. Therefore, a long run model of total credits was estimated using the ordinary least square method. The second dependent (net worth) was stationary at first difference based on the ADF test while all the independent variables were stationary at levels. However, using the Ng-Perron test, the log of net worth was stationary at levels as well as all the explanatory variables. Therefore, considering the Augmented Dickey–Fuller test result which showed a mixture of I (0) and I (1) variables, a bound co-integration test was conducted for the log of net worth model.

4.4 Co-Integration Test

The bound co-integration test conducted for the log of net worth model which includes variables with I(0) and I(1) order of integration showed that there was no integration among the variables.

Table 7. Bounds Co-integration Test Result

Test Statistics	Value	K
F- statistics	10.851	4
Critical Values of Bounds		
Significance	I0 Bound	I1 Bound
10%	3.03	4.06
5%	3.47	4.57
2.5%	3.89	5.07
1%	4.4	5.72

Source: Author's Computation

The F-statistics of 10.85 is greater than the critical values of the upper bound for all levels of significance. Therefore, the null hypothesis which states that there is no co-integration among the variables was rejected. There is therefore a long run relationship among the variables. The study proceeded to estimate both a long run and a short run model for the log of net worth using the Auto-Regressive Distributed Lag (ARDL) method.

4.5 Long Run Model Estimation for Net Worth

The long run model is given as:

Log(NW)=β_0 + β_1LIR + $\beta_2$log(LR) + β_3LDR+ β_4CRR+ e

Where

Log(NW) = Log of net worth.

LIR = Liquidity ratio (LIR)

Log(LR) = Log of lending rate (LR)

LDR = Loans to deposit ratio (LDR)

CRR = Cash Reserve ratio (CRR)

The long run model was estimated using the Auto-Regressive Distributed Lag (ARDL) method. The result is presented in Table 8.

Table 8. Long Run Estimates for the Log of Net Worth

Variables	Coefficients	Standard Error	T-Statistics	Probability
LIR	0.0061	0.0073	0.83	0.44
LOG(LR)	-0.55	0.31	-1.82	0.13
LDR	-0.007	0.0070	-0.92	0.40
CRR	-0.0004	0.014	-0.03	0.98
C	2.88	1.29	2.23	0.076
@TREND	0.28	0.003	99.60	0.00

Source: Author's Computation

Based on the long run model estimates, all the explanatory variables including liquidity ratio, lending rate, loans to deposit ratio and cash reserve ratio were insignificant to explain changes in the log of net worth in the long run. Therefore the effect of changes in the liquidity ratio and the cash reserve ratio as instrumented by the Central Banks of Nigeria do not have long run implication on the log of net worth of deposit money banks.

4.6 Short Run Model Estimation for Net Worth

The short run model is given as:

$$Log(NW) = \beta_0 log(NW)_{t-1} + \beta_1 LIR_{1\ t} + \beta_2 LIR_{1\ t-1} + \beta_3 log(LR_t) + \beta_4 log(LR_{t-1}) + \beta_5 LDR_t + \beta_6 LDR_{3\ t-1} + \beta_7 CRR_t + \beta_8 CRR_{t-1} + e$$

Where

Log (NW$_t$) = log of net worth in the current year

Log(NW$_{t-1}$) = log of net worth in the previous year

(LIR$_t$) = Liquidity ratio in the current year

(LIR$_{t-1}$) = Liquidity ratio in the previous year

Log(LR$_t$) = log of lending rate in the current year

Log(LR$_{t-1}$) = log of lending rate in the previous year

(LRD$_t$) = loan to deposit ratio in the current year

(LRD$_{t-1}$) = loan to deposit ratio in the previous year

(CRR$_t$) = cash reserve ratio in the current year

(CRR$_{t-1}$) = cash reserve ratio in the previous year

The short run model was estimated using the Auto-Regressive Distributed Lag (ARDL) method. The result of the estimation of the short run is presented below

Table 9. Short Run Estimates for the Log of Net worth

Variables	Coefficients	Standard Error	T-Statistics	Probability
DLOG(NW(-1))	1.173	0.214	5.474 *	0.003
DLOG(NW(-2))	0.380	0.277	1.372	0.228

DLOG(NW(-3))	0.788	0.332	2.373 ***	0.064
D(LIR)	0.005	0.004	1.534	0.186
D(LIR(-1))	0.014	0.004	3.642 **	0.015
D(LIR(-2))	-0.016	0.005	-3.462	0.018
D(LIR(-3))	0.009	0.004	2.230 **	0.076
DLOG(LR)	0.043	0.158	0.273	0.796
DLOG(LR(-1))	0.022	0.144	0.151	0.886
DLOG(LR(-2))	-0.238	0.155	-1.530	0.187
DLOG(LR(-3))	0.270	0.184	1.467	0.202
D(LDR)	-0.004	0.003	-1.671	0.155
D(LDR(-1))	0.005	0.004	1.225	0.275
D(LDR(-2))	-0.012	0.004	-3.470 **	0.018
D(LDR(-3))	0.011	0.004	2.590 **	0.049
D(CRR)	0.004	0.011	0.365	0.729
D(CRR(-1))	-0.038	0.018	-2.096 ***	0.090
D(CRR(-2))	0.036	0.013	2.822 **	0.037
D(CRR(-3))	-0.026	0.012	-2.156 ***	0.084
D(@TREND())	0.269	0.075	3.595 **	0.016
CointEq(-1)	-0.968	0.266	-3.642 **	0.015

Source: Author's Computation

Note: *, **, *** indicate significance at 1%, 5% and 10% levels respectively

The first lag of the log of net worth had a positive significant effect, indicating that a percentage increase in the immediate previous year log of net worth would cause the log of net worth in the current year to begin to increase and in the long run settle on a new equilibrium value of an additional 117 percent. Thus, the elasticity of the log of net worth with respect to its first lag is 117 percent. Therefore in order to improve the financial performance of deposit money banks in the current year as shown by their net worth, these banks must record significant improvements in the amount of net worth in the previous year. The second lag of the log of net worth was not significant. The third lag of the log of net worth also had a positive significant effect, indicating that a percentage increase in the log of net worth as at three year ago would cause significant improvements in the log of net worth in the current year to begin and in the long run settle on a new equilibrium value of an additional 79 percent. Thus, the elasticity of log of net worth with respect to its third lag is 79 percent.

Liquidity ratio in the current year was not significant. However, the first, second and third lags of the liquidity ratio were significant in explaining changes in the log of net worth in the current year while the first and third lags had a positive effect, a negative effect was seen for the second lag. Therefore changes in liquidity ratio in the previous years would affect the value of the log of net worth in the current year. Thus, the financial performance of deposit money banks in the current year can be explained by the liquidity ratio for previous years and not the liquidity ratio in the current year while the log of lending rate as at the immediate past year and as at 3 year ago had a positive effect, the lending rate as at 2 years ago had a negative effect on the log of net worth in the current year. However, the logs of lending rate in the current year as well as for previous years were not significant.

Loan to deposit ratio in the current year and in the first lag were not significant. However, the second and third lags of loan to deposit ratio were significant in explaining changes in the log of net worth in the current year at the 1 percent significant level. The second lag had a negative effect such that an additional increase in the loan to deposit ratio would cause the log of net worth to begin to decline and in the long run settle on a new equilibrium value characterized by a 1.3 percent reduction. The third lag had a positive effect such that an additional increase in the loans to deposit ratio would cause the log of log of net worth to begin to increase and in the long run settle on a new equilibrium value characterized by a 1.1 percent increase. Therefore changes in the loan to deposit ratio made in previous years affect the value of the log of net worth in the current year. Thus, the financial performance of deposit money can be explained by the loans to deposit ratio for previous years and not by the current year's liquidity ratio.

Cash reserve ratio in the current year was not significant. However, the first, second and third lags of the cash reserve ratio were significant at 1percent in explaining changes in the log of net worth in the current year. The

first and third lag had a negative effect such that an additional increase in the cash reserve ratio would cause the log of net worth to begin to decline and in the long run settle on a new equilibrium value characterized by a 3.8 and 2.6 percent reduction respectively. The second lag of cash reserve ratio had a positive significant effect thus, an additional naira increase in the cash reserve ratio as at three year ago caused significant improvements in the log of net worth in the current year to begin and in the long run settle on a new equilibrium value of an additional 3.6 percent. Thus in the short run, the log of net worth in the current year was not explained by the current values of liquidity ratio, loans to deposit ratio and cash reserve ratio. However, the previous year's values for these variables had significant effects on the log of net worth in the current year.

5. Discussion of Findings

The study surveyed the influence of monetary policy on the financial performance of deposit money banks in Nigeria. The monetary policy variables used for the study were liquidity ratio, lending rate, loans to deposit ratio and cash reserve ratio. Based on the long run model estimates, all the explanatory variables including liquidity ratio, lending rate, loans to deposit ratio and cash reserve ratio were insignificant to explain changes in the log of net worth. Therefore the effect of changes in the liquidity ratio and the cash reserve ratio as instrumented by the Central Banks of Nigeria do not have long run implication on the log of net worth of deposit money banks.

In the short run, the first lag and third lag of the log of net worth have positive significant effect on the log of net worth in the current year. Thus additional increases in the log of net worth obtained in previous year would cause the log of net worth in the current year to increase to a new equilibrium level in the long run. Therefore improvements in the financial performance of deposit money banks in the current year depend on improvements made in the previous years. Changes in liquidity ratio for previous years affected the value of the log of net worth in the current year. Thus, the financial performance of deposit money banks in the current year can be explained by the liquidity ratio for previous years and not the liquidity ratio in the current year.

Additional increase in the loan to deposit ratio made for the past two to three years have significant long run implication on the log of net worth in the current year. Thus, the financial performance of deposit money can be explained by the loans to deposit ratio for previous years and not by the current year's liquidity ratio.

The first, second and third lags of the cash reserve ratio were significant at one percent in explaining changes in the log of net worth in the current year. The first and third lag had a negative effect such that an additional increase in the cash reserve ratio would cause the log of net worth to begin to decline and in the long run settle on a new equilibrium value characterized by reduction. The second lag of cash reserve ratio had a positive significant effect thus, an additional increases in the cash reserve ratio made in previous years have significant long run effect on improvements in the log of net worth in the current year. Thus, in the short run, the log of net worth in the current year was not explained by the current values of the liquidity ratio, loans to deposit ratio and cash reserve ratio. However, the previous year's values for these variables had significant effects on the log of net worth in the current year.

The estimated long run model for log of total credits showed that liquidity ratio had a positive significant effect on the log of total credits. This is contrary to Ajayi and Atanda (2012), which found a negative significant effect. The loans to deposit ratio had a positive significant effect on the log of total credits. The result is consistent with the Assets Quality theory on which this study is based. It is also consistent with Rao and Somaiya (2006). The cash reserve ratio had a negative significant effect on the log of total credits. This is similar to Ajayi and Atanda (2012). Log of lending rate had a positive insignificant effect on the log of total credits. This is consistent with Ajayi and Atanda (2012). The result is consistent with the Assets Quality theory.

6. Conclusion and Recommendations

6.1 Conclusion

Monetary policy has significant effect on the financial performance are measured as net worth and total credits of deposit money banks both in the short and in the long run. Monetary policies for previous years are particularly significant.   The lending rate had no significant effect on financial performance of deposit money banks.

6.2 Recommendations

Based on the findings of this study; the following are recommended: (i) It is important that increases in the liquidity ratio in the current year be made by the Central banks of Nigeria towards improving the financial performance of deposit money banks for future year. (ii) The loans to deposit ratio should be reviewed upward in order to improve the financial performance of deposit money banks in the current years and for the future year. (iii) Reduction in the cash reserve ratio is necessary for improvements in the financial performance of deposit

money banks in the current and future years.

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