

Effects of Selected Macroeconomic Variables on Commercial Banks Performance in Nigeria

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ABSTRACT

This study examined the effects of selected macroeconomic variables on Commercial Banks performance in Nigeria. The objective was to investigate the effects of selected macroeconomic shocks on the performance of Nigerian banks. Annual time series data were sourced from Central Bank of Nigeria (CBN) statistical bulletin and stock Exchange Factbook from 1980-2014. Three multiple regressions models were formulated with Return on Investment (ROI), Return on Assets (ROA) and Return on Equity (ROE) as our dependent variables while the independent variables are Inflation rate (INFR), Real gross domestic product (RGDP), Real interest rate (INTR), Exchange rate (EXR), Broad Money Supply (M_2) and unemployment Rate (UNE-R). The Johansen co-integration test, Unit Root test, Vector Error (VECM) and Granger Causality tests with the use of econometric E-view were employed for the analyses. R^2 , F-statistics, Durbin Watson and Regression coefficient were used to determine the extent to which the independent variables were used to affect the dependent variables. Model I, revealed that inflation rate (INFR), Real Gross Domestic Product (RGDP), Exchange Rate (EXR), and Broad money supply (M_2) have positive but insignificant effects on Return on Investment while interest rate and unemployment rate have negative and insignificant effects on Return on Investment. Model II, the results shows that inflation rate (INFR), interest rate (INTR), exchange rate (EXR) have positive and significant effects while Real Gross Domestic Product (RGDP), Broad money supply (M_2) and unemployment rate (UNE-R) have negative and insignificant effect on Return on Assets. Model III results revealed that inflation rate (INFR), interest rate (INTR), exchange rate (EXR) have positive and insignificant effect while Real Gross Domestic Product (RGDP), Broad money supply (M_2) and unemployment rate (UNE-R) have negative and insignificant effect on Return on Equity. The models summary reveals an R^2 of 0.93% and adjusted R^2 of 0.87%, the

study concludes that there is a positive and significant relationship between selected macroeconomic variables and Commercial Banks performance in Nigeria. We therefore recommend that macroeconomic policies should be used for the purpose of enhancing banks performance.

KEYWORDS: *Macroeconomic Variables, Banks Performance, Co-Integration and Causality Tests*

INTRODUCTION

Over the years adequate banking performance has been a major concern to stakeholders, bank management analyst, policy makers and the general public. Macroeconomic variables such as interest rate, money supply, inflation, unemployment and exchange rate have direct effect on the performance of the banking sector. Macroeconomic shocks, monetary policy schools of thought, political shocks and international liquidity shocks had direct effect on banking sector performance and the well-being of the institutions Adegbaju, and Olokoyo (2008).

A close examination of the annual banking sector growth in assets shows that from 2000-2005, the total assets grew by 11.06% while from 2005-2014 it increase by 17.65%. Inflation, money supply, gross domestic product, unemployment and exchange rate fluctuates within 6.81% and 5.96%, 3.11% and 4.05%, 2.10% and 2.65%, 4.92% and 5.70% (CBN, 2012).

The extent to which macroeconomic variables affect banks has a great deal to do with the performance of the banking sector. Yusuf (2011) noted that bank performance is the ability of the banks to generate sustainable profits to meet its operating cost and maximize shareholder wealth. For instance, the deregulation of interest rate in the last quarter of 1986 affected the performance of the commercial banks. The recent withdrawal of 75% of all public funds from the banking system by Central Bank Nigeria is expected to affect banks lending function negatively which can affect also bank performance negatively and also the introduction of single treasury account (STA) by Central Bank of Nigeria (CBN,2014) has negative effects on commercial lending which will in turn affect public sector investment and thereby negatively affecting the performance of commercial Banks in Nigeria.

Macroeconomic variables such as interest rate has the capacity of expanding or contracting bank lending behaviour through the banking lending channel via a vise the money supply. Poor macroeconomic performance has the ability of jeopardizing banking deposit mobilization and credit allocation in the economy which can affect negatively the bank performance Alaba (2002). For instance the banking sector crises of the 1980s and 1990s were blamed on the poor macroeconomic performance and the harsh business environment of the period Uboh (2005). The international monetary environment has the capacity of affecting the banking sector performance as Nigerian banks have international branches and the overdependence of Nigeria economy on foreign earnings from crude oil. For instance the global financial crisis in 2007 affected Nigerian banks negatively. Toby (2006) noted that some of the banking sector performance can be traced to inability of the banking institution to adjust to the macroeconomic variable shocks. For instance Nigerian economy is characterized by macroeconomic policy instability, high risk concentration and liquidity crisis, a situation that threatens the existence of the commercial banks

In sum, so far, previous studies on the banking sector focused on the effects of banking sector and the economic growth and other determinants of bank performance. However this study comprehensively examined the effects of selected macroeconomic variables on commercial banks performance in Nigeria, theoretical models and empirical studies reviewed in our study; relating to macroeconomic variables and Commercial Banks performance especially in relation to the Nigerian Economy leave some gaps which we intend to fill. Therefore, this study tends to;

- (i) To find out the effects of selected macroeconomic variables on commercial banks performance in Nigeria, as our dependent variables are return on investment, return on assets and return on equity while macroeconomic variables are Interest Rate, Exchange rate, Broad Money Supply, Real Gross Domestic Product, Inflation rate and Unemployment which represent our independent variables.
- (ii) This study will establish the causal relationship between selected macroeconomic variables and Commercial Banks performance in Nigeria.
- (iii) The study will further establish the behavioural relationship between Commercial Banks performance proxied by Return on investment, Return on assets and Return on equity while macroeconomic variables are Interest Rate, Exchange rate, Broad Money Supply, Real Gross Domestic Product, Inflation rate and Unemployment Rate using analytical descriptive statistics to virtualised its relationship.

Review of Empirical Literature

Kolapo, Ayeni and Oke (2012) carried out an empirical investigation into the quantitative effect of credit risk on the performance of commercial banks in Nigeria over the period of 11 years (2000-2010) using five commercial banking firms. Panel model analysis was used to estimate the determinants of the profit function. The results showed that the effect of credit risk on bank performance measured by the Return on Assets of banks is cross-sectional invariant. That is the effect is similar across banks in Nigeria, though the degree to which individual banks are affected is not captured by the method of analysis employed in the study.

Mohammed (2012) studied the impact of corporate governance on the performance of banks in Nigeria. The study made use of secondary data obtained from the financial reports of nine (9) banks for a period of ten (10) years (2001- 2010). The data were analyzed using multiple regression analysis. The study supported the hypothesis that corporate governance positively affects performance of banks.

Abaenewe, Ogbulu and Ndugbu (2012) investigated the profitability performance of Nigerian banks following the full adoption of electronic banking system, using judgmental sampling method to collect data from four Nigerian banks. The profitability performance of the banks was measured in terms of returns on equity (ROE) and returns on assets (ROA). The study found that the adoption of electronic banking has positively and significantly improved the returns on equity (ROE) of Nigerian banks, while it has not significantly improved the returns on assets (ROA) of Nigerian banks.

Adegbaaju and Olokoyo (2008) investigated the impact of previous recapitalization in the banking system on the performance of the banks in Nigeria with the aim of finding out if the recapitalization is of any benefit. The study employed secondary data obtained from NDIC

annual reports. The results indicate that the mean of key profitability ratios such as the Yield on earning asset (YEA), Return on Equity (ROE) and Return on Asset (ROA) were significant meaning that there is statistical difference between the mean of the bank before 2001 recapitalization and after 2001 recapitalization.

Osamor, Akinlabi and Osamor (2012) examined the impact of globalization on performance of Nigerian commercial banks between 2005 and 2010, using panel data econometrics in a pooled regression, where time series and cross-sectional observations were combined and estimated. The results of econometric panel regression analysis confirmed that globalization, i.e. foreign private investment, foreign trade and exchange rate have positive effects on the profit after tax of banks.

Ajayi and Atanda (2012) examined the effect of monetary policy instruments on banks performance in Nigeria with the view to determine the existence of long-run relation between 1970 and 2008. The Engle-granger two step cointegration 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.

Agbada and Osuji (2012) studied the efficacy of liquidity management and banking performance in Nigeria using survey research methodology. Data obtained were first presented in tables of percentages and pie charts and were empirically analyzed by Pearson product-moment correlation coefficient (r). Findings from the empirical analysis were quite robust and clearly indicate that there is significant relationship between efficient liquidity management and banking performance and that efficient liquidity management enhances the soundness of bank.

Enyioko (2012) examined the performances of banks and macro-economic performance in Nigeria based on the interest rate policies of the banks. The study analyses published audited accounts of twenty (20) out of twenty-five (25) banks that emerged from the consolidation exercise and data from the Central Banks of Nigeria (CBN).

The results indicate that the interest rate policies have not improved the overall performances of banks significantly and also have contributed marginally to the growth of the economy.

Beck, Cull and Jerome (2005) examined the effect of privatization on performance in a panel of Nigerian banks for the period 1990-2001. The results showed evidence of performance improvement in nine banks that were privatized, which is remarkable given the inhospitable environment for true financial intermediation. The results also suggest negative effects of the continuing minority government ownership on the performance of many Nigerian banks; and also showed aggregate indications of decreasing financial intermediation over the 1990s, banks that focused on investment in government bonds and non-lending activities enjoyed a relatively higher performance.

Olokoyo (2012) examined the effects of bank deregulation on bank performance in Nigeria. The study analyzed secondary data collected from CBN statistical bulletin by employing the Ordinary Least Square (OLS) technique. This study found out that the deregulation of the banking sector has positive and significant effect on bank performance.

Okoye and Eze (2012) examined the impact of bank lending rate on the performance of Nigerian Deposit Money Banks between 2000 and 2010. The study utilized secondary data econometrics in a regression, where time-series and quantitative design were combined and estimated. The result confirmed that the lending rate and monetary policy rate have significant and positive effects on the performance of Nigerian deposit money banks.

METHODOLOGY AND DATA

For the purpose of achieving the objectives of this paper, we adopt the co-integration and Error Correction Model (ECM) approaches in addition to the Granger causality tests. This is necessary in order to test the stationarity properties of our time series data. Non-stationarity has become common as many economic and financial time series data so much so that empirical results obtained from using such non-stationary data could lead to very high estimation errors and bias. (Brooks,2008). Therefore, to overcome the incidence of non-stationarity in the data series, we employ the augmented Dickey fuller (ADF) unit roots tests as well as the Johansen (1990) co-integration techniques to examine whether the time series are co-integrated in the establishing a long run relationship between the variables in the model. The first step in the co-integration approach is to estimate the co-integration equation.

$$Y_t = \sigma_o + \sigma_1 X_t + u_t \quad (1)$$

And then calculate the residual

$$u_t = Y_t - \sigma_o - \sigma_1 X_t \quad (2)$$

and then examine the stationarity of the residuals. If Y_t and X_t are co-integrated, the error term will be stationary. This is established by testing the residuals of co-integrating regression for stationarity by performing the ADF unit roots tests.

The pair-wise Granger test on the other hand establishes the direction of the causality between the variables. According to Granger (1969), X Granger cause Y if past values of X can be used to predict Y more accurately than simply using the past values of Y. The test is based on the following regressions:

$$Y_t = \pi_o + \sum_{i=1}^n \pi_i^y Y_{t-1} + \sum_{i=1}^n \bar{\pi}_i^x X_{t-1} + U_t \quad (3)$$

and

$$X_t = \varphi_o + \sum_{i=1}^n \varphi_i^y Y_{t-1} + \sum_{i=1}^n \varphi_i^x X_{t-1} + Y_t \quad (4)$$

Where X_t and Y_t are the variable to be tested U_t and Y_t are the white noise disturbance terms otherwise known as the stochastic terms. The null hypothesis $\pi_i^x = \varphi_i^y = 0$ for all i's is tested against the alternative hypothesis $\pi_i^x \neq 0$ and $\varphi_i^y \neq 0$. If the co-efficient of π_i^x are statistically significant but that of φ_i^y are not, then X causes Y. if the reverse is true then Y causes X, where both co-efficient is π_i^x and φ_i^y are significant then causality is bi-directional.

Model Specification

In this sub-section, a model that seeks to examine the effects of selected Macroeconomic

variables on Commercial Banks performance; the model is written as:

Model I

$$ROI = f(INFR, RGDP, INTR, EXR, M2, UNE-R) \quad (5)$$

Model II

$$ROA = f(INFR, RGDP, INTR, EXR, M2, UNE-R) \quad (6)$$

Model III

$$ROE = f(INFR, RGDP, INTR, EXR, M2, UNE-R) \quad (7)$$

Transforming equation 2, 3 and 4 into a testable form, we obtain the following regression equations;

$$ROI = a_0 + a_1 INFR + a_2 RGDP + a_3 INTR + a_4 EXR + a_5 M2 + a_6 UNE-R + et_1 \quad (8)$$

$$ROA = b_0 + b_1 INFR + b_2 RGDP + b_3 INTR + b_4 EXR + b_5 M2 + b_6 UNE-R + et_2 \quad (9)$$

$$ROE = x_0 + x_1 INFR + x_2 RGDP + x_3 INTR + x_4 EXR + x_5 M2 + x_6 UNE-R + et_3 \quad (10)$$

Where; a's, b's and x's are the Regression coefficient

ROI = Return on Investment

ROA = Return on Assets

ROE = Return on Equity

INFR = Inflation Rate

RGDP = Real Gross Domestic Product

INTR = Interest Rate

EXR = Exchange Rate

M2 = Broad Money Supply

UNE-R = Unemployment Rate

et₁ – et₃ = Error term (unexplained variations)

Therefore, a priori expectation ($a_1 > a_2 > a_3 > a_4 > a_5 > 0$, $b_1 > b_2 > b_3 > b_4 > b_5 > 0$ and $x_1 > x_2 > x_3 > x_4 > x_5 > 0$)

Data Presentation

This study used secondary data obtained from the Central Bank of Nigeria statistical bulletin various years and stock exchange fact book. Descriptive analysis of the data in respect of Interest Rate, Exchange rate, Broad Money Supply, Real Gross Domestic Product, Inflation rate and Unemployment Rate for the period during study using line graphs and bar chart which is a snap shoot of the behaviour of the study variables is presented below.

Table 1: Data Presentation of Macroeconomic Variables and Return on Investment

| Year | ROI (y) | INFR(a ₁) | RGD P(a ₂) | INT R(a ₃) | EXR(a ₄) | M2(a 5) | UNE- R(a ₆) |
|------|------------|---------------------------|---------------------------|---------------------------|--------------------------|------------|----------------------------|
| 1980 | 165.15 | 9.900 | 0.300 0 | 7.500 | 0.5440 0 | - | 5.4000 |
| 1981 | 186.81 | 20.900 | 1.800 0 | 7.500 | 0.6369 0 | - | 7.1000 |
| 1982 | 207.57 | 7.7000 | 0.800 0 | 7.800 | 0.6702 0 | - | 4.7000 |
| 1983 | 223.35 | 23.200 | 4.800 0 | 10.30 0 | 0.7486 0 | - | 10.2000 |
| 1984 | 242.49 | 30.800 | 2.800 0 | 10.00 0 | 0.8083 0 | - | 7.3000 |

| | | | | | | | |
|------|-------------|-------------|-----------------|-------------|--------------|-------------|--------|
| 1985 | 267.03 | 3.2300 | 11.33 00 | 11.75 00 | 3.3160 0 | 12.44 00 | 6.1000 |
| 1986 | 253.01 | 6.2500 | 1.890 00 | 12.00 00 | 4.1910 0 | 4.230 0 | 5.3000 |
| 1987 | 309.75 | 11.760 0 | - 0.690 0 | 19.20 00 | 5.3500 0 | 22.92 00 | 7.0000 |
| 1988 | 329.54 | 34.210 0 | 7.580 00 | 17.60 00 | 7.6500 0 | 34.99 00 | 5.8000 |
| 1989 | 319.73 | 49.020 0 | 7.150 00 | 24.60 00 | 9.6500 0 | 3.540 00 | 4.0000 |
| 1990 | 360.10 | 7.8900 | 11.36 00 | 27.70 00 | 9.0000 0 | 45.92 00 | 5.5000 |
| 1991 | 366.34 | 12.190 0 | 0.010 00 | 20.80 00 | 9.7540 0 | 27.43 00 | 5.7000 |
| 1992 | 375.05 | 4.5600 | 2.630 00 | 31.20 00 | 19.660 0 | 47.53 00 | 7.5000 |
| 1993 | 411.52 | 57.140 0 | 1.560 00 | 36.09 00 | 22.630 0 | 53.76 00 | 7.2000 |
| 1994 | 421.73 | 57.410 0 | 0.780 00 | 21.00 00 | 21.886 00 | 34.50 00 | 8.8000 |
| 1995 | 428.82 | 72.720 0 | 2.150 00 | 20.89 00 | 81.022 00 | 19.41 00 | 5.2000 |
| 1996 | 413.90 | 29.290 0 | 4.130 00 | 20.86 00 | 81.252 00 | 16.46 00 | 8.3000 |
| 1997 | 440.94 | 10.670 0 | 2.890 00 | 23.32 00 | 81.649 00 | 16.40 40 | 8.5000 |
| 1998 | 437.11 | 7.8600 | 2.820 00 | 21.34 00 | 83.807 00 | 22.32 00 | 7.8000 |
| 1999 | 469.00 | 6.6100 | 1.190 00 | 27.17 00 | 92.342 00 | 33.12 00 | 9.5000 |
| 2000 | 469.70 | 6.6900 | 4.890 00 | 21.55 00 | 100.80 10 | 48.07 00 | 10.500 |
| 2001 | 482.76 | 18.860 0 | 4.720 00 | 21.34 00 | 111.70 1 | 27.00 00 | 3.6000 |
| 2002 | 518.13 | 12.880 0 | 4.630 00 | 30.19 00 | 126.25 7 | 21.55 00 | 3.8000 |
| 2003 | 557.92 | 14.030 0 | 9.570 00 | 22.88 0 | 134.03 7 | 24.11 00 | 3.3000 |
| 2004 | 532.23 | 15.010 0 | 6.580 00 | 20.82 0 | 132.37 0 | 14.02 00 | 9.5000 |
| 2005 | 568.07 | 17.850 0 | 6.510 00 | 19.49 0 | 130.60 60 | 24.35 00 | 6.4000 |
| 2006 | 5332.4 6 | 8.2100 0 | 6.030 00 | 18.70 0 | 128.27 60 | 43.09 00 | 12.500 |

| | | | | | | | |
|------|--------|-------------|-------------|-------------|--------------|-------------|--------|
| 2007 | 735.56 | 5.4100 0 | 6.450 00 | 18.36 00 | 125.88 10 | 44.80 00 | 17.200 |
| 2008 | 662.41 | 11.500 0 | 5.980 00 | 18.70 00 | 121.90 40 | 57.88 00 | 19.700 |
| 2009 | 641.64 | 12.540 0 | 6.960 00 | 22.62 00 | 150.01 20 | 17.07 00 | 21.100 |
| 2010 | 718.91 | 13.720 0 | 7.980 00 | 22.51 00 | 150.65 00 | 6.910 00 | 23.900 |
| 2011 | 759.88 | 10.720 0 | 7.430 00 | 22.42 00 | 156.20 00 | 15.43 00 | 24.000 |
| 2012 | 758.81 | 12.000 0 | 6.580 00 | 24.65 00 | 155.82 00 | 16.39 00 | 26.800 |
| 2013 | 757.74 | 13.280 0 | 5.730 0 | 26.88 00 | 155.44 0 | 17.35 00 | 29.600 |
| 2014 | 758.81 | 14.560 0 | 6.800 0 | 29.14 00 | 155.82 00 | 18.31 00 | 32.400 |

SOURCE: Central Bank of Nigeria Bulletin Various Issues

Key note:

- ROI = Return on Investment
 INTR = Interest Rate
 EXR = Exchange Rate
 M2 = Broad money Supply
 RGDP = Real Gross Domestic Product
 INFR = Inflation Rate
 UMR = Unemployment Rate

Table 2: Data Presentation of Macroeconomic Variables and Return on Asset

| Year | RO A(y) | INFR(b ₁) | RGDP(b ₂) | INT R(b ₃) | EXR(b ₄) | M2(b ₅) | UNE- R(b ₆) |
|------|----------------|---------------------------|---------------------------|---------------------------|--------------------------|------------------------|----------------------------|
| 1980 | 246 .53 | 9.900 | 0.3000 | 7.500 | 0.5440 0 | - | 5.4000 |
| 1981 | 289 .88 | 20.900 | 1.8000 | 7.500 | 0.6369 0 | - | 7.1000 |
| 1982 | 333 .91 | 7.7000 | 0.8000 | 7.800 | 0.6702 0 | - | 4.7000 |
| 1983 | 366 .79 | 23.200 | 4.8000 | 10.30 0 | 0.7486 0 | - | 10.2000 |
| 1984 | 391 .79 | 30.800 | 2.8000 | 10.00 0 | 0.8083 0 | - | 7.3000 |
| 1985 | 418 .19 | 3.2300 | 11.330 0 | 11.75 00 | 3.3160 0 | 12.440 0 | 6.1000 |
| 1986 | 422 .39 | 6.2500 | 1.8900 0 | 12.00 00 | 4.1910 0 | 4.2300 | 5.3000 |
| 1987 | 430 .08 | 11.760 0 | -0.6900 | 19.20 00 | 5.3500 0 | 22.920 0 | 7.0000 |

| | | | | | | | |
|------|------------|-------------|-------------|-------------|--------------|-------------|--------|
| 1988 | 422 .06 | 34.210 0 | 7.5800 0 | 17.60 00 | 7.6500 0 | 34.990 0 | 5.8000 |
| 1989 | 410 .02 | 49.020 0 | 7.1500 0 | 24.60 00 | 9.6500 0 | 3.5400 0 | 4.0000 |
| 1990 | 462 .11 | 7.8900 | 11.360 0 | 27.70 00 | 9.0000 0 | 45.920 0 | 5.5000 |
| 1991 | 461 .47 | 12.190 0 | 0.0100 0 | 20.80 00 | 9.7540 0 | 27.430 0 | 5.7000 |
| 1992 | 442 .62 | 4.5600 | 2.6300 0 | 31.20 00 | 19.660 0 | 47.530 0 | 7.5000 |
| 1993 | 527 .60 | 57.140 0 | 1.5600 0 | 36.09 00 | 22.630 0 | 53.760 0 | 7.2000 |
| 1994 | 574 .33 | 57.410 0 | 0.7800 0 | 21.00 00 | 21.886 00 | 34.500 0 | 8.8000 |
| 1995 | 571 .64 | 72.720 0 | 2.1500 0 | 20.89 00 | 81.022 00 | 19.410 0 | 5.2000 |
| 1996 | 563 .25 | 29.290 0 | 4.1300 0 | 20.86 00 | 81.252 00 | 16.460 0 | 8.3000 |
| 1997 | 555 .47 | 10.670 0 | 2.8900 0 | 23.32 00 | 81.649 00 | 16.404 0 | 8.5000 |
| 1998 | 547 .64 | 7.8600 0 | 2.8200 0 | 21.34 00 | 83.807 00 | 22.320 0 | 7.8000 |
| 1999 | 529 .99 | 6.6100 0 | 1.1900 0 | 27.17 00 | 92.342 00 | 33.120 0 | 9.5000 |
| 2000 | 528 .70 | 6.6900 0 | 4.8900 0 | 21.55 00 | 100.80 10 | 48.070 0 | 10.500 |
| 2001 | 545 .43 | 18.860 0 | 4.7200 0 | 21.34 00 | 111.70 1 | 27.000 0 | 3.6000 |
| 2002 | 586 .67 | 12.880 0 | 4.6300 0 | 30.19 00 | 126.25 7 | 21.550 0 | 3.8000 |
| 2003 | 541 .07 | 14.030 0 | 9.5700 0 | 22.88 0 | 134.03 7 | 24.110 0 | 3.3000 |
| 2004 | 551 .77 | 15.010 0 | 6.5800 0 | 20.82 0 | 132.37 0 | 14.020 0 | 9.5000 |
| 2005 | 551 .11 | 17.850 0 | 6.5100 0 | 19.49 0 | 130.60 60 | 24.350 0 | 6.4000 |
| 2006 | 509 .56 | 8.2100 0 | 6.0300 0 | 18.70 0 | 128.27 60 | 43.090 0 | 12.500 |
| 2007 | 488 .24 | 5.4100 0 | 6.4500 0 | 18.36 00 | 125.88 10 | 44.800 0 | 17.200 |
| 2008 | 457 .11 | 11.500 0 | 5.9800 0 | 18.70 00 | 121.90 40 | 57.880 0 | 19.700 |
| 2009 | 423 .59 | 12.540 0 | 6.9600 0 | 22.62 00 | 150.01 20 | 17.070 0 | 21.100 |
| 2010 | 566 .87 | 13.720 0 | 7.9800 0 | 22.51 00 | 150.65 00 | 6.9100 0 | 23.900 |

| | | | | | | | |
|------|------------|-------------|-------------|-------------|--------------|-------------|--------|
| 2011 | 648 .46 | 10.720 0 | 7.4300 0 | 22.42 00 | 156.20 00 | 15.430 0 | 24.000 |
| 2012 | 619 .09 | 12.000 0 | 6.5800 0 | 24.65 00 | 155.82 00 | 16.390 0 | 26.800 |
| 2013 | 648 .46 | 13.280 0 | 5.7300 | 26.88 00 | 155.44 00 | 17.350 0 | 29.600 |
| 2014 | 677 .98 | 14.560 0 | 6.8000 | 29.14 00 | 155.82 00 | 18.310 0 | 32.400 |

SOURCE: Central Bank of Nigeria Bulletin Various Issues

Key note:

- ROA = Return on Assets
 INTR = Interest Rate
 EXR = Exchange Rate
 M2 = Broad money Supply
 RGDP = Real Gross Domestic Product
 INFR = Inflation Rate
 UMR = Unemployment Rate

Table 3: Data Presentation of Macroeconomic Variables and Return on Equity

| Year | RO E(y) | INFR(x ₁) | RGDP (x ₂) | INTR(x ₃) | EXR(x ₄) | M2(x ₅) | UNE- R(x ₆) |
|------|------------|-----------------------|---------------------------|---------------------------|--------------------------|------------------------|----------------------------|
| 1980 | 168. 04 | 9.900 | 0.3000 | 7.500 | 0.5440 0 | - | 5.4000 |
| 1981 | 195. 98 | 20.900 | 1.8000 | 7.500 | 0.6369 0 | - | 7.1000 |
| 1982 | 214. 61 | 7.7000 | 0.8000 | 7.800 | 0.6702 0 | - | 4.7000 |
| 1983 | 232. 73 | 23.200 | 4.8000 | 10.300 | 0.7486 0 | - | 10.2000 |
| 1984 | 249. 88 | 30.800 | 2.8000 | 10.000 | 0.8083 0 | - | 7.3000 |
| 1985 | 242. 48 | 3.2300 | 11.330 0 | 11.750 0 | 3.3160 0 | 12.440 0 | 6.1000 |
| 1986 | 298. 83 | 6.2500 | 1.8900 0 | 12.000 0 | 4.1910 0 | 4.2300 | 5.3000 |
| 1987 | 310. 31 | 11.7600 | - 0.6900 | 19.200 0 | 5.3500 0 | 22.920 0 | 7.0000 |
| 1988 | 326. 29 | 34.2100 | 7.5800 0 | 17.600 0 | 7.6500 0 | 34.990 0 | 5.8000 |
| 1989 | 343. 62 | 49.0200 | 7.1500 0 | 24.600 0 | 9.6500 0 | 3.5400 0 | 4.0000 |
| 1990 | 363. 19 | 7.8900 | 11.360 0 | 27.700 0 | 9.0000 0 | 45.920 0 | 5.5000 |
| 1991 | 384. 52 | 12.1900 | 0.0100 0 | 20.800 0 | 9.7540 0 | 27.430 0 | 5.7000 |

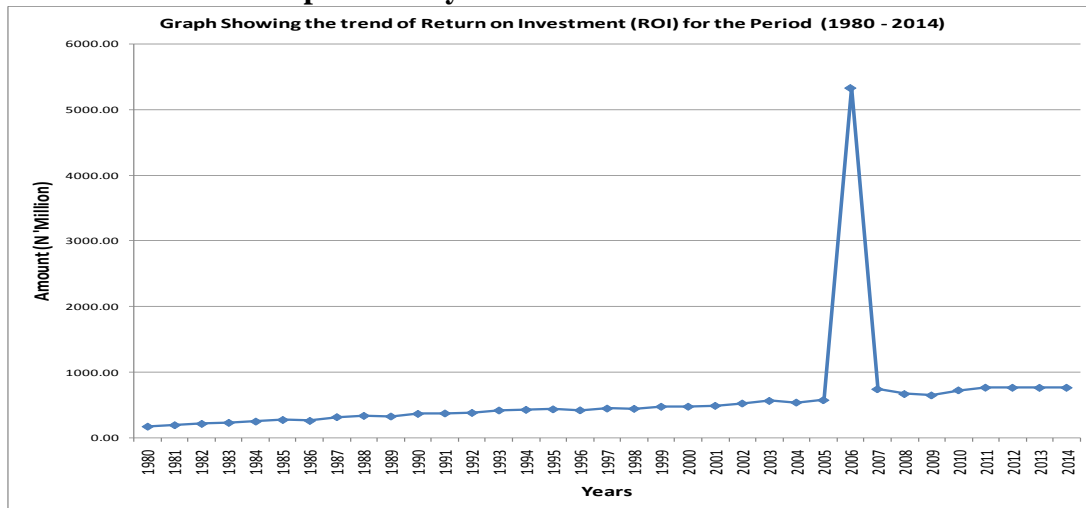
| | | | | | | | |
|------|-------------|---------|-------------|-------------|--------------|-------------|--------|
| 1992 | 378. 89 | 4.5600 | 2.6300 0 | 31.200 0 | 19.660 0 | 47.530 0 | 7.5000 |
| 1993 | 386. 19 | 57.1400 | 1.5600 0 | 36.090 0 | 22.630 0 | 53.760 0 | 7.2000 |
| 1994 | 402. 42 | 57.4100 | 0.7800 0 | 21.000 0 | 21.886 00 | 34.500 0 | 8.8000 |
| 1995 | 395. 46 | 72.7200 | 2.1500 0 | 20.890 0 | 81.022 00 | 19.410 0 | 5.2000 |
| 1996 | 418. 14 | 29.2900 | 4.1300 0 | 20.860 0 | 81.252 00 | 16.460 0 | 8.3000 |
| 1997 | 401. 25 | 10.6700 | 2.8900 0 | 23.320 0 | 81.649 00 | 16.404 0 | 8.5000 |
| 1998 | 410. 54 | 7.86000 | 2.8200 0 | 21.340 0 | 83.807 00 | 22.320 0 | 7.8000 |
| 1999 | 1432 .26 | 6.61000 | 1.1900 0 | 27.170 0 | 92.342 00 | 33.120 0 | 9.5000 |
| 2000 | 394. 10 | 6.69000 | 4.8900 0 | 21.550 0 | 100.80 10 | 48.070 0 | 10.500 |
| 2001 | 401. 73 | 18.8600 | 4.7200 0 | 21.340 0 | 111.70 1 | 27.000 0 | 3.6000 |
| 2002 | 1802 .10 | 12.8800 | 4.6300 0 | 30.190 0 | 126.25 7 | 21.550 0 | 3.8000 |
| 2003 | 388. 52 | 14.0300 | 9.5700 0 | 22.880 | 134.03 7 | 24.110 0 | 3.3000 |
| 2004 | 373. 93 | 15.0100 | 6.5800 0 | 20.820 | 132.37 0 | 14.020 0 | 9.5000 |
| 2005 | 361. 53 | 17.8500 | 6.5100 0 | 19.490 | 130.60 60 | 24.350 0 | 6.4000 |
| 2006 | 428. 68 | 8.21000 | 6.0300 0 | 18.700 | 128.27 60 | 43.090 0 | 12.500 |
| 2007 | 401. 60 | 5.41000 | 6.4500 0 | 18.360 0 | 125.88 10 | 44.800 0 | 17.200 |
| 2008 | 417. 00 | 11.5000 | 5.9800 0 | 18.700 0 | 121.90 40 | 57.880 0 | 19.700 |
| 2009 | 378. 34 | 12.5400 | 6.9600 0 | 22.620 0 | 150.01 20 | 17.070 0 | 21.100 |
| 2010 | 431. 98 | 13.7200 | 7.9800 0 | 22.510 0 | 150.65 00 | 69.100 0 | 23.900 |
| 2011 | 454. 92 | 10.7200 | 7.4300 0 | 22.420 0 | 156.20 00 | 15.430 0 | 24.000 |
| 2012 | 444. 94 | 12.0000 | 6.5800 0 | 24.650 0 | 155.82 00 | 16.390 0 | 26.800 |
| 2013 | 454. 920 | 13.2800 | 5.7300 | 26.880 0 | 155.44 00 | 17.350 0 | 29.600 |
| 2014 | 464. 90 | 14.5600 | 6.8000 | 29.140 0 | 155.82 00 | 18.310 0 | 32.400 |

SOURCE: Central Bank of Nigeria Bulletin Various Issues

Key note:

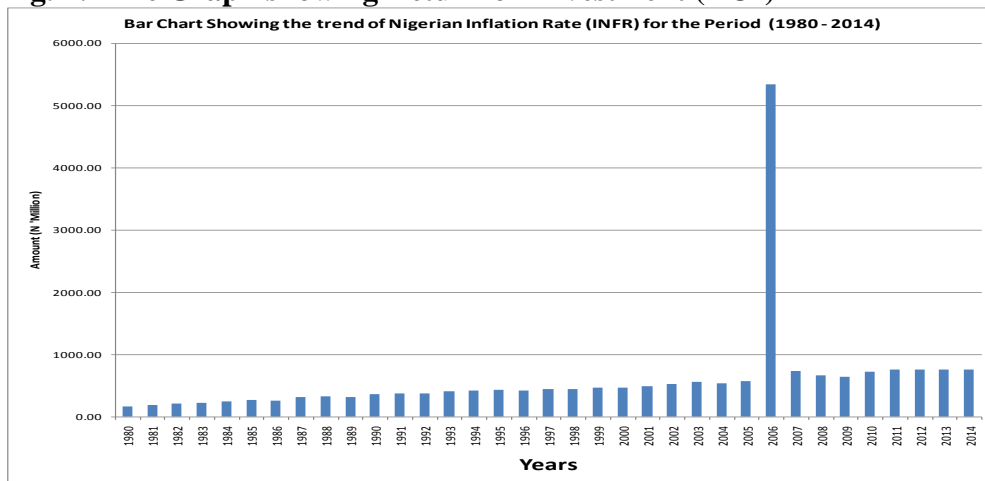
- ROE = Return on Equity
- INTR = Interest Rate
- EXR = Exchange Rate
- M2 = Broad money Supply
- RGDP = Real Gross Domestic Product
- INFR = Inflation Rate
- UMR = Unemployment Rate

Presentation of Descriptive Analysis



Source: Researcher’s Computation

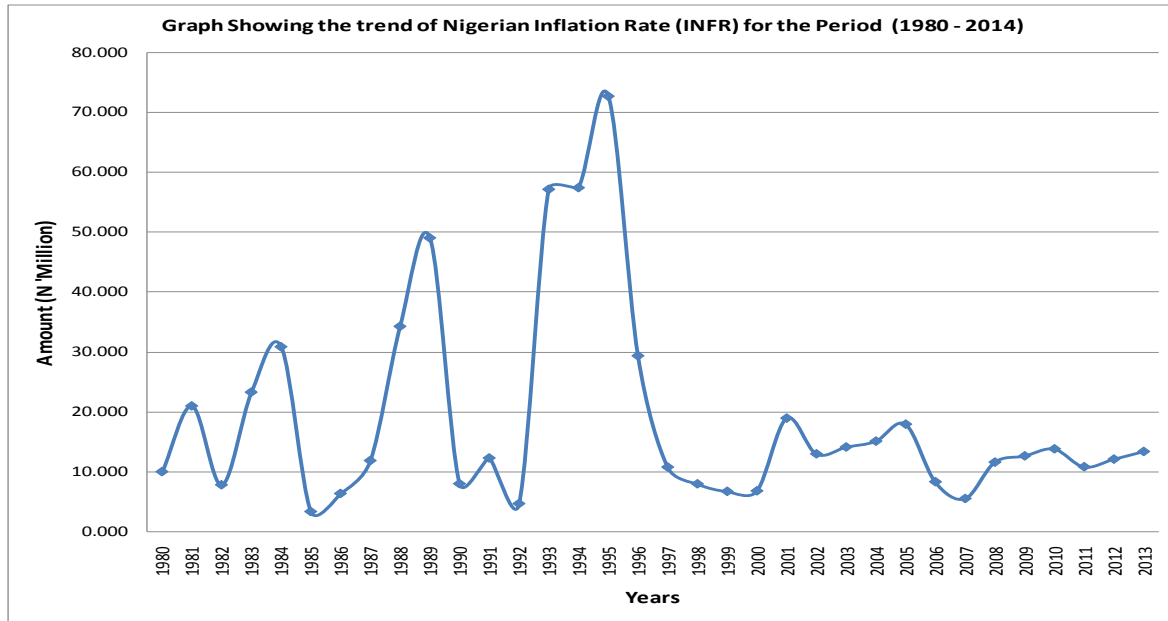
Fig. 1: Line Graph showing Return on Investment (ROI)



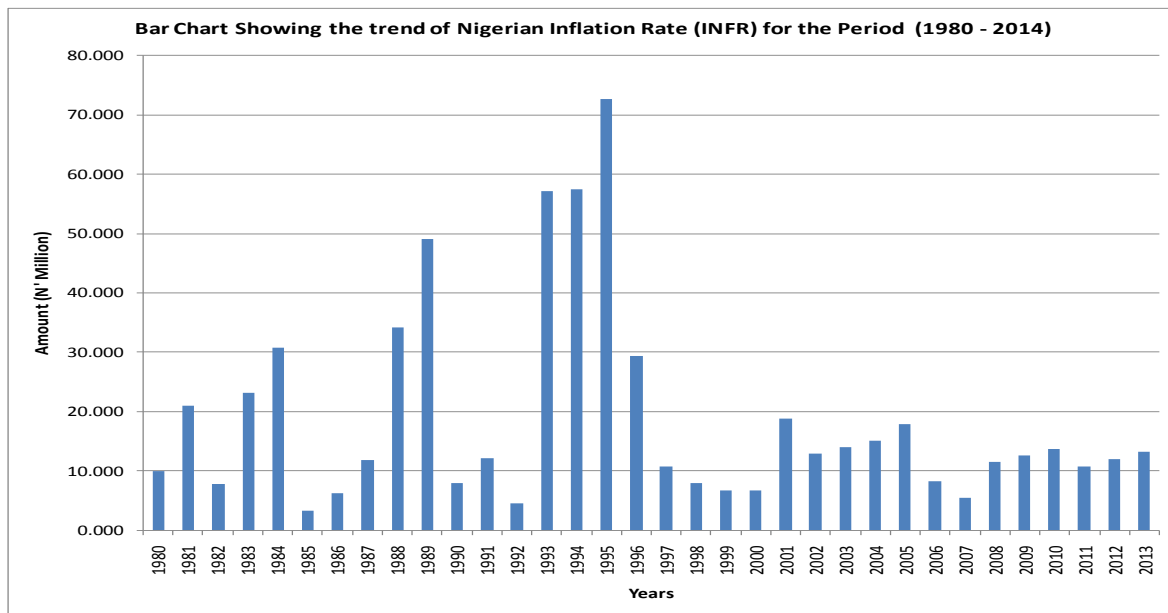
Source: Researcher’s Computation

Fig. 2: Bar Chart showing Return on Investment (ROI)

From the line graph and bar chart above shows Return on Investment for the period 1980 – 2014, it rises sharply from 2006 to 2007 which might be attributed to banking consolidation and recapitalization and thereafter with a steady fall in 2008. The fall can be trace to capital market crash and the global financial meltdown within the period.

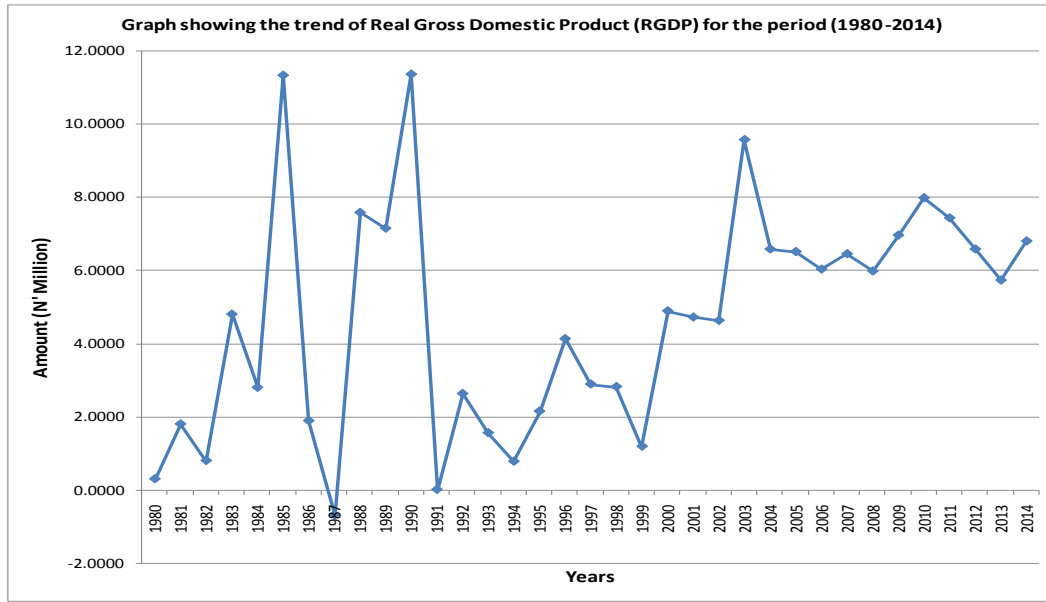


Source: Researcher's Computation
Fig. 3: Line Graph showing Inflation Rate (INFR)



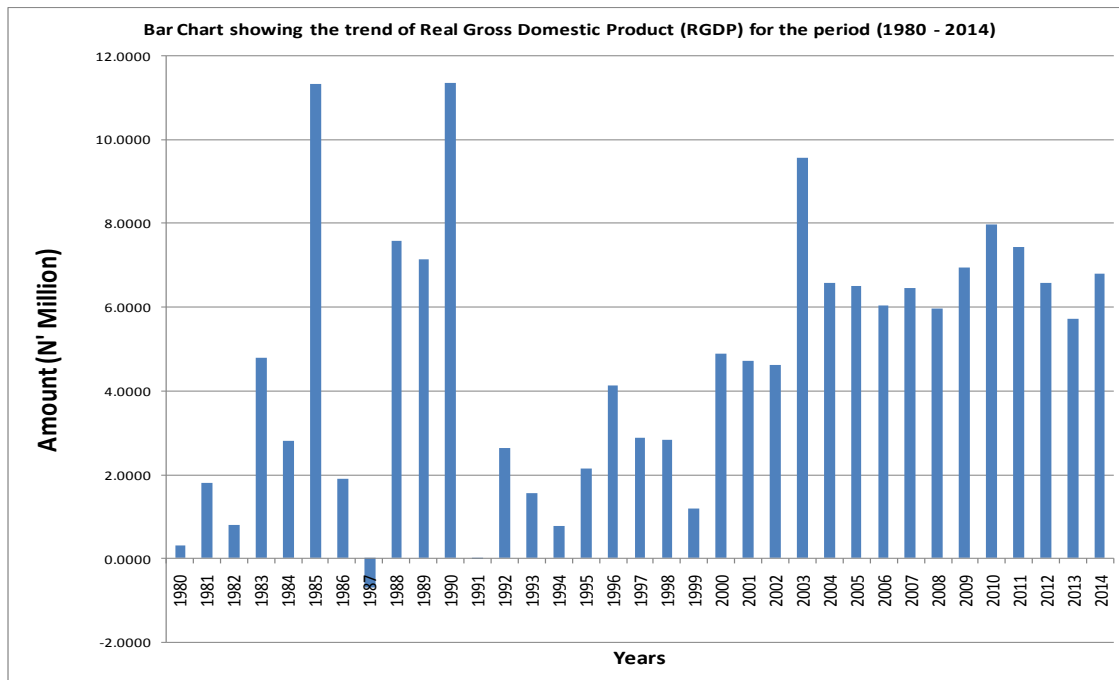
Source: Researcher's Computation
Fig. 4: Bar Chart showing Inflation Rate (INFR)

The trend above shows Inflation Rate fluctuates at a very high degree in 1995 with 72.06% which can be attributed to military rule, an increase in money supply and low in 2007.



Source: Researcher's Computation

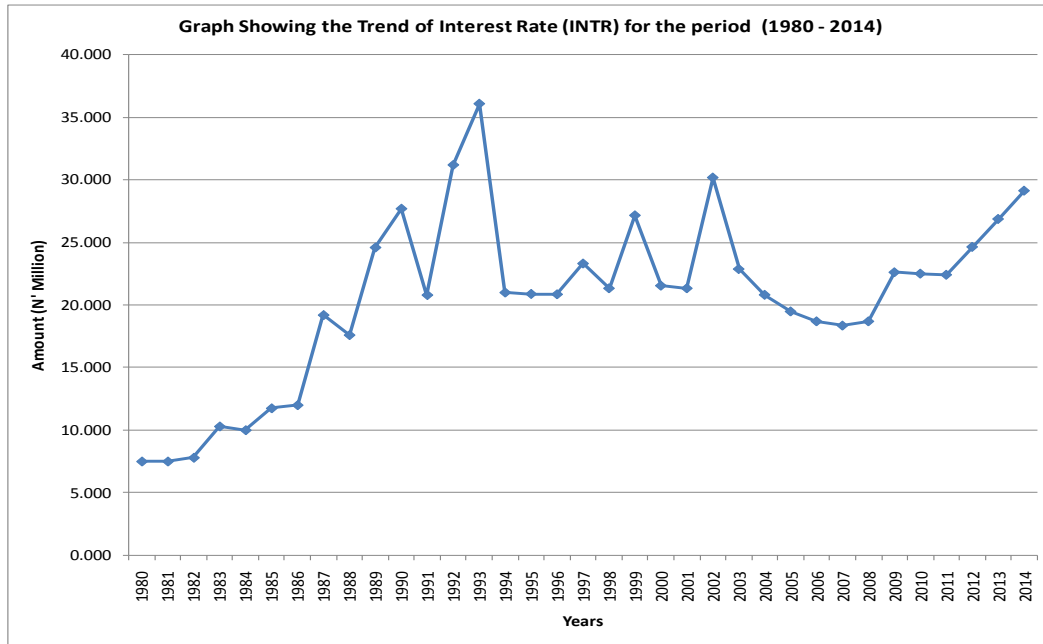
Fig. 5: Line Graph showing Real Gross Domestic Product (RGDP)



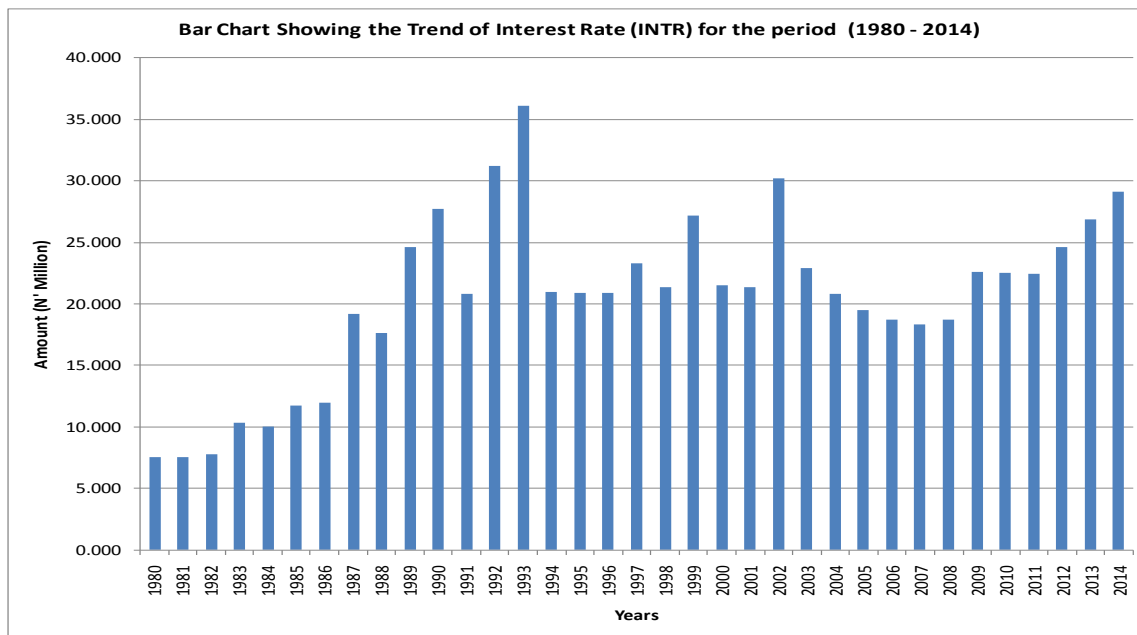
Source: Researcher's Computation

Fig. 6: Bar Chart showing Real Gross Domestic Product (RGDP)

The trend shows fluctuation in Real Gross Domestic Product, it reveals that economic growth fluctuates to negative in 1987 and rises very high in 1985 and 1990. The fluctuation in RGDP has significant effect to the profitability of commercial banks in Nigeria.

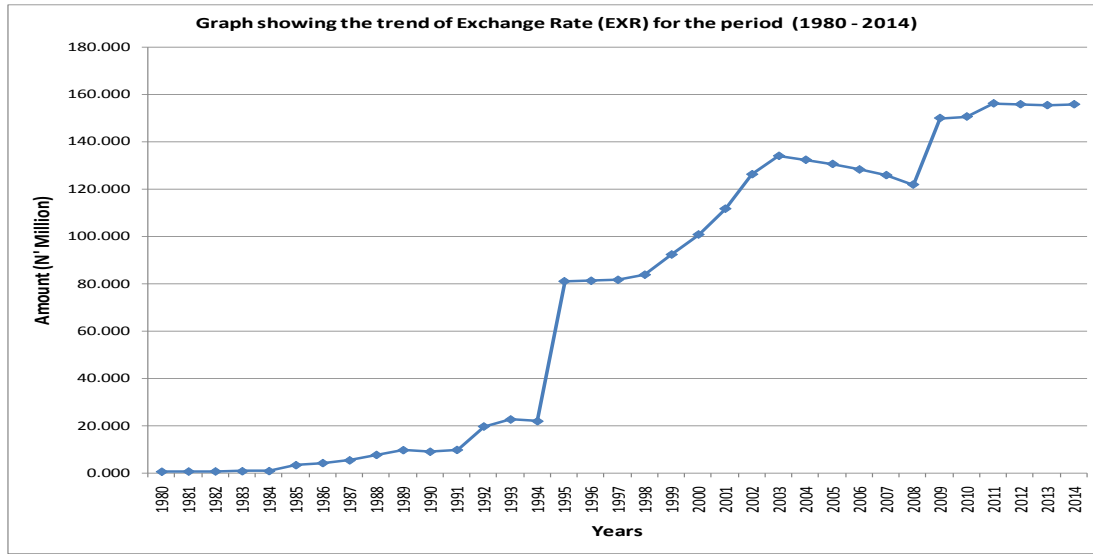


Source: Researcher's Computation
Fig. 7: Line Graph showing Interest Rate (INTR)

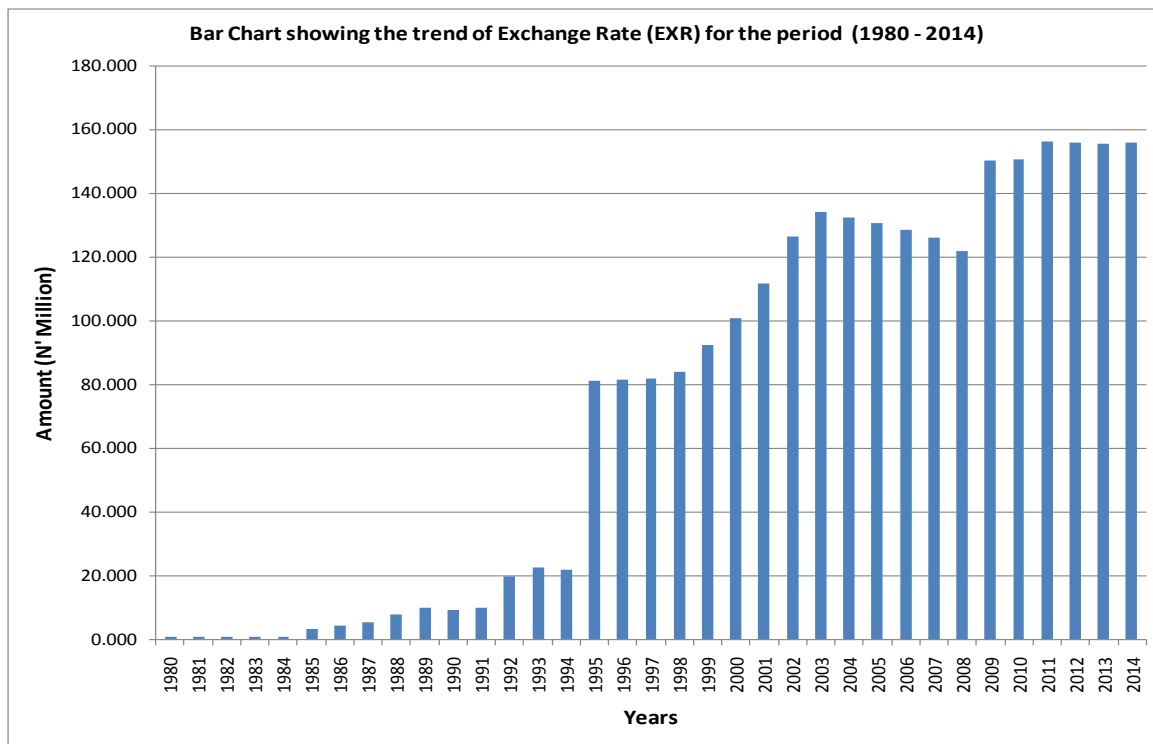


Source: Researcher's Computation
Fig. 8: Bar Chart showing Interest Rate (INTR)

The trend above shows the fluctuations in the values of Interest rate during the period. The fluctuation shows highest value above 35% between 1992 and 1994 but fluctuates below 20% and 25% from 1996 to 2014.

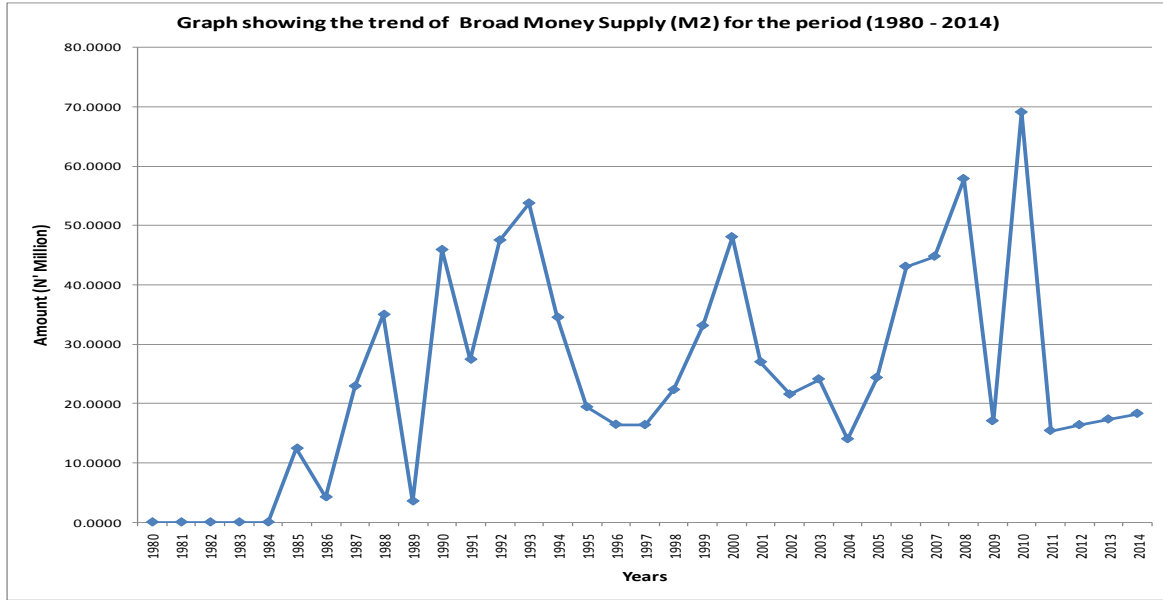


Source: Researcher's Computation
Fig.9: Line Graph showing Exchange Rate (EXR)



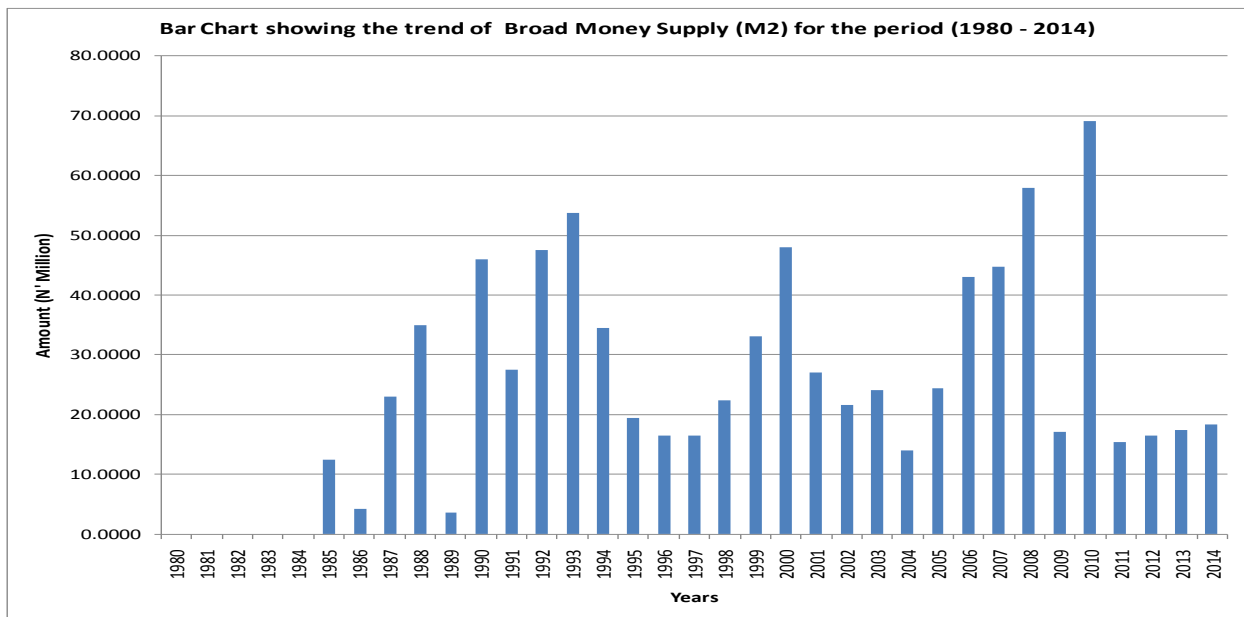
Source: Researcher's Computation
Fig. 10: Bar Chart showing Exchange Rate (EXR)

The trend above shows a steady increase in the value of exchange rate per US dollar. The steady increase revealed the depreciating naira exchange rate per US Dollar. This corresponds with the positive effect of the variables on the dependent variables in the study.



Source: Researcher's Computation

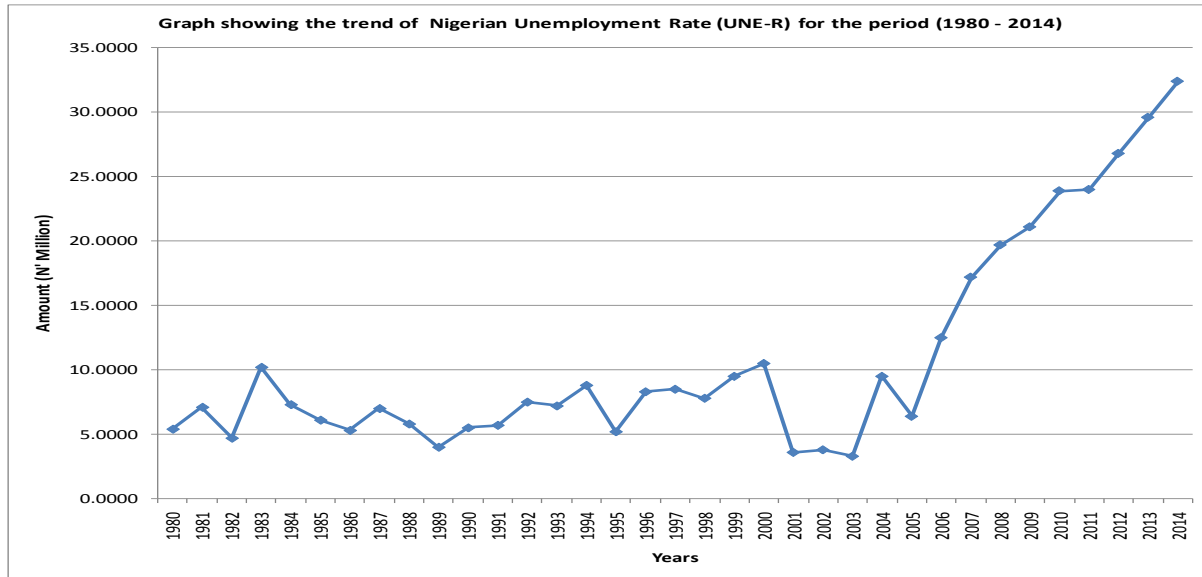
Fig. 11: Line Graph showing Broad Money Supply (M2)



Source: Researcher's Computation

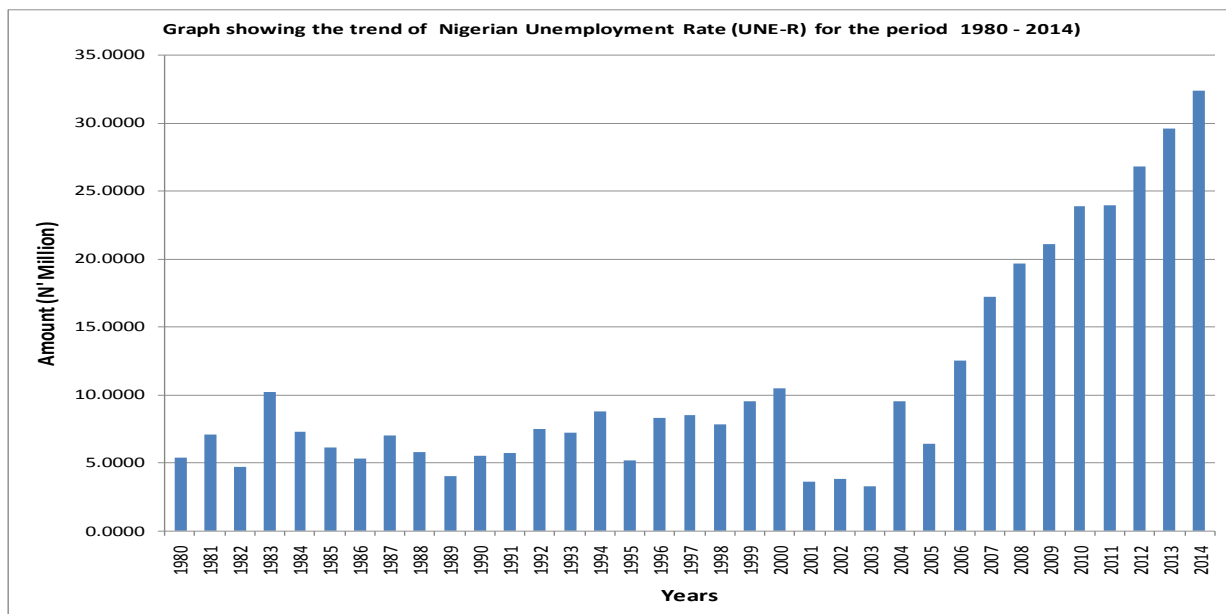
Fig. 12: Bar Chart showing Broad Money Supply (M2)

The trend shows the fluctuations in the value of broad money supply which was at highest in 2011. The increase can be traced to expansionary monetary policy with the objective of achieving growth in Nigerian economy. This explains the positive effect of the variable on the dependent variables in the study.



Source: Researcher's Computation

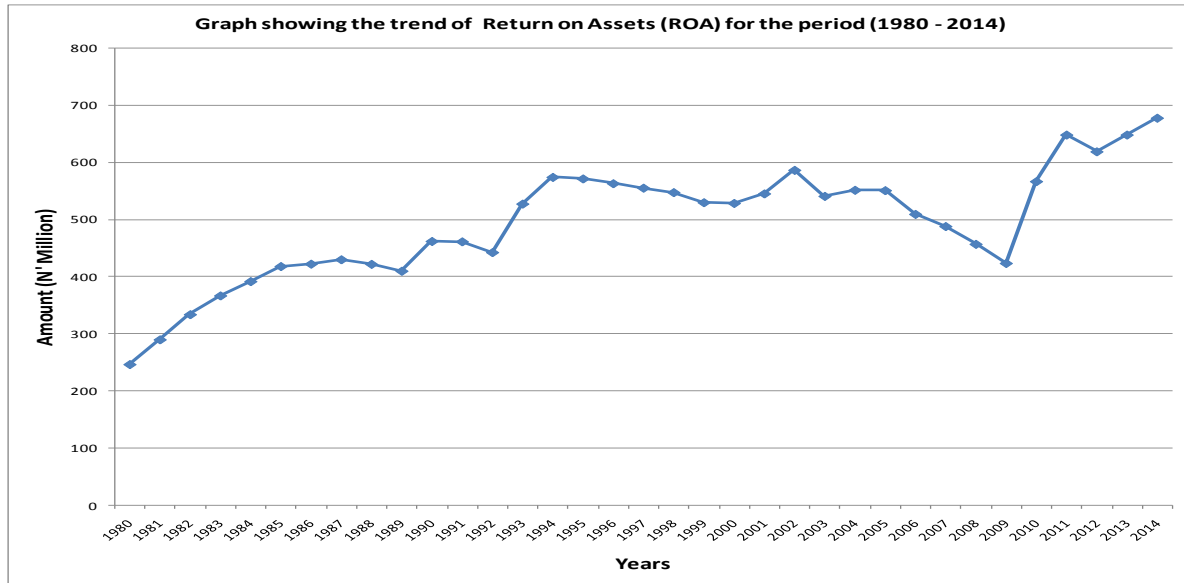
Fig. 13: Line Graph showing Unemployment Rate (UNE-R)



Source: Researcher's Computation

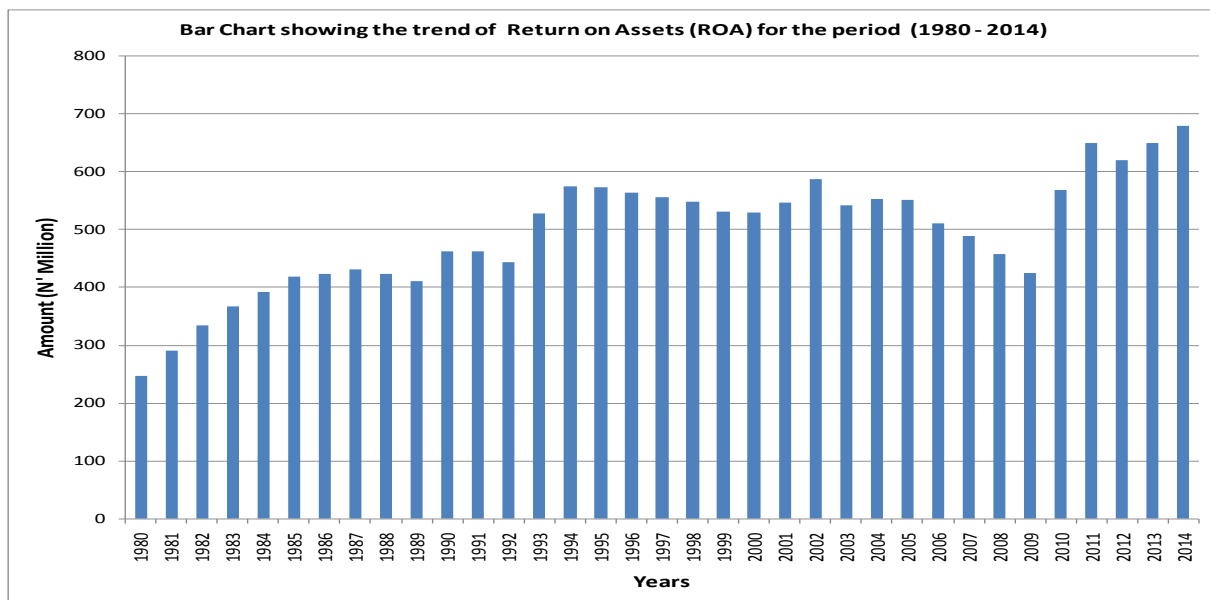
Fig. 14: Bar Chart showing Unemployment Rate (UNE-R)

The trend shows the fluctuation in unemployment rate. In 2001 to 2003, unemployment rate was low and from 2006 it was on a steady increase. This can be traced to inability of monetary policy to achieve full employment which impacted negatively on the performance of the banking sector.



Source: Researcher's Computation

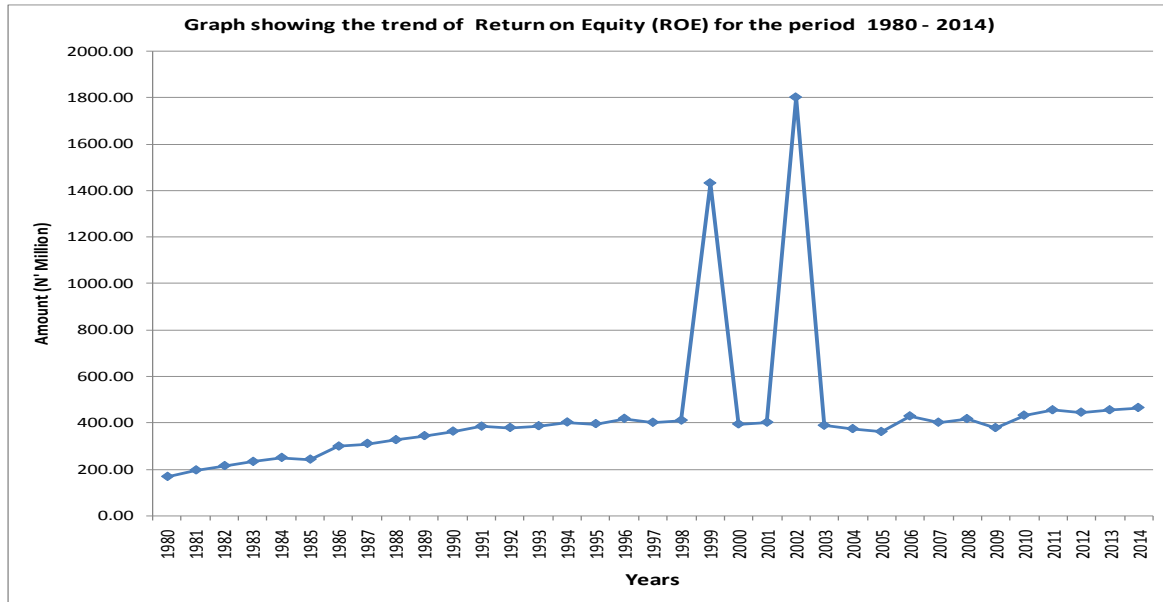
Fig. 15: Line Graph showing Return on Assets (ROA)



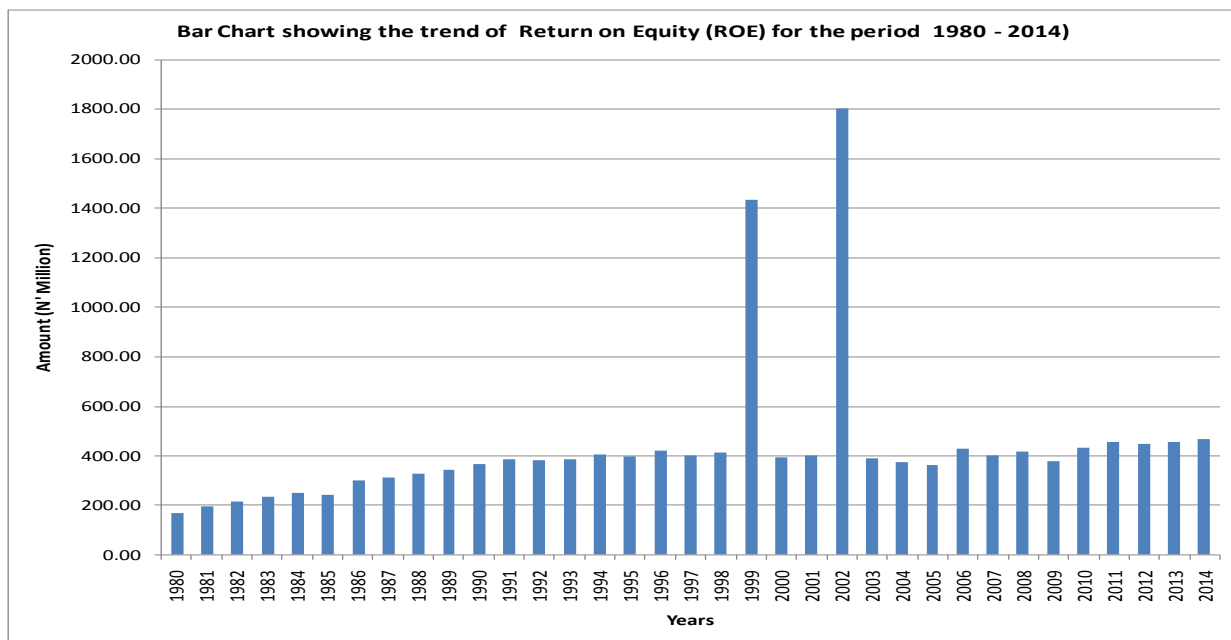
Source: Researcher's Computation

Fig. 16: Bar Chart showing Return on Assets (ROA)

In terms of Return on Assets, it exhibits an irregular shape rising and falling. The trend shows a steady increase between 1980 to 1989 but fluctuates between 400% and above 500% between 1989 and 2014.

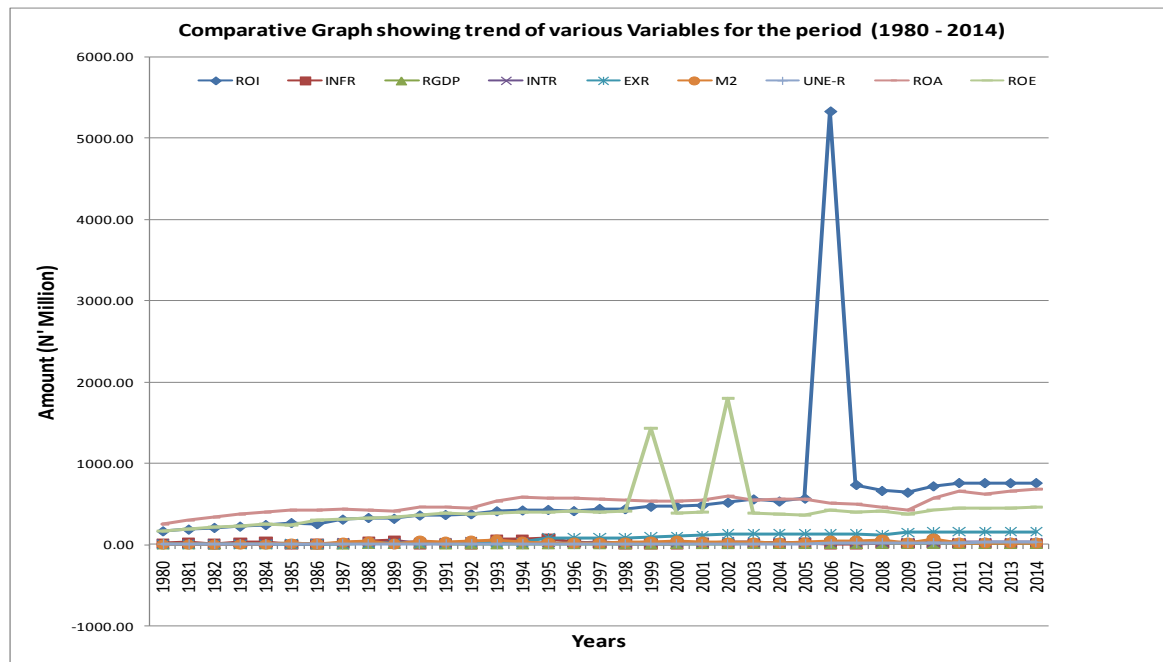


Source: Researcher's Computation
Fig. 17: Line Graph showing Return on Equity (ROE)



Source: Researcher's Computation
Fig. 18 Bar Chart showing Return on Equity (ROE)

The trend above shows the value of Return on Equity. It reveals a steady increase from 1980-1998 and fluctuate all year high between 2002 and 2003; the increase can be traced to multiplier or spillover effect of the universal banking scheme adopted in 2001. The fall can be traced to the capital market crash and the global financial meltdown between the periods.



Source: Researcher's Computation

Fig. 19: Line Graph showing Macroeconomic Variables and Bank performance indices during the period under study

The line graph above exhibit an irregular pattern of rising and falling between the dependent variables of Return on investment, Return on assets and Return on equity while the independent variables are real interest rate, exchange rate, money supply, real gross domestic product, inflation rate and unemployment rate but the dependent variable of Return on assets was at its highest from 2005 to 2007 which be traced to stable macroeconomic variables and other policies frame work put in place. Real gross domestic product also increases reasonably from 1998 to 1999 and fell in 2000 and in 2001 to 2003 appreciated further which can attributed to some of the privatization policies of the federal government in economic management.

ECONOMIC ANALYSES AND PRESENTATION OF RESULTS MODEL I

Dependent Variable: ROI

Method: Least Squares

Sample: 1980 2014

Included observations: 34

Table 4 Level Series OLS Multiple Regression Summary

Results: Model I

| Variable | Coefficien t | Std. Error | t-Statistic | Prob. |
|----------|-----------------|------------|-------------|--------|
| INFR | 0.185944 | 9.527349 | 0.019517 | 0.9846 |
| RGDP | 3.269059 | 51.65207 | 0.063290 | 0.9500 |
| INTR | -41.23145 | 30.74209 | -1.341205 | 0.1915 |
| EXR | 5.822041 | 3.642825 | 1.598222 | 0.1221 |
| M2 | 19.77799 | 11.16906 | 1.770784 | 0.0883 |
| UNE_R | -3.139731 | 29.92686 | -0.104913 | 0.9172 |
| C | 575.1307 | 557.9101 | 1.030866 | 0.3121 |

| | | | |
|--------------------|-----------|-----------------------|----------|
| R-squared | 0.225530 | Mean dependent var | 586.8915 |
| Adjusted R-squared | 0.046806 | S.D. dependent var | 868.5107 |
| S.E. of regression | 847.9412 | Akaike info criterion | 16.50933 |
| Sum squared resid | 18694111 | Schwarz criterion | 16.82677 |
| Log likelihood | -265.4040 | F-statistic | 1.261892 |
| Durbin-Watson stat | 2.346421 | Prob(F-statistic) | 0.308715 |

Source: Extracts From E-View Print out and Author's Computation

The estimated Regression result indicates that R^2 is 22.55% and adjusted R^2 of 4.68% variation on Return on Investment of commercial banks in Nigeria can be explained by macroeconomic variables examined in the study which are inflation rate, exchange rate, rate of broad money supply and unemployment rate, the Durbin Watson statistics was found to be greater than 2.00 which indicate the presence of positive autocorrelation between the variables. The F-statistics is 1.261 which has the probability value of 0.308 and is less than 4.072 critical value of 5% level of significance; that mean the variables are not significant at 5%.we therefore conclude that there is no overall significance relationships between the dependent and independent variables during the period of the study.

However, the positive coefficient of 575.130 as intercept indicates the positive effect of the independent variables at constant inflation rate, RGDP, EXR, M2 have positive effect on ROI with the coefficient of 0.185INFR, 3.269RGDP, 5.822EXR, 19.777M2. This indicates that 1% increase in the variable will lead to 0.85%, 3.26%, 5.8% and 19.7% increase on ROI while unemployment and interest rate have negative effect on ROI such that 1% increase will reduce ROI by 41.23% and 3.13%. This indicates that there may be some degree of time dependence in the level series results which could lead to spurious regression results, suggesting test inconclusive and the need for more rigorous analyses of the stationarity properties of the level series data.

Testing for Stationary Summary Results

Therefore in view of time dependent features of our data at level series results, the variables were tested for unit root test using Augmented Dickey Fuller (ADF) Test.

Table 5: Testing For Unit Root Test (Stationarity Test)

| Variables | ADF Statistics | Critical value at 5% | At 1% | Order of Integration |
|-----------|----------------|----------------------|--------|----------------------|
| ROI | -3.422 | -2.959 | -3.657 | 1(1) |
| INFR | -3.151 | -2.959 | -3.657 | 1(1) |
| RGDP | -3.045 | -2.959 | -3.657 | 1(1) |
| INTR | -2.356 | -2.959 | -3.657 | 1(1) |
| EXR | -0.135 | -2.959 | -3.657 | 1(1) |
| M2 | -2.624 | -2.959 | -3.657 | 1(1) |
| UNE-R | 0.912 | -2.959 | -3.657 | 1(0) |

Source: Extracts From E-View Print out and Author's Computation

The results of the unit root test shows that the null hypothesis of unit root for the time independent variables of a non-stationary nature can be made stationary at the first difference. It also shows that variable is integrated of order 1(1) for all the variables but order 1(0) for only

unemployment rate and return on investment. Therefore have establish the order of integration for the variables the next step is to carry out a co-integration test to determine whether a long run relationship exist between the variables. In this study we adopt co-integration test developed by Johansen (1988).

Sample: 1980 – 2014

Included observations: 31

Test assumption: Linear deterministic trend in the data

Series: ROI INFR RGDP INTR EXR M2 UNE_R

Lags interval: 1 to 1

Table 6: Johansen Co-integration Test Sample 1980 -2014

| Eigenvalue | Likelihood Ratio | 5 Percent Critical Value | 1 Percent Critical Value | Hypothesized No. of CE(s) |
|------------|------------------|--------------------------|--------------------------|---------------------------|
| 0.897464 | 159.4216 | 124.24 | 133.57 | None ** |
| 0.639646 | 88.81777 | 94.15 | 103.18 | At most 1 |
| 0.483934 | 57.17701 | 68.52 | 76.07 | At most 2 |
| 0.430879 | 36.66986 | 47.21 | 54.46 | At most 3 |
| 0.354433 | 19.19631 | 29.68 | 35.65 | At most 4 |
| 0.164495 | 5.629915 | 15.41 | 20.04 | At most 5 |
| 0.001889 | 0.058619 | 3.76 | 6.65 | At most 6 |

Source: Extracts From E-View Print out and Author's Computation

*(**) denotes rejection of the hypothesis at 5%(1%) significance level

L.R. test indicates 1 cointegrating equation(s) at 5% significance level

The results of the Johansen co-integration test shows that we adopt the alternative hypotheses of at most 1 co-integrating equation at the 5% level of significance. This implies that, there is one linear combination of the variables that is stationary in the long run and also confirms the existence of a long-run relationship between the Macroeconomic variables of Interest Rate, Exchange Rate, Broad Money Supply, Real Gross Domestic product, Inflation Rate, Unemployment Rate and Return on investment in Nigeria banks.

Table 7: Normalized Cointegrating Coefficients: 1 Cointegrating Equation(s)

| ROI | INFR | RGDP | INTR | EXR | M2 | UNE_R | C |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|---------|
| 1.000000 | -20.13170 | -12.91593 | 100.1189 | -6.873015 | -47.50288 | -17.97442 | - |
| | | | | | | | 415.565 |
| | | | | | | | 7 |
| | (3.01316) | (15.0673) | (8.45313) | (0.88362) | (3.47482) | (8.03829) | |
| Log likelihood | -814.0144 | | | | | | |

Source: Extracts From E-View Print out and Author's Computation

From the above normalized equation, all the independent variable have a long run negative relationship with return on investment which means that an increase will affect negatively the return on investment as a measure of banks performance in Nigeria but interest rate has a positive relationship with return on investment.

Presentation of Vector Error Correction Model (VECM)

Given that, a long-run equilibrium relationship has been established. Therefore, we estimate the error correction term using the vector error correction model to examine their speed and magnitude at which the long-run equilibrium corrects for disequilibrium.

To further the analysis of the long run relationship, the Return On Investment (ROI) under investigation is then specified in a VECM incorporating a two – period lag residual. The VECM is employed to capture the short-run deviations of the parameters from the long-run equilibrium. The autoregressive distributed lag techniques were used with a maximum lag of 1.

Sample(adjusted): 1980 – 2014
Included observations: 31 after adjusting endpoints
Standard errors & t-statistics in parentheses

Table 8: Presentation of Vector Error Correction Model (VECM)

| | | | | | | |
|---------------------------------|-----------|------------|----------|-----------|----------|-----------|
| C | 159.9869 | -10.15296 | - | -10.77821 | - | 6.821019 |
| | | | 6.318520 | 5.292221 | 13.38803 | |
| | (56.9325) | (26.0080) | (6.48892 | (8.66166 | (26.6398 | (5.97624) |
| | | |) |) |) | |
| | (2.81011) | (-0.39038) | (0.97374 | 0.61099) | 0.50256) | (1.14136) |
| R-squared | 0.930523 | 0.715430 | 0.449365 | 0.745229 | 0.659723 | 0.893062 |
| Adj. R-squared | 0.869731 | 0.466431 | 0.032441 | 0.522303 | 0.361981 | 0.799491 |
| Sum sq. resids | 12685.84 | 2647.366 | 164.7948 | 293.6301 | 1558.788 | 139.7831 |
| S.E. equation | 28.15786 | 12.86314 | 3.209311 | 4.283909 | 9.870372 | 2.955747 |
| F-statistic | 15.30662 | 2.873222 | 0.932667 | 3.342955 | 75.52050 | 13.17559 |
| Log likelihood | -137.2080 | -112.9208 | 69.88316 | 78.83626 | 2.215751 | -67.33172 |
| Akaike | 9.819873 | 8.252952 | 5.476333 | 6.053952 | 7.723296 | 113.6648 |
| AIC | 9.819873 | 8.252952 | 5.476333 | 6.053952 | 7.723296 | 5.311724 |
| Schwarz | 10.51374 | 8.946817 | 6.170198 | 6.747817 | 8.417160 | 8.300952 |
| SC | 10.51374 | 8.946817 | 6.170198 | 6.747817 | 8.417160 | 6.005588 |
| Mean dependent | 498.3555 | 19.09452 | 4.822258 | 20.89839 | 72.90004 | 8.994817 |
| S.D. dependent | 78.01518 | 17.60968 | 3.158487 | 6.198180 | 59.03789 | 24.37561 |
| Determinant Residual Covariance | 1.44E+10 | | | | | 6.600855 |
| Log Likelihood | -670.4630 | | | | | |

| | |
|-----------------------------|----------|
| Akaike Information Criteria | 50.02987 |
| Schwarz Criteria | 54.88692 |

Source: Extracts From E-View Print out and Author's Computation

The ECM inflation model indicates that all the variables are statistically not significant. The finding is supported by the results in RGDP except inflation rate. However, the R^2 of 93.05%, 71.54%, 44.93%, 74.52%, 98.50%, 65.97% and 89.30% indicate the speed of adjustment in variables in the models and the standard deviation is appropriately signed not significant but only unemployment rate is significant.

Sample: 1980 – 2014

Lags: 2

TABLE 9: Pairwise Granger Causality Tests

| Null Hypothesis: | Obs | F-Statistic | Probability |
|-----------------------------------|-----|-------------|-------------|
| INFR does not Granger Cause ROI | 31 | 0.05286 | 0.94862 |
| ROI does not Granger Cause INFR | | 0.16969 | 0.84486 |
| RGDP does not Granger Cause ROI | 31 | 0.61066 | 0.55060 |
| ROI does not Granger Cause RGDP | | 0.23105 | 0.79531 |
| INTR does not Granger Cause ROI | 31 | 0.13969 | 0.87027 |
| ROI does not Granger Cause INTR | | 0.04469 | 0.95637 |
| EXR does not Granger Cause ROI | 31 | 2.48385 | 0.10300 |
| ROI does not Granger Cause EXR | | 0.36118 | 0.70030 |
| M2 does not Granger Cause ROI | 31 | 0.07121 | 0.93145 |
| ROI does not Granger Cause M2 | | 1.65948 | 0.20976 |
| UNE_R does not Granger Cause ROI | 31 | 1.00457 | 0.37998 |
| ROI does not Granger Cause UNE_R | | 4.23129 | 0.02565 |
| RGDP does not Granger Cause INFR | 31 | 4.03260 | 0.02983 |
| INFR does not Granger Cause RGDP | | 1.00595 | 0.37949 |
| INTR does not Granger Cause INFR | 31 | 0.97341 | 0.39114 |
| INFR does not Granger Cause INTR | | 0.46047 | 0.63603 |
| EXR does not Granger Cause INFR | 31 | 1.05005 | 0.36429 |
| INFR does not Granger Cause EXR | | 1.74567 | 0.19437 |
| M2 does not Granger Cause INFR | 31 | 3.07878 | 0.06309 |
| INFR does not Granger Cause M2 | | 0.47342 | 0.62813 |
| UNE_R does not Granger Cause INFR | 31 | 1.13293 | 0.33748 |
| INFR does not Granger Cause UNE_R | | 0.22851 | 0.79730 |
| INTR does not Granger Cause RGDP | 31 | 0.45824 | 0.63741 |
| RGDP does not Granger Cause INTR | | 0.84085 | 0.44274 |
| EXR does not Granger Cause RGDP | 31 | 1.34470 | 0.27815 |
| RGDP does not Granger Cause EXR | | 1.39004 | 0.26697 |
| M2 does not Granger Cause RGDP | 31 | 1.36443 | 0.27322 |

| | | | |
|-----------------------------------|----|---------|---------|
| RGDP does not Granger Cause M2 | | 5.11556 | 0.01338 |
| UNE_R does not Granger Cause RGDP | 31 | 0.89754 | 0.41983 |
| RGDP does not Granger Cause UNE_R | | 1.68743 | 0.20463 |
| EXR does not Granger Cause INTR | 31 | 0.03819 | 0.96258 |
| INTR does not Granger Cause EXR | | 7.13146 | 0.00340 |
| M2 does not Granger Cause INTR | 31 | 1.57256 | 0.22662 |
| INTR does not Granger Cause M2 | | 1.97072 | 0.15963 |
| UNE_R does not Granger Cause INTR | 31 | 1.22541 | 0.31004 |
| INTR does not Granger Cause UNE_R | | 0.10885 | 0.89727 |
| M2 does not Granger Cause EXR | 31 | 5.14129 | 0.01314 |
| EXR does not Granger Cause M2 | | 0.42322 | 0.65936 |
| UNE_R does not Granger Cause EXR | 31 | 0.25768 | 0.77479 |
| EXR does not Granger Cause UNE_R | | 1.50275 | 0.24122 |
| UNE_R does not Granger Cause M2 | 31 | 0.65277 | 0.52893 |
| M2 does not Granger Cause UNE_R | | 0.01517 | 0.98495 |

Sign at 5%

Source: Extracts From E-View Print out and Author's Computation

- H₀₁:** The probability value of 0.94812 and 0.84486 is greater than 0.05 critical probability value therefore inflation does not granger cause ROI and ROI does granger cause inflation.
- H₀₂:** The probability value of 0.55060 and 0.79531 is greater than 0.05 critical probability value therefore RGDP does not granger cause ROI and ROI does granger cause RGDP.
- H₀₃:** The probability value of 0.87027 and 0.95637 is greater than 0.05 critical probability value therefore Interest rate does not granger cause ROI and ROI does granger cause interest rate.
- H₀₄:** The probability value of 0.10300 and 0.70030 is greater than 0.05 critical probability value therefore exchange rate does not granger cause ROI and ROI does granger cause exchange rate.
- H₀₅:** The probability value of 0.93145 and 0.20976 is greater than 0.05 critical probability value therefore broad money supply does not granger cause ROI and ROI does granger cause broad money supply.
- H₀₆:** The probability value of 0.37998 and 0.02565 is greater than 0.05 critical probability value therefore Unemployment rate does not granger cause ROI and ROI does granger cause Unemployment rate.

Economic Analyses and Presentation of Results Model II

Dependent Variable: ROA

Method: Least Squares

Sample: 1980 – 2014

Included observations: 34

**Table 10: Level Series OLS Multiple Regression Summary Results:
II**

| Variable | Coefficien t | Std. Error | t-Statistic | Prob. |
|--------------------|-----------------|-----------------------|-------------|----------|
| INFR | 1.005405 | 0.621733 | 1.617101 | 0.1179 |
| RGDP | -0.779373 | 3.370695 | -0.231220 | 0.8190 |
| INTR | 5.735551 | 2.006158 | 2.858973 | 0.0083 |
| EXR | 1.012179 | 0.237722 | 4.257821 | 0.0002 |
| M2 | -0.171690 | 0.728867 | -0.235557 | 0.8156 |
| UNE_R | -0.799920 | 1.952958 | -0.409594 | 0.6855 |
| C | 296.1249 | 36.40792 | 8.133528 | 0.0000 |
| R-squared | 0.718741 | Mean dependent var | | 484.4070 |
| Adjusted R-squared | 0.653834 | S.D. dependent var | | 94.04929 |
| S.E. of regression | 55.33469 | Akaike info criterion | | 11.05051 |
| Sum squared resid | 79610.11 | Schwarz criterion | | 11.36795 |
| Log likelihood | -175.3334 | F-statistic | | 11.07355 |
| Durbin-Watson stat | 1.220048 | Prob(F-statistic) | | 0.000004 |

Source: Extracts From E-View Print out and Author's Computation

The results shows that, R^2 is 72.0% and adjusted R^2 is 65.0% which explains the variation in Return on assets of commercial banks can be traced to variations in the explanatory variables in the model. The Durbin Watson statistics of 11.073 at the probability value of 0.0000 which shows that the overall model is significant explaining changes on the dependent variable.

In model II, the result shows that inflation rate, interest rate, exchange rate have positive effect on Return on Assets of commercial banks. The positive coefficient of 1.005INFR, 5.735INTR, 1.012EXR shows that ROA will increase by 1.05%, 5.73% and 1.012% with a unit increase in the variables while -0.779RGDP, -0.171M2 and -0.799UNE-R indicate the negative effects of the variables on ROA with negative effect of 0.77%, 0.17% and 0.79%. This indicates that there may be some degree of time dependence in the level series results which could lead to spurious regression results, suggesting test inconclusive and the need for more rigorous analyses of the stationarity properties of the level series data.

Testing for Stationary Summary Results

Therefore in view of time dependent features of our data at level series results, the variables were tested for unit root test using Augmented Dickey Fuller (ADF) Test.

Table 11 Unit Root Testing Summary Results

| Variables | ADF Statistics | Critical value at 5% | At 1% | Order of Integration |
|-----------|-------------------|-------------------------|--------|-------------------------|
| ROA | -2.281 | -2.959 | -3.657 | 1(1) |
| INFR | -3.151 | -2.959 | -3.657 | 1(1) |
| RGDP | -3.045 | -2.959 | -3.657 | 1(1) |
| INTR | -2.356 | -2.959 | -3.657 | 1(1) |

| | | | | |
|-------|--------|--------|--------|------|
| EXR | -0.135 | -2.959 | -3.657 | 1(1) |
| M2 | -2.624 | -2.959 | -3.657 | 1(1) |
| UNE-R | 0.912 | -2.959 | -3.657 | 1(0) |

Source: Extracts From E-View Print out and Author's Computation

The results of the unit root test shows that the null hypothesis of unit root for the time independent variables of a non-stationary nature can be made stationary at the first difference. It also shows that variable is integrated of order 1(1) for all the variables but order 1(0) for only unemployment rate and return on investment. Therefore have establish the order of integration for the variables the next step is to carry out a co-integration test to determine whether a long run relationship exist between the variables. In this study we adopt co-integration test developed by Johansen (1988).

Presentation of Cointegration Result: Model II

Sample: 1980 2012

Included observations: 31

Test assumption: Linear deterministic trend in the data

Series: ROA INFR RGDP INTR EXR M2 UNE_R

Lags interval: 1 to 1

Table 12: Presentation of Cointegration Result: Model II

| | Likelihood d | 5 Percent Critical Value | 1 Percent Critical Value | Hypothesized No. of CE(s) |
|----------|-----------------|--------------------------------|--------------------------------|------------------------------|
| 0.758073 | 138.2321 | 124.24 | 133.57 | None ** |
| 0.670845 | 94.23942 | 94.15 | 103.18 | At most 1 * |
| 0.462842 | 59.79141 | 68.52 | 76.07 | At most 2 |
| 0.422733 | 40.52604 | 47.21 | 54.46 | At most 3 |
| 0.379529 | 23.49305 | 29.68 | 35.65 | At most 4 |
| 0.196456 | 8.697489 | 15.41 | 20.04 | At most 5 |
| 0.059968 | 1.917084 | 3.76 | 6.65 | At most 6 |

Source: Extracts From E-View Print out and Author's Computation

*(**) denotes rejection of the hypothesis at 5%(1%) significance level

L.R. test indicates 2 cointegrating equation(s) at 5% significance level

The results of the Johansen co-integration test shows that we adopt the alternative hypotheses of at most 1 co-integrating equation at the 5% level of significance. This implies that, there is one linear combination of the variables that is stationary in the long run and also confirms the existence of a long-run relationship between the Macroeconomic variables of Interest Rate, Exchange Rate, Broad Money Supply, Real Gross Domestic product, Inflation Rate, Unemployment Rate and Return on assets in Nigeria banks.

Table 13: Normalized Cointegrating Coefficients: (Standard Error in parentheses)

| | | | | | | | |
|------------|---------|---------|---------|---------|----------|---------|---------|
| ROA | INFR | RGDP | INTR | EXR | M2 | UNE_R | C |
| 1.000000 | - | | - | - | | - | - |
| | 3.69585 | 1.88178 | 5.40936 | 1.2888 | 1.614922 | 3.19940 | 236.220 |
| | 8 | 7 | 4 | 37 | | 6 | 2 |
| | (0.5125 | (2.0277 | (1.3121 | (0.1305 | (0.53431 | (1.3529 | |
| | 8) | 3) | 9) | 5) |) | 8) | |
| Log | - | | | | | | |
| likelihood | 717.582 | | | | | | |
| | 7 | | | | | | |

Source: Extracts From E-View Print out and Author’s Computation

From the above normalized equation, all the independent variable have a long run negative relationship with return on assets which means that an increase will affect negatively the return on assets as a measure of banks performance in Nigeria but interest rate has a positive relationship with return on assets.

Presentation of Vector Error Correction Model (VECM)

Given that, a long–run equilibrium relationship has been established. Therefore, we estimate the error correction term using the vector error correction model to examine their speed and magnitude at which the long-run equilibrium corrects for disequilibrium.

To further the analysis of the long run relationship, the Return On Assets (ROA) under investigation is then specified in a VECM incorporating a two – period lag residual. The VECM is employed to capture the short-run deviations of the parameters from the long-run equilibrium. The autoregressive distributed lag techniques were used with a maximum lag of 1.

Sample(adjusted): 1982 – 2014

Included observations: 31 after adjusting endpoints

Standard errors & t-statistics in parentheses

TABLE 14: Presentation of ECM: Model II

| | ROA | INFR | RGDP | INTR | EXR | M2 | UNE_R |
|-----------|-----------|----------|---------|----------|----------|----------|----------|
| C | 159.9869 | - | | - | - | - | |
| | | 10.15296 | 6.31852 | 5.292221 | 10.77821 | 13.38803 | 6.821019 |
| | | 0 | | | | | |
| | (56.9325) | (26.0080 | (6.4889 | (8.66166 | (19.9570 | (26.6398 | (5.97624 |
| | |) | 2) |) |) |) |) |
| | (2.81011) | (- | | (- | (- | (- | |
| | | 0.39038) | (0.9737 | 0.61099) | 0.54007) | 0.50256) | (1.14136 |
| | | 4) | | | | |) |
| R-squared | 0.930523 | | | | | | |
| | | 0.715430 | 0.44936 | 0.745229 | 0.985093 | 0.659723 | 0.893062 |
| | | 5 | | | | | |

| | | | | | | | |
|---------------------------------|-----------|----------|---------|----------|----------|----------|----------|
| Adj. R-squared | 0.869731 | - | | | | | |
| | | 0.466431 | 0.03244 | 0.522303 | 0.972048 | 0.361981 | 0.799491 |
| | | | 1 | | | | |
| Sum sq. resids | 12685.84 | | | | | | |
| | | 2647.366 | 164.794 | 293.6301 | 1558.788 | 2777.539 | 139.7831 |
| | | | 8 | | | | |
| S.E. equation | 28.15786 | | | | | | |
| | | 12.86314 | 3.20931 | 4.283909 | 9.870372 | 13.17559 | 2.955747 |
| | | | 1 | | | | |
| F-statistic | 15.30662 | | | | | | |
| | | 2.873222 | 0.93266 | 3.342955 | 75.52050 | 2.215751 | 9.544222 |
| | | | 7 | | | | |
| Log likelihood | -137.2080 | - | - | - | - | - | - |
| | | 112.9208 | 69.8831 | 78.83626 | 104.7111 | 113.6648 | 67.33172 |
| | | | 6 | | | | |
| Akaike AIC | 9.819873 | | | | | | |
| | | 8.252952 | 5.47633 | 6.053952 | 7.723296 | 8.300952 | 5.311724 |
| | | | 3 | | | | |
| Schwarz SC | 10.51374 | | | | | | |
| | | 8.946817 | 6.17019 | 6.747817 | 8.417160 | 8.994817 | 6.005588 |
| | | | 8 | | | | |
| Mean dependent | 498.3555 | | | | | | |
| | | 19.09452 | 4.82225 | 20.89839 | 72.90004 | 24.37561 | 9.893548 |
| | | | 8 | | | | |
| S.D. dependent | 78.01518 | | | | | | |
| | | 17.60968 | 3.15848 | 6.198180 | 59.03789 | 16.49503 | 6.600855 |
| | | | 7 | | | | |
| Determinant Residual Covariance | | 1.44E+1 | | | | | |
| | | 0 | | | | | |
| Log Likelihood | | - | | | | | |
| | | 670.4630 | | | | | |
| Akaike Information Criteria | | 50.02987 | | | | | |
| Schwarz Criteria | | 54.88692 | | | | | |

Source: Extracts From E-View Print out and Author's Computation

The ECM inflation model indicates that all the variables are statistically not significant, the finding is supported by the results in RGDP except inflation rate. However, the R^2 of 93.05%, 71.54%, 44.93%, 74.52%, 98.50%, 65.97% and 89.30% indicate the speed of adjustment in variables in the models and the standard deviation is appropriately signed not significant but only unemployment rate is significant..

Sample: 1980 – 2014

Lags: 2

TABLE 15: Presentation of Pairwise Granger causality Test: Model II

| Null Hypothesis: | Obs | F-Statistic | Probability |
|-----------------------------------|-----|-------------|-------------|
| INFR does not Granger Cause ROA | 31 | 0.28465 | 0.75459 |
| ROA does not Granger Cause INFR | | 0.13578 | 0.87365 |
| RGDP does not Granger Cause ROA | 31 | 0.16494 | 0.84883 |
| ROA does not Granger Cause RGDP | | 0.24191 | 0.78687 |
| INTR does not Granger Cause ROA | 31 | 2.60026 | 0.09344 |
| ROA does not Granger Cause INTR | | 1.57841 | 0.22544 |
| EXR does not Granger Cause ROA | 31 | 3.52313 | 0.04427 |
| ROA does not Granger Cause EXR | | 1.74200 | 0.19500 |
| M2 does not Granger Cause ROA | 31 | 4.61262 | 0.01930 |
| ROA does not Granger Cause M2 | | 1.09161 | 0.35057 |
| UNE_R does not Granger Cause ROA | 31 | 1.52472 | 0.23652 |
| ROA does not Granger Cause UNE_R | | 1.42770 | 0.25805 |
| RGDP does not Granger Cause INFR | 31 | 4.03260 | 0.02983 |
| INFR does not Granger Cause RGDP | | 1.00595 | 0.37949 |
| INTR does not Granger Cause INFR | 31 | 0.97341 | 0.39114 |
| INFR does not Granger Cause INTR | | 0.46047 | 0.63603 |
| EXR does not Granger Cause INFR | 31 | 1.05005 | 0.36429 |
| INFR does not Granger Cause EXR | | 1.74567 | 0.19437 |
| M2 does not Granger Cause INFR | 31 | 3.07878 | 0.06309 |
| INFR does not Granger Cause M2 | | 0.47342 | 0.62813 |
| UNE_R does not Granger Cause INFR | 31 | 1.13293 | 0.33748 |
| INFR does not Granger Cause UNE_R | | 0.22851 | 0.79730 |
| INTR does not Granger Cause RGDP | 31 | 0.45824 | 0.63741 |
| RGDP does not Granger Cause INTR | | 0.84085 | 0.44274 |
| EXR does not Granger Cause RGDP | 31 | 1.34470 | 0.27815 |
| RGDP does not Granger Cause EXR | | 1.39004 | 0.26697 |
| M2 does not Granger Cause RGDP | 31 | 1.36443 | 0.27322 |
| RGDP does not Granger Cause M2 | | 5.11556 | 0.01338 |
| UNE_R does not Granger Cause RGDP | 31 | 0.89754 | 0.41983 |
| RGDP does not Granger Cause UNE_R | | 1.68743 | 0.20463 |
| EXR does not Granger Cause INTR | 31 | 0.03819 | 0.96258 |
| INTR does not Granger Cause EXR | | 7.13146 | 0.00340 |
| M2 does not Granger Cause INTR | 31 | 1.57256 | 0.22662 |
| INTR does not Granger Cause M2 | | 1.97072 | 0.15963 |
| UNE_R does not Granger Cause INTR | 31 | 1.22541 | 0.31004 |
| INTR does not Granger Cause UNE_R | | 0.10885 | 0.89727 |

| | | | |
|----------------------------------|----|---------|---------|
| M2 does not Granger Cause EXR | 31 | 5.14129 | 0.01314 |
| EXR does not Granger Cause M2 | | 0.42322 | 0.65936 |
| UNE_R does not Granger Cause EXR | 31 | 0.25768 | 0.77479 |
| EXR does not Granger Cause UNE_R | | 1.50275 | 0.24122 |
| UNE_R does not Granger Cause M2 | 31 | 0.65277 | 0.52893 |
| M2 does not Granger Cause UNE_R | | 0.01517 | 0.98495 |

Sign at 5%

Source: Extracts From E-View Print out and Author's Computation

H01: The probability value of 0.75459 and 0.87365 is greater than 0.05 critical probability value therefore inflation does not Granger cause ROA and ROA does granger cause inflation.

H02: The probability value of 0.84883 and 0.78687 is greater than 0.05 critical probability value therefore RGDP does not Granger cause ROA and ROA does granger cause RGDP.

H03: The probability value of 0.09344 and 0.22544 is greater than 0.05 critical probability value therefore Interest rate does not Granger cause ROA and ROA does granger cause interest rate.

H04: The probability value of 0.04427 and 0.19500 is greater than 0.05 critical probability value therefore exchange rate does not Granger cause ROA and ROA does granger cause exchange rate.

H05: The probability value of 0.01930 and 0.35057 is greater than 0.05 critical probability value therefore broad money supply does not granger cause ROA and ROA does Granger cause broad money supply.

H06: The probability value of 0.23652 and 0.25805 is greater than 0.05 critical probability value therefore Unemployment rate does not granger cause ROA and ROA does granger cause Unemployment rate.

Economic Analyses and Presentation of Results Model III

Dependent Variable: ROE

Method: Least Squares

Sample: 1980 – 2014

Included observations: 34

Table 16: Level Series OLS Multiple Regression Summary Results Model III

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|--------|
| | t | | | |
| INFR | 1.005405 | 0.621733 | 1.617101 | 0.1179 |
| RGDP | -0.779373 | 3.370695 | -0.231220 | 0.8190 |
| INTR | 5.735551 | 2.006158 | 2.858973 | 0.0083 |
| EXR | 1.012179 | 0.237722 | 4.257821 | 0.0002 |
| M2 | -0.171690 | 0.728867 | -0.235557 | 0.8156 |
| UNE_R | -0.799920 | 1.952958 | -0.409594 | 0.6855 |

| | | | | |
|--------------------|-----------|-----------------------|----------|--------|
| C | 296.1249 | 36.40792 | 8.133528 | 0.0000 |
| R-squared | 0.718741 | Mean dependent var | 484.4070 | |
| Adjusted R-squared | 0.653834 | S.D. dependent var | 94.04929 | |
| S.E. of regression | 55.33469 | Akaike info criterion | 11.05051 | |
| Sum squared resid | 79610.11 | Schwarz criterion | 11.36795 | |
| Log likelihood | -175.3334 | F-statistic | 11.07355 | |
| Durbin-Watson stat | 1.220048 | Prob(F-statistic) | 0.000004 | |

Source: Extracts From E-View Print out and Author's Computation

From the results above, $R^2 = 71.87\%$ and adjusted R^2 is 65.38% variation in Return on Equity of commercial banks which can be traced to variations in the explanatory variables in the model. The Durbin Watson statistics of 11.073 at the probability of 0.0000 show the overall significant of the variables explaining changes on the dependent variable.

The model result shows that inflation rate, interest rate, exchange rate have positive effect on Return on Assets of Nigerian quoted banks. The positive coefficient of 1.005INFR, 5.735INTR, 1.012EXR shows that ROE will increase by 1.05%, 5.73% and 1.012% with a unit increase in the variables while -0.779RGDP, -0.171M2 and -0.799UNE-R indicate the negative effects of the variables on ROE with negative effect of 0.77%, 0.17% and 0.79%. This indicates that there may be some degree of time dependence in the level series results which could lead to spurious regression results, suggesting test inconclusive and the need for more rigorous analyses of the stationarity properties of the level series data.

Testing for Stationary Summary Results

Therefore in view of time dependent features of our data at level series results, the variables were tested for unit root test using Augmented Dickey Fuller (ADF) Test.

Table 4.17: Unit Root Test Summary Results for Model III

| Variables | ADF Statistics | Critical value at 5% | At 1% | Order of Integration |
|-----------|----------------|----------------------|--------|----------------------|
| ROE | -2.281 | -2.959 | -3.657 | 1(1) |
| INFR | -3.151 | -2.959 | -3.657 | 1(1) |
| RGDP | -3.045 | -2.959 | -3.657 | 1(1) |
| INTR | -2.356 | -2.959 | -3.657 | 1(1) |
| EXR | -0.135 | -2.959 | -3.657 | 1(1) |
| M2 | -2.624 | -2.959 | -3.657 | 1(1) |
| UNE-R | 0.912 | -2.959 | -3.657 | 1(0) |

Source: Extracts From E-View Print out and Author's Computation

The results of the unit root test shows that the null hypothesis of unit root for the time independent variables of a non-stationary nature can be made stationary at the first difference. It also shows that variable is integrated of order 1(1) for all the variables but order 1(0) for only unemployment rate. Therefore having establish the order of integration for the variables the next step is to carry out a co-integration test to determine whether a long run relationship exist between the variables. In this study we adopt co-integration test developed by Johansen (1988).

Presentation of Co-integration Result: Model III

Sample: 1980 – 2014

Included observations: 31

Test assumption: Linear deterministic trend in the data

Series: ROE INFR RGDP INTR EXR M2 UNE_R

Lags interval: 1 to 1

Table 18 Presentation of Co-integration Result: Model III

| Eigenvalue | Likelihood Ratio | 5 Percent Critical Value | 1 Percent Critical Value | Hypothesized No. of CE(s) |
|------------|------------------|--------------------------|--------------------------|---------------------------|
| 0.758073 | 138.2321 | 124.24 | 133.57 | None ** |
| | 94.23942 | 94.15 | 103.18 | At most 1 * |
| D 0.670845 | | | | |
| 0.462842 | 59.79141 | 68.52 | 76.07 | At most 2 |
| 0.422733 | 40.52604 | 47.21 | 54.46 | At most 3 |
| 0.379529 | 23.49305 | 29.68 | 35.65 | At most 4 |
| 0.196456 | 8.697489 | 15.41 | 20.04 | At most 5 |
| 0.059968 | 1.917084 | 3.76 | 6.65 | At most 6 |

Source: Extracts From E-View Print out and Author's Computation

*(**) denotes rejection of the hypothesis at 5%(1%) significance level

L.R. test indicates 2 cointegrating equation(s) at 5% significance level

The results of the Johansen co-integration test shows that we adopt the alternative hypotheses of at most 1 co-integrating equation at the 5% level of significance. This implies that, there is one linear combination of the variables that is stationary in the long run and also confirms the existence of a long-run relationship between the Macroeconomic variables of Interest Rate, Exchange Rate, Broad Money Supply, Real Gross Domestic product, Inflation Rate, Unemployment Rate and Return on Equity in Nigeria banks.

Table 19 Presentation of Normalized cointegration Result (Co-efficient in parentheses

| ROE | INFR | RGDP | INTR | EXR | M2 | UNE_ R | C |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|----------|
| 1.000000 | - | - | - | - | 1.614922 | - | - |
| | 3.695858 | 1.881787 | 5.409364 | 1.288837 | | 3.199406 | 236.2202 |
| | | | | | (0.53431) | | |
| | (0.51258) | (2.02773) | (1.31219) | (0.13055) | | (1.35298) | |
| Log likelihood | - | | | | | | 717.5827 |

Source: Extracts From E-View Print out and Author's Computation

From the above normalized equation, all the independent variable have a long run negative relationship with return on equity which means that an increase will affect negatively the return

on equity as a measure of banks performance in Nigeria but Real Gross Domestic Product (RGDP) has a positive relationship with return on equity.

Presentation of Vector Error Correction Model (VECM)

Given that, a long-run equilibrium relationship has been established. Therefore, we estimate the error correction term using the vector error correction model to examine their speed and magnitude at which the long-run equilibrium corrects for disequilibrium.

To further the analysis of the long run relationship, the Return on Equity (ROE) under investigation is then specified in a VECM incorporating a two – period lag residual. The VECM is employed to capture the short-run deviations of the parameters from the long-run equilibrium. The autoregressive distributed lag techniques were used with a maximum lag of 1.

Sample(adjusted): 1980 – 2014

Included observations: 31 after adjusting endpoints

Standard errors & t-statistics in parentheses

Table 20: Presentation of Error Correction Model: Model III

| | ROE | INFR | RGDP | INTR | EXR | M2 | UNE_R |
|----------------|----------|------------|----------|----------|------------|------------|-----------|
| C | | -10.15296 | | - | -10.77821 | -13.38803 | 6.821019 |
| | 159.9869 | | 6.318520 | 5.292221 | | | |
| | | (26.0080) | | | (19.9570) | (26.6398) | (5.97624) |
| | (56.9325 | | (6.48892 | (8.66166 | | | |
| |) | |) |) | | | |
| | | (-0.39038) | | (- | (-0.54007) | (-0.50256) | (1.14136) |
| | (2.81011 | | (0.97374 | 0.61099) | | | |
| |) | |) | | | | |
| R-squared | | 0.715430 | | | 0.985093 | 0.659723 | 0.893062 |
| | 0.930523 | | 0.449365 | 0.745229 | | | |
| Adj. R-squared | | 0.466431 | - | | 0.972048 | 0.361981 | 0.799491 |
| | 0.869731 | | 0.032441 | 0.522303 | | | |
| Sum sq. resids | | 2647.366 | | | 1558.788 | 2777.539 | 139.7831 |
| | 12685.84 | | 164.7948 | 293.6301 | | | |
| S.E. equation | | 12.86314 | | | 9.870372 | 13.17559 | 2.955747 |
| | 28.15786 | | 3.209311 | 4.283909 | | | |
| F-statistic | | 2.873222 | | | 75.52050 | 2.215751 | 9.544222 |
| | 15.30662 | | 0.932667 | 3.342955 | | | |
| Log likelihood | - | -112.9208 | - | - | -104.7111 | -113.6648 | -67.33172 |
| | 137.2080 | | 69.88316 | 78.83626 | | | |
| Akaike AIC | | 8.252952 | | | 7.723296 | 8.300952 | 5.311724 |
| | 9.819873 | | 5.476333 | 6.053952 | | | |
| Schwarz SC | | 8.946817 | | | 8.417160 | 8.994817 | 6.005588 |
| | 10.51374 | | 6.170198 | 6.747817 | | | |
| Mean dependent | | 19.09452 | | | 72.90004 | 24.37561 | 9.893548 |
| | 498.3555 | | 4.822258 | 20.89839 | | | |
| S.D. dependent | | 17.60968 | | | 59.03789 | 16.49503 | 6.600855 |
| | 78.01518 | | 3.158487 | 6.198180 | | | |

| | |
|----------------------|-----------|
| Determinant Residual | 1.44E+10 |
| Covariance | |
| Log Likelihood | -670.4630 |
| Akaike Information | 50.02987 |
| Criteria | |
| Schwarz Criteria | 54.88692 |

Source: Extracts From E-View Print out and Author's Computation

The ECM inflation model indicates that all the variables are statistically significant; the finding is supported by the results in RGDP and unemployment rate except inflation rate, exchange rate and interest rate. However, the R^2 of 93.05%, 71.54%, 44.93%, 74.52%, 98.50%, 65.97% and 89.30% indicate the speed of adjustment in variables in the models and the standard deviation is appropriately signed not significant but only unemployment rate is significant..

Table 21: Presentation of Granger Causality Result: Model III

Sample: 1980 – 2014

Lags: 2

| Null Hypothesis: | Obs | F-Statistic | Probability |
|-----------------------------------|-----|-------------|-------------|
| INFR does not Granger Cause ROE | 31 | 0.28465 | 0.75459 |
| ROE does not Granger Cause INFR | | 0.13578 | 0.87365 |
| RGDP does not Granger Cause ROE | 31 | 0.16494 | 0.84883 |
| ROE does not Granger Cause RGDP | | 0.24191 | 0.78687 |
| INTR does not Granger Cause ROE | 31 | 2.60026 | 0.09344 |
| ROE does not Granger Cause INTR | | 1.57841 | 0.22544 |
| EXR does not Granger Cause ROE | 31 | 3.52313 | 0.04427 |
| ROE does not Granger Cause EXR | | 1.74200 | 0.19500 |
| M2 does not Granger Cause ROE | 31 | 4.61262 | 0.01930 |
| ROE does not Granger Cause M2 | | 1.09161 | 0.35057 |
| UNE_R does not Granger Cause ROE | 31 | 1.52472 | 0.23652 |
| ROE does not Granger Cause UNE_R | | 1.42770 | 0.25805 |
| RGDP does not Granger Cause INFR | 31 | 4.03260 | 0.02983 |
| INFR does not Granger Cause RGDP | | 1.00595 | 0.37949 |
| INTR does not Granger Cause INFR | 31 | 0.97341 | 0.39114 |
| INFR does not Granger Cause INTR | | 0.46047 | 0.63603 |
| EXR does not Granger Cause INFR | 31 | 1.05005 | 0.36429 |
| INFR does not Granger Cause EXR | | 1.74567 | 0.19437 |
| M2 does not Granger Cause INFR | 31 | 3.07878 | 0.06309 |
| INFR does not Granger Cause M2 | | 0.47342 | 0.62813 |
| UNE_R does not Granger Cause INFR | 31 | 1.13293 | 0.33748 |
| INFR does not Granger Cause UNE_R | | 0.22851 | 0.79730 |
| INTR does not Granger Cause RGDP | 31 | 0.45824 | 0.63741 |
| RGDP does not Granger Cause INTR | | 0.84085 | 0.44274 |

| | | | |
|-----------------------------------|----|---------|---------|
| EXR does not Granger Cause RGDP | 31 | 1.34470 | 0.27815 |
| RGDP does not Granger Cause EXR | | 1.39004 | 0.26697 |
| M2 does not Granger Cause RGDP | 31 | 1.36443 | 0.27322 |
| RGDP does not Granger Cause M2 | | 5.11556 | 0.01338 |
| UNE_R does not Granger Cause RGDP | 31 | 0.89754 | 0.41983 |
| RGDP does not Granger Cause UNE_R | | 1.68743 | 0.20463 |
| EXR does not Granger Cause INTR | 31 | 0.03819 | 0.96258 |
| INTR does not Granger Cause EXR | | 7.13146 | 0.00340 |
| M2 does not Granger Cause INTR | 31 | 1.57256 | 0.22662 |
| INTR does not Granger Cause M2 | | 1.97072 | 0.15963 |
| UNE_R does not Granger Cause INTR | 31 | 1.22541 | 0.31004 |
| INTR does not Granger Cause UNE_R | | 0.10885 | 0.89727 |
| M2 does not Granger Cause EXR | 31 | 5.14129 | 0.01314 |
| EXR does not Granger Cause M2 | | 0.42322 | 0.65936 |
| UNE_R does not Granger Cause EXR | 31 | 0.25768 | 0.77479 |
| EXR does not Granger Cause UNE_R | | 1.50275 | 0.24122 |
| UNE_R does not Granger Cause M2 | 31 | 0.65277 | 0.52893 |
| M2 does not Granger Cause UNE_R | | 0.01517 | 0.98495 |

Sign at 5%

Source: Extracts From E-View Print out and Author's Computation

H01: The probability value of 0.75459 and 0.19500 is greater than 0.05 critical probability value therefore inflation does not Granger cause ROE and ROE does granger cause inflation.

H02: The probability value of 0.84883 and 0.78687 is greater than 0.05 critical probability value therefore RGDP does not Granger cause ROE and ROE does granger cause RGDP.

H03: The probability value of 0.09344 and 0.22544 is greater than 0.05 critical probability value therefore Interest rate does not Granger cause ROE and ROE does granger cause interest rate.

H04: The probability value of 0.04427 and 0.19500 is greater than 0.05 critical probability value therefore exchange rate does not Granger cause ROE and ROE does granger cause exchange rate.

H05: The probability value of 0.01930 and 0.35057 is greater than 0.05 critical probability value therefore broad money supply does not granger cause ROE and ROE does Granger cause broad money supply.

H06: The probability value of 0.23652 and 0.25805 is greater than 0.05 critical probability value therefore Unemployment rate does not granger cause ROE and ROE does granger cause Unemployment rate.

Discussion of Findings

The objective of this study was to examine the relationship between macroeconomic variables and the profitability performance of Nigerian quoted banks. Model I found that inflation rate, RGDP, Exchange rate and broad money supply have positive effect on Return on investment of Nigerian quoted banks while interest rate and unemployment rate have negative effect on return on assets.

Model II found that inflation rate, interest rate, exchange rate has positive effect on Return on assets while RGDP, broad money supply and unemployment has negative effect on the Return on assets of quoted Nigerian banks. Model III found that inflation rate, interest rate, exchange rate have positive effect on Return on equity while RGDP, M2 and unemployment has negative effect on Return on equity.

The positive effect of inflation rate confirms the a-priori expectation of the result and the value of money which stated that N1,000 today is greater than N1,000 tomorrow. The positive effect of Exchange rate, interest rate, broad money supply on the dependent variables inn the model confirms the a-priori expectation of the result in the study. The variables are expected to have a positive effect on the profitability of deposit money banks. Increase in money supply increase banks earnings assets and widen its investment for profitability. Increase in RGDP is denote a healthy economy for the better performance of the business organizations. This finding confirms the early warning signal theory of bank assets.

However, the negative effect of RGDP on Return on assets and equity is contrary to the expectation of result. The variable is expected to have a positive effect on the profitability performance of the banks. The negative effect can be traced to macroeconomic instability. The finding confirms Toby (2008) that the banking crisis of the 1990s was traced to macroeconomic instability and high risk concentration of the banks. Furthermore, the negative effect of Broad money supply on Return on equity of the banks is also contrary to the expectation of the result and the theories of monetary policy. The negative effect can be traced to monetary policy shocks such as the withdrawal of all public sector deposits from the banking sector in 1992 and the reserve of 75% of public sector deposit in the banking sector to control inflation in 2012.

The negative effect of unemployment rate on the performance of Nigerian banks confirms the a-priori expectation of the rate. Increase in unemployment constrains flow of income and deposit mobilization for investment by the banking sector. This finding confirms the economic wide indicators of bank distress.

Summary

1. Inflation rate was found to have negative effect on return on investment but positive effect on return on assets and return on equity.
2. Real gross domestic product was found to have positive and insignificant effect on return on investment but negative and insignificant effect on return on assets and return on capital employed.
3. Interest rate was found to have negative and insignificant effect on return on investment but positive and significant effect on return on assets and return on equity.

4. Exchange rate was found to have positive and insignificant effect on return on investment but positive and significant effect on return on assets and return on equity.
5. Broad money supply was found to have positive and insignificant effect on return on investment but negative and insignificant effect on return on assets and return on equity.
6. Unemployment rate was found to have negative and insignificant effect on return on investment, return on assets and return on equity.

Conclusion

From the findings in the study, the following conclusions were drawn;

1. Inflation rate have negative and insignificant effect on return on investment but positive and insignificant effect on return on assets and return on equity.
2. Real gross domestic product have positive and insignificant effect on return on investment but negative and insignificant effect on return on assets and return on capital employed.
3. Interest rate have negative and insignificant effect on return on investment but positive and significant effect on return on assets and return on equity.
4. Exchange rate have positive and insignificant effect on return on investment but positive and significant effect on return on assets and return on equity.
5. Broad money supply have positive and insignificant effect on return on investment but negative and insignificant effect on return on assets and return on equity.
6. Unemployment rate have negative and insignificant effect on return on investment, return on assets and return on equity.

Recommendations

From the conclusions above, the study makes the following recommendations:

1. Macroeconomic policies should be overhauled and the profitability objectives of the deposit money banks be integrated to leverage the negative effect of the macroeconomic variables on the profitability of the quoted deposit money banks.
2. Macroeconomic policies of economic growth should be well planned to achieve economic growth that will affect positively the profitability of the deposit money banks.
3. Interest rate should properly be structured to have a positive effect on the profitability of

the deposit money banks.

4. The Nigerian exchange rate should properly be managed to enhance the profitability of Nigerian banking sector.
5. There should be guided expansionary monetary policy that will increase bank investment profile to increase profitability of the deposit money banks.
6. Macroeconomic policies of full employment should properly be implemented to reduce unemployment for better profitability of the deposit money banks.

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