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MACROECONOMIC VOLATILITY AND BANK PERFORMANCE IN NIGERIA

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Abstract

This study examined the impact of macroeconomic volatility on banks performance in Nigeria using quarterly data from the year 1999 to 202 using the Auto-Regressive Conditional Heteroscedasticity (ARCH) Model. Relevant descriptive and econometrics analyses were employed. The result revealed that the macroeconomy, interest rate, exchange rate, bank performance in Nigeria all have moderate volatility within the period under consideration. T**he macroeconomy, *****interest rate, exchange rate, have all have positive significant impact on bank performance in Nigeria. The study concluded that bank performance will only be stable after 2 quarters volatility in the macroeconomy, interest rate and exchange rate. The study recommended that for sustainable improvement in the performance of deposit money banks to be achieved, government should embark on policies that would increase productivity in the the macroeconomic of Nigeria. Furthermore, an optimum interest and exchange rates policies should constantly be engendered by the monetary authority in Nigeria for deposit money banks improved performance.***

Introduction

The impact of macroeconomic variables on bank performance in Nigeria cannot be overemphasized. Deposit money Banks play a vital role in the growth of an economy. They act as financial intermediaries between the surplus and the deficit in an economy as well as

a key source of financing businesses. Banks help in the growth and development and also mobilize funds to various productive activities. When banks fail in their financial intermediation function, we expect decline in economic growth and development. Poor banking performance will also result in bank failures and financial crises like those witnessed during the global financial crisis that began in 2007 (Olokoyo, Ibhagui, Babajide, Yinka-Banjo 2019).

However, the performance of banks is contingent on several factors. In specific terms, how well the banking system performs can be affected by both internal and external factors. The internal factors majorly entail the competition among banks while the external factors include the financial and macroeconomic conditions surrounding a country. Overall, how well banks can compete are mainly driven by their capacity to innovate. Based on casual observations, one would observe that the fortunes of the economy are correlated with bank performance. To put simply, banking sector performed better in the period of sustained economic stability.

In Nigeria, the broader economic environment has been characterized by declining Gross Domestic Product (GDP) growth rates, falling oil prices, rising inflation, unpredicting interest rates and exchange rates, uncoordinated fiscal and monetary policies and a depreciating currency. All these are factors that are external to the banks' operations. They therefore have little or no control over them with its attendant impact on bank performance (Osamwonyi and Micheal 2014).

The macroeconomic environment where the Nigerian banking industry operates has in recent times not been favorable which impedes the performance of banks in Nigeria. GDP growth rate consistently declined after the last quarter of 2013. From 6.77%, it declined to 5.94% in 2014, further declined to 2.11% in the fourth quarter of 2015 and experienced negative growth through 2016 (-0.36, -2.06, -2.24 and -1.3 in the first, second, third and fourth quarters respectively) (CBN 2015). Economic recession was confirmed in the second quarter of 2016 which worsened even in the fourth quarter.

The negative growth rate of output was attributed to problems negatively affecting it from increasing levels of prices, fluctuations in interest rates and exchange rate. In terms of gross domestic product contribution, the banking sector only contributes 2.63% (CBN 2015). These unfavorable macroeconomic developments may result to great problems in banking industry when the management deeds are far-off reflecting the recurring nature of the economy in its decisions. It is therefore imperative to empirically examine the effect of macroeconomic volatility on bank performance in Nigeria.

This study examines the impact of macroeconomic volatility and bank performance in Nigeria from 1999 to 2021. 1999 was chosen because it marks the year Nigeria returned to democracy leaving the military regime behind. 2021 was chosen because of the availability of data. This study covers the space of 23 years {i.e., from 1999 - 2021} to investigate the impact of macroeconomic volatility on bank performance in Nigeria.

This study is divided into five separate chapters. Chapter one presents the background to the study, statement of research problem, research objectives, research questions, research hypothesis, scope of the study and plan of the study. Chapter two presents the review of extant literature on impact of macroeconomic volatility on bank performance in Nigeria. The third chapter presents the research methodology while chapter four presents' results interpretations. Chapter five provides the summary, recommendations and conclusion.

Literature Review

Macroeconomy is concerned with aggregate activities, the gross domestic product (GDP), interest rates, exchange rates, inflation rates, unemployment, wages, and trade. Gross domestic product (GDP) is a monetary measure of the market value of all the final goods and services produced and sold (not resold) in a specific time by countries. Due to its complex and subjective nature, this measure is often revised before being considered a reliable indicator. GDP (Nominal) per capita does not, however, reflect differences in the cost of living and the inflation rates of the countries; therefore, using a basis of GDP per capita at purchasing power parity (PPP) may be more useful when comparing living standards between nations, while nominal GDP is more useful in comparing national economies on the international market. Total GDP can also be broken down into the contribution of each industry or sector of the economy.

Interest rate is the percentage of the principal which is paid as a fee over a given period. It may as well be described as a lease payment for the use of credits by borrowers and return to get rid of liquidity by lenders over time. The interest rates may be expressed in nominal or real terms depending on whether or not changes in price levels (inflation) are taken into account in their calculations. Osiegbu and Onuorah (2012) posit that the exchange rate plays a key role in international economic transactions because no nation can remain in isolation due to varying factor endowment. Movements in the exchange rate have ripple effects on other macroeconomic variables such as output, interest rate, inflation rate, import, export, etc.

These facts underscore the importance of the exchange rates to the economic well-being of every country that opens its doors to international trade in goods and services. An exchange rate system can also be fixed or allowed to fluctuate (Asher, 2012). A fixed exchange rate is a system in which a country's exchange rate remains constant or stays within some small margin of fluctuation around a constant par value. On the other hand, the floating exchange rate which is our concern in this study) is an exchange rate system with no government or central bank action to keep it stable (Black 2003). With floating rates external shocks especially foreign trade shocks are less disruptive and monetary policy is more effective in influencing aggregate demand (Pugel, 2007), hence economic growth is achieved.

Macroeconomic volatility is the instability in the values of an economic variable and its equilibrium value, it is a major obstacle to growth. Measuring macroeconomic volatility involves evaluating the deviation between the values of an economic variable and its equilibrium value. This equilibrium value, or reference value, in turn, refers to the existence of a permanent state or trend. In statistical terms, economic volatility is traditionally measured by the second (standard deviation) or sometimes a higher moment. (Rancière et al, 2008), of the distribution of a variable around its mean or a trend, which then represents the equilibrium value (to which the variable tends to return quickly after deviating in response to a shock). It is frequent for macroeconomic series (GDP, interest rate, exchange rate, inflation rate, wages, trade, export revenues, final consumption) to be "non-stationary", i.e. they fluctuate around a trend which itself varies over time, or for shocks to make the variable deviate from its previous tendency over the long term or permanently.

An assessment of bank performance as noted by Ojo (1992), poses some difficulties because of the nature of bank objectives (often conflicting) against which an assessment has to be made. In assessing the performance of a bank, therefore, apart from considering quantitative factors, some other qualitative factors have to be considered as well. In

evaluating the performance of banks, some basic indicators can be used. Typical examples are the use of ratios and trend analysis, Capital Adequacy, Asset Quality, Earnings, and Liquidity. Apart from these quantitative factors, some qualitative indicators can be used. Some of these include the quality of management in the industry, the degree of compliance by banks with applicable banking laws and regulations (e.g. Monetary and Credit Policy Guidelines), as well as banking services to the economy.

The theoretical literature suggests that there are four possibilities regarding the causal relationship between financial development and economic growth (Apergis, Filippidis & Economidou, 2007). The supply-leading response hypothesis, argues that financial development causes economic growth. The "finance-led growth theory" argues that the existence of the financial sector, as well-functioning financial intermediations in channeling the limited resources from surplus units to deficit units would provide efficient allocation of resources thereby leading the other economic sectors in their growth process. Indeed, several studies have argued that the development of the financial sector has significantly promoted economic development.

The demand-following response posits that economic growth causes financial development by stimulating demand for financial services that are passively met by the introduction of new financial institutions (Odhiambo, 2010). The growth-led-finance states that high economic growth creates demand for certain financial instruments and arrangements and the financial markets are effectively responding to these demands and changes. The impact of economic growth on financial development has been documented in Robinson (1952) and Romer (1990), among others.

The 'feedback' hypothesis asserts that a country with a well-developed financial system could promote high economic expansion through technological changes, product, and service innovation. This, in turn, will create a high demand for financial arrangements and services (Levine, 1997). As banking institutions, effectively respond to these demands, these changes will ultimately stimulate higher economic performance. Therefore, both financial development and economic growth are interdependent and their relationship could lead to feedback causality. The "no-causal relationship hypothesis", which argues that there is no clear-cut causal relationship between financial development and economic growth (Graff, 1999; Lucas 1988), rejecting the existence of a finance-growth relationship, arguing, 'economists badly overstress the role of finance in economic growth'.

Past literature on the relationship between GDP, interest rate, exchange rate, and bank performance in Nigeria revealed conflicting and inconclusive results, while some expressed significant relationships, others expressed insignificant relationships among the variables employed in this study. Several studies showed a positive relationship between GDP, interest rate or exchange rate, and bank performance, while others still showed negative relationship.

Yusuf (2020), indicates that the exchange rate has no significant effect on the Return on Assets (ROA) and Return on Capital Employed (ROCE). Olokoyo, Ibhagui, Babajide, and Yinka-Banjo (2019) examined the macroeconomic determinants of bank performance in Nigeria using autoregressive-distributive lag (ARDL) test approach to co-integration analysis, revealing that growth and trade promote bank performance as against high-interest rate which impedes bank performance. Okeibuno, Kenneth, and Clement (2018) analyzed the relationship between financial sector development and Nigerian macroeconomic performance using annual time series spanning from 1970 to 2015 and vector autoregressive (VAR) framework, showing that financial depth and stability measures have a

positive effect on economic growth while private sector credit and lending-deposit spread had negative effects on economic growth.

Osamede (2018) posited that macroeconomic performance positively impacts the financial performance of the Nigerian banking industry. Uriel and Folorunsho (2017) study on the impact of macroeconomic variables (Gross domestic product growth, Inflation, and Crude oil price) on banks' profitability indicated that the ratio of cost-to-income market concentration and crude oil price is negatively significant in determining changes in return on average equity.

Methodology

The Auto-Regressive Conditional Heteroscedasticity (ARCH) models by Engle (1892), was employed with relevant statistical technique. The model for this study assumes an underlying relationship between some macroeconomic variables that can affect banks' performance variable. Given the macroeconomic nature of gross domestic product (GDP), other macroeconomic variables can be brought in.

Model Specification

This study builds on the econometric model of Olokoyo et al., (2019). By modifying their model and considering other variables the following model was specified:

BPV = F(MV)

Where;

BPV (Bank performance variable) is a vector of ROA

MV (Macroeconomic variables) is a vector of GDPG, INT, EXR.

Where;

ROA= Return on Assets

GDPG = Gross Domestic Product Growth

INT = Interest Rate

EXR = Exchange Rate

The above can be rewritten implicitly as;

ROA= F(GDPG, INT, EXR, e) ---------- (1)

The explicit form of equation (1) is represented as:

$ROA_t = \beta_0 + \beta_1 GDPG_{t-q} + \beta_2 INT_{t-q} + \beta_3 EXR_{t-q} + e_t$ ---------- (2)

e = error term or stochastic element.

β_0 = constant/ intercept

$\beta_1, \beta_2, \beta_3$= coefficient of independent variables

t = current period

t-q = the lag advised by lag length criteria

Estimation Technique

1. Discussion of Findings

The study, primarily, centered on the investigation on macroeconomic volatility and bank performance in Nigeria. The macroeconomic variables that were considered were the gross domestic growth rate, interest rate and exchange rate as they are volatile variables and they influence the level of deposit money banks performance.

The analysis includes description of data, the trend analysis, the correlation analysis, unit root test, and the estimation of ARCH Model which include the Lagrange Multiplier Test. The descriptive statistics result revealed that the mean value of ROA of deposit money banks in Nigeria during the period (1999Q1 – 2021Q4) was 2.23%, peaked at 7.56% and

lowest value at 0.05%. This indicated that ROA of deposit money banks in Nigeria fluctuated during the period. GDP level averaged 5.38% with maximum and minimum values of 15.19% and -2.19% respectively. The interest rate averaged 5.78% during the period and stood at maximum level of 19.42%. Lastly, exchange rate in Nigeria stood at average of N184.94 during the period. The exchange rate reached the peak level of N431.24 during the period and recorded the minimum value of N151.53 during the period of 1999 to 2021.

The correlation result revealed that there is an insignificant positive relationship between ROA (Return on asset) and GDP (Gross domestic product growth rate) which shows that as ROA is changing, GDP is also changing in the same direction by 0.309477. In other words as the economy grows by approximately 31 percent, the ROA of deposit money banks also grows in the same direction by 31 percent. There is an insignificant negative relationship between ROA and INT (Interest rate) showing a very weak negative correlation of -0.04886 during the period of study. EXR (Exchange rate) shows an insignificant positive correlation of 0.183428 with ROA.

From the variance equation of the ARCH Result, the ARCH coefficient of 0.054753, which is significant at 5% suggests that RGDP, INT, EXR, ROA in Nigeria all have average volatility within the period under consideration. Since ROA and GDP have a positive and significant relationship, a rise in GDP banks' performance. This implies that changes in GDP will simulate significant positive changes in ROA in Nigeria. Similarly, INT and ROA have a significant positive relationship, a rise in interest rate increases the profitability of banks based on the findings of this study. This finding is not in tandem with economic theory. This implies that changes or adjustments in the interest rate would bring about significant changes in banks' profitability.

Given a positive and significant relationship between EXR and ROA, a rise in EXR would significantly improve the performance of banks in Nigeria. This implies that adjustment in macroeconomic variables would significantly impact the performance of banks in Nigeria.

Conclusions and Recommendations

The trend analysis shows that the GDP and INT has a similar trend and highly fluctuated during the period and at times recorded a negative growth. The trend analysis further revealed that exchange rate and bank profitability measured by return on investment have a similar trend. They were highly volatile and recorded no negative growth during the period of study. The macroeconomy, interest rate, exchange rate and bank in Nigeria all have average volatility within the period under consideration.

From the ARCH result the macroeconomy, interest rate and exchange rate volatility contributes significantly and positively to the performance of deposit money banks. This implies that a positive increase in the the gross domestic product,interest rate and exchange rate will result in a positive increase in bank performance . This means that increase in these variables will lead to improvement in deposit money banks performance in Nigeria.

To improve the overall performance of deposit money banks in Nigeria, government should embark on policies that would increase the growth and stability of the macroeconomy. For sustainable improvement in the performance of deposit money banks to be achieved, an appropriate interest rate regime must be instituted by the central bank of Nigeria. The implication of this is that there should be regular interest rate adjustment for the interest on deposits to encourage customers' deposits and promote credit creation. The

improvement in macroeconomic stability will engender financial stability, stable foreign exchange rate in that will bosst Nigerian banks international competitiveness.

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