

# MACROECONOMIC INDICATORS AND COMMERCIAL BANKS' RISK ASSETS CREATION IN NIGERIA

*Asekome, Mike Ozemhoka, PhD Candidate*

Lecturer, Department of Economics, Banking and Finance,  
Benson Idahosa University, Benin City, Nigeria

*Agbonkhese, Abraham Oni, PhD*

Lecturer, Department of Economics and Development Studies,  
Igbinedion University, Okada, Nigeria

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## Abstract

The study attempts to empirically determine the effects of macroeconomic indicators/variables on risk assets creation in Nigeria from 1981 to 2011. The econometric technique explored is the Ordinary Least Square (OLS) method. From the empirical result, all the variables of interest were in tandem with theoretical expectations except gross domestic product. This may be attributable to inconsistencies in macroeconomic policies of government or policy makers. Similarly, considering the t-values, all the variables were statistically significant as well except capacity utilization of industries. This may not be unconnected with capacity under utilization that has bedeviled the manufacturing industry over the years. One of the policy recommendations is the need for banks to reduce their lending rate. High lending rate has not been helpful to the real sectors as it tends to discourage credit to the productive sectors of the economy. Also, macroeconomic policies that promote low inflation, low interest rate, favourable and stable exchange rate and enhance capacity utilization of industries should be formulated as this will boost credit expansion, increase returns and profitability of commercial banks and this will in turn trickle down on the economy positively.

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**Keywords:** Macroeconomic Indicators, Commercial Banks, Risk Assets Creation and Nigeria

## Introduction

The relevance of loans and advances cannot be over-emphasized in the capacity of commercial banks to contribute to the growth of the economy as well as the profitability of banks. One of the economic parameters for

measuring bank performance in the area of economic growth is the ratio of credit to the private sector to gross domestic product (GDP). The higher it is, the higher the contribution to the growth of the economy as credit to the private sector helps to generate employment, production of goods and services, generation of foreign exchange earnings as well as promotion of investment to the productive/real sector of the economy.

However, the higher the risk coefficient associated with the macroeconomic variables such as interest rates, exchange rates, inflation and low capacity utilization of industries, the lower the banks positive attitude or determination to create risk assets. Risk assets such as loans and advances are a major source of banks earnings through net interest incomes. Similarly, the lower the banks positive attitude in generating risk assets, the lower the profitability of banks hence there could be a relationship not only between total risk assets generated and macroeconomic variables, but as well as between total risk assets generation, profitability and returns to shareholders wealth as well as to economic growth. During economic recession, loan default could be more rampant resulting from low quality of assets, high non-performing risk assets that may result in huge loan losses and thus reduction in bank profitability (Awojori and Amel, 2011). Awojori and Amel (2011) posited that banks objectives are closely related to profitability, growth in assets and customer base. They added that profitability depends on the quality of repriceable assets and liabilities and that net worth growth depends greatly on total assets and liabilities of the banks.

The asset pricing model (APM) in which arbitrage pricing theory (APT) is of considerable relevance can be used to assess the effect of macroeconomic variables on commercial bank behaviour towards creating risk asset portfolio (Loans and other interest earning assets). Developed by Ross (1976), the APT has been used severally in the literature to address the extent to which risk associated multifactor variables is reflected to stock returns (Adeleke, 2009; Chen, Roll, and Ross, 1986). Most studies on the effect of macroeconomic variables on financial market returns have been in the area of capital markets. This is because of the growing awareness of the importance of capital markets in developing countries. This study attempts to empirically determine the effects of macroeconomic variables on risk assets creation by commercial banks in Nigeria.

### **Overview of Nigerian Macroeconomic Environment**

Nigeria is Africa's second largest economy in terms of gross domestic product (GDP) and second only to South Africa. GDP growth has averaged 6-7% since 2003. Per capita GDP has improved from under \$700 in 2004 to \$1,418 by December 2009 reflecting economic growth, but wealth distribution is heavily skewed with 54% of the population classified as living

below the poverty line (CBN, Annual Reports, 2011). Furthermore, the macroeconomic picture is weakened by a dependency on oil which provides over 75% of the national budget and over 90% of export earnings. In addition, GDP growth is disproportionately based on oil export; un-modernised agriculture and trading; with manufacturing now contributing less than 4% of national output. The major constraint to manufacturing is power - national power generation is around 3,700 MW versus possible demand in excess of 20,000 MW (including suppressed demand).

After robust economic growth over the past decade – averaging about 7.5% growth – the Nigerian economy slowed down from 7.4% growth in 2011 to 6.6% in 2012. The oil sector continues to drive the economy, with average growth of about 8.0%, compared to -0.35% for the non-oil sector (CBN, Annual Reports, 2011). Fiscal management has aimed at ensuring macroeconomic stability. The fiscal policy stance is geared toward fiscal consolidation and inclusive growth, with the fiscal deficit set within the threshold of 3.0% of GDP after 2010. The share of recurrent expenditure in the total budget decreased from 74.4% in 2011 to 71.4% in 2012 and 68.7% in 2013, while the share of capital expenditure increased from 25.6% in 2011 to 28.6% in 2012 and 31.3% in 2013 (CBN, Annual Reports, 2012). The steady increase in the share of capital expenditure is expected to lead to an improvement in physical infrastructure and provide a firmer platform for future growth.

Monetary policy has focused on an objective of single digit inflation, with monetary tightening since 2011. After a steady decline in inflation to 10.3% in December 2011, it jumped to 12.6% in January 2012 as a result of the partial removal of the fuel subsidy. Three measures were taken in January 2012 to reduce inflationary pressures: the Monetary Policy Rate (MPR) of the Central Bank was increased from 6.25% to 12.0%, the Cash Reserve Requirement (CRR) was increased from 1.0% to 8.0% and the Liquidity Ratio (LR) was increased from 25.0% to 30.0%. Growth in money supply has also been sluggish. (CBN, Annual Reports, 2012). The relatively high inflation has contributed to high interest rates. Banks in Nigeria raised their maximum lending rates from 22% - 23% to 25% - 27% in May 2012, attributing the move to high operating costs occasioned by decaying infrastructure.

From the foregoing, this study aims at determining the effects of macroeconomic indicators on commercial banks risk assets creation in Nigeria. The gap identified here which precipitated this research work is that most studies in this area looked at macroeconomic indicators as it affects stock market returns and banks performance which bothers on profitability. The study covers a period of 31 years from 1981 to 2011 and relied on secondary data as sources of data.

## **Literature Review**

The etymology of the word “Risk” can be traced to the Latin word “Rescum” meaning Risk at Sea or that which cuts (Raghavan, 2003). Risk simply implies a possibility of unexpected outcome. It creates the notion that future events may have some degree of uncertainty, thereby exposing an institution to adversity. From Emmett (1997) definition, it is clear that risk is a condition of the real world; it crafts from an undesirable event. Undesirable event in this context is described as an adverse deviation from a desired outcome that is expected and hoped for.

As it is the major goal of a firm to maximize benefits from cash flows and market status, managers usually achieve their objective through series of activities ranging from product sales, deposit acceptance, provision of funds to clients, amongst others. For as long as profit is a goal, risk is inevitable for financial institutions. The difference in taking reasonable risk is the key to financial firms’ profitability and asset growth. Risk permeates everything they do (Casserley, 1991). At the core of this, scholars are in accordance with the fact that risk in financial institutions cannot be fully eliminated. Berger et al. (2004), argue that banks may be faced with increasing demand for loans during economic expansion, but restrain supply during recession to avoid possible losses caused by economic downturn. In times of economic recession, loan defaults are more common. In this case, solvency position of a bank may be threatened because assets not performing in due course take recourse to the capital of the bank. Koehn and Santomero (1980), Kim and Santomero (1988) and Athanasoglou et al. (2005), suggest that bank risk taking has pervasive effects on bank profits and safety. Bobakovia (2003) asserts that the profitability of a bank depends on its ability to foresee, avoid and monitor risks, possible to cover losses brought about by risk arisen. This has the net effect of increasing the ratio of sub-standard credits in the bank’s credit portfolio and decreasing the bank’s profitability (Mamman and Oluyemi, 1994). Owojori et al (2011), highlighted that available statistics from the liquidated banks clearly showed that inability to collect loans and advances extended to customers and directors or companies related to directors/managers was a major contributor to the distress of the liquidated banks. At the height of the distress in 1995, when 60 out of the 115 operating banks were distressed, the ratio of the distressed banks’ non-performing loans and leases to their total loans and leases was 67%. The ratio deteriorated to 79% in 1996; to 82% in 1997; and by December 2002, the licences of 35 of the distressed banks had been revoked. In 2000 for instance, the ratio of non-performing loans to total loans of the industry had improved to 21.5% and as at the end of 2001, the ratio stood at 16.9%. In 2002, it deteriorated to 21.27%, 21.59% in 2003, and in 2004, the ratio was 23.08% (NDIC Annual Reports- various issues).

In a collaborative study by the Central Bank of Nigeria (CBN) and the Nigeria Deposit Insurance Corporation (NDIC) in 1995, operators of financial institutions confirmed that bad loans and advances contributed most to the distress. In their assessment of factors responsible for the distress, the operators ranked bad loans and advances first, with a contribution of 19.5%. In 1990, the CBN issued the circular on capital adequacy which relate banks' capital requirements to risk-weighted assets. It directed the banks to maintain a minimum of 7.25 percent of risk-weighted assets as capital; to hold at least 50 percent of total components of capital and reserves; and to maintain the ratio of capital to total risk-weighted assets at a minimum of 8 percent from January, 1992.

Ogunlewe (2001) in a study of the monetary policy influence of banks' profitability, using data from Nigerian banks found the determinants of bank profitability to include reserve ratio, permissible credit growth, stabilization securities and exchange rate. Uchendu (1995) investigated the effect of monetary policies on the performance of Nigerian commercial banks. He found that whether you use all banks data, six banks or the then three large banks' data, the dominant factors influencing bank profitability are interest rates, exchange rate, bank reserves, banking structure and unit labour costs, particularly when return on capital is used as measure of profitability. He concluded that stable and realistic monetary and banking policies are important for the profitability of commercial banking business in Nigeria. Ahmad (2003) reported that interest on loan is the largest constituent of income for Nigerian banks as evidenced from available data and that movement from one interest regime to another could have some effects on the profitability of banks in the system.

Ahmed, Takeda and Shawn (1998) in their study found that loan loss provision has a significant positive influence on non-performing loans. Therefore, an increase in loan loss provision indicates an increase in credit risk and deterioration in the quality of loans consequently affecting bank performance adversely.

### **Theoretical Framework and Methodology**

The theory of asset pricing is concerned with explaining the price of financial assets in an uncertain world. The uncertainty is described by probability distributions, which can be understood as beliefs of economic agents. The theory of asset pricing studies both the valuation of risk and the structure of these beliefs themselves, which are disciplined by the market arbitragers. The asset pricing model (APM) in which asset pricing theory (APT) is of considerable relevance can be used to assess the effect of macroeconomic variables on commercial bank behaviour towards creating risk asset portfolio (Loans and other interest earning assets). Developed by

Ross (1976), the APT has been used severally in the literature to address the extent to which risk associated multifactor variables is reflected to stock returns (Adeleke, 2009; Chen, Roll, and Ross, 1986). This study benefits greatly from the work of the aforementioned authors.

**Methodology and Model Specification**

The research method adopted in this study is the Ordinary Least Squares (OLS). The need for this technique is that, it is used to estimate the parameters of a single – equation model. Besides, the estimator yields estimates that are best, linear, and unbiased estimators (BLUE) with the desirable properties of consistency, efficiency and being unbiased. However, these properties are made possible after all the assumptions of the OLS method have been fulfilled. The research will rely mainly on secondary data. The data sources include: Central Bank of Nigeria (CBN) Annual Reports and Statement of Accounts, and Statistical Bulletins of various issues.

**Model Specification**

From the research methodology, our model shall contain risk assets creation (RAC), which represents the total risk assets of commercial banks as the dependent variable; while gross domestic product (GDP), money supply (M<sub>2</sub>), exchange rate (EXR), lending rate (LR), capacity utilization (CAU), and inflation (INF) are the independent variables.

Therefore, the equation specified for estimation is in the following functional form:

$$RAC = f(GDP, M_2, EXR, LR, CAU, INF) \dots\dots\dots (3.1)$$

Equation (3.1) can be transformed into an econometric model as follows:

$$RAC = \beta_0 + \beta_1GDP + \beta_2M_2 + \beta_3EXR - \beta_4LR + \beta_5CAU - \beta_6INF + \varepsilon .. (3.2)$$

Where:  $\beta_0$  = Intercept;  $\beta_1 - \beta_6$  = Coefficients of the regressors as defined above;  $\varepsilon$  = Error term.

**A Priori :**  $\beta_1, \beta_2, \beta_3, \beta_5 > 0$ ;  $\beta_4, \beta_6 < 0$  .

**Analysis of Estimation Result**

After estimation, the next important step in empirical econometrics is the interpretation of the regression results. This enables the researcher to assess how successful the estimation exercise was and hence, judge the usefulness of the estimated coefficients for policy analysis. Interpretation of regression results of this nature will be holistic, covering economic theory, statistical analysis and econometric issues. The result is, however, summarized in table 4.1 below.

## Regression Result

The dependent variable is risk assets creation (LNRAC) and 31 observations used for estimation from 1981 – 2011.

Table 4.1

Variable	Coefficient	t-statistic
C	1.476	2.441
LNGDP	- 0.127	- 1.744
LN $M_2$	1.060	15.521
LNEXR	0.128	3.054
LNEXR	- 0.164	- 1.777
LNCAU	0.085	1.024
LNINF	- 0.069	- 3.148

$R^2 = 0.9989$ , F-Statistic = 3813.773, DW-Statistic = 1.905

Source: Authors' Estimation, 2013.

From the above table, we attempt to examine the joint impact of gross domestic product (GDP), money supply ( $M_2$ ), exchange rate (EXR), lending rate (LR), capacity utilization (CAU), and inflation (INF) on risk assets creation (RAC) which represents the total risk assets of commercial banks. It is apparent that a-priori, all the coefficients of the explanatory variables have the correct signs as expected and in conformity with the theoretical expectations; except gross domestic product which carried a negative sign instead of a positive one. This may be attributable to inconsistencies in macroeconomic policies on the part of policy makers. In a nutshell, all the independent variables have a positive impact on risk assets creation (RAC) except GDP.

The result further shows that all the regressors: GDP,  $M_2$ , EXR, LR, CAU and INF were able to explain about 100 percent ( $R^2 = 0.9989$ ) of the systemic variations in risk assets creation (RAC) during the period under review from 1981 to 2011. Testing for the overall level of statistical significance and using the F-statistic of 3813.77, it is indeed significant at the one (1) percent level, which is an indication that there is a significant linear relationship between the six regressors and the dependent variable used.

As regards the t-values, all the coefficients of gross domestic product (GDP), money supply ( $M_2$ ), exchange rate (EXR), lending rate (LR) and inflation (INF) were statistically significant at the five (5) percentage level of significance, except capacity utilization (CAU) that was not significant even at the ten (10) percent level. This may not be unconnected with the fact that, there has been capacity under utilization in the manufacturing industry over the years. It can, therefore, be said that all the variables mentioned above have significant impact on risk assets creation (RAC) in Nigeria, contrary to

capacity utilization (CAU) which has no significant relationship or positive impact on risk asset creation. The Durbin Watson (DW) statistic of 1.905, however, suggests that autocorrelation is highly minimized. Therefore, we can make valid prediction(s) with the equation.

Finally, the findings in this study indicate that (i) a unit increase in gross domestic product would reduce risk assets creation by about 0.13 units. (ii) A unit increase in money supply will result to about 1.06 units increase in risk assets creation. (iii) A unit increase in exchange rate will lead to about 0.13 units increase in risk assets creation. Similarly, (iv) A unit increase in the lending rate will reduce risk assets creation by about 0.16 units. (v) A unit increase in capacity utilization will increase risk assets creation by about 0.09 units, while (vi) A unit increase in inflation rate will bring about 0.07 reduction in risk assets creation.

### **Implications of findings**

The result of the study has important implication(s) for the management of banks, policy makers and regulators in Nigeria. Management need to be cautious in setting up a credit policy that will not negatively affects profitability and also they need to know how credit policy affects the operation of their banks to ensure judicious utilization of deposits and maximization of profit which should have a positive impact on the economy.

### **Conclusion and Policy Recommendations**

The relevance of loans and advances cannot be over-emphasized in the capacity of commercial banks to contribute to the growth of the economy as well as the profitability of banks. The higher the risk coefficient associated with the macroeconomic variables such as interest rates, exchange rates, inflation and low capacity utilization of industries, the lower the banks positive attitude or determination to create risk assets. The study attempts to empirically examine the effects of macroeconomic variables on risk assets creation in Nigeria. From the empirical result, all the variables of interest were in tandem with theoretical expectations except gross domestic product. Considering the t-values, all the variables were statistically significant as well except capacity utilization of industries.

The policy implications of this study include the need for banks to reduce their lending rate. This could be achieved by exploring strategies that could reduce operational cost of deposit attraction as well as diversifying the sources of the various sources of deposits. High lending interest rates could reduce borrowers capacity to absorb credit. It is recommended that macroeconomic policies that could promote lending rates such as apex low monetary policy rate (MPR), low rate of inflation, stable exchange rate and output growth should be formulated as these would boost credit expansion



and invariably returns and profitability of commercial banks that could impact on the economy positively.

Sustainable macroeconomic policies that could promote sustained growth, conducive and business friendly environment that could as well enhance capacity utilization of industries should be encouraged to allow for high level of credit demand and absorption in the economy. Banks should endeavour to improve on their internal operational efficiency and productivity in deploying both human and financial capital in generating and managing well diversified risk assets portfolio to ensure that both interest sensitive risk assets and liabilities are utilized towards maximizing returns.

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