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Effect of Selected Macroeconomic Variables on Banking Sector Interest Rate Spread in Nigeria (1981-2016).

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### ABSTRACT

This study examined the macroeconomic variables that affect banking sector interest rate spread in Nigeria using time series data form 1981-2016. The specific objectives of the study are: to investigate the effect of exchange rate on interest rate spreads in Nigeria, to ascertain the effect of inflation on interest rate spreads in Nigeria, to explore the effect of financial depth on interest rate spreads in Nigeria, and to investigate the effect of monetary policy rate on interest rate spreads in Nigeria. An ex post facto research designs were employed in analyzing the objectives. Base on the regression result, the study found that; exchange rate has a positive and significant relationship with interest rate spread in the long and short run. Inflation in the long run does not have positive and significant effect on interest spread in Nigeria, while the reverse is the case in the short run where inflation has significant effect on interest spread in Nigeria both in long and short run. Monetary policy rate as one of the strong monetary instrument designed to influence interest rate spread in positive and significant effect on interest rate spread in Nigeria both in long and short run. Monetary policy rate as one of the strong monetary instrument designed to influence interest rate spread in positive direction had positive and significant effect on interest rate spread in Nigeria both in long and short run given the empirical result obtained in this study.

Keywords: Macroeconomics, interest rate, inflation and monetary policy.

### INTRODUCTION

Part of the objectives of the financial sector reforms was to promote savings and lending through lower margin between deposit rate and lending rate. This is predicated on the understanding that liberalization enhances competition and efficiency in financial sector Bank credit to enterprises generate [1]. economic growth and employment. There is no economy that can grow without creating and proper channelling of credit to the enterprises to operate as funding is key to every business [2]. Banking reforms and various bank programmes undertaken by stability the

Central Bank of Nigeria among other objectives include establishment of strong banking institutions that would render efficient banking services at low cost especially and make credit available and affordable. Bank recapitalization and consolidation banks and the establishment of Assess Management Company of Nigeria (AMCON) was part of the last reform of the financial sector [3]. Huge gap between rate of interest charge by bank to borrowers and interest paid to depositors indicate inefficiency of the banking system. A look at the rate of interest in Nigeria show a continuous upward

movement, demonstration of а policy indiscipline/policy failure. Interest rate spread represents a vital factor for financial stability, as it forms a substantial part of bank growth and efficiency. One of the expected benefits of financial liberalization and deepening of the financial sector is narrowing of the rate of the interest rate spreads [3]. The cost financial intermediation effects the net return to savings and gross return on investment. The spread between these two returns mirrors the bank interest margins, in addition to transaction costs and taxes borne directly by savers and investors [4]. This suggests that bank interest spreads can be interpreted as a measure of efficiency of the banking system. Interest rate spread tends to have a number of important implications for any meaningful development of an economy [5]. High interest spread hinders investment and discourages potential savers thereby limiting the stable availability of funds to potential investors [6].

However, many factors characterizes the financial systems in Nigeria, which lead to high margins between commercial banks' lending and borrowing rates [7]. In Nigeria, like many of the developing countries, high interest rate spread is still an issue of concern despite the banking sector reforms that were carried out recently. Ghana is noted as a country with large

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interest rate spreads (IRS) which are associated with inefficiency [8]. Interest reform, a policy under financial sector liberalization was to achieve efficiency in the financial sector and engender financial deepening [9]. Despite these banking reform efforts interest rate remain high in Nigeria, high interest spread is associated with inefficiency. Identifying the determinants of interest margins in Colombia is a relevant public policy issue, since monetary authorities are concerned about the efficiency and competitiveness of the payment system and degree of financial depth [10]. Efficient financial intermediation is an important factor in economic development process as it has implication for effective mobilization of investible resources. Consequently, banking sector efficiency plays significant role in an economy [11]. The concern becomes important because interest rates are the mechanism that equilibrates supply and demand in the financial sector according to [10]. Both the channelling of saving into financial assets and the willingness of individuals to incur financial liabilities are strongly influenced by the interest rate on those financial assets and liabilities. . When banks lend money to customers, interest is charged on it for a number of reasons, including value preservation, compensation for risk, profits

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[11]. On the other hand, banks also pay interest rate on deposits receipt from depositors, also referred to as deposit rate. The interest rate in whatever form cannot be overstated, as it is one of the most important factors that affect the bank's financial performance. Thus, it is argued that commercial banks are also in the business of maximising the profits for their shareholders [5]. This is also further enhanced by the fact that individual financial institutions have liberty to set distinctive interest charge on different loans therefore the component of interest charge by bank is both endogenous and exogenous in nature. Rising interest rate spreads has been issue of great concern in the financial sector/ industry. According to [7] in spite of the reforms undertook during 1980s and 1990s in favour of financial deepening the spread between the lending rate and deposit rate is still high in member countries of central African Economic and Monetary Community (CAEMC). Interest rate spread has remained relatively high over the years in Nigeria with adverse implications for savings mobilization and investment. For instance, from January 2011 to June 2014, interest rate spread which mimics interest margin averaged 20.51 percentage points, compared with average consolidated deposit rate of 3.42 per cent [10, 11]. This wide gap in interest rate has

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generated intense debate among economists which has caused them to differed in opinion as to major determinants of high interest rate spread. Some have found macroeconomics variables to be the determinants of interest rate spreads. [10], found deposit market share, liquidity levels and operating costs as the determinants of interest rate spreads in Namibia. According to [11], cash reserve requirements, average loans to average total deposits, remuneration to total assets, gross domestic product, non interest income to average total assets, treasury certificates and stocks are factors that determines interest rate spreads in Nigeria. [10], found that banks funding costs are determined by salaries and infrastructure, wages, cost banks' risk premium, liquidity condition, inflation and money supply in Nigeria. As a result of the importance of interest rate spreads in banking sector efficiency, the central bank of Nigeria over the years have engaged in interest rate liberalization in order to narrow the size of interest rate spread in the country. Since the introduction of the financial liberalization concept in the 1970s, many countries such as Angola, Burundi, Congo, Cote d' ivoire, Gambia, Ghana. Kenya, Madagascar, Malawi. Mozambique, Nigeria, Rwanda, Tanzania, Zambia, Zimbabwe, India, China, Turkey, etc

have made attempts at liberalizing their financial sectors by deregulating interest rates, or reducing credit controls, eliminating allowing free entry into the banking sector, giving autonomy to commercial banks. permitting private ownership of banks and liberalizing international capital flows [8]. The Central Bank of Nigeria (CBN) liberalized the interest rate regime in 1987 with modifications in 1989. In 1991, government prescribed a maximum margin between each bank's average cost of funding and its maximum lending rates. Partial deregulation was restored in 1992 and the removal of maximum lending rate ceiling in 1993 saw an increase in interest rate which led to the restoration of direct interest controls in 1994. Total deregulation of interest rate was adopted again in October 1996. In 2001, CBN directed banks to exclude overheads as part of their cost of funding in determining their lending rates. In 2009, banks were requested to submit their pricing model reflecting detailed components that add up to their lending rates. Following the heterogeneity in banks pricing models, CBN issued a circular in 2010 allowing banks to recognize the overheads recovery rate

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into the of cost of funds as recorded by [9]. As stated earlier in this paper the component of interest rate are both endogenous and exogenous because bank specific factors, industry factors and macroeconomic factors are considered in fixing the rate of interest by each bank.

The question now is why should interest rate spread be persistently high in Nigeria despite the financial sector reforms? There many reason as there many authors. Some have attributed this phenomenon to the market structure in Nigeria, arguing that the few big banks dominate the market and dictate the lending and deposit rates. Others have focused macroeconomic factors like inflation. on economic growth, exchange rate and maximum interest rate. The macroeconomic environment affects the performance of the banking sector to the extent of its influence on the ability of borrowers to timely honour the debt repayment unstable obligation. An macroeconomic environment exhibits a positive correlation between the lending rate and the nonperforming loan portfolio [8].

## THEORITICAL REVIEW

The conceptual framework of this study is to establish the macroeconomic determinants of interest rate spread among commercial banks in Nigeria. Macroeconomic factors have been shown to explain significant variation in commercial bank interest rate spreads. [5]

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argues that, macroeconomic factors are certainly among the most influential sources for variations in credit spreads. [6] concur and assert that macroeconomic instability and the policy environment have important impacts on the pricing behavior of commercial banks. The macroeconomic environment affects the performance of the banking sector bv influencing the ability to repay borrowed funds; the demand for loans with the unpredictable returns from investment and the quality of collateral determine the amount of premium charged and therefore the cost of

## The Classical Theory of Interest Rates

The origin of monetary theory lies in classical economics, starting with the work of [7, 8]. The classical theory argues that the rate of interest is determined by two forces. Firstly the supplies of savings, derived mainly from households, and second the demand for investable capital, coming mainly from the business sector [10].

### The Loanable Funds Theory

The loanable funds theory is an improvement to the classical theory of interest rate, due to its inclusivity of both monetary and nonmonetary aspects of the problem [7]. Unlike the classical theory, in the loanable funds theory, the equilibrium interest rate equates the

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borrowed funds to the investors. With an unstable macroeconomic environment and poor economic growth, investors face uncertainty about investment return and these raise the lending rates as the level of nonperforming loans goes up. For example, poor output prices reduce firm profitability while reduced asset prices reduce the value of assets for collateral and therefore the credit-worthiness of the borrowers. As a result, return on investment declines. increasing the level of nonperforming loans, and banks charge high-risk premiums to cover their default risk [7].

## quantity supplied of loanable funds, which according to [8] consist of savings, with the quantity for loanable funds, which consist of investments and bonds financed by government deficit. According to this theory, the interest rate is determined by supply and demand in the market for credit [7]. This implies that interest is the price that equates the demand for loanable funds with the supply for loanable funds.

# The Rational Expectation Theory of Interest Rate

This theory is based on an economic idea that economic agents make choices based on their rational outlook, available information and past

experiences. The rational expectation assumption states that people use all available information to make optimal forecast about the future [4]. In this regard, rational expectation theory posits that the best estimation for future interest rates is the current spot rate and that changes in interest rates are primarily due to unexpected information and or changes in economic factors [6] cited in [9].

**Keynesian Theory of Money Demand** 

Liquidity preference theory asserts that economic units have a preference for liquidity over investing [10] cited in [11]. According to [5] applying this theory explains the premium offered in forward rates in comparison to expected future spot rates. This premium is used as payment for the use of scarce liquid resources. The demand for money is a demand for liquidity [6]. According to Keynes, the demand for money (liquidity preference) arises from three motives; first is transactions motive, it relates to demand for money for current transactions of individual and business firms.

## **Hicks - Hansen Theory**

These two persons incorporated both real and monetary factors to show that investment, saving, liquidity preference and monetary saving, liquidity preference and monetary supply, are all necessary elements in a

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comprehensive and determinate of interest rate theory culminating in the IS and LM Curves. There are numerous studies that have been conducted on the banking sector interest rate spread in various countries across the world. In Nigeria many researchers have carried out studies on determinants of interest rate spread in different dimensions. The focus of this subsection is to provide a summary of the findings of a few selected empirical studies have been conducted in different that countries.

[7], analyzed the determinants of interest rate spreads between banks deposit and lending rates in sub Sahara Africa countries from market and macroeconomic view points, using a dynamic panel data estimation technique. Using annual data covering 33 countries, the results obtained suggest that different market and macroeconomic policy variables play significant role in explaining variations in interest rate spreads (IRS) in the region. It show that the extent of government crowding out in the banking sector, public sector deficits, discount rate, inflationary level, money supply, reserve requirement, level of economic development and population size are important determinates of interest rate spreads in Sub-Sahara African Countries.

[8] investigated the determinants of interest rate spread in Kenyan banking sector based on panel data analysis. They found that bank specific factors such as bank size base on bank assets, credit risk as measured by non – performing loans to total loans ratio, liquidity risk, return on average assets and operating cost play significant role in the determination of interest rate spread in Kenyan. They also found the impact of macroeconomic factors such as real economic growth and inflation is not significant, the impact of policy rate is found to be weak. On average, big banks have higher spread compared to small banks.

[8] studied the relationship that exists between exchange rate, interest rate and economic growth in Nigeria over the period 1970 – 2010. They use vector-auto – regression (VAR) technique, with specific emphasis on impulse response factor and the forcast error variance decomposition. They found that exchange rate had a stronger impact on Economic growth than interest rate. Interest rate was found to be positive but however declined as the time horizon increased. The study concluded that

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exchange rate liberation was good to Nigeria economy as it promote economic growth.

[4], conducted empirical investigation of impact of deposit rates on fund mobilization by deposit money banks in Nigeria within the period 1981 - 2012 using annual data collected from the statistical bulletin published by the CBN. They used OLS multiple regression, unit tests, co – integration, error correction mechanism (ECM) and Granger causality tests, the empirical results reported no significant relationship between the categories of deposit rates and total deposit liabilities of DMBS in Nigeria. The same results were also obtained with respect to the impact of deposit rates on time, savings and foreign currency deposits.

[3] studied the determinants of interest rate in Nigeria, using three explanatory variables inflation rate, money supply and monetary policy rate in order to evaluate their impact on the trend of interest rate. Data obtained from central Bank of Nigeria statistical bulletins were analyzed and tested using error correction mechanism and found significant relationship between interest rate and the explanatory variably used in the study.

## METHODOLOGY

*Ex Post Facto* Research Design was adopted for the study. *Ex-post facto* design is a systematic

empirical inquiry in which the researcher does not have direct control of the variables because their manifestations had already occurred or

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because they inherently cannot be manipulated. The researcher adopted the multiple regression analysis based on the classical linear regression model, otherwise known as Ordinary Least Square (OLS) technique.

The data used for this study were annual time series and secondary in nature. They were obtained from Central bank of Nigeria (CBN) Statistical Bulletin

In capturing the study objectives interest rate spread was modelled as a function of some macroeconomic variables as derived from Dermirguc-Kunt and Huizinga cited in Folawewo and Tennant (2008) and the model is specified as;

IRS = F (EXCHR, INF, M2/GDP, MPR).....(1) Where;

IRS= interest rate spreads,

Inf=Inflation,

MPR = Monetary Policy Rate

EXCH= Exchange Rate.

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M2/GDP = Broad Money Supply/GDP

Theoretically, it is expected that all the independent variables are to have direct (positive) relationship with interest rate spread.

For empirical computation, equation 1 transforms to equation 2

IRS =  $\beta_0 + \beta_1$  EXCHR +  $\beta_2$  INF +  $\beta_3$  M2/GDP +  $\beta_4$ MPR +  $\mu$ ......(2)

Where;

 $\beta_0$  = intercept;  $\beta_i$  parameters to be estimated;  $\mu$ = error term

Equation 2 is transformed to a dynamic model since the dependent variables respond to the explanatory variables over a period of time sometime.

 $(IRS)_{t} = \beta_{0} + \beta_{1} EXCH_{t} + \beta_{2} INFL_{t} + \beta_{3} M2/GDP_{t} + \beta_{4}$  $MPR_{t} + \mu.....3$ 

The researcher estimates the model with ordinary least square method. This method is preferred to others as it is best linear unbiased estimator, minimum variance, zero mean value of the random terms [4].

Dependent Vari	iable: IRS				
Independent	Coefficient	Std. Error	T-statistics	Probability	

## **Analysis of Regression Results**

Var				
Constant	-0.045979	0.600121	-0.076617	0.9395
EXCHR	0.092176	0.041015	2.247372	0.0327
INF	0.105778	0.033146	3.191275	0.0029
MSGDP	-0.103182	0.138895	-0.742877	0.4637
MPR	0.610195	0.174567	3.495477	0.0086
ECM(-1)	-0.909463	0.226315	-4.018563	0.00040

**R**<sup>2</sup> = 0.693656; **Durbin** - **Watson** =1.925012; **Prob(F-stat)** = 0.011661

The empirical result revealed that exchange rate has а positive and significant relationship with interest rate spread in the long and short run, this result contradict the result of Obidike, Ejeh and [7], he examined the impact of interest rate spread on the performance of Nigerian banking industry for the period of 1986-2012. The study used OLS method of estimation to analyze the data generated from CBN statistical Bulletin and World Bank online data base. Testing for the properties of time-series, ADF test indicates that all the variables are integrated of same order I(1). The Co-integration test reveals that there exists a long-run relationship among the variables under consideration.

The result shows that interest rate spread, negatively and significantly impact on bank performance in the long-run. Inflation in the long run from the empirical result of this study does not have positive and significant effect on interest rate spread in Nigeria, while the reverse is the case in the short run where inflation has significant effect on interest spread in Nigeria.

- i. Financial depth has а negative significant effect on interest rate spread in Nigeria both in long and short run. This outcome is not expected since Nigeria over the years has been financial reform engaged with programmes and policies, secondly fiscal deficits in Nigeria has been financial via macroeconomic measures which ordinarily should have positive effect on interest rate spread.
- Monetary policy rate as one of the strong monetary instrument designed to influence interest rate spread in positive

direction had positive and significant effect on interest rate spread in Nigeria both in the long and short run given the empirical result obtained in this study. Again any form of disequilium will adjust at 90% speed into equilibrium evidence to this is the value of the ECM obtained in this study.

The purpose of this study is to examine the macroeconomic determinants of interest rate spreads in Nigeria over the period 1982- 2015. Based on data availability, some of the potential determinants of interest rate spreads analyzed include exchange rate, inflation and prime lending rate. The specified model was estimated using OLS regression method. The results show among other things that exchange rate and lending rate are positively related to

The show that policy measures that would lead to a reduction in remuneration and other expenses and a reduction in the depreciation of our exchange rate and high rate of lending rate have potentials of

## monetary policy variables adopted by this study has positive and significant effect on interest spread in Nigeria and any discrepancy (disequilibrium) will require 90% speed to adjust to equilibrium.

iii. In General, the study found that

## CONCLUSION

interest rate spreads. Thus, the study concludes that there is a positive linear relationship between interest rate spread and two of the macroeconomic determinants under study. In general, the study found exchange rate and lending rate are statistically significant in determining interest rate spreads. The significance of these variables thus suggests that they have an impact on interest rate spreads.

## RECOMMENDATIONS

reducing the interest rate spreads in Nigeria.

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