

Monetary Policy and Macroeconomic Determinants of Interest Rate Spread in Nigeria

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Abstract

The study examined the impact of monetary policy and selected macroeconomic factors on the interest rate spread in Nigeria from 1986-2015 using secondary data. The study conducted the Johanes cointegration test for the analysis of the long run relationship among the variables. Though most of the variables conform to a period expectation, the study recommends among others, a reduction in the CRR to enable banks shore up on rate spreads.

Key words: Monetary Policy, Macroeconomic Determinants, Interest Rate

1. Introduction

The interest rate spread is referred to as the difference between the interest rate charged to borrowers and the rate paid to depositors. In other words, it could be seen as the difference between the bank lending rate the bank deposit rate.

The benefit of a liberalized financial sector is expected to be the narrowing of the interest rate spread Beck & Hesse (2009). If the interest rate spread is high, it may somehow discourage, would be savers, thereby having a negative input or saving as ultimately, investment which will in the long run reduce the level of economic activities.

This study differs from previous ones in that, it looks specifically on the effect of monetary policy and macroeconomic variables that effect or determine the interest rate spread, It excludes other factors like bank specific and industry specific determinants. The main objective of this study therefore, is to investigate the effects of the variables it the determination of interest rate spread in Nigeria from 1986-2015; the period which coincides with the full liberalization of the financial sector.

2.0 Literature Review

Conceptual Clarifications

The following concepts are clarified as they relate to this work in brief.

Interest Rate Spread

Interest rate spread is the difference between deposit and lending rates charged by deposit money banks (DMB). It is given by expressed as: interest rate spread = Deposit Rate – Lending Rates.

Monetary Policy.

Monetary policy is seen as any action taken by the monetary authorizes to influence the cost, volume and availability of normal stock within an economy at any point in time.

Interest Rate

Interest rate can be defined as the price of money, i.e the amount of money paid for borrowing expressed as a percentage. Interest rates are not however, uniformly charged, there values depends on tenor or maturity which is the time taken for repayment.

Theories of Interest Rate

Keynesian Liquidity Preference Theory

This theory is regarded by most economists as a stock theory. According to the theory, interest rate is determined by the demand for and the supply of

money. It established the fact that interest rate is not a seal occurrence but an absolute monetary concept. Keynes believed also that issue of interest rates in determine mostly in the short run.

The Loanable Funds Theory

As opposed to the Keynesian theory the concept seen interest determined by which comes from the saving of economic agent like firms and the government.

Empirical Review

Using macroeconomic variables, Brock and Franker (2000), examined interest rate spread in Latin America and concluded that monetary policy variables defers depending on whether the spread are computed from balance sheets or from disaggregated loan and deposit data. Using multiple regression and Pearson correlation Beck and Hesse (2007), examined the determinants of interest rate spread in Uganda and concluded that such factors like GDP, Exchange Rate, liquidity and the policy rate had significant positive effect or IRS in Ghana. Using secondary data from 1986-2007, Akinlo et al (2012), examine the determinants of interest rate spread in Nigeria. The study make use of panel estimation technique such as fixed and random effect and concluded that, non-interest income, treasury certificate, and development stock exhibited negative effect on interest rate spread The study by Ndiming and Ngugi (2006), examined the determinants of bank spreads in Kenya from 1999-2005 and from that spreads have been driven basically by time invariant bank characteristics and overhead costs. Likewise, Enendu (2003) wrote on the determinants of interest rate spread in a liberalized financial system in Nigeria from 1989-2000. The result showed that macroeconomic and macro factors positively determined interest rate spread in Uganda, as opposed to bank specific factors. Writing on the factors behind high interest rate spread in Uganda, Beck and Hease (2009) concluded that, high treasury bills, were major determinants of bank spreads and that macroeconomic factors like inflation, exchange rate had major impact on spreads in Uganda.

3.0 Methodology

The general model is specified as below:

$$IRS_t = \alpha + \beta_{xt} + \delta_{Y_t} + \varepsilon_t \dots \dots \dots (1)$$

Where

IRS_t = Interest spread

X_t = vector of monetary policy variable

Y_t = vector of macroeconomic variable

ε_t = The error stochastic term

α, β, δ are parameters to be examined. Independently and didactically in which case the variable is zero

Explicitly, equation 1 above be re-written as follow:

$$IRS = \alpha + \beta_{1CRR} + \beta_{2MPR} + \beta_{3MS} + \delta_{1INF} + \delta_{2GDP} + \delta_{3EXR} + \varepsilon_t \dots \dots \dots (2)$$

Where CRR is cash reserve ratio, MPR = cs monetary policy rate, MS is Brod money supply, INF is inflation rate, GDP is gross domestic product.

EXP is the exchange rate and ε_t as before is the error term.

Data is analyzed through the technique of contagions and the error correction mechanism. This will be done after subjecting the data to unit root test to determine the stationary properties of the data under consideration. Also, correlation matrix and summary statistics will be undertaken first of all to see the degree of association among the variables.

A cursory look at the summary statistics reveal among others that the mean value for interest rate spread is 11.6, CRR is 7800,000 and exchange rate 86.94. All the variables are positively expect interest rate spread which is skewed to the left. IRS, CRR, INF, GDP have all the values of their Kurtosis below the threshold of 3.

Apart from the exchange rate variable, all the other variables exhibit non-normality behavior going by their Jarque-Bera values.

4. Data Presentation and Analysis

In this section, we present data, followed by the analysis.

Summary statistics are reported as in table 4.1 below:

Table 1: Summary Statistics

Statistic	IRS	CRR	MPR	MS	INF	GDP	EXR
Mean	11.65800	7800,000	14.52387	4029,808	38.86167	485.9787	86.94800
Medial	12.98550	8.600,000	13.3000	839.300	11.20000	346.0500	97.39500
Maximum	20.98550	14.20000	25.20000	182.191	728.000	1076.900	381.7000
Minimum	1.010000	2.500,000	7.400000	23.81000	5.050000	1980000	2020000
Std Dev.	4.5389630	2.220302	3.685750	7906.804	130.8802	266.7951	84.37858
Skewness	-0.533570	-0.337002	0.667013	1.371581	5.110511	0.842180	1.354385
Kurtosis	2.8903022	2.110970	4.498194	3.368942	27.42150	2.359615	5.785409
JarqueBera	2.035380	1.565841	5.038250	9.578143	876.0989	4.058940	18.86993
Prob.	0.361480	0.459360	0.080802	0.087323	0.070000	0.131406	0.000080
Sum	349.7400	234.000	406.7100	120894.2	1166.850	14579.30	2608.380
Sem Dev.	624.2707	300.7400	394.8173	1.01E+09	496759.0	2064209	206472.6
Obs.	30	30	30	30	30	30	30

Author’s compilation from eviews output.

Unit Root Test

It is a well-known fact that most macroeconomic

Unrestricted Cointegration Rank Test (Maximum Eigen Value)

Hypothesize No of CEs	Max. Eigen Eigen Value	Value Statistic	0.05Critical Value 0.05	P Prob**
None *	0.915516	69.19301	46.23142	0.0000
At most 1 *	0.783065	42.78830	40.07757	0.0241
At most 2	0.597948	25.51288	33.87687	0.3512
At most 3	0.383149	13.52758	27.58434	0.8538
At most 4	0.298893	9.942664	21.13162	0.7501
At most 5	0.228818	7.275249	14.26460	0.4571
At most 6	0.1v32E-05	0000370	3.841466	0.9867

Trace test indicates 2 Cointegration equations at the 0.05 level

*derotes rejection of the hypotheses ate the 0.05 level

** Mackinon-HaugMichelis P-values

Table 4.2 ADF Unit Root Test Results

Variable	ADF Statistic	5% Value	Remarks
IRS	-3.238619	-2.967767	1 (1)
CRR	-7.803490	-2.976263	1 (1)
MPR	-2.952031	-2.951776	1 (1)
MS	-3.586137	3.004861	1 (1)
INF	-5.037073	-2.967767	1 (1)
GDP	-3.817327	-2.967767	1 (1)
EXR	-3.146645	-2.971853	1 (1)

Author’s compilation from eviews output.

JonansenCointegration test is carried out and the result reported and presented below:

The result of the cointegration test shown above reveals that for both the trace test and maximum Eigenvalue test, there exist 2 cointegrating equations respectively. In other words, the variables under consideration are cointegrated, meaning there is a long run relationship between the variables.

Analysis of the Model.

From the cointegration test results, the long run model is extracted (normalized cointegration coefficients) and presented as follows:

Table 2: Cointegration Test Results.

Unrestricted Cointegration Rank Test (Trace Test)

Hypothesized No of CEs	Eigen Value	Trace Statistic	Critical Value 0.05	P Prob**
None *	0.915516	168.2401	125.6154	0.0000
At most 1 *	0.783064	99.04705	95.75366	0.0.0291
At most 2	0.597948	56.25875	69.8189	0.0.3677
At most 3	0.383149	30.74587	47.85613	0.6801
At most 4	0.298893	17.21828	29.79707	0.6239
At most 5	0.228818	7.275616	15.49471	0.5468
At most 6	0.1.32E05	0.000170	3841466	0.9867

Trace test indicates 2 Cointegration equations at the 0.05 level

*derotes rejection of the hypotheses ate the 0.05 level

** Mackinon-HaugMichelis P-values

$$IRS = 0.144 + 2.67 CRR + 1.55 MPR + 0.01Ms + 0.05 INF + 0.01 GDP + 0.10 EXR.$$

The model above reveals the relationship between the interest rate spread and its determinants in Nigeria for the period of the study. The monetary policy variables are CRR, MPR, and EXR. While the macroeconomic variables here include GDP and the rate of inflation.

The coefficient of monetary policy variables (CRR, MPR, EXR) are correctly signed; as increase in monetary policy rates positively influence interest rate spreads However this is in line with Akinlo and Owoyemi, (2012), Crowley (2007). However, the impact of inflation on IRS is negative. National output, proxied by GDP and interest rate spread are positively related as increases in economic activities have positive effect on banking activities.

5. Conclusions and Recommendations.

The study examined the effect of both monetary policy and macroeconomic factors on the interest rate spread in Nigeria from 1986-2015 a period of 30 years. Long run relationship among the variables was examined using the Jahanseu Cointegration test. Results reveal a positive effect especially between monetary policy variables and IRS in Nigeria. However, it is recommended that the authority reduce the reserve requirements periodically, measures should also be taken to reduce the level of inflation to a management level within the economy.

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