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A JOURNAL ARTICLE ON THE EFFECT OF INTEREST RATE ON INVESTMENT IN NIGERIA

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Abstract

This study is on the effect of interest rate on investment in Nigeria. Data for the study were secondary data obtained from the CBN Statistical bulletin of various years. Being a time series data, the data were subjected for stationarity test using the augmented dickey fuller unit root technique and were found to be stationary at their first differencing. The autoregressive distributive lag (ARDL) model was used to analyze the data, the result shows that interest rate at current and lag values inversely related with investment in Nigeria. It is therefore recommended that government should reduce the interest rate on lending in order to boost productivity, encourage industrialization so as to create employment opportunities for the citizenry.

Keywords: Investment, Interest Rate, Productivity, Industrialization.

SECTION ONE

Introduction

Every economy of the world strives to increase its output, create employment for its citizens as well as maintain price stability and less dependent on foreign products. Therefore effort is geared towards improving industrialization in their domestic economies. Industrialization refers to the growing of industries of various productive capacities in an economy through investment in the production of goods and services by the public and privates sectors. Nwaru (2006) saw investment as the purchase of new physical assets. Furthermore, investment can be seen as consisting business expenditures on structures and equipment, spending on residential structures and inventory investment. Investment is one of the major components of national income and its contribution to the economy cannot be overemphasized. Investment does not only generate revenue for the government but also creates employment, produce goods and services for domestic use and export. One of the tools used by the monetary authority to influence aggregate demand and achieve macroeconomic objectives is interest rate. It is the reward for abstaining from current consumption, it can also be referred to as the price for using other people's money or the price paid for parting with depositors' capital for a period of time. Jhingan (2010) saw interest rate as the major determinant of investment. Both the marginal efficiency of capital and marginal efficiency of investment attributed interest rate as the main determinant of investment. According to Lasbery and Nwosu (2014) Interest rate is the only factor that bring the product market and money market into equilibrium (IS=LM equation).

Nigeria as a nation has adopted various reforms in the management and administration of interest rate system in the economy. The aim of various reforms is to achieve its macroeconomic objectives of price stability, full employment equilibrium, increased in per capita income,

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increase in gross domestic product, through investment and massive industrialization, low inflation rate etc. Both the regulated and the deregulated interest rates system are all geared towards maintaining a healthy and robust economy. Has the country been able to achieve all or some of these objectives through its interest rate management? Therefore the objective of this paper is to ascertain the impact of interest rate on investment in Nigeria.

SECTION TWO

Literature Review

To achieve the desired level of interest rate, the Central Bank of Nigeria (CBN) adopts various monetary policy tools, key among which is the Monetary Policy Rate (MPR). This rate, which until 2006 was known as the Minimum Rediscount rate (MRR), is the rate at which the CBN is willing to rediscount first class bills of exchange before maturity (Ndugbu, 2001). He further opined that by raising or lowering this rate the CBN is able to influence market cost of funds. If the CBN increases MPR, banks' lending rates are expected to increase with it.

The classical theory of interest rate.

In the words of Lasbery and Nwosu (2014) interest rate is the equilibrating factor between the demand for and the supply of investible funds. Investment represents the demand for and saving represents the supply of investible funds whilst the rate of interest is the price at which the two variables are equated. Furthermore, for equilibrium to exist, the following conditions have to be fulfilled according to the classical theory of the rate of interest.

i. $I=f(R)$ and <0
ii. $S=g(R)$ and >0
iii. $I=S$

Loanable fund or Neo-Classical Theory

This theory states that the supply of loanable funds is a composite one. It is composed of real saving and credit money. It is composed of the demand for investment funds and the demand for speculative cash balances or hoarding. This theory recognizes the role of hoarding and created money in determining interest rate. Thus according to this theory the rate of interest is the function of these four variables-saving, investment, desire to hoard and quantity of money.

Empirical Literature

Greene and Villanueva (1990) explored the determinants of private investment in less developed countries for 23 countries over 1975-1987, and found that the real deposit interest rate has a negative impact on private investment.

Hyder and Ahmad (2003) studied about the lowdown in private investment in Pakistan. They found that higher real interest rates reduce private investment.

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Larsen (2004), carried out a study on the impact of mortgage rates on investment in United States found that low mortgage interest rates make direct real estate investments attractive to suppliers of the real estate units.

Aysan (2005) analyzed the determinants of unsatisfying private investment growth in the Middle East and North Africa (MENA) throughout the 1980s and 1990s. The findings showed that the real interest rate appears to exert a negative effect on a firm investment projects.

Wang and Yu (2007) examined the role of interest rate in investment decisions for firms in Taiwan. Their findings revealed that interest rate plays an important role in investment decisions.

SECTION THREE

Methodology

The data for the study are secondary data obtained from the CBN statistical bulletin of various years and from World Bank national accounts, and OECD National Accounts, (2018). The data are subjected to stationarity test using the augmented dickey fuller unit root technique. The data however were found to be stationary at their first differencing, I(1).

The autoregressive distributive lag (ARDL) model was used to analyze the data. The essence of this ARDL is to determine the impact of interest rate at current and lag values on the gross fixed capital formation because time series data are known to exhibit lag and current effects on dependent variables.

Analysis and Result

Table 1: table showing the stationarity statistic of the variables

Variables	ADF	Order of Integration	Remark
MPR	-7.749546	I(1)	Stationary
GFCF	-3.997746	I(1)	Stationary

Critical Values 1%	-3.699871
5%	-2.976263
10%	-2.627420

Source: Author's computation

The result above shows that the data were stationary at their first differencing.

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Autoregressive Distributive Lag Result

Dependent Variable: GFCF				
Method: ARDL				
Date: 03/08/20 Time: 22:55				
Sample (adjusted): 2 29				
Included observations: 28 after adjustments				
Maximum dependent lags: 4 (Automatic selection)				
Model selection method: Akaike info criterion (AIC)				
Dynamic regressors (4 lags, automatic): MPR				
Fixed regressors: C				
Number of models evalulated: 20				
Selected Model: ARDL(1, 0)				
Note: final equation sample is larger than selection sample				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
GFCF(-1)	0.944489	0.082970	11.38352	0.0000
MPR	-0.298416	0.469966	-0.634973	0.5312
C	8.137746	9.076430	0.896580	0.3785
R-squared	0.889638	Mean dependent var	43.16480	
Adjusted R-squared	0.880809	S.D. dependent var	23.00557	
S.E. of regression	7.942460	Akaike info criterion	7.083280	
Sum squared resid	1577.067	Schwarz criterion	7.226016	
Log likelihood	-96.16592	Hannan-Quinn criter.	7.126916	
F-statistic	100.7635	Durbin-Watson stat	1.598943	
Prob(F-statistic)	0.000000			
*Note: p-values and any subsequent tests do not account for model				
selection.				

The result above shows that gross fixed capital formation or otherwise known as investment is inversely related with interest rate. This implies that as interest rate rises investors are scared from borrowing funds for investment purposes due to high interest rate and if interest rate falls, investors will go for funds. This meets the apriori expectation as stated in economic theory that interest rate and investment are inversely related. The coefficient of determination, R2, shows that about 89% of the total variation in investment or gross fixed capital formation is accounted for by interest rate. The overall regression is significant as its F-value is less than the 5% level of significance.

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Discussion of Findings

The result of the analysis showed that interest rate and gross fixed capital formation (investment) are inversely related. This is in line with Greene and Villanueva (1990) and Hyder and Ahmad (2003) who concluded in their separate studies that interest rate is inversely related with investment.

SECTION FOUR

Policy implication and Recommendation

In the light of the analysis and findings of the result, it can be seen that interest rate is an important factor in the administration and management of a country's monetary policy. Interest rate is found to be inversely related with investment, and as such care must be taken in altering or fixing the rate of interest by the central bank, therefore;

1 Government should ensure that the rate to be fixed must be the equilibrium interest rate prevailing between the commodity market and the money market.

2 There should be strict monitoring of the interest rate so as to identify when it is adversely affecting some macroeconomic variables.

3 Central bank must ensure strict compliance to the prevailing interest rate by the commercial banks and other financial institutions.

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APPENDIX

Null Hypothesis: D(GFCF) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

t-Statistic	Prob.*			
Augmented Dickey-Fuller test statistic	-3.997746	0.0049		
Test critical values:	1% level	-3.699871		
5% level	-2.976263			
10% level	-2.627420			
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(GFCF,2)				
Method: Least Squares				
Date: 03/08/20 Time: 22:53				
Sample (adjusted): 3 29				
Included observations: 27 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GFCF(-1))	-0.889263	0.222441	-3.997746	0.0005
C	1.808207	1.531541	1.180646	0.2489
R-squared	0.389976	Mean dependent var	0.932505	
Adjusted R-squared	0.365575	S.D. dependent var	9.888538	
S.E. of regression	7.876302	Akaike info criterion	7.036781	
Sum squared resid	1550.903	Schwarz criterion	7.132769	
Log likelihood	-92.99654	Hannan-Quinn criter.	7.065323	
F-statistic	15.98197	Durbin-Watson stat	1.755852	
Prob(F-statistic)	0.000498			

Null Hypothesis: D(MPR) has a unit root		
Exogenous: Constant		
Lag Length: 0 (Automatic - based on SIC, maxlag=6)		
t-Statistic	Prob.*	
Augmented Dickey-Fuller test statistic	-7.749547	0.0000
Test critical values:	1% level	-3.699871
5% level	-2.976263	
10% level	-2.627420	
*MacKinnon (1996) one-sided p-values.		
Augmented Dickey-Fuller Test Equation		
Dependent Variable: D(MPR,2)		
Method: Least Squares		
Date: 03/08/20 Time: 22:54		
Sample (adjusted): 3 29		

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Included observations: 27 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(MPR(-1))	-1.402636	0.180996	-7.749547	0.0000
C	-0.122662	0.732108	-0.167546	0.8683
R-squared	0.706074	Mean dependent var	0.111111	
Adjusted R-squared	0.694317	S.D. dependent var	6.874679	
S.E. of regression	3.800914	Akaike info criterion	5.579547	
Sum squared resid	361.1736	Schwarz criterion	5.675535	
Log likelihood	-73.32389	Hannan-Quinn criter.	5.608089	
F-statistic	60.05547	Durbin-Watson stat	2.152671	
Prob(F-statistic)	0.000000			