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Impact of Interest Rate Spread on Domestic Investment in Nigeria

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Abstract

Research Objectives: The study examined the impact of interest rate spread on domestic investment in Nigeria, focusing on the relationship between lending rates, deposit rates, and monetary policy rates. It aimed to determine how variations in interest rate spread affect capital accessibility and overall investment performance in the economy between 1981 and 2024.

Methodology: To achieve these objectives, the research employed the Autoregressive Distributed Lag (ARDL) model and the Granger Causality test. These econometric techniques were used to capture both the short- and long-run dynamics of the relationship between interest rate spread and domestic investment, as well as to test the causal links among the key variables within the study period.

Findings and Conclusion: The results revealed that for a given lending rate, an increase in borrowing rate reduces the interest rate spread, thereby affecting bank gains. In contrast, lower lending rates tend to encourage investment in the economy, though they may also trigger economic contraction. The study concludes that interest rate spread significantly influences the accessibility of capital and the level of domestic investment in Nigeria, with lending and borrowing rates—largely guided by monetary policy—playing a decisive role in shaping bank performance and economic growth.

***Key words**: Interest Rate Spread, Domestic Investment, Deposit rate, Borrowing rate, Lending rate and monetary policy rate.*

1. Introduction

Nigeria is a Sub-Saharan African country located on the Gulf of Guinea((Anowor, Uwakwe and Chikwendu 2019). This location gives her unique and important economic and geographical comparative advantages that offer her opportunities of an investment destination and access to compete in the global market (Anowor, Uwakwe and Chikwendu 2019). Domestic investment as one of the key determinants of gross domestic product performance has shown in theoretical and empirical studies to have potential for economic growth and development (Uwakwe Q.C 2024). Domestic investment is an increase in the human, social, technological, and physical capital of a nation brought about by the residents of that nation (Uchendu, 1993). Domestic **i**nvestment referred to as Gross private domestic investment is the measure of physical investment used in computing GDP in the measurement of nations' economic activity (https://ww1.investingzz.com/lander). This is an important component of GDP because it provides an indicator of the future productive capacity of the

economy (Wikipedia 2023) The gross domestic investment is separated into private and public domestic investments. The private domestic investment is an expenditure made by private citizens of a nation for the acquisition of capital goods and services, while public domestic investment refers to expenditures made by the government (on behalf of the state) for the acquisition of capital goods and services (Nwokoye, Metu, & Kalu, 2015).

In an economy that is closed to the outside world, investment can come only from forgone consumption, that is, savings of private individuals, private firms, or the government. In an open economy, however, investment can surge at the same time that a nation's saving is low because a country can borrow the resources necessary to invest from neighboring countries (https://paperdanjournal.wordpress.com/2012/04/page/2/).

Accessing capital easily will help to boost the economy by allowing the investors to carry out their business ideas within the stipulated time (Uwakwe 2024). Investors need money to acquire the factors of production in the form of land, machinery, equipment, labor as well as technology. The money is often received from the financial institutions in the form of loans ((Daniel ,Paul and Edmond 2022). These loans have an associated cost termed interest (Daniel ,Paul and Edmond 2022) . Expectantly, interest rate plays a leading key role in the decisions of investors (Guenther, Johan, & Schweitzer, 2018).

The importance of interest can not be overemphasized for deposit money banks. For a number of reasons, the interest rate is vital. On an individual level, high-interest rate deters one from embarking on an investment because the financing cost would be extremely high (Daniel ,Paul and Edmond 2022). On the other hand, high-interest rates could motivate one to save because one can earn more interest income (Claessens, Coleman, & Donnelly, 2018). High-interest rate might cause a company to postpone an investment such as purchasing a new machinery to expand operations (Lee & Shin, 2018), thus thwarting the effort to create more jobs to foster economic growth.

Banking business is basically one of financial assistance by mobilizing funds from surplus units to deficit units of an economy. When banks mobilize deposits from customers, they pay interest on these deposits to ensure that deposits do not lose value over the period that the money is kept with the bank (kelilume 2014). The interest on deposits is termed the borrowing rate in recognition of the fact that banks are borrowing from the public through deposits(kelilume 2014). At the other end, when banks lend money to customers, interest is charged on it for a number of reasons, including value preservation, compensation for risk, profit, among others (Kelilume 2014) . This interest is referred to as the bank lending rate (Uwakwe 2024).

The difference between the lending rate and deposit rate is called interest rate spread. Interest rate spread according to Daniel ,Paul and Edmond (2022) is the margin between average deposit rate and lending rate of banks. The level of interest rate spread is an important policy variable because banks are the main sources of business funding (Daniel,Paul and Edmond 2022). It demonstrates how efficient banks perform their intermediary role of savings mobilization and allocation (Grenade, 2007). The financial

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system plays a key role in development of a national economy because it functions as a medium of collecting and mobilizing savings and extending credit for various investment activities in the economy (Owusu-Antwi, Banerjee, & Antwi, 2017). Daniel ,Paul and Edmond (2022) stated that interest rate spread reflects the level of efficiency of the financial sector, as a result of a competitive climate. The interest rate spread, as used in this research work, is the difference between the average lending rate and the average deposit rate (Uwakwe 2024).

When borrowing rates are high, it encourages deposit and provides needed funds for the bank to lend out. However, for a given lending rate, an increase in borrowing rate will lead to a decline in the interest rate spread which could affect bank profitability(Kelliume 2014). Furthermore, when lending rates are low, they tend to induce investment in an economy leading to growth and development(kelilume 2014) . However, for a given borrowing rate, a lower lending rate will tend to reduce the bank interest rate spread which could affect bank profitability (Kelilume 2014). The lending rates charged by banks are extremely high whereas interests on deposits are quite low (Ampofo, 2020). Banks earn income by taking in deposits via savings and checking accounts, utilizing shareholder equity, or issuing debt, while paying out interest on these funds. Generally, banks pay a lower interest rate on deposits compared to the rate they charge on loans, resulting in income generation. Consequently, a wider interest rate spread leads to higher bank earnings(CFT Team 2020) . For example, bank ABC charges customers 4% interest for car loans and pays out interest to depositors for holding their money at a rate of 1.75%. It means that the interest rate spread will be 4% – 1.75% = 2.25% (CFT 2020 = https://corporatefinanceinstitute.com/resources/accounting/net-interest-rate-spread).

It is difficult to tell the exact interest rate for commercial banks because they offer so many loan options and varying interest rates for each (Olamide 2023). Therefore, factors like the amount, personal assets, tenor, credit score, and many others are considered. Generally, commercial banks tend to offer loans to those with high net worth due to the low risk(Olamide 2023) (https://loanspot.ng/companies-with-lowest-loan-interest-rates-in-nigeria/) Lenders score your loan application by some variables. These 5 Cs variables are Capacity, Capital, Collateral, Conditions, and Character. These Interest rate variations affect decisions on investment and savings patterns(Obi, 2022). Investment behavior is mainly affected by the level of interest rate obtainable in the bank(Obi 2022). Investors differ in their willingness to hold risky assets such as bonds and stocks (Inimino, Abuo, & Bosco, (2018).

When the returns to holding stocks and bonds are highly volatile, investors who rely on these assets to finance their consumption profile face a relatively large chance of having low consumption (Obi 2022). Interest rate policy is among the emerging issues in current economic policy in Nigeria in view of the role it is expected to play in the deregulated economy by inducing savings that can be channeled to investment and thereby, increasing employment, output and promoting efficient financial resource utilization (Obi, 2022). Also,

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interest rates can have a substantial influence on the rate and pattern of domestic investment by influencing the volume and disposition of savings as well as national productivity (Obi, 2022). Obi(2022) also stated that an increase in the deposit rate would lure people to deposit their money in banks thereby increasing the supply of loanable funds. This would lead to a fall in interest rates and eventually rise in investment (Obi 2022). A reduction in the prime lending rate to investors encourages investors to borrow more and increase investment(Obi, 2022).

Mujeri and Younus (2009), noted that an efficient financial system plays dual important roles; firstly, it transfers capital from savers to investors, and secondly, it directs loanable funds to productive and profitable investments, and enhances growth by pooling risks and facilitating transactions. The quantum of savings that financial institutions are able to mobilize from the surplus unit largely determines the level of financial support that can be given to investors (Daniel ,Paul and Edmond 2022). According to Ouma, Odongo, and Were (2017), low or negative interest rates discourage savings mobilization and the channeling of the mobilized savings through the financial system. This negatively affects the quantity and quality of investment and hence economic growth (.Daniel ,Paul and Edmond 2022) In a similar vein, high lending rates dissuade investors from contracting loans to boost their business activities. Therefore, for domestic investments to grow, interest rate spread must be fair enough to attract investors.

2. Literature Review

Loanable Fund Theory: The loanable funds doctrine or theory was formulated in the year 1930s by British economist Dennis Robertson and Swedish economist Bertil Ohlin who stated that loanable fund theory shows that the rate of interest is the price of credit which is determined by the demand for and supply of loanable funds (Inimino E.E, Abuo, M.A and Bosco, I. E 2018) The loanable fund theory is usually called the real theory of interest rate (Inimino , Abuo, and Bosco 2018)

This is because the model assumes that interest rates are determined by real factors. This makes sense because the decision whether to lend or borrow is a rational one (Inimino E.E, Abuo, M.A and Bosco, I. E 2018). It is important to know that an increase in savings or in the supply of money would cause the interest rate to decrease (Inimino , Abuo, and Bosco, 2018). On the other hand, an increase in the demand for funds for investment or hoarding will cause the rate of interest to rise (Gbosi, 2005).**Classical Theory.** Economists like Ricardo, J.S. Mill, Marshall, and Pigou formulated the classical theory of interest in the year 1936. This theory is also referred to as the capital theory of interest, saving-investment theory of interest, or real theory of interest. It posits that interest is a real economic phenomenon, and the interest rate is decided solely by real factors – specifically, the supply and demand for capital in a perfectly competitive market(Christopher 2022).

The supply of capital is governed by thrift (saving) or time preference and the demand for capital is influenced by the productivity of capital (Christopher 2022).

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Keynesian Theory. The theory was propounded by John Maynard Keynes, a British Economist in February 1936. This theory postulates that interest rate is determined by the demand and supply of money. He maintains that the rate of interest is purely a monetary phenomenon and as such, distinct from the real theory of the Classicals. Keynes notes that savings and investment refer to the aggregate savings and aggregate investment. Investment means production that is not currently consumed which may take the form of machinery, equipment, building, etc while savings is the amount of current income which is not spent upon consumption, (Soyibo and Adekanye, 1992). Keynes further notes that the determinants of interest rate will be found in the money market and that they are basically the supply and demand for money(Christopher 2022). He identified three motives for the desire to hold cash; transactionary motive, precautionary motive, and speculative motive but noted that transactionary and precautionary motives are influenced by the level of income while speculative motive is influenced by the level of interest rate (https://www.unn.edu.ng/). He reveals that if there is no interest receivable, people would hold their assets in the form of cash, so to get people to hold their wealth in other forms apart from cash, one must receive interest (Inimino , Abuo, and Bosco, 2018) .

Price Expectation Theory. The theory of rational or price expectations was proposed by John F. Muth in 1961. The price expectation theory posited that interest rates are expected to be charged to compensate lenders for expected inflation in the economy(Inimino , Abuo, and Bosco, 2018). Decision to invest in a new capital asset depends on whether the expected rate of return on the new investment is equal to or greater than the rate of interest to be paid on the funds needed to purchase the asset (Inimino , Abuo, and Bosco, 2018). It is only when the expected rate of return is higher than the interest rate that investment will be made in acquiring new capital assets (Inimino E.E, Abuo, M.A and Bosco, I. E 2018) In reality, the factors often taken into consideration while making any investment decision include the cost of the capital asset, the expected rate of return from it during its lifetime and the market rate of interest (Jhingan, 2007). Keynes sums up these factors in his concept of the marginal efficiency of capital (MEC) - the highest rate of return expected from an additional unit of a capital asset over its cost (Inimino , Abuo, and Bosco 2018).

The Accelerator Theory of Investment. The accelerator theory of investment suggests a positive relationship between investment and the rate of growth of aggregate demand, income or output(Obi, 2022). According to Ekine (2011) the theory "assumes that there is a desired capital stock for a given level of output and interest rates. A rise in output or a fall in interest rates may prompt increased levels of investment as firms adjust to reach the new optimal capital stock level". The accelerator works on the basis of a fixed capital to output ratio which implies that in order to produce extra units of goods and services, firms need to adjust their investments to meet changes in demand(Obi, 2022) . This theory of Clark (1917) opined that the level of current net investment in fixed capital depends on the change

in income or output in the previous year. A typical acceleration equation can be written as: $I = \beta(\Delta Y)$ (1).

By assumption of autonomous investment we have, $I = I_o + \beta(\Delta Y)$ (2).

Where; I=Investment, I_o = autonomous investment; β = acceleration coefficient; ΔY = change in income. By examining changes in income or output between period, time t and t-1, we have $\Delta Y = Y_t - Y_{t-1}$ (3)

substituting equation (3) into (2) we have $I_t = I_o + \beta(Y_t - Y_{t-1})$ (4);

Where; Y_t is current national income and Y_{t-1} is national income last year. In macroeconomics, investment plays an important role over the business cycle. A typical Keynesian investment function is: $I_t = a_o + a_1 Y_t - a_2 R_t$ (Obi,2014).

Where I_t is investment, Y_t is GDP and R_t is the real interest rate (Obi,2014). So: Investment should be higher when the interest rate is low, and vice versa (Obi 2022). Also, a fast growth in national income (GDP) will exert pressure on aggregate demand, which in turn will encourage investment(Obi, 2022). Meaning that, the Keynesian investment function favours the acceleration theory of investment(Inimino , Abuo, and Bosco, 2018) . In addition, James Tobin (1969) also developed an investment model. Tobin's q ratio theory of investment holds that investment decisions are dependent upon the ratio of the market value of a firm's financial assets to their replacement cost. Put differently, Tobin's q states that a firm's decision to invest depends on the ratio of the market value of installed capital (physical asset) to its replacement cost (Inimino , Abuo, and Bosco, 2018). i.e., q = market value of installed capital/replacement cost of installed capital (physical asset) . (Inimino, Abuo, and Bosco, 2018). Therefore, the ratio of the market value to the replacement cost of capital is known as Tobin's q (Tobin, 1969).

The Internal Funds Theory of Investment

According to the internal funds theory of investment, the desired capital stock and investment are influenced by profit levels. Various explanations support this relationship. For instance, Jan Tinbergen suggested that actual profits are a good indicator of expected profits. Since investment decisions likely depend on expected profits, there's a positive correlation between investment and actual profits (Theory_of_Investment.pdf). Retained earnings and depreciation expense are sources of funds internal to the firm; the other sources are external to the firm (Theory_of_Investment.pdf).

Deep into empirical review of related study shows that interest rate spread have negatively impacted domestic investment in Nigeria and African country as relate to work of Obidike, Ejeh, & Ugwuegbe (2015) who examined the impact of interest rate spread on the performance of Nigerian banking industry for the period of 1986-2012 using OLS method of estimation. The result shows that interest rate spread negatively and significantly impacts bank performance in the long-run (*Obidike, Paul C., Ejeh Grace C, Ugwuegbe. S. Ugochukwu 2015)* Osundina and Osundina (2014) examined the link between interest rate and investment decision in Nigeria using the Multiple Linear Regression model of a modified Mundel – Flemming mode. The result shows no relationship between interest rate and

investment in Nigeria. Davis and Emerenini (2015) investigated the impact of interest rate on investment in Nigeria. Multiple regressions were used as the statistical method for the study which revealed that high interest rate negatively affects investment (Inimino , Abuo, and Bosco 2018). In line with the findings, the study suggested among others that relevant monetary authority should evolve policies that will encourage savings and reduce prime lending rate to genuine investors, among others(Inimino E.E, Abuo, M.A and Bosco, I. E 2018) . George-Anokwuru (2017) investigated the relationship between interest rate and domestic private investment in Nigeria from 1980 to 2015 using Ordinary Least Square regression(Inimino E.E, Abuo, M.A and Bosco, I. E 2018) . The findings revealed that prime lending rate has a negative and significant relationship with private domestic investment in Nigeria. However, real interest rates have a negative but insignificant relationship with private domestic investment in Nigeria (Inimino , Abuo, and Bosco, 2018). Tarus and Manyala (2018) investigate the determinants of bank interest rate spread in Sub-Saharan African countries drawing data from a pool of 20 Sub-Saharan African countries for a period of ten years covering 2003–2012. They found out that inflation has a negative and significant effect on interest rate spread, whereas costs of operation and bank concentration have a positive and significant effect on interest rate spread(Daniel, Paul, and Edmond. 2022) . Daniel ,Paul and Edmond(2022) investigated the effect of interest rate spread on economic growth in Ghana using annual time series data from 1975 to 2018 using the Engel Granger two-step procedure (Daniel et al 2022). It is revealed that interest rate spread has a negative impact on economic growth in the long-run. Policy actions that ensure macroeconomic stability should be embarked upon to achieve stability and sustainable growth of the economy (Daniel ,Paul and Edmond 2022)

3. Method, Model and Data

Theoretical framework of this study is drawn from the classical view of real interest rate which emphasizes savings as a function of investment and interest rate as framework (Simon-Oke,and Jolaosho,2013) **Classical economist (1936)** developed the, theory of interest rate which is also known as the capital theory of interest or the saving-investment theory of interest or the real theory of interest. The theory argued that in the long run, the market forces of demand and supply will take care of the short-run deviations from desired level of prices, employment, and output(https://courseware.cutm.ac.in/wp-content/uploads/2020/06/Classical-theory-of-rate-of-interest.pdf)

Interest rate spread as a determinant of domestic investment can be presented thus:

GFCF = f(IRS) . . . . . (5)

For the purpose of this study, the above model is modified to capture the factors determining interest rate spread in Nigeria as follows:

IRS= f(MPR, TBR, LR, LDR, INF,) . . . . . (6)

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The transformation makes equation (6) estimable for modeling purposes and later transformed into equation (7) to make it estimable

$GFCF_t = \alpha + \beta_1 MPR_{t+} \beta_2 TBR_t + \beta_3 LR_t + \beta_4 LDR_t + \beta_5 INF_t + \beta_6 IRS_t + \mu_t$ . . . . . (7)

The time series data of specific variables from 1981 to 202 1 were collected. The dependent variable (GFCF) was from Central Bank of Nigeria (CBN) and National Bureau of Statistics(Uwakwe 2024)

3.1. Unit Root and Cointegration Test

The study undertakes to check for the time series properties of the data by applying a stationarity test as shown below in table 1 (Uwakwe 2024).

Table 3.1: Unit Roots Test on the Variables

	LEVEL FORM			FIRST DIFFERENCE			
VARIABLE	ADF stat.	P_value	Lag	ADF stat.	P_value	lag	I (d)
INF	-3.0520**	0.0386	0	NA	NA	NA	I(0)
IRS	-1.6800	0.4330	2	-7.2850	0.0000***	1	I(1)
LDR	-4.8113***	0.0004	4	NA	NA	NA	I(0)
LGFCF	-0.9199	0.7710	2	-3.9874	0.0037***	0	I(1)
LR	-3.5539**	0.0114	0	NA	NA	NA	I(0)
MPR	-3.3345**	0.0198	0	NA	NA	NA	I(0)
TBR	-3.0833	0.1240	0	-7.2162	0.0000***	0	I(1)

Source : Authors computation from Eview 10

To establish this the study utilized the probability values of the ADF statistic. Any variable with probability values of the ADF statistic less than a certain level of significance leads to the rejection of the null hypothesis at that level and is hence considered not to have a unit root. Following this, the study finds evidence of a combination of stationary series of INF, LDR, LR and MPR and non-stationary series of IRS, LGFCF and TBR.

3.2 ARDL Bound Cointegration Test Result

With the admixture of the I (1) and I (0) series, the study applied the ARDL bound cointegration test to the regression equation. The ARDL bound testing of co-integration indicates whether there is a long-run relationship among the variables or not. The result confirmed the long-run relationship between each explanatory variable and the dependent variable in Table 4.3 (Uwakwe 2024).

Table 3.2 ARDL Bound Cointegration Test Result

F-Statistics	K	Critical value Lower bound	Critical value Upper bound
15.57145	6	10% 1.99	10% 2.84

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		5% 2.27 1% 2.88	5% 3.28 1% 3.99

Source : Authors computation from Eview 10

From the estimated ARDL bound test result in Table 4.3, the computed F-statistics value is greater than the lower I (0) and the upper I(1) bound of the critical values bound at a 1% level of significance. The null hypothesis of no relationship, in the long run, is rejected and the study concludes that there is a long-run relationship among the variables in the equation(Uwakwe 2024).

3.3: Analysis of the impact of interest rate spread on domestic investment

The study analyzed the impact of **interest rate spread on domestic investment** using both the short-run and long-run models as shown below.

Table 3.3 Short-run impact of interest rate spread on domestic investment

ECM Regression

Case 3: Unrestricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.581511	0.087741	6.627568	0.0000
D(INF)	0.000482	0.000330	1.461781	0.1579
D(INF(-1))	-0.000256	0.000300	-0.854124	0.4022
D(INF(-2))	0.000864	0.000350	2.471062	0.0217
D(IRS)	-0.004157	0.001610	-2.581612	0.0170
D(LR)	-0.000336	0.000300	-1.117514	0.2758
D(LR(-1))	-0.001085	0.000303	-3.576913	0.0017
D(MPR)	-0.004542	0.002213	-2.052600	0.0522
D(MPR(-1))	0.003949	0.001498	2.635489	0.0151
D(LDR)	-0.000125	0.000362	-0.345090	0.7333
D(TBR)	0.002795	0.001829	1.528226	0.1407
CointEq(-1)*	-0.057750	0.009357	-6.171579	0.0000

R-squared= 0.711; F-statistic = 5.828952; Prob(F-statistic) = 0.000109

Source: Authors computation from Eview 10

Table 3.3 provides estimations detailing how variables such as interest rate spread impact investment in Nigeria. The coefficients pertaining to the inflation rate at different lags are presented. Notably, the inflation rate lacks a significant impact on investment at lag zero and one. However, a noteworthy positive and significant effect is observed at lag two, which is contrary to expectations, as higher inflation typically deters investment. The table illustrates a negative correlation between interest rate spread and investment. This suggests that as the

interest rate spread increases, investment also falls. This trend aligns with economic theory as a narrower spread should theoretically reduce transaction costs, fostering a conducive environment for investment. The coefficient of -0.0042 implies that a rise in interest spread indicates that widening of the gap between lending rate and savings rate reduces investment by about 0.0042 percentage point. However, this finding The liquidity ratio exhibits negative coefficients at both lag zero and one, indicating an adverse relationship with investment. Similarly, Walter and Onyam(2019) find that an inverse effect of rate spread on investment in Nigeria, implying that a rise in the spread reduces investment. Specifically, the coefficient at lag one highlights that a one per cent elevation in the liquidity ratio leads to an approximate 0.0011 per cent decline in investment. This conforms to expectations, as a higher liquidity ratio limits lending for investment purposes. Analysis of the Monetary Policy Rate (MPR) yields negative and positive coefficients at lag zero and one, respectively. A higher MPR obstructs banks' borrowing from the central bank, thereby constraining their lending capacity and impeding investment growth. The negative coefficient aligns more coherently with economic logic, and its numerical value indicates that a one per cent MPR increase results in a 0.0040 reduction in investment. This corresponds with the results of the investigation conducted by Etim, Abang, and Ekpenyong (2018), indicating that the monetary policy rate has significant negative impacts on domestic private investment, both in the immediate and extended periods. The Loan-to-Deposit Ratio (LDR) showcases a negative correlation with investment, suggesting that increased LDR corresponds with reduced investment. Importantly, a higher LDR should theoretically encourage investment by allocating more bank deposits for loans. Hence, the negative coefficient contradicts expectations. The text emphasizes that the Treasury Bill Rate (TBR) does not exert a significant impact on Nigeria's investment rate.

This corresponds with the results of the investigation conducted by Etim, Abang, and Ekpenyong (2018), indicating that the monetary policy rate has substantial adverse impacts on domestic private investment, both in the immediate and extended periods

Table 3.4: Long-run Impact of interest rate spread on investment.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF	-0.002926	0.016088	-0.181894	0.8574
IRS	-0.133979	0.032738	-4.092517	0.0005
LR	0.015450	0.011370	1.358791	0.1886
MPR	-0.128144	0.070942	-1.806310	0.0852
LDR	-0.004111	0.007565	-0.543450	0.5925
TBR	0.043815	0.051782	0.846135	0.4070

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C	10.44088	0.996212	10.48058	0.0000

EC = LOG_GFCF - (-0.0029*INF - 0.1340*IRS + 0.0154*LR -0.1281*MPR

The data in Table 4.5 provides estimations that elucidate the impacts of interest rate spread and other variables on long-term investment in Nigeria. The table indicates that the coefficient associated with inflation shows a negative relationship with investment, implying that inflation discourages long-term investment. However, the long-term inflation rate itself doesn't have a significant effect on investment. The table also reveals a positive correlation between interest rate spread and investment. This suggests that higher interest rate spreads correspond to increased investment. The coefficient value of 0.0155 denotes that a one per cent spread increase leads to a 0.0155 percentage point rise in investment in the long run. The positive coefficients attached to the liquidity ratio imply a positive link with investment. Nevertheless, the lack of significance in the coefficient suggests that it doesn't exert a substantial impact on long-term investment. The MPR coefficient is negative, indicating that an increase in MPR reduces investment. The coefficient's statistical significance at the 10 per cent level, with a value of 0.1281, indicates that a one per cent MPR increase decreases investment by 0.1281. The negative correlation of the LDR with investment suggests that higher LDR values lead to decreased investment. However, there's insufficient evidence to confirm its impact on long-term investment. Consequently, the negative coefficient presented in the table contradicts the theory. Similarly, the depiction of TBR suggests that it doesn't affect the long-term investment rate in Nigeria.

3.4 Causal relationship between interest rate spread and domestic investment

Table 4.6 shows the results of the Granger causality test results between interest rate spread and domestic investment null hypothesis of no causal relation between interest rate spread and investment was established as the probability values are so high that the study could not reject the hypothesis. This implies there is no causal relationship between interest rate spread and investment. This corroborates the findings of Andohol (2017) who found out that interest rate spread volatility, does not Granger cause investment in Nigeria.

Table 3.5: Granger Causality between interest rate spread and investment

Null Hypothesis:	Obs	F-Statistic	Prob.
D(IRS) does not Granger Cause D(LGFCF)	38	1.17087	0.3226
D(LGFCF) does not Granger Cause D(IRS)		0.77343	0.4696

Source : Authors computation from Eview 10

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3..6 Post-Estimation tests Results

The Coefficient of Multiple Determinations R^2

The R^2 which is the coefficient of multiple determinations 0.711, and this implies that about 71 per cent of the variation in investment is attributed to the set of exogenous variables. This result implies that the exogenous variables explained to a large extent the overall behaviour of the dependent variable in the short run (Uwakwe 2024).

Student t-Test

The study evaluated individual coefficients to know whether each of the variables impact significantly in investment. The study utilized probability to evaluate the significance of the variables. Any variable with probability values of the t-statistics less than a certain level of significance leads to the rejection of the null hypothesis at that level and is hence considered significant at that level. As shown in Table 4.4, using the conventional 1%, 5% and 10% levels of significance, only D(INF(-2)), D(LR(-1)), D(MPR), D(MPR(-1)) and D(IRS) representing two-period lag of inflation, first-period lag of liquidity ratio, monetary policy rate at zero and first-period lag and interest rate spread at lag zero significantly impact investment in the short-run. In the long run, IRS and MPR are the only variables that impact investment.

F-Test

For the F-statistics that test the joint significance of the entire slope coefficients in the model, the study compares the probability value for the t-statistic with the conventional 5 per cent level of significance. The probability value of 0.000109 is much lower than 5%. Thus, the study rejects $H_{o,}$ implying that the models are statistically significant and adequate for analysis and policy implications (Uwakwe 2024).

3.7 Evaluation of Research Hypotheses

The research hypotheses were evaluated based on the different regression results as shown below

Hypothesis I: There is no significant impact of interest rate spread on domestic investment in Nigeria.(Uwakwe 2024)

From Table 4.4 and 4.5, the probability values for the coefficient interest rate spread in short and long-run are less than the 0.05 and 0.01 level of significance respectively. Following this, the study rejects the null hypothesis that interest rate spread does not have a significant impact on investment in Nigeria. In other words, in both long-run and short-run interest rate spreads impact significant investment in Nigeria.

Hypothesis II: There is no causal relationship existing between interest rate spread and domestic investment in Nigeria(Uwakwe 2024)

From Table 4.6, the probability value for the F-statistic that interest rate spread does not Granger investment is greater than 10% per cent level of significance. Since this is the case, the study concludes that there is no significant causal relation between interest rate spread and investment in Nigeria(Uwakwe 2024).

Stability Test

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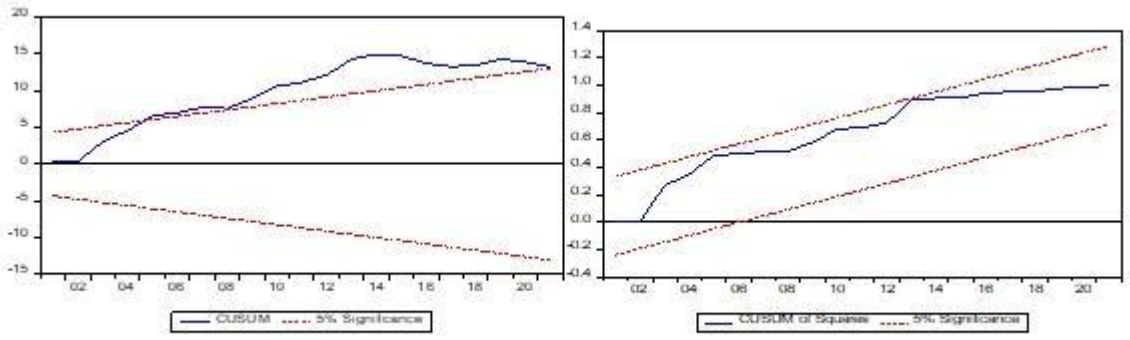
The stability tests have been used to investigate the stability of long-run and short-run parameters. The graphs of CUSUM and CUSUM square for both models are presented below.



The Figures specify that plots for both CUSUM and CUSUM square between critical boundaries at a 5% level of significance. The test verifies the ARDL model for structural stability based on the CUSUM square only. This indicates that the model seems to be steady and correctly specified.

3.8 Diagnostic Test on the Residuals

The study also carried out diagnostic tests on the series residuals such as heteroscedasticity, normality and autocorrelation as shown in the table below.

Table 3.6: Diagnostics Tests

Test	Test statistic	Value	Probability
Breusch-Godfrey LM test for autocorrelation	F-statistic:	0.1220	0.8858
	Obs*R-squared	0.4820	0.7858
White Heteroskedasticity Test	F-statistic	0.6201	0.8328
	Obs*R-squared	12.205	0.7298
	Scaled explained SS:	3.6860	0.9993
Jarque-Bera (JB) test for normality	JB-statistic	0.1983	0.9056

Source : Authors computation from Eview 10

The results show that the residual series of the model estimated has constant variance as confirmed by the Breusch-Pagan-Godfrey test for heteroscedasticity, implying that the null hypothesis of homoscedasticity could not be rejected at a 5% level of significance. Regarding the normality and autocorrelation of the disturbance terms, the established the normality of the distribution of the error terms and the nonexistence of autocorrelation using Jarque-Bera (JB) and Breusch-Godfrey LM test respectively.

4. Conclusion and Recommendations

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This research was conducted to examine the impact of interest rate spread on domestic investment in Nigeria using Auto-regressive Distributed Lag ARDL Model to carry out the analyses all pointed towards the same conclusion that interest rate spread does not significantly impact domestic investment in Nigeria within the period under review (Uwakwe 2024) . Granger causality test was conducted and the result shows no causal relationship between interest rate spread and domestic investment in Nigeria. The result implies that the exogenous variables explained to a large extent the overall behaviour of the dependent variable in the short run(Uwakwe 2024) . From the estimated ARDL bound test result in Table 4.3, the computed F-statistics value is greater than the lower I (0) and the upper I(1) bound of the critical values bound at a 1% level of significance (Uwakwe 2024). The null hypothesis of no relationship, in the long run, is rejected and the study concludes that there is a long-run relationship among the variables in the equation(Uwakwe 2024).

5. Recommendations

Based on the aforementioned, this study makes the following recommendation:

The government and relevant monetary agencies charged with the task should implement policies aimed at promoting domestic investment by ensuring that interest rates in the market do not rise above the Treasury bill rate. This can be done by increasing the Treasury bill rate and changing the liquidity ratio upward to promote more investment opportunities. A higher MPR obstructs banks' borrowing from the central bank, thereby constraining their lending capacity and impeding investment growth. To increase domestic investment the Central Bank of Nigeria should take steps to narrow the gap between the savings rate and lending rate. This will help to reduce the cost of funds for investment thereby increasing the rate of investment in Nigeria. As the Loan-to-Deposit Ratio (LDR) showcases a negative correlation with investment, suggesting that increased LDR corresponds with reduced investment the researcher suggests that governments should provide an appropriate environment both legal and otherwise needed for the flow of savings into productive investments. This will depend on the provision of adequate support to financial institutions to enable them to generate sufficient and quality investment resources (Daniel ,Paul and Edmond 2022).

According to the findings in agreement with Andohol (2017), the Granger causality test results between the interest rate spread and domestic investment in Nigeria demonstrate a negative association. Thus interest rate spread does not have a statistically significant impact on domestic investment in Nigeria. This corresponds with the research of Osazee F. O and Michael I. C(2019)findings which revealed that interest rate spread was negative and did not have any statistically significant impact on financial stability (Osazee and Michael 2019).

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