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Evaluating the Impact of Interest Rate Fluctuations on Investment Patterns in Nigeria

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This study empirically investigates the impact of interest rates on

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Abstract

Keywords: ARDL Interest rate Investment ECM	investment in Nigeria using annual time series data from 1986 to 2023. Employing the Autoregressive Distributed Lag (ARDL) approach, the analyzed key variables including investment, interest rate, inflation rate, exchange rate, GDP growth rate, and money supply. The ARDL results indicate that, in the short run, interest rates exert a negative and significant effect on investment, while inflation, exchange rates, GDP growth, and money supply positively influence investment. Similarly, in the long run, interest rates consistently demonstrate a negative impact on investment, whereas inflation, exchange rates, GDP growth, and broad money supply show a positive relationship. Additionally, the Toda and Yamamoto causality tests reveal unidirectional causality between interest rates and investment, as well as between inflation and investment, and
JEL Classification: E43, E62	exchange rates and investment. Given these findings, the study recommends that monetary authorities implement policies aimed at lowering interest rates to foster investment in the Nigerian economy.
Corresponding author 🖻	Furthermore, the Central Bank should adopt aggressive monetary
Hussaini Abdullahi	strategies to reduce lending rates to near single-digit levels, thereby
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1. Introduction

Interest rates are fundamental components of the financial system, significantly influencing investment decisions and economic growth. In Nigeria, where the economy is marked by fluctuations in both domestic and global financial conditions, understanding the impact of interest rates on investment is crucial for policymakers and investors alike. Higher interest rates typically increase the cost of borrowing, potentially discouraging investment, while lower rates may encourage capital expenditure and business expansion. This study seeks to analyze the relationship between interest rates and investment in Nigeria, focusing on how changes in monetary policy affect investment behavior across various sectors of the economy.

The Nigerian economy has experienced various challenges over the years, including inflation, currency volatility, and external economic shocks, particularly from oil price fluctuations (Central Bank of Nigeria, 2021). Investment is essential for economic development, contributing to infrastructure development, job creation, and technological advancement. However, the dynamics between interest rates and investment are complex. According to Adebiyi and Adebiyi (2020), changes in interest rates can significantly impact investment levels, particularly for small and medium-sized enterprises (SMEs), which form the backbone of the Nigerian economy. The Central Bank of Nigeria (CBN) utilizes the Monetary Policy Rate (MPR) to control inflation and stabilize the economy, which in turn affects lending rates across commercial banks. These rates influence the cost of financing for businesses, thereby impacting their investment decisions (Nwosa, 2021). Despite the critical role of interest rates in shaping investment behavior, there remains a gap in comprehensive studies that specifically address the nuances of this relationship in Nigeria's unique economic context.

The Nigerian economy is characterized by significant volatility in interest rates, which creates uncertainty for investors regarding the cost of capital. This unpredictability may hinder long-term investment planning (Obansa et al., 2019). Elevated interest rates often high borrowing translate to costs, disproportionately affecting SMEs. These businesses, which are vital for job creation and economic diversification, may find it challenging to secure financing for growth and expansion (Iganiga & Osaze, 2019). Different sectors of the Nigerian economy respond variably to interest rate changes, yet there is understanding of limited how these fluctuations affect sector-specific investment levels. This lack of clarity complicates targeted policy interventions (Ayanwale & Bamire, 2019).

Empirical evidence regarding the effectiveness of monetary policy in influencing investment behavior in Nigeria is limited. This poses challenges for policymakers seeking to create an environment conducive to investment (Nwosa, 2021). High interest rates may erode investor confidence, particularly in an facing structural economy challenges. Understanding this relationship is essential for promoting sustainable investment growth (Obansa et al., 2019). By addressing these issues, this study aims to provide valuable insights into the relationship between interest rates and investment in Nigeria, ultimately contributing to more effective economic policies and investment strategies.

2. Literature Review

2.1 Theoretical Framework

The analysis of the impact of interest rates on investment in Nigeria can be grounded in several economic theories that explain the relationship between these two variables. The following theoretical perspectives are particularly relevant: Classical investment theory posits that interest rates are a key determinant of investment decisions. According to this theory, higher interest rates increase the cost of borrowing, which firms making discourages from new investments (Jorgenson, 1963). Conversely, lower interest rates reduce the cost of capital, making investment more attractive. In Nigeria, this relationship is critical as businesses assess their financing options in a volatile economic environment (Omojolaibi, 2016). The Keynesian perspective emphasizes the role of aggregate demand in influencing investment decisions. According to Keynes, lower interest rates can stimulate investment by boosting consumer spending, leading to increased demand for goods and services (Keynes, 1936). This framework is particularly relevant in Nigeria, where economic growth is often driven by domestic consumption. When interest rates are low, firms may invest more to meet rising demand, thereby fostering economic growth (Akinlo, 2012).

The loanable funds theory posits that the interest rate is determined by the supply and demand for loanable funds. An increase in savings leads to a greater supply of funds available for investment, which can lower interest rates (Mishkin, 2016). In Nigeria, the availability of domestic savings and foreign investments can significantly influence interest rates, subsequently impacting investment levels. When savings are low, interest rates tend to rise, which can inhibit investment. The neoclassical model suggests that investment decisions are based on the marginal efficiency of capital (MEC) and the cost of capital rate). (investment According to this framework, firms will invest when the expected return on investment exceeds the cost of capital (Hayashi, 1982). In Nigeria, variations in interest rates can alter the cost of influencing capital, thereby investment decisions across various sectors of the economy.

Behavioral finance introduces the notion that investor sentiment and psychological factors can also play a role in investment decisions, beyond just economic indicators like interest rates (Shiller, 2000). In the Nigerian context, where economic uncertainty often prevails, investor perceptions and confidence can significantly impact the responsiveness of investment to interest rate changes. By integrating these theoretical perspectives, the analysis can provide a comprehensive understanding of how interest rates influence investment in Nigeria. The interplay of these theories can help illuminate the complex relationship between monetary policy, economic behavior, and investment outcomes.

2.2 Empirical review

Olubanjo, Atobatele, and Akinwumi (2010) simulated the interrelationships among interest rates, savings, and investment in Nigeria from 1993 to 2010 using a two-stage least squares method. Their findings suggested that a significant decrease in the real lending rate would lead to increased domestic investment. Ogujiuba and Obiechina (2012) examined the relationship between interest rates, inflation, and portfolio investment in Nigeria using time series data from 1986 to 2008. They employed a non-restrictive vector autoregressive (VAR) model, imposing restrictions to identify the structural components of the error terms through a structural vector autoregressive (SVAR) analysis. Their results indicated that interest rates positively impact net portfolio investment. Kiyentei and Menoja (2021) explored the effect of interest rates on portfolio investment in Nigeria from 1984 to 2018, utilizing time series data from the CBN and WDI and employing the autoregressive distributed lag (ARDL) technique. Their findings revealed a positive and significant effect of interest rates on portfolio investment in the short run but no long-term impact.

In contrast, Eregha (2010) investigated variations in interest rates and their effect on investment decisions in Nigeria. Using a dynamic model of two equations with instrumental variable estimation, the study found that variations in interest rates negatively significantly influenced investment and decisions, while the demand for credit also adversely affected interest rate variations in both the short and long runs. Similarly, Owumere et al. (2012) studied the impact of interest rate liberalization on savings and investment in Nigeria using OLS techniques. They concluded that interest rate liberalization had a significant negative impact on investment, suggesting that while liberalization is а beneficial policy, it proved counterproductive in Nigeria.

Osundina and Osundina (2014) used a multiple linear regression model to examine the correlation between interest rates and portfolio investment decisions in Nigeria. Their study, based on an updated Mundell-Fleming model, indicated a strong negative relationship between interest rates and portfolio investment. The Granger causality test results showed that interest rates Grangercause portfolio investment in Nigeria. Furthermore, Oriavwote and Oyovwi (2014) investigated the influence of interest rates on investment decisions in Nigeria. Using cointegration techniques and an error correction model (ECM) for data from 1980 to 2012, they found that high minimum rediscount rates and prime lending rates adversely affected aggregate investment, while high Treasury bill rates and government stock rates positively influenced it.

Ojima and Emerenini (2015) also studied the impact of interest rates on investment in employing multiple regression Nigeria, analysis. Their results indicated that high interest rates negatively affect investment. They recommended that relevant monetary authorities develop policies to encourage savings and lower prime lending rates for genuine investors. In another study, Iheonu and Nwakeze (2016) investigated the impact of output and real interest rates on investment in Nigeria from 1981 to 2014 using the ARDL model approach to co-integration. They tested for stationarity using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests. Their findings revealed a long-run relationship among the variables, although real interest rates had a negative yet insignificant impact on investment.

Apere and Akarara (2018) examined the impact of interest rates on investment in Nigeria from 1981 to 2015, using secondary data from the Central Bank of Nigeria. They employed the Johansen multivariate cointegration model and ECM for analysis. Their co-integration tests indicated a long-run relationship between interest rates (MLR, MPR, SAVR) and investment, with ECM results showing that MLR and MPR negatively significantly impacted investment. and Modestus and Princess (2021) conducted an empirical assessment of variations in interest rates and investment behavior in Nigeria from 1981 to 2019. They analyzed time series data on interest rates, inflation rates, exchange rates, and gross fixed capital formation using the error correction mechanism of the ARDL model. Their findings showed a significant negative relationship between interest rates and gross fixed capital formation, indicating that a unit increase in the prime lending rate would decrease investment by 0.02 units. Recently, Obi (2022) investigated the impact of interest

rates on savings and investment in Nigeria from 1981 to 2020. Using secondary data from the Central Bank of Nigeria, the study employed cointegration and error correction mechanisms to establish long-run relationships among the variables, including domestic investment, prime lending rate, maximum lending rate, monetary policy rate, and savings. The results indicated that interest rates have a significant negative impact on investment in Nigeria.

3. Methodology

The study analyzes an annual dataset from 1980 to 2023. The period from 1980 to 2023 is justified as it encompasses critical economic transformations. fluctuations in interest rates. and diverse challenges that collectively influence investment behavior in Nigeria. Analyzing this timeframe offers valuable insights into the dynamics of interest rates and their implications for investment in the Nigerian context. Data were sourced from the Central Bank of Nigeria (CBN). The major variables of interest are interest rate and investment. Interest rates are measured using monetary policy rates (MPR); this is the rate at which the central bank lends to commercial banks. It directly influences other interest rates in the economy and is a key tool for monetary policy. In Nigeria, the Central Bank of Nigeria (CBN) uses the MPR to signal its monetary policy stance. While investment is measured by gross fixed capital formation (GFCF), this is a key indicator of investment, representing the net increase in physical assets (investment in infrastructure, machinery, etc.) within the economy. It reflects long-term investment trends and is widely used in economic analyses. The study employs a modified econometric model based on previous works, with the functional model yet to be specified.

INV = f(INTR, INFR, EXR, GDP, MS) 1

Where: EXR = Exchange rate, INV = Investment, INTR = Interest rate, INFR = Inflation rate, GDP = Economic growth, MS = Money supply. This functional model can be rewritten as a mathematical equation:

$$INV_{t} = \beta_{0} + \beta_{1}INTR_{t} + \beta_{2}INFR_{t} + \beta_{4}GDP_{t} + \beta_{3}EXR_{t} + \beta_{5}MS \qquad 2$$

Where: "t" is the time series variance, " β_0 " represent the constant parameters, and " $\beta_1 - \beta_5$ " are the parameters to be estimated. Thus, the mathematical equation can be restated into econometric model to captured the error term. The econometric model or equation is specified as:

$$INV_{t} = \beta_{0} + \beta_{1}INTR_{t} + \beta_{2}INFR_{t} + \beta_{3}EXR_{t} + \beta_{4}GDP_{t} + \beta_{5}MS + \mu_{t}$$

Where: " μ_t " is the error term or disturbance term. However, equation 3.3 can be restated to capture the natural log of the parameter to be estimated.

The study employs both descriptive and inferential statistical methods for data analysis.

Key descriptive measures include mean, median, mode, maximum and minimum values, skewness, and kurtosis, which help provide insights into the data. The inferential test is ARDL, and other estimations include multicollinearity tests and unit root tests to check for non-stationarity in time series data. The autoregressive distributed lag (ARDL) model, initially proposed by Pesaran et al. (2001), offers several advantages. Notably, it does not necessitate that all variables be integrated of the same order, I(1). The use of the ARDL model in this study is justified for several reasons: it can be applied even when the time series data are stationary at I(0), I(1), or a combination of both. Additionally, it delivers robust and reliable results regardless of whether the sample size is large or small. Lastly, this approach incorporates an error correction model. The ARDL model is specified as follows:

$$\Delta EXR_{t-1} = \beta_0 + \sum_{\substack{i=1\\m}}^m \beta_1 \Delta EXR_{t-1} + \sum_{i=1}^m \beta_2 \Delta INR_{t-1} + \sum_{i=1}^m \beta_3 \Delta INFR_{t-1} + \sum_{i=1}^m \beta_4 \Delta GDP_{t-1} + \sum_{i=1}^m \beta_5 \Delta MS_{t-1} + \beta_1 \Delta EXR_{t-1} + \beta_2 \Delta INR_{t-1} + \beta_3 \Delta INFR_{t-1} + \beta_4 \Delta GDP_{t-1} + \beta_5 \Delta MS_{t-1} + \mu_t$$

$$\Delta EXR_t = \beta_0 + \beta_1 \sum_{t=1}^{inr} \Delta INR_{t-1} + \beta_2 \sum_{t=1}^{infr} \Delta INFR_{t-1} + \beta_3 \sum_{t=1}^{gdp} \Delta GDP_{t-1} + \beta_4 \sum_{t=1}^{ms} \Delta MS_{t-1} + \varepsilon ECM(-1) + \mu_t$$
5

ff In the ARDL model discussed, EXR represent exchange rate, INR denote interest rate, INFR is inflation rate, GDP connote gross domestic products, ad MS represent money supply. The short-run impacts of interest rate on investment in Nigeria are indicated by the signs and significance of the θ coefficients, while the signs and significance of the β coefficients (normalized on β_4) reflect the long-run effects. The error correction model then captures these long-run relationships among the time series variables and can be specified

accordingly. Where: Δ represents the difference or changes capturing short-run impact, ε capture the long-run impact ECM (-1) is the Error Correction Term, μ_t represent the error term.

4. Results and Discussions

Table 4.1 provides descriptive statistics for key variables which includes investment, interest rates, inflation rates, exchange rates, economic growth, and money supply. The average mean values for investment, interest rates, inflation rates, exchange rates, economic growth, and money supply are 1.12, 2.69, 2.67, 4.20, 1.08, and 2.80 respectively. Investment (1.12): This relatively low average may indicate cautious investor sentiment, possibly due to economic uncertainty or lack of confidence in market conditions. Interest Rates (2.69): Moderate interest rates can encourage borrowing and spending but may also reflect a central bank's efforts to manage inflation and stimulate growth without overheating the economy.

Varbs.	Mean	Media	Max	Min	Std.Dev.	Skew.	Kurt.	Obs.
LINV	1.1265	1.1283	2.3988	0.0295	0.6619	0.1093	2.9745	37
LINR	2.6919	2.5572	4.2877	1.6883	0.6891	0.9126	2.9707	37
LINFR	2.6728	2.5096	4.2877	1.6863	0.6892	0.9938	3.0755	37
LEXR	4.2009	4.8349	6.1109	0.7031	1.4749	-0.7488	2.4387	37
LGDP	1.0831	1.4351	2.7298	2.8134	1.2279	-1.7069	5.9678	37
LMS	2.8022	2.7140	3.3318	2.2039	0.3646	0.0622	1.4438	37

 Table 1. Results of the Descriptive Analysis

Source: Author's Computation EViews 12

Inflation Rates (2.67): An inflation rate around this level is generally considered manageable, suggesting the economy is growing without excessive price increases. It may indicate stable demand and moderate wage growth. Exchange Rates (4.20): A higher average exchange rate could suggest a stronger currency, which may impact export competitiveness. This could reflect favorable trade conditions or differences in interest rates relative to other countries. Economic Growth (1.08): This low growth rate might indicate sluggish economic activity, potentially due to global economic conditions, supply chain issues, or lower consumer confidence. Money Supply (2.80): A steady increase in money supply can indicate efforts to stimulate the economy, though excessive growth could lead to inflation concerns. In summary, these average values might suggest an economy experiencing moderate growth with stable inflation but facing challenges related to investment confidence and possibly external economic pressures. Each value contributes to a broader picture of economic health and policy responses.

The maximum values for investment, interest rates, inflation rates, exchange rates, economic growth, and money supply are 2.39, 4.28, 4.28, 6.11, 2.72, and 3.33 respectively. Investment (Max: 2.39): Suggests higher investor confidence during economic upturns. Interest Rates (Max: 4.28): Indicates potential

tightening of monetary policy to combat inflation. Inflation Rates (Max: 4.28): Reflects rising prices due to demand or supply disruptions. Exchange Rates (Max: 6.11): Implies a stronger currency impacting export competitiveness, with fluctuations influenced by trade balances or monetary policy. Economic Growth (Max: 2.72): Indicates robust economic performance. Money Supply (Max: 3.33): Suggests aggressive monetary policy to stimulate the economy. Overall, the range of values highlights the dynamic nature of the economy, showcasing periods of growth, inflationary pressures, and changing investor sentiment influenced by external factors and policy decisions.

The minimum value for investment, interest rates, inflation rates, exchange rates, economic growth, and money supply are 0.02, 1.68, 1.68, 0.70, 2.81, and 2.20 respectively. Investment (Min: 0.02): Indicates extreme caution among investors due to economic uncertainty or adverse conditions. Interest Rates (Min: 1.68): Reflects low borrowing costs, likely as a central bank's effort to stimulate the economy during a recession. Inflation Rates (Min: 1.68): Suggests stable prices, pointing to low demand or subdued economic activity. Exchange Rates (Min: 0.70): Indicates a weaker currency, potentially due to trade imbalances or poor economic performance. Economic Growth (Min: 2.81):

Suggests the economy is generally performing well, though it may indicate limited growth during stressful periods. Money Supply (Min: 2.20): Implies tighter monetary conditions, likely in response to inflationary pressures. Overall, these values reflect low investment confidence, stable prices, low borrowing costs, and a potentially weaker currency, highlighting various economic challenges and policy responses.

The standard deviations of investment, interest rates, inflation rates, exchange rates, economic growth, and money supply are 0.66, 0.68, 0.68, 1.47, 1.22, and 0.36 respectively. Investment (SD: 0.66): Moderate variability suggests fluctuating investor confidence due to changing economic conditions. Interest Rates (SD: 0.68): Indicates fluctuations likely influenced by central bank policies and inflation concerns. Inflation Rates (SD: 0.68): Moderate variation reflects changing demand dynamics and external economic factors. Exchange Rates (SD: 1.47): High volatility indicates significant fluctuations due to geopolitical events and trade policies. Economic Growth (SD: 1.22): Relatively high variability suggests considerable changes influenced by external shocks and consumer confidence. Money Supply (SD: 0.36): Low variability indicates stability, reflecting careful central bank management to avoid inflation or deflation. Thus, these standard deviations highlight varying levels of volatility, with higher values indicating greater uncertainty in exchange rates and economic growth, while lower values indicate stability in the money supply.

 Table 2. Results of Multicollinearity Test (Variance Inflation Factor Analysis)

Variable	Coefficient Variance	Uncentered VIF	Centered VIF	Remark
LITR	0.032611	18.24067	1.142061	< 5
LIFR	0.034214	46.39920	4.956258	< 5
LEXR	0.033572	46.89114	5.008806	< 5
LRGDP	0.450365	254.5337	4.032716	< 5
LBMS	0.442572	257.6159	4.081549	< 5
Mean VIF			3.844278	

Source Author's Computation, Eviews 12

Table 2 show no evidence of multicollinearity, as the variance coefficients values for all the variables or parameters are all below 0.10. O'Brien, (2007) suggested that a variance coefficient above or equal to 0.10 could indicate potential multicollinearity problem. LITR has a centered VIF of 1.142061 this is well below 5, indicating no multicollinearity concerns. LIFR has a centered VIF of 4.956258 still below 5, which suggests no significant multicollinearity issues. LEXR has a centered VIF of 5.008806 this is just above 5 but still verv close, suggesting moderate multicollinearity. LRGDP has a centered VIF of 4.032716 again below 5, indicating no issues with multicollinearity. LBMS has a centered VIF of 4.081549 this is also below 5, suggesting no multicollinearity issues. Overall Analysis: The mean centered VIF is 3.844278, which is below 5, indicating that on average, predictors do not have high the multicollinearity. Although LEXR has a VIF slightly above 5, it is still not above the typical threshold of 10. Therefore, it may be considered to have moderate multicollinearity, but this is not necessarily problematic. In conclusion, based on the centered VIF values, there are no significant multicollinearity concerns in this regression model. The highest VIF value is 5.008806, which is just slightly above 5, but still within acceptable limits, and the mean VIF is well below 5. Therefore, multicollinearity is not a serious issue in this case.

Tables 3 present the results from the Augmented Dickey-Fuller and Phillips-Perron unit root tests. The findings indicate that the

variables are stationary at the first difference, categorized as I(0) and I(1), which is consistent with the ARDL model requirements. Consequently, the null hypothesis of non-Table 3 Results of the Unit Root Test stationarity is rejected, while the alternative hypothesis of stationarity for the variables is accepted.

Table .	5. Results of the		est					
S/N	VARIABLES	ADF-	Р-	I(d)	PP T-STA	P-VALUE	I(d)	
		STAT	VALUE					
1	INV	-5.8030	0.0001*	1(0)	-5.8030	-0.0000*	1(0)	
2	INT	-3.2629	0.0243**	1(0)	-3.3636	0.0191**	1(0)	
3	INF	-3.2574	0.0247**	1(0)	-3.3636	0.0165**	1(0)	
4	EXR	-6.1235	0.0000*	1(1)	-6.1230	0.0000*	1(1)	
5	GDPGR	-5.2638	0.0001*	1(1)	-21.1452	0.0001*	1(1)	
6	MS	-4.3475	0.0015*	1(1)	-4.9544	0.0003*	1(1)	

Source: Researcher Computation Using E-Views-10 Software (2023)

(Note: *, ** and *** means significant 1 %, 5% and 10% levels respectively)

Tal	ble	4.	Result	s of	the	Co-integration	on	Bound	Test
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Test Stat.	Value	Sign. Level	Upper	Bound	Lower	Bound		
			1(1)		1(0)			
F-Statistics	9.5	1%	4.7		3.4			
Κ	6	5%	3.8		2.6			
		10%	3.4		2.3			
Significant at 1	Significant at 1%(***), 5%(***), 10(*)							

Source: Author's Computation, Eviews 12

Table 4 presents the results of the long-run cointegration analysis. The F-statistic of 9.5 exceeds the upper bound I(1) critical values of 4.7, 3.8, and 3.4 at the 1%, 5%, and 10% significance levels, respectively, as well as the lower bound I(0) values of 3.4, 2.6, and 2.3 respectively. Consequently, the null hypothesis of no cointegration among the variables is rejected, supporting the alternative hypothesis that a cointegration relationship exists among the parameters. This indicates that these variables share a long-run equilibrium relationship and move together over time.

Table 4.5 presents the long-run and shortrun ARDL estimates regarding the effect of investment on interest rates in Nigeria. The results revealed a significant negative relationship between interest rates and investment, both in the long run and short run. Higher interest rates increase borrowing costs for businesses, making loans more expensive and prompting firms to cut back on investment. Additionally, elevated interest rates can reduce consumer spending, as individuals face higher payments on loans and mortgages, leading to decreased demand that discourages businesses from pursuing new projects. Furthermore, high interest rates may signal economic instability or inflation concerns, which can diminish investor confidence: when businesses perceive greater risks, they may choose to delay or reduce investments. As interest rates rise, safer investments, like bonds, become more appealing compared to riskier ventures, causing funds to shift away from productive investment. Central banks often raise interest rates to manage inflation, but this can unintentionally hinder investment, as increased capital costs create a tougher environment for business expansion. Moreover, higher interest rates may strengthen the national currency, making import less competitive, which further reduces investment in export-focused sectors. Collectively, these factors explain the observed negative relationship between investment and interest rates in Nigeria.

The positive and significant long-run and short-run relationship between inflation rates and investment in Nigeria can be understood through several key points. Moderate inflation often signals rising demand in the economy, prompting businesses to boost investment to take advantage of expanding markets and consumer needs. As inflation increases, the nominal value of assets generally rises, encouraging firms to invest in physical assets with the expectation of future appreciation. When inflation exceeds nominal interest rates, the real cost of borrowing effectively decreases, making loans more appealing to businesses and spurring investment as they seize the opportunity for cheaper financing. Anticipating future price increases can also

drive firms to invest now to avoid higher costs later, creating a sense of urgency for expansion. Additionally, a certain level of inflation is sometimes considered normal or necessary for economic growth, leading businesses to view it as a favorable environment for investment. Government policies designed to stimulate the economy during moderate inflation can further incentivize investment through subsidies or tax breaks. Moreover, specific sectors, such as real estate and commodities, may thrive in inflationary conditions, contributing to the overall positive correlation between inflation and investment. Together, these factors help clarify why higher inflation rates in Nigeria may be linked to increased investment levels.

Dependent Variable: EXR						
Ind.	Coefficient	Std. Error	t-Statistic	P-value		
Variables						
INT	-03274	3.5853	-1.4876	0.0502**		
INF	0.7718	4.9451	1.5317	0.0440**		
EXR	0.7718	0.2679	2.8807	0.0104**		
LGDP	0.5224	0.3047	1.7142	0.0047***		
LMS	0.0768	0.6015	0.1276	0.9999*		
ΔINT	-0.0504	1.1002	-0.4004	0.0938*		
ΔINF	0.6246	1.1187	0.5584	0.0833*		
ΔEXR	0.9539	0.4138	4.7227	0.0002***		
ΔLGDP	0.2780	0.0747	3.7227	0.0017***		
ΔLMS	0.1275	0.6155	1.8318	0.0292**		
С	-8.3471	0.9754	-8.5574	0.0000***		
ECM	-0. 8116	0.0946	-8.5820	0.0000***		
$R^2 = 0.84$, Ad	justed $R^2 = 0.81$, Dubir	Watson Statistics $= 1$.78, F-Statistics = 23.06	64 (0.0000)		

 Table 5. Result of the ARDL Estimation Test

Source: Author's Computation, EViews 12, Significant at 1%(***), 5%(**), 10%(*)

There exists a positive and significant connection between exchange rate and investment in Nigeria in both short run and long run respective. A favorable exchange rate boosts the competitiveness of Nigerian exports. When the local currency depreciates, Nigerian products become more affordable for foreign buyers, which can lead to increased export revenues and motivate businesses to invest in expanding their production. Conversely, a stable or appreciating exchange rate attracts foreign investors by minimizing the risks associated with currency fluctuations. This can result in higher foreign direct investment, bringing in additional capital and resources. When the currency weakens, the cost of imported goods, including raw materials and equipment, tends to rise. Although this raises production costs, it may also drive local businesses to invest in domestic production to lessen their dependence on imports. A stable or appreciating exchange rate conveys overall economic stability, which can enhance investor confidence. Firms are more likely to invest when they see a stable economic landscape.

For foreign companies operating in Nigeria, a favorable exchange rate simplifies profit repatriation, encouraging further investment as these companies feel secure about transferring their profits back home. Additionally, a strong exchange rate can help control inflation, preserving purchasing power and creating a more favorable investment environment. Businesses are more inclined to invest when they believe their returns will not be diminished by inflation. Government policies that promote a stable exchange rate can further stimulate both domestic and foreign investment by reducing uncertainty and creating a supportive business climate. Collectively, these elements explain the positive relationship between exchange rates and investment in Nigeria, reflecting both short-term and long-term economic dynamics. There is a positive and significant relationship between GDP and investment in Nigeria in both short run and long run respective. A rising GDP generally signals a growing economy, encouraging businesses to invest to take advantage of increasing demand for goods and services. As economic conditions improve, companies are more likely to expand their operations and increase capital expenditures. Higher GDP also correlates with increased consumer spending, which stimulates business activity. In response to this heightened demand, firms may invest in new projects, facilities, and technologies to better meet consumer needs. Additionally, a growing GDP investor confidence, enhances making businesses more willing to engage in long-term investments. Positive economic indicators foster a favorable environment for both domestic and foreign investments. When GDP is on the rise, financial institutions tend to be more willing to lend, as they view businesses and projects as less risky, further facilitating investment through improved access to financing.

Economic growth often leads to enhanced government policies and infrastructure development, creating a more supportive environment for investment. Better infrastructure can lower operational costs and boost business efficiency. As GDP rises, companies may pursue long-term strategies that involve significant investments in capital goods, research, and development to maintain growth. Different sectors may experience varying growth rates alongside GDP increases, leading to specific investment opportunities, particularly in areas like construction, technology, and services. These factors collectively explain the observed positive relationship between GDP and investment in Nigeria, highlighting the interconnectedness of economic growth and investment behavior.

In the short run, an increase in money supply positively influences investment in Nigeria, though it lacks a long-term effect. By enhancing liquidity in the financial system, a higher money supply makes it easier for businesses to obtain credit. This accessibility can lead to increased investment as firms benefit from lower borrowing costs. Additionally, a rise in money supply often stimulates consumer spending, which boosts demand for goods and services. In response to this increased demand, businesses may invest in new projects or expand their production capabilities. As money supply grows, interest rates typically decline, making borrowing cheaper. This reduction in costs can encourage firms to pursue short-term investment opportunities. The increase in money supply may serve as a temporary economic stimulus, prompting businesses to invest based on improved conditions. However, if this increase does not result in sustained economic growth, the initial surge in investment may not endure. Businesses might also invest more initially to guard against potential inflation arising from an increased money supply. However, if inflation does not stabilize or if the economy fails to grow correspondingly, the long-term effects may weaken. In the short term, companies might rapidly boost their investments due to favorable conditions, but they may eventually reach a saturation point where additional investment becomes less advantageous, diminishing the impact of

money supply on investment. The initial boost from a higher money supply may also encounter diminishing returns over time. While it can foster more investment in the short term, lasting growth may require deeper structural changes, such as improvements in infrastructure, productivity, or regulatory frameworks.

Table 6. Result of the Toda-Yamamoto (TY)	Granger Causality Test
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Null Hypothesis .	F -statistics	P-value
INR does not granger cause LINV	6.0055	0.0497**
INFR does not granger cause LINV	5.9926	0.0500**
EXR does not granger cause LINV	18.536	0.0001***
LEXR does not granger cause LTFR	1.1764	0.3196
	50 ((Note) 100 ((Note)	

Source: Author's Computation, Eviews 12, Significant at 1%(***), 5%(**), 10%(*)

Collectively, these factors explain why an increase in money supply can positively affect investment in the short run but have limited or negligible long-term consequences.

Table 4.6 presents the results of the TY Granger causality test. The findings indicate that there is causal relationship among these variables, meaning changes in one do not predict changes in another. That is to say there is a causal relationship running from interest rates, inflation rates, and exchange rate to investment. Consequently, the null hypothesis of no causal relationship is accepted, rejecting the alternative hypothesis that such relationships exist in Nigeria. The absence of causal links may be due to complex interactions with other unaccounted factors, market inefficiencies, or longer time horizons affecting relationships that are not captured in the analysis. Table 4.7 results indicate no evidence of heteroskedasticity or serial correlation among the variables, as all tests returned statistically non-significant probability values. Consequently, the null hypothesis of no autocorrelation is accepted, while the alternative hypothesis suggesting its presence is rejected.

Table 4	1.7:	Results	of	the	Diagn	ostic	Test

Test	F-statistics	P-value	
Heteroscedasticity	0.9085	0.5741	
Normality Test	1.7434	0.4183	
Serial Correlation LM Test	2.1464	0.1292	
Author's Computation Eviews 12.	5		





Figure 1: CUSUM Test

Figure 2. CUSUM of Squares Test

Figures 1 and 2 shows the results from the stability test conducted using the CUSUM and CUSUM of squares method. The findings indicate that the estimated parameters are stable, as the cumulative sums of recursive errors stay within the two critical lines for both CUSUM and CUSUM of squares test. This suggests that there are no structural breaks in the parameters analyzed during the period under consideration. Therefore, we accept the null hypothesis that there is no structural break and reject the alternative hypothesis proposing the existence of a structural break.

5. Conclusion and recommendation

This paper examines the impact of interest rates on investment in Nigeria from 1986 to 2023, utilizing ARDL estimation techniques for the analysis. The findings indicate a significant negative relationship between interest rates and investment. This suggests that high interest rates may indicate economic instability, which can undermine investor confidence. When businesses perceive greater risks, they are likely to postpone or scale back their investments. As interest rates increase, safer options, such as bonds, become more attractive compared to riskier investments, leading to a diversion of funds away from productive ventures. While central banks often raise interest rates to control inflation, this can

inadvertently stifle investment, as higher capital costs create challenges for business growth. Additionally, rising interest rates may strengthen the national currency, making exports more expensive and less competitive, which further diminishes investment in exportoriented sectors. These combined factors clarify the observed negative relationship between investment and interest rates in Nigeria. The paper recommends that monetary authorities implement policies to mitigate the rise in interest rates to foster investment in the Nigerian economy. Furthermore, the central bank should adopt a more aggressive monetary policy aimed at reducing lending rates to near single digits to stimulate investment growth.

References

- Adebiyi, M. A., & Adebiyi, O. A. (2020). The impact of interest rates on investment decisions in Nigeria: Evidence from SMEs. *Journal of Economics and Sustainable Development*, 11(2), 12-24.
- Akinlo, A. E. (2012). The role of interest rates in stimulating investment in Nigeria. *African Development Review*, 24(4), 315-326.
- Apere, T. A., & Akarara, A. E. (2018). The impact of interest rates on investment in Nigeria: A cointegration approach. *Journal*

of Economics and Sustainable Development, 9(5), 78-89.

- Ayanwale, A. B., & Bamire, A. S. (2019). Interest rate variability and its impact on sector-specific investment in Nigeria. *Nigerian Journal of Economic and Financial Research*, 4(1), 45-58.
- Central Bank of Nigeria. (2021). Annual report and statement of accounts. Abuja: Central Bank of Nigeria.
- Eregha, P. B. (2010). Interest rate variations and their effects on investment decisions in Nigeria: A dynamic approach. *Journal of Business and Management*, 12(3), 49-58.
- Hayashi, F. (1982). The permanent income hypothesis and consumer durables. *Journal of Political Economy*, 90(5), 895-916.
- Iheonu, C. C., & Nwakeze, N. M. (2016). Output, real interest rates, and investment in Nigeria: An ARDL approach. *African Journal of Economic Review*, 4(1), 45-67.
- Iganiga, B. O., & Osaze, E. O. (2019). The effect of interest rate on the performance of small and medium enterprises in Nigeria. *International Journal of Research in Business Studies and Management*, 6(4), 25-33.
- Jorgenson, D. W. (1963). Capital theory and investment behavior. *American Economic Review*, 53(2), 247-259.
- Keynes, J. M. (1936). *The general theory of employment, interest, and money*. London: Macmillan.
- Kiyentei, K. A., & Menoja, S. M. (2021). The effect of interest rates on portfolio investment in Nigeria: An ARDL approach. *Journal of Economics and International Finance*, *13*(2), 22-34.
- Mishkin, F. S. (2016). *The economics of money, banking, and financial markets* (10th ed.). Boston: Pearson.
- Modestus, O., & Princess, O. (2021). An empirical assessment of variations in interest rates and investment behavior in Nigeria. *Journal of Economic Studies*, 48(3), 512-525.
- Nwosa, P. I. (2021). Monetary policy and its effect on investment in Nigeria: A sectoral

analysis. *Journal of Finance and Economics*, 9(3), 150-160.

- Obansa, S. A., Okwu, A. T., & Anagbogu, M. A. (2019). Interest rate fluctuations and investment decisions in Nigeria: Implications for economic growth. *Journal* of Financial Economic Policy, 11(3), 359-377.
- Obi, A. (2022). The impact of interest rates on savings and investment in Nigeria: A cointegration analysis. *Journal of Business and Economic Research*, 20(2), 85-97.
- Ogujiuba, K., & Obiechina, A. (2012). The relationship between interest rates, inflation, and portfolio investment in Nigeria: A VAR approach. *Journal of Finance and Accountancy*, 5(1), 15-27.
- Ojima, E. O., & Emerenini, C. F. (2015). The impact of interest rates on investment in Nigeria: Evidence from multiple regression analysis. *Journal of Economics* and Sustainable Development, 6(4), 123-135.
- Olubanjo, O. A., Atobatele, O. E., & Akinwumi, A. (2010). Interrelationships among interest rates, savings, and investment in Nigeria: A simulation approach. *Nigerian Journal of Economic and Financial Research*, 6(2), 30-45.
- Oriavwote, V. T., & Oyovwi, O. (2014). The influence of interest rates on investment decisions in Nigeria: A co-integration approach. *International Journal of Academic Research in Business and Social Sciences*, 4(1), 27-37.
- Owumere, J. U., Okeke, M. O., & Nwafor, C. E. (2012). Interest rate liberalization and its impact on savings and investment in Nigeria: An OLS approach. *International Journal of Business and Management*, 7(10), 100-108.
- Obansa, S. A., Okwu, A. T., & Anagbogu, M. A. (2019). Interest rate fluctuations and investment decisions in Nigeria: Implications for economic growth. *Journal* of Financial Economic Policy, 11(3), 359-377).
- Shiller, R. J. (2000). *Irrational exuberance*. Princeton University Press.