



## **THE THRESHOLD EFFECTS OF MONETARY POLICY RATE ON DOMESTIC INVESTMENT IN NIGERIA**

**GEORGE-ANOKWURU, Chioma Chidinma**

Department of Economics, Faculty of Social Sciences,

University of Port Harcourt, Nigeria

chiomanwoga@yahoo.com

### **Abstract**

*This study examined the threshold effects of Monetary Policy Rate on domestic investment in Nigeria from 1990–2023. Annual time series data on private domestic investment - proxied as Gross Fixed Capital Formation, Monetary Policy Rate, broad money supply as a ratio of gross domestic product in %, exchange rate, and inflation rate were obtained from the statistical reports of Nigeria's apex bank and World Development Indicators. The study employed the Smooth Threshold Regression model. The empirical findings revealed the existence of a statistically significant monetary policy threshold at an MPR of approximately 14.18%. The results further revealed that while the direct effect of the Monetary Policy Rate is statistically insignificant in both regimes, the responses of other macroeconomic variables vary significantly after the threshold is reached. In the linear regime, exchange rate exerts a positive and significant effect on private domestic investment, broad money supply as a ratio of gross domestic product in % has a positive and insignificant influence on private domestic investment, whereas inflation has a significant negative effect. In the nonlinear regime, money supply becomes significantly negative, exchange rate remains positive with a stronger influence, and inflation changes from a negative to a positive determinant of private investment. The study concluded that the relationship between monetary policy rate and private domestic investment in Nigeria is nonlinear and state-dependent, implying that the effectiveness of monetary policy rate depends on the prevailing interest rate regime. The study recommended that the Central Bank of Nigeria should incorporate threshold considerations into monetary policy formulation, maintain macroeconomic stability through coordinated monetary and fiscal policies, and adopt*

*nonlinear analytical frameworks when assessing the effects of monetary policy rate adjustments. These measures would enhance policy effectiveness in promoting private domestic investment and sustainable economic progress in Nigeria.*

*Keywords: Monetary Policy Rate, Private Domestic Investment, Smooth Threshold Regression, Threshold Effects, Nonlinear Monetary Policy, Nigeria*

## INTRODUCTION

Domestic investment is seen as a key force that helps the economy grow, develop industries, create jobs, and advance technology. By building up capital, investment increases the ability to produce goods and services, makes workers more efficient, and helps the economy improve over time. In developing economies such as Nigeria, domestic investment is especially important because foreign capital inflows are often volatile and susceptible to global economic shocks. As a result, strengthening domestic investment has become a central objective of macroeconomic policy aimed at achieving inclusive growth and long-run economic development (United Nations Conference on Trade and Development - UNCTAD, 2023).

Furthermore, domestic investment, often measured by Gross Fixed Capital Formation (GFCF), represents expenditures on physical assets such as machinery, factories, equipment, transportation infrastructure, power projects, residential buildings, and other productive capital. An increase in domestic investment enhances productive capacity, raises labour productivity, facilitates technological innovation, and improves national competitiveness. Conversely, persistent declines in investment weaken industrialization, reduce employment opportunities, and constrain long-term economic growth (International Monetary Fund, 2023).

Recognizing the importance of investment, successive Nigerian governments have implemented several macroeconomic policies aimed at stimulating investment and accelerating economic development. Among these policies, monetary policy occupies a strategic position because it serves as the yardstick interest rate through which the apex Bank influences market interest rates, liquidity conditions, credit availability, inflation expectations, and overall macroeconomic stability. In Nigeria, the apex bank uses the MPR as the primary signaling instrument for monetary policy. Adjustments in the MPR affect commercial banks' lending rates, the cost of capital, borrowing decisions, and ultimately investment expenditure by businesses and households (Central Bank of Nigeria, 2024).

Despite these policy efforts, domestic investment in Nigeria has remained relatively low and volatile over the past four decades. Gross Fixed Capital Formation (GFCF), which measures domestic investment, has fluctuated considerably due to recurrent macroeconomic

instability, high inflation, exchange-rate volatility, financial-sector constraints, inadequate infrastructure, and policy uncertainty. The persistent weakness in domestic investment has constrained industrial expansion, slowed economic diversification, and limited employment creation, thereby undermining Nigeria's long-term development objectives (IMF, 2024).

The conduct of monetary policy in Nigeria has also experienced substantial changes over time. Since the adoption of market-based monetary policy instruments under the Structural Adjustment Programme (SAP) in 1986 and the establishment of the Monetary Policy Committee (MPC) in 2006, the Monetary Policy Rate (MPR) has become the primary instrument for influencing market interest rates and guiding monetary conditions. In recent years, the CBN has implemented a series of increases in the MPR to combat persistent inflationary pressures and stabilize the exchange rate. For instance, monetary policy rate stood at 16.5% by the end of 2022. In 2023, monetary policy rate was increased to 18.75%. The apex bank continued to raise the benchmark rate through 2024, eventually hitting 27.25% in September, 2024, with further adjustments bringing the rate to 27.0% by September, 2025. In July, 2026, the apex bank fixed monetary policy rate at 26.5 per cent (CBN, 2026). While tight monetary policy measures are necessary for maintaining price stability, they also raise borrowing costs faced by firms and households, potentially discouraging investment expenditure.

Importantly, the challenge confronting policymakers is that the relationship between the Monetary Policy Rate and domestic investment may not be linear. Conventional macroeconomic models assume that each increase in the policy rate produces the same proportional effect on investment irrespective of the prevailing interest-rate environment. However, this assumption may not reflect the realities of developing economies such as Nigeria, where firms operate under severe financing constraints, shallow financial markets, and imperfect credit allocation mechanisms. Under such conditions, small increases in interest rates may have negligible effects on investment, whereas large increases beyond certain critical levels may substantially reduce firms' willingness and ability to invest.

Recent developments in nonlinear macroeconomic theory support this argument by suggesting that economic relationships often exhibit threshold behaviour. According to Hansen (1999), the marginal effects of an explanatory variable may change once a threshold variable exceeds a critical value. Applied to monetary policy, this suggests that the influence of the Monetary Policy Rate on domestic investment may differ between low-interest-rate and high-interest-rate regimes. Failure to account for such nonlinearities may lead to biased parameter estimates and misleading policy conclusions.

Empirical evidence on the relationship between monetary policy and domestic investment remains inconclusive, particularly in developing countries. Some studies report that

higher policy rates significantly reduce investment because of increased financing costs (Aysan, Fendoğlu, Kılınç 2014; Mishkin, 2019). Other studies find weak or statistically insignificant relationships, arguing that investment decisions depend more strongly on output expectations, institutional quality, and access to credit than on policy interest rates alone. In Nigeria, empirical findings are equally mixed. While several studies report a negative relationship between interest rates and investment, others observe insignificant or even positive effects, reflecting differences in sample periods, variable definitions, estimation techniques, and model specifications.

One major limitation of existing Nigerian studies is their reliance on linear econometric techniques such as Ordinary Least Squares (OLS), Vector Error Correction Models (VECM), Autoregressive Distributed Lag (ARDL), and Vector Autoregression (VAR). These models implicitly assume constant marginal effects of monetary policy across all interest-rate levels. Consequently, they fail to capture potential regime changes that may occur when policy rates move beyond economically meaningful thresholds. This methodological limitation may partly explain the inconsistent empirical findings reported in the literature.

Moreover, although threshold regression models have become increasingly popular in international macroeconomic research, relatively few Nigerian studies have employed nonlinear threshold techniques to examine the effects of the Monetary Policy Rate on domestic investment. Existing threshold studies have largely concentrated on financial development, economic growth, inflation, or credit expansion, with limited attention devoted specifically to domestic investment. As a result, there is little empirical evidence regarding the optimal Monetary Policy Rate that balances inflation stabilization with investment promotion in Nigeria.

Another important gap relates to the measurement of domestic investment. Many previous Nigerian studies use aggregate investment measures without adequately distinguishing between private and total domestic investment or fail to employ Gross Fixed Capital Formation as a comprehensive proxy for productive capital accumulation. Moreover, several studies omit important macroeconomic control variables such as inflation, exchange rate and broad money supply, thereby increasing the likelihood of omitted-variable bias and reducing the reliability of estimated coefficients.

From a policy perspective, the absence of sufficient empirical evidence on threshold effects creates uncertainty regarding the appropriate level of monetary tightening that can simultaneously achieve price stability and support domestic investment. Without knowledge of the critical Monetary Policy Rate threshold, policymakers risk implementing excessively restrictive monetary policies that suppress productive investment or excessively accommodative policies that fuel inflationary pressures. Identifying this threshold therefore has significant

implications for designing balanced monetary policies capable of promoting macroeconomic stability and sustainable economic growth.

Against this background, this study seeks to estimate the threshold effects of the Monetary Policy Rate on domestic investment in Nigeria. Specifically, it aims to determine whether there exists a critical Monetary Policy Rate beyond which the adverse effects of monetary tightening on domestic investment become significantly stronger. By employing a nonlinear threshold regression framework and incorporating recent data, the study intends to fill important methodological, empirical, contextual as well as policy gaps in the existing literature while providing evidence-based recommendations for monetary policy formulation in Nigeria. The paper is divided into five parts: introduction, literature review, materials and methods, results and discussion, and conclusion with recommendations.

## **LITERATURE REVIEW**

### **Conceptual Clarification**

Domestic investment refers to the acquisition of physical capital assets within an economy for the purpose of increasing future productive capacity. It encompasses expenditures on machinery, equipment, factories, transportation infrastructure, commercial buildings, residential structures, and technological facilities that contribute to long-term economic production. Investment differs from consumption because it involves the creation of productive assets that generate future streams of income and output (Keynes, 1936).

From a macroeconomic perspective, domestic investment constitutes one of the principal components of aggregate demand and serves as a critical determinant of economic growth. According to the neoclassical growth model developed by Solow (1956), sustained capital accumulation raises the productive capacity of an economy and contributes to long-run growth, although diminishing returns imply that technological progress ultimately drives sustained increases in output per worker. Endogenous growth theories extend this argument by emphasizing that investment in physical and human capital can generate persistent growth through technological innovation, knowledge spillovers, and productivity improvements (Romer, 1986).

In developing economies such as Nigeria, domestic investment plays an especially important role because foreign capital inflows are often volatile and concentrated in extractive industries. A robust domestic investment environment promotes industrial diversification, reduces dependence on external financing, enhances employment opportunities, and strengthens economic resilience against external shocks. Consequently, policymakers frequently adopt macroeconomic policies designed to encourage domestic capital formation

through improved financial intermediation, macroeconomic stability, and infrastructure development.

Empirically, domestic investment is often proxied by Gross Fixed Capital Formation (GFCF) because it captures expenditures on fixed assets used in production over an extended period. Gross Fixed Capital Formation (GFCF) measures the value of acquisitions of fixed assets by resident producers less disposals of such assets during an accounting period. It includes expenditure on machinery, transport equipment, buildings, engineering structures, information technology infrastructure, and intellectual property products used in production. The World Bank (2024) defines GFCF as the net increase in physical assets that contribute to future production. Because GFCF captures productive capital accumulation rather than financial investments or inventory changes, it is widely accepted as the most appropriate proxy for domestic investment in macroeconomic studies.

In Nigeria, GFCF reflects investment activities undertaken by both the public and private sectors and provides a comprehensive measure of the country's capital formation. Consequently, numerous empirical studies examining investment behaviour employ GFCF as the dependent variable. According to the 2008 System of National Accounts (SNA), GFCF measures acquisitions of fixed assets less disposals by producers during an accounting period and is therefore regarded as the standard macroeconomic indicator of productive investment (United Nations et al., 2009). The use of GFCF as a proxy for domestic investment is widespread in empirical studies because it reflects long-term capital accumulation and productive investment activities rather than short-term financial transactions.

Despite its importance, domestic investment in Nigeria has remained relatively low compared with many emerging economies. Factors such as inadequate infrastructure, policy uncertainty, high inflation, exchange-rate volatility, limited access to long-term finance, weak institutional quality, and elevated borrowing costs continue to constrain investment performance. These challenges underscore the importance of examining the role of monetary policy, particularly the Monetary Policy Rate, in inducing investment behaviour.

### **Monetary Policy Rate (MPR)**

By monetary policy rate, economists mean the rate at which central banks lend money to deposit money banks (DMBs) as part of their role as a lender of last resort. This is the interest rate that deposit money banks pay when they borrow from the central bank (Gbosi, 2005). The monetary policy rate is used to show the general direction of the central bank's monetary policy and serves as a guide for other interest rates in the market. It took over the role of the Minimum Rediscount Rate (MRR) in 2006 as the main tool for communicating the central bank's monetary

policy stance. The MPR performs several important functions. First, it influences the cost of borrowing faced by commercial banks through the standing lending facility. Second, it serves as a benchmark for determining market lending rates. Third, it provides guidance to financial markets regarding future monetary policy intentions. Finally, it influences inflation expectations and exchange-rate dynamics through its effects on liquidity conditions and capital flows. From the perspective of investment theory, increases in the MPR raise borrowing costs, reduce the net present value of investment projects, and discourage capital expenditure by firms. Conversely, reductions in the MPR lower financing costs and encourage investment by increasing the expected profitability of capital projects.

To help keep the country's economy stable, the main bank in Nigeria has often changed the interest rate it sets, sometimes raising it and sometimes lowering it. For example, in 2013, the Central Bank of Nigeria kept the interest rate at 12% all year to control money supply (CBN, 2013). In 2014, the bank stayed with a strict policy, keeping the rate at 12% for the first three quarters, but then increased it to 13% by the end of the year to help control prices (CBN, 2014). In 2015, the rate stayed between 11% and 13% (CBN, 2015). The bank kept a tight policy in 2016 because of rising prices and the economy starting to slow down. That year, the rate went up twice, first to 12% and then to 14%. On average, the rate was 12.83% that year, and the percentage of money banks had to keep in reserve went up to 22.50% from 20% (CBN, 2016). In 2017 and 2018, the bank kept the rate steady at 14% all through those years (CBN, 2017 and CBN, 2018).

In 2019, the monetary policy was based on the state of the global and local economy. The main global factors included the trade dispute between the US and China, falling oil prices, ongoing uncertainty about Brexit, slow growth in the European Union and Japan, and reduced output in China. On the domestic side, the economy was recovering slowly, banks had a lot of money but needed to lend more to businesses, there was a drop in foreign reserves, inflation was rising, and unemployment was increasing. The MPR was lowered to 13.50% in March and stayed the same for the rest of the year. High interest rates, including lending rates in double digits, made it hard for investors in Nigeria. This worsened the living conditions of people in the country. Even as the economy continued to struggle, the misery index, which adds up unemployment, inflation, and lending rates and subtracts the growth of GDP per person, remained high. It is hard to find research that looks at how monetary policy has affected the misery index in Nigeria from 1985 to 2019 (CBN, 2019).

Between 2022 and 2025, the monetary policy rate was raised several times because of rising inflation and depreciation of the domestic currency (CBN, 2024). For example, by the end of 2022, the rate was at 16.5%. In 2023, it increased to 18.75%. The central bank kept raising

the rate throughout 2024, reaching 27.25% in September 2024, and later adjusted it to 27.0% by September 2025. In July 2026, the rate was set at 26.5% (CBN, 2026). While these changes were meant to keep the economy stable, they also made borrowing more expensive and raised concerns about fewer loans being available to businesses.

Nevertheless, the responsiveness of investment to changes in the MPR depends on several structural factors, including banking-sector efficiency, financial inclusion, access to credit, inflation expectations, and macroeconomic stability. Consequently, identical changes in the policy rate may produce different investment responses under different macroeconomic conditions, providing the rationale for threshold analysis.

## Theoretical Review

### ***Keynesian Investment Theory***

The Keynesian Investment Theory was developed by John Maynard Keynes in his seminal work, *The General Theory of Employment, Interest and Money* (1936). The theory posits that investment decisions are primarily influenced by the relationship between the expected rate of return on capital referred to as the Marginal Efficiency of Capital (MEC) and the prevailing rate of interest. According to Keynes (1936), firms undertake investment projects when the expected return exceeds the cost of borrowing. Conversely, when interest rates rise above the expected profitability of investment projects, firms postpone or cancel investment expenditures.

Keynes argued that the interest rate represents the opportunity cost of holding money and the cost of financing investment. Since most firms depend partly on borrowed funds to finance capital projects, an increase in interest rates raises the cost of capital, reduces the net present value of investment projects, and discourages investment. Consequently, monetary authorities can influence aggregate investment by adjusting policy interest rates. The Keynesian investment function is generally expressed as:  $I=f(r)$ ; where:  $I$  = Investment,  $r$  = Interest rate; with:  $\frac{\partial I}{\partial r} < 0$ , indicating an inverse relationship between interest rates and investment. The Keynesian theory provides a straightforward explanation of the monetary policy transmission mechanism by linking policy interest rates directly to investment decisions. It also highlights the importance of aggregate demand management in stabilizing economic activity during recessions and inflationary periods. Furthermore, it remains one of the most influential theoretical frameworks guiding modern central banking.

However, the Keynesian theory has several limitations. First, it assumes that firms respond uniformly to changes in interest rates, ignoring differences in firm size, access to

finance, and investment expectations. Second, it overlooks structural constraints such as inadequate infrastructure, institutional weaknesses, and financial market imperfections, which are particularly important in developing economies like Nigeria. Third, it assumes a linear relationship between interest rates and investment, whereas recent evidence suggests that investment responses may become nonlinear when interest rates exceed critical thresholds (Hansen, 1999).

Despite the above limitations, the Keynesian investment theory provides the foundational basis for this study because it predicts that increases in the Monetary Policy Rate (MPR) reduce domestic investment by increasing borrowing costs. However, this study extends the Keynesian framework by allowing the effect of the MPR on domestic investment to vary across different policy-rate regimes through threshold regression analysis.

## **Empirical Review**

This section presents the empirical studies from Nigeria, other African countries and developed economies.

### ***Empirical Studies from Nigeria***

Alade (2015) looked at the right level of Nigeria's Monetary Policy Rate (MPR) using threshold techniques that provide appropriate procedures for estimation and inference. The study found the best MPR levels: 10% for GDP growth, 9% for investment, 15% for external reserves, and 8% for inflation. It also noted that setting the MPR threshold should be based on forward guidance, which means planning ahead and sharing information about future policy moves. This should take into account changes in output, investment, external reserves, inflation, and what people expect about inflation. The findings also show that there is a trade-off when making policy decisions. Alade (2015) found the best MPR level for investment was 9%, but they didn't look specifically at how the MPR affects domestic investment using Gross Fixed Capital Formation as the main measure. The study also didn't examine if the effect of the MPR changes depending on whether it is above or below the threshold, while also considering other factors that influence investment. Additionally, the study didn't include more recent economic changes in Nigeria. This research fills those gaps by looking at how the MPR affects domestic investment in Nigeria, using relevant factors to control for other influences, and using a more recent sample period to give up-to-date information for making monetary policy decisions.

Lucky, Lucky, and Uzah (2017) looked into how well monetary policy works to affect real investment in Nigeria. They used yearly data from 1981 to 2015, which they got from the Central Bank of Nigeria. The study looked at several factors, including the Monetary Policy Rate,

Treasury Bill Rate, Prime Lending Rate, Credit to the Private Sector, Exchange Rate, Savings Rate, and Net Domestic Credit. To analyze the data, the researchers used the Johansen Cointegration Test, Vector Error Correction Model (VECM), and Granger Causality framework. Their findings showed that there is a long-term connection between monetary policy factors and domestic investment. Credit to the private sector, the Monetary Policy Rate, net domestic credit, and savings had a positive effect on investment. On the other hand, exchange rate depreciation, Treasury Bill Rate, and Prime Lending Rate had negative effects. Critical Evaluation: Even though the study looked at many different ways monetary policy is passed through, the result showing a positive link between the Monetary Policy Rate and investment goes against what traditional monetary theory would expect. This might be because of problems with how the model was set up or because of special conditions during the time the data was collected. Also, the VECM model assumes that the parameters are stable and doesn't account for threshold effects. Specific Gap Identified: The study didn't look into whether the effect of the Monetary Policy Rate changes depending on different types of monetary policy systems. Because of this, the topic of nonlinear monetary policy transmission wasn't studied.

Olaniyi (2019) did a study to find out if there is a point where the effect of interest rates on economic and investment growth changes. They used Hansen's (2000) method to look at Nigeria's data from 2006 to 2017. The study found two clear points, or thresholds, where the impact of interest rates changes. The first threshold is 21.1% for GDP growth, and the second is 22.6% for investment growth. This means that when interest rates are below these levels, they help boost growth. But when the rates go above these levels, they can start to hurt growth. The main idea from this study is that Nigeria, and other developing countries, should keep interest rates at levels that support growth and investment. They should use policies that keep rates below these thresholds. Even though Olaniyi (2019) did important work by using Hansen's method to find these thresholds, there are still some things not covered. The study looked at investment growth, not domestic investment, which is usually measured by Gross Fixed Capital Formation. Investment growth looks at how fast investment is changing, while domestic investment shows the actual amount of capital being built, which is what actually helps the economy grow. So the findings from this study can't be directly used to understand domestic investment behaviour.

Also, the study only looked at interest rates and didn't take into account other important factors like inflation, exchange rates, and private sector credit, which all affect investment. The study only included data from 2006 to 2017, which doesn't include major changes in Nigeria's economy, like the 2016 recession, the impact of the COVID-19 pandemic, the 2023 foreign exchange changes, and recent tight monetary policies. All of these could have changed

how interest rates affect investment. Because of this, the existing research hasn't fully studied how monetary policy rates affect domestic investment in Nigeria, especially using a wide range of other economic factors and more recent data. This study fills that gap by focusing on domestic investment, using the Monetary Policy Rate as the threshold, looking at different effect levels of the MPR, and using more recent data that covers Nigeria's current economic situation.

Furthermore, David, Sakanko, and Obilikwu (2020) looked into what influences domestic investment in Nigeria, especially how macroeconomic factors affect investment in different ways. They used yearly data from 1980 to 2018. To measure domestic investment, they used Gross Fixed Capital Formation (GFCF). The other factors they looked at included real interest rate, inflation, exchange rate, government spending, savings, credit to private businesses, electricity use, per capita income, and internal conflicts. They used a model called NARDL to look at both short-term and long-term effects. Their study found a long-term balance between these factors. They found that inflation, exchange rate, government spending, savings, private sector credit, and real interest rate all had a big impact on investment. What's more, changes in these factors had different effects depending on whether they went up or down, showing that investment in Nigeria isn't just a straight line, but has ups and downs. A strong part of their study was using NARDL to understand these non-linear effects. But one thing they missed was finding a specific point where changes in monetary policy start to have a bigger effect on investment. They also used the real interest rate instead of the Monetary Policy Rate (MPR), which makes the study less directly related to how monetary policy is actually decided. The present study fills that gap by using Hansen's Threshold Regression Model with the Monetary Policy Rate as the key point where changes in policy start to significantly affect investment.

Austine, Adetokun, and Chinaeme (2020) studied how monetary policy affects domestic private investment in Nigeria. They used yearly data from 1981 to 2018, taken from the Central Bank of Nigeria. Private investment was the main thing they looked at, and the monetary policy factors they used were the Monetary Policy Rate, Prime Lending Rate, Minimum Rediscount Rate, Money Supply, and GDP growth. They used the ARDL bounds testing method. The results showed that the Monetary Policy Rate had a strong negative effect on investment, both in the short and long term. On the other hand, the Prime Lending Rate had a positive effect, while the Minimum Rediscount Rate and money supply had no clear effect on investment. The ARDL method worked well for looking at both long-term and short-term effects. However, it assumes the effect of monetary policy stays the same throughout the time period and doesn't consider different situations that might happen when interest rates are high or low. One thing the study didn't do was check for non-linear relationships or find a specific point

where changes in the Monetary Policy Rate cause investment to drop sharply. That is the main issue the present study addressed.

Okoroafor (2020) looked at how money-related factors affect domestic investments and economic growth in Nigeria from 1970 to 2018. The main goal was to find out how much money factors influence domestic investments and economic growth. Data on private domestic investment, economic growth rate, narrow money supply, credit from commercial banks to private investors, interest rates set by commercial banks, the value of the naira compared to the dollar, and inflation rate were gathered from different sources. The findings showed that most of the narrow money supply was used by the government, leaving very little for private investors. It also found that factors like the naira-dollar exchange rate, interest rates from banks, and economic growth did not have a big effect on domestic investments during the study period. Okoroafor's study has some gaps. It focused on broad money indicators instead of the Monetary Policy Rate, which is a key tool in monetary policy. It also used a simple linear model without looking at how effects might change under different conditions. The study also missed recent monetary policy changes up to 2023 and did not find the best Monetary Policy Rate that could encourage more domestic investment. This study filled those gaps by looking at how the Monetary Policy Rate affects domestic investment using a nonlinear threshold regression model with data from 1981 to 2023 and other important economic factors.

Awopegba, Afolabi, Adeoye and Akpokodje (2022) looked into how the monetary policy rate (MPR) affects market interest rates in Nigeria. To make things simpler, they created two indexes: short-term interest rate (SINT) and lending interest rate (LINT), which stood for deposit and lending rates respectively. They used two models: nonlinear autoregressive distributed lag (NARDL) and threshold regression. The study used monthly data from January 2002 to December 2019. The threshold regression model found that when the MPR is above the estimated thresholds of 11% and 13%, it has a larger and more significant effect on SINT and LINT compared to when it is below those thresholds. Using the nonlinear ARDL model, they found that increasing the MPR leads to a positive outcome on both short-range and loaning interest rates, but a decrease in MPR leads to a negative effect. For LINT, the negative effect was small, while for SINT, the effect was not statistically significant. This shows that prices are not easily adjusted downward, which supports the idea that the MPR is not very effective when it is lowered. The study left some gaps by focusing on how the MPR affects market interest rates instead of how it affects domestic investment. It also missed out on important variables like domestic investment, which is shown by Gross Fixed Capital Formation. There's also a policy gap because the identified thresholds (11% and 13%) show how well interest rates are transmitted, not the optimal MPR for promoting domestic investment. This study filled those

gaps by looking at how the MPR affects domestic investment in Nigeria and including other macroeconomic factors to give clear policy insights on the best MPR level that supports investment.

Isaac and Akpan (2024) studied the factors that influence domestic investment in Nigeria and checked if the evidence supports traditional investment theories. They used annual data from 1982 to 2020. The variables they considered were interest rate, money supply, inflation, government spending, stock market performance, savings, and economic growth. They used the Autoregressive Distributed Lag (ARDL) model. In the short run, government spending, money supply, and inflation had a noteworthy influence on domestic investment. In the long run, most of these variables had a significant effect, except the interest rate, which was not statistically significant. The authors concluded that investment in Nigeria is mostly influenced by macroeconomic policy decisions rather than just interest rates. Critical Evaluation: The study adds value to investment theory by including various macroeconomic factors in one model. However, it treats the effect of interest rates as linear and does not consider different monetary policy situations. It also does not look at the policy interest rate (MPR) separately from other interest rate measures. Specific Gap Identified: The study did not look into threshold effects or find the specific MPR beyond which investment behaviour changes significantly.

Omale, Mairafi, and Ubaka (2025) looked at how different tools of monetary policy affect private investment in Nigeria using an Autoregressive Distributed Lag–Error Correction Model (ARDL-ECM). They used data from 1986 to 2022, collected from the Central Bank of Nigeria. They looked at variables like the Monetary Policy Rate, money supply, exchange rate, and lending interest rate. Their findings showed that the Monetary Policy Rate had a negative and significant effect on private investment, while money supply had a positive effect. Exchange rate instability and high lending rates discouraged investment, which suggests that using the right mix of monetary tools is important to keep investment growing. Critical Evaluation: This study is one of the most recent on monetary policy and investment in Nigeria and includes data after the COVID-19 pandemic. However, the linear ARDL framework can't tell if the effect of the Monetary Policy Rate changes when it crosses a certain threshold. Specific Gap Identified: The study didn't estimate the optimal Monetary Policy Rate threshold, which limits its usefulness in finding the right rate to balance inflation control and investment promotion.

Bashir, Popoola and Balogun (2026) studied how total domestic investment in Nigeria responds to lending rates, using data from 1981 to 2023. They looked at how long it takes for lending rates to affect investment and how other factors like inflation, exchange rates, and credits influence investment. They used statistical tests like the Augmented Dickey-Fuller unit root tests, which found some data series that were stationary  $I(0)$  and others that were not

(I(1)). They used ARDL bounds testing for long-term relationships and Error Correction Modeling (ECM) with the best lag of 1. They also used Koyck median lag analysis. They found that past investment boosts current investment by 42%, but the effect of lending rates on investment was negative but not very strong. The Error Correction Term (ECT) showed that 3.4% of the imbalance is corrected each year, with half the effect seen in 1.91 years and full correction in about 4 years. Inflation had a slight positive effect on investment, but exchange rates and credits had no significant impact. The study concluded that high lending rates slow down domestic investment growth, and the effect is delayed. The study leaves a conceptual gap because it focuses on the commercial bank lending rate rather than the Monetary Policy Rate, which is the main tool of monetary policy. It also has a methodological gap because it uses a linear ARDL-ECM model that can't show threshold or regime-specific effects. Additionally, it has a policy gap because it doesn't find the optimal Monetary Policy Rate or lending rate needed to boost domestic investment. This study fills these gaps by using Hansen's (1999) Threshold Regression Model to estimate how the Monetary Policy Rate affects domestic investment in Nigeria, and it identifies the critical MPR level where the influence of monetary policy on investment changes, while considering other important macroeconomic variables.

### ***Empirical Studies from other African Countries***

In Ghana, Frimpong and Marbuah (2010) looked into the factors that affect private sector investment, especially how interest rates and overall economic stability influence it. They used yearly data from 1970 to 2008. Private investment was the main thing they were studying, and they included variables like real interest rate, inflation, exchange rate, public investment, openness, external debt, and real GDP as factors that might affect it. They used a method called Autoregressive Distributed Lag (ARDL) to understand both the long-term and short-term connections. Their findings showed that higher real GDP helped increase private investment, but high interest rates, inflation, a falling exchange rate, and high external debt made private investment lower in the long run. Public investment helped support private investment instead of making it worse. Critical Evaluation: The ARDL method was good for looking at long-term trends. However, the study assumed that the connection between interest rates and investment was straight-line and didn't check if investment behaves differently once interest rates go beyond a certain point. Specific Gap Identified: They didn't look into what the best interest rate or monetary policy level should be.

In Sierra Leone, Brima and Brima (2017) looked at how changes in monetary policy affected private sector investments between 1980 and 2014. They used an error correction method and found that money supply, especially through adjusting the monetary policy rate and

increasing gross domestic savings, had a positive and significant influence on private investment. However, the treasury bill rate, inflation, and gross domestic debt had a negative effect. One important policy point from this study is that the government should support the creation of financial institutions to improve credit access for the private sector, which would help boost private investment. Specific Gap Identified: The study didn't look at the threshold effect of the monetary policy rate or consider the Nigerian institutional environment.

Furthermore, Afful and Kamasa (2020) looked into whether interest rates have a threshold influence on private investment in Ghana. They used annual data from 1986 to 2016. The variables they considered were private investment, lending interest rate, inflation, exchange rate, and GDP. They used three methods: the ARDL model, quadratic regression, and Conditional Least Squares (CLS) estimation to find out the interest rate threshold. They found that interest rates helped private investment when they were low, but once they went above a threshold of about 23.6 to 24.0%, they started to hurt private investment. The study suggested that keeping interest rates below this threshold would encourage more private investment. Critical Evaluation: This is one of the few African studies that clearly estimated an interest rate threshold. However, it looked at lending interest rates, not the Monetary Policy Rate. Specific Gap Identified: The study didn't check the threshold effect of the central bank policy rate or take into account the Nigerian institutional environment.

In Ghana, Amoaning and Ahiakpor (2022) explored the relationship between monetary policy, financial sector development, and economic growth, and they estimated the optimal Monetary Policy Rate threshold. They used annual data from 1990 to 2017. The authors used the ARDL model and the Lind–Mehlum U-test to estimate the Monetary Policy Rate threshold. They found a nonlinear relationship between the Monetary Policy Rate and economic growth. The estimated threshold was about 23.7%, and beyond that, tighter monetary policy started to harm economic performance. Critical Evaluation: This study made an important contribution by estimating an explicit Monetary Policy Rate threshold. However, it focused on economic growth instead of domestic investment. Specific Gap Identified: The study didn't check whether a similar threshold exists for domestic investment.

In South Africa, Maluleke, Odhiambo, and Nyasha looked into whether public investment has the same effect on private investment when it goes up or down. They used data from one year to another in South Africa. The study used two methods: ARDL and Nonlinear ARDL. Their results showed that public investment affects private investment differently when it increases compared to when it decreases, showing that investment behaviour isn't straight forward. Critical Evaluation: This study helps by showing that investment responses are not always the

same, but it doesn't look at a key point called the policy rate threshold. Specific Gap: The influence of the Monetary Policy Rate on private investment hasn't been studied yet.

### ***Empirical Studies from Developed Economies***

In the United States, Bernanke and Gertler (1995) looked at how monetary policy affects investment spending through the credit channel. They used both theory and real data to study this. Their findings showed that when the economy tightens money, it becomes harder to borrow, banks lend less, and businesses invest less. Critical Evaluation: The study gives a good foundation for understanding how monetary policy works, but it assumes that responses are mostly straight-line or linear. Specific Gap: They didn't look into threshold effects.

In the United Kingdom, Kiyotaki and Moore (1997) studied how credit limits make business cycles and investment more extreme. They used a dynamic model to show that financial problems can make investment change a lot after changes in monetary policy. Critical Evaluation: Their work offers a strong theoretical explanation for how investment can react in non-linear ways, but they didn't estimate any real-world policy thresholds. Specific Gap: There was no empirical evidence on policy thresholds.

Asteriou and Price (2000) looked at uncertainty, investment, and economic instability in the UK using cointegration and error-correction models. Their main findings showed that when there is more uncertainty about interest rates, it makes businesses less likely to invest. They also pointed out that while the study highlights the importance of having credible policies, it only looks at straight-line effects and doesn't consider how things might change at different levels. One important thing they didn't look into is how monetary policy changes at certain thresholds might affect investment.

In OECD countries, Égert (2010) studied the complex relationships in advanced economies using panel econometric methods. The results showed that economic relationships are often not straight-line and that the effects of policy can vary depending on the situation and the system in place. The study supports the use of nonlinear models but doesn't focus on investment within countries. One issue they didn't explore is how changes in monetary policy at certain points might influence investment in developing economies.

In summary, these African and international studies collectively revealed that while many researchers acknowledged the importance of monetary policy, interest rates, and nonlinear macroeconomic relationships, very few estimated a Monetary Policy Rate threshold specifically for domestic investment, particularly in Nigeria. The evidence from Ghana indicated that policy-rate thresholds can exist, suggesting that similar threshold effects may also be present in Nigeria but remain insufficiently investigated. Specifically, the review of the literature reveals the

following gaps that justify the present study: **Methodological Gap:** Most previous Nigerian studies have employed linear estimation techniques (OLS, ARDL, VAR, and VECM), which assume a constant association between the Monetary Policy Rate and domestic investment. These approaches are unable to detect changes in the impact of monetary policy across different interest-rate regimes. This study addressed this limitation by employing a threshold regression framework that explicitly models nonlinear effects. **Empirical Gap:** Empirical findings on the relationship between the Monetary Policy Rate and domestic investment are inconsistent. While some studies report a negative relationship (Austine et al., 2020; Omale et al., 2025), others report a positive relationship (Lucky et al., 2017; Olaniyi, 2019). This study re-examined the relationship using updated data and a nonlinear specification to provide more robust evidence. **Contextual Gap:** Most threshold studies in Nigeria focus on economic growth, inflation, financial development, or credit expansion, with limited attention to domestic investment. This study fills this contextual gap by specifically examining how Monetary Policy Rate thresholds influence Gross Fixed Capital Formation. **Period Gap:** None of the existing studies examined covered a period from 1990 to 2023. By extending the analysis to 2023 for which data are available, this study captures topical structural changes in Nigeria's macroeconomic environment. **Policy Gap:** Current monetary policy decisions in Nigeria are made with limited empirical evidence on the optimal Monetary Policy Rate threshold that balances inflation control and investment promotion. This study provides evidence on the critical threshold, offering practical guidance for policymakers.

## MATERIALS AND METHOD

This study examined the threshold effects of monetary policy on domestic investment in Nigeria using annual time-series data covering the period 1990–2023. The researcher would have preferred to cover the period from 1960, when Nigeria gained independence from Great Britain, to 2025. However, due to the paucity and limited availability of consistent data, the study was restricted to the period for which reliable data could be obtained. Consequently, the period from 1990 to 2023 was selected for the study. The study focused primarily on the Monetary Policy Rate as the threshold variable because it represents the principal policy instrument used by the apex bank in Nigeria to influence short-term interest rates and financial market conditions. Private investment is proxied by Gross Fixed Capital Formation. To minimize omitted variable bias, the analysis incorporates relevant macroeconomic control variables, including inflation rate, broad money supply as a ratio of GDP in % and official exchange rate. The data for the study were obtained from the Statistical Bulletin of Nigeria's apex bank. This study

employed smooth threshold regression model based on the framework developed by Teräsvirta (1994). It allows the effect of the Monetary Policy Rate (MPR) on domestic investment to change gradually rather than abruptly as the threshold variable moves from one regime to another. The general Smooth Threshold Regression (STR) model is specified as:

$$Y_t = \beta_0 + \beta^1 M_t + (\theta_0 + \theta^1 M_t) S(q_t; \gamma, c) + \varepsilon_t \quad (1)$$

Where:

$Y_t$  = dependent variable,  $M_t$  = vector of explanatory variables,  $\beta$  = coefficients in the initial (low) regime,  $\theta$  = changes in the coefficients as the model transitions to the upper regime,  $q_t$  = threshold (transition) variable,  $c$  = threshold (location) parameter,  $\gamma > 0$  = smoothness parameter (also called the transition speed parameter). It determines how rapidly the model moves from one regime to another as the threshold variable changes,  $S(q_t; r, c)$  = transition function.

The appropriate Smooth Threshold Regression (STR) model for this study is:

$$PV_t = \beta_0 + \beta_1 MPR_t + \beta_2 M_{3t} + \beta_3 EXR_t + \beta_4 INF_t + (\theta_0 + \theta_1 MPR_t + \theta_2 M_{3t} + \theta_3 EXR_t + \theta_4 INF_t) S(MPR_t; \gamma, c) + \varepsilon_t \quad (2)$$

Where the transition function is:

$$S(MPR_t; \gamma, c) = \frac{1}{1 + \exp[-\gamma(MPR_t - c)]} \quad (3)$$

When  $S \approx 0$  (MPR is well below the threshold  $c$ ):

$$PV_t = \beta_0 + \beta_1 MPR_t + \beta_2 M_{3t} + \beta_3 EXR_t + \beta_4 INF_t + \varepsilon_t \quad (4)$$

When  $S = 1$  (MPR is well above the threshold):

$$PV_t = (\beta_0 + \theta_0) + (\beta_1 + \theta_1) MPR_t + (\beta_2 + \theta_2) M_{3t} + (\beta_3 + \theta_3) EXR_t + (\beta_4 + \theta_4) INF_t + \varepsilon_t \quad (5)$$

Where;  $PV_t$  is private investment proxied by gross fixed capital formation,  $MPR_t$  is monetary policy rate,  $INF_t$  is inflation rate,  $EXR_t$  is exchange rate,  $M_{3t}$  is broad money supply as a ratio of GDP in %,  $\beta_0$  is constant term,  $\beta_1$  coefficient of monetary policy rate (effect of monetary policy rate),  $\beta_2$  is the coefficient of broad money supply as a ratio of GDP in % (effect of broad money supply as a ratio of GDP in %),  $\beta_3$  is the coefficient of exchange rate (effect of exchange rate),  $\beta_4$  is the coefficient of inflation (effect of inflation),  $\theta$  is changes in the coefficients as the model transitions to the upper regime,  $\gamma$  is unknown threshold value of the monetary policy rate, i.e.,  $\gamma$  represents the critical monetary policy rate at which the impact of monetary policy on private investment changes and  $\varepsilon_t$  is error term.

In addition, descriptive statistics and Augmented Dickey Fuller test (ADF) tests precede the threshold analysis, the Augmented Dickey Fuller test (ADF) was employed to determine if the data is stationary or contains a unit root.

## RESULTS AND DISCUSSION

### Descriptive Statistics for Underlying Series

This study used descriptive statistics to describe the basic features of the data in the study. Specifically, the essence of the descriptive statistics is to ascertain stability of the time series.

Table 1: Descriptive Statistics for all the Variables

|              | PV       | MPR      | M3       | INF      | EXR      |
|--------------|----------|----------|----------|----------|----------|
| Mean         | 13770.04 | 13.85794 | 18.00029 | 18.54618 | 158.0188 |
| Median       | 7266.445 | 13.50000 | 15.57000 | 13.12500 | 132.8250 |
| Maximum      | 77834.67 | 26.00000 | 34.40000 | 72.80000 | 465.1900 |
| Minimum      | 262.7700 | 6.000000 | 9.150000 | 6.600000 | 8.010000 |
| Std. Dev.    | 19488.46 | 3.717707 | 6.786719 | 15.89693 | 128.4000 |
| Skewness     | 2.045323 | 0.649143 | 0.492900 | 2.141333 | 0.895523 |
| Kurtosis     | 6.265095 | 5.305803 | 2.199115 | 6.701392 | 3.008552 |
| Jarque-Bera  | 38.80849 | 9.919889 | 2.285395 | 45.39216 | 4.544550 |
| Probability  | 0.000000 | 0.007013 | 0.318958 | 0.000000 | 0.103077 |
| Sum          | 468181.2 | 471.1700 | 612.0100 | 630.5700 | 5372.640 |
| Sum Sq. Dev. | 1.25E+10 | 456.1044 | 1519.965 | 8339.511 | 544056.3 |
| Observations | 34       | 34       | 34       | 34       | 34       |

Note: PV, MPR, M3, INF and EXR as defined previously.

The descriptive statistics reported in Table 1, indicates that private investment proxied as Gross Fixed Capital Formation (PV), monetary policy rate (MPR), broad money supply as a ratio of GDP in % (M3), inflation rate (INF) and exchange rate (EXR) averaged 13770.04, 13.85794, 18.00029, 18.54618 and 158.0188 respectively during the period of study. The standard deviation showed that monetary policy rate (MPR), broad money supply as a ratio of GDP in % (M3) and inflation rate converged around their mean. However, private domestic investment and exchange rate do not converge around their mean. The Skewness test result showed positive values for all the variables suggesting that they have high tails. Private domestic investment, monetary policy rate and inflation rate have leptokurtic distribution relative to normal, since their values for kurtosis 6.265095, 5.305803 and 6.701392 are more than 3. This indicates a flatter than normal distribution and the variables have large tails. That is, they have longer and fatter tails, and their central peaks are higher and sharper. Moreover, broad money supply as a ratio of GDP in % (M3) is platykurtic relative to normal, since its value for kurtosis 2.199115 is less than 3. This suggests that the variable has short and thin tails, and

their central peaks are lower and broader. However, exchange rate is mesokurtic since its value for kurtosis 3.008552 is equal to three. This means that it has a normal curve-it is neither flat nor peaked. At the same time, the probability of Jarque-Bera statistics suggests that the hypotheses of normal distribution for broad money supply as a ratio of GDP in % and exchange rate were accepted at 5% level while the hypotheses of normal distribution for private domestic investment, monetary policy rate and inflation rate were rejected at 5% level. Thus, the researcher concluded from the revealed statistical properties of the time series that three of the variables are not normally distributed, which may have resulted from the problem of unit root. This necessitated the unit root test for stationarity as shown in Table 2.

Table 2: Results of the Augmented Dickey-Fuller Unit Root Test

| Variables | Level form |             | First difference |             | Order of integration |
|-----------|------------|-------------|------------------|-------------|----------------------|
|           | ADF        | 5% Critical | ADF Statistics   | 5% Critical |                      |
|           | Statistics | Value       |                  | Value       |                      |
| PV        | -1.174173  | -2.954021   | -4.191894        | -2.957110   | 1(1)                 |
| MPR       | -3.154107  | -2.954021   | -                | -           | 1(0)                 |
| M3        | 0.466953   | -2.954021   | -4.903236        | -2.957110   | 1(1)                 |
| EXR       | 2.053570   | -2.954021   | -4.170701        | -2.957110   | 1(1)                 |
| INF       | -2.177478  | -2.954021   | -4.653549        | -2.957110   | 1(1)                 |

Note: PV, MPR, M3, EXR and INF as defined previously.

The ADF test results for each series in Table 1 show that at the 5% significance level, MPR is stationary at level 1(0) because their ADF value is higher than the 5% critical value. However, PV, M3, EXR and INF are stationary only after taking the first difference, which means they are 1(1).

Table 3: Smooth Threshold Regression (STR) Results  
(Threshold Variable: Monetary Policy Rate) Dependent Variable: PV

| Variable                                   | Coefficient | Std. Error | t-Statistic | Prob.  |
|--------------------------------------------|-------------|------------|-------------|--------|
| Threshold Variables (linear part) Regime 1 |             |            |             |        |
| C                                          | 7.185170    | 0.850138   | 8.451773    | 0.0000 |
| MPR                                        | 0.036239    | 0.065193   | 0.555867    | 0.5839 |
| M3                                         | 0.046998    | 0.035402   | 1.327544    | 0.1979 |
| EXR                                        | 0.006320    | 0.002030   | 3.112551    | 0.0051 |
| INF                                        | -0.022011   | 0.008908   | -2.470912   | 0.0217 |

| Threshold Variables (nonlinear part) Regime 2 |           |                       |           |          |
|-----------------------------------------------|-----------|-----------------------|-----------|----------|
| C                                             | 0.534610  | 1.304907              | 0.409692  | 0.6860   |
| MPR                                           | -0.019259 | 0.080011              | -0.240712 | 0.8120   |
| M3                                            | -0.311157 | 0.102165              | -3.045627 | 0.0059   |
| EXR                                           | 0.018323  | 0.005190              | 3.530115  | 0.0019   |
| INF                                           | 0.041030  | 0.017570              | 2.335233  | 0.0291   |
| Slopes                                        |           |                       |           |          |
| SLOPE                                         | 1.481324  | 0.744244              | 1.990374  | 0.0591   |
| Thresholds                                    |           |                       |           |          |
| THRESHOLD                                     | 14.18279  | 0.379925              | 37.33045  | 0.0000   |
| R-squared                                     | 0.968587  | Mean dependent var    |           | 8.586705 |
| Adjusted R-squared                            | 0.952881  | S.D. dependent var    |           | 1.538036 |
| S.E. of regression                            | 0.333862  | Akaike info criterion |           | 0.914383 |
| Sum squared resid                             | 2.452197  | Schwarz criterion     |           | 1.453099 |
| Log likelihood                                | -3.544518 | Hannan-Quinn criter.  |           | 1.098101 |
| F-statistic                                   | 61.66806  | Durbin-Watson stat    |           | 1.844163 |
| Prob(F-statistic)                             | 0.000000  |                       |           |          |

Note: *PV, MPR, M3, EXR and INF as defined previously.*

The Smooth Threshold Regression (STR) model provides an excellent fit for the data. The  $R^2$  of 0.9686 indicates that approximately 96.9% of the variation in private domestic investment is explained by the Monetary Policy Rate (MPR), broad money supply as a ratio of GDP in % (M3), exchange rate (EXR), inflation (INF), and the nonlinear threshold effects. The Adjusted  $R^2$  of 95.3% confirms that the explanatory power remains very high after accounting for the number of estimated parameters. The F-statistic of 61.67 ( $p < 0.001$ ) shows that the model is jointly significant, implying that the explanatory variables collectively explain private domestic investment. Furthermore, the Durbin-Watson statistic of 1.84 is close to 2, suggesting that serial correlation is not a serious concern.

### Linear Regime (Before the Threshold Effect Becomes Strong)

The linear component captures the behaviour of private domestic investment when the Monetary Policy Rate is relatively far from the threshold. In the linear regime, the coefficient of MPR is positive (0.0362), but it is statistically insignificant ( $p = 0.5839$ ). This suggests that when the policy rate is away from the threshold region, changes in the monetary policy rate do not significantly influence private domestic investment. This also suggests that under normal monetary conditions, adjustments in the monetary policy rate alone do not exert a measurable

influence on private domestic investment. Investors appear relatively insensitive to modest changes in monetary policy rates before the threshold is approached. The coefficient of broad money supply as a ratio of GDP in % is positive (0.0470) but it is statistically insignificant ( $p = 0.1979$ ). Economically, this indicates that although an expansion in liquidity tends to stimulate investment, the effect is not sufficiently strong to establish a systematic relationship during the low-interest-rate regime. Exchange rate has a positive and statistically significant coefficient (0.0063,  $p = 0.0051$ ). This implies that exchange rate movements significantly influence private domestic investment before the threshold is reached. One possible explanation is that exchange rate depreciation encourages investment in sectors benefiting from improved export competitiveness or higher returns on tradable goods. Inflation has a negative and significant coefficient ( $-0.0220$ ,  $p = 0.0217$ ). This indicates that a one-percentage-point increase in inflation reduces private domestic investment. The result agrees with conventional macroeconomic theory, which argues that higher inflation increases uncertainty, raises production costs, and discourages long-term investment planning.

### **Nonlinear (Threshold) Regime**

The nonlinear component measures how the effects of the explanatory variables change as the Monetary Policy Rate moves towards and beyond the threshold. The nonlinear MPR coefficient is  $-0.0193$ , but it is statistically insignificant ( $p = 0.8120$ ). The change in sign indicates that once monetary policy becomes relatively tight, higher policy rates tend to discourage investment. However, the insignificant coefficient implies that this direct effect is weak. The threshold mainly influences investment indirectly through changes in the responses of other macroeconomic variables. Broad money supply as a ratio of GDP in % becomes negative and highly significant ( $-0.3112$ ,  $p = 0.0059$ ). This suggests that after the threshold is reached, additional monetary expansion is associated with lower private domestic investment. The result provides strong evidence of a nonlinear monetary transmission mechanism. The exchange rate remains positive and highly significant (0.0183,  $p = 0.0019$ ), with a larger coefficient than in the linear regime. This indicates that exchange rate movements have a stronger influence on private domestic investment once the monetary policy rate enters the threshold region. Unlike the linear regime, inflation becomes positive and statistically significant (0.0410,  $p = 0.0291$ ). This sign reversal may indicate that, beyond the threshold, moderate inflation reflects stronger aggregate demand and improved business expectations, which encourage investment. It also highlights the nonlinear nature of the investment response to macroeconomic conditions.

### Threshold Effect

The estimated threshold value is 14.18%, and it is highly significant ( $p < 0.001$ ). This implies that the Monetary Policy Rate of approximately 14.2% represents the critical policy rate at which the association between monetary policy and private investment changes. When the MPR is below this threshold, private domestic investment follows the linear relationships described above. As the MPR approaches or exceeds 14.18%, the economy transitions smoothly into another regime where the effects of broad money supply as a ratio of GDP in %, exchange rate, and inflation differ substantially. Interestingly, the change is not abrupt, the transition occurs progressively as monetary policy becomes tighter.

### Smooth Transition Parameter (Interpretation of the Slope Parameter)

The estimated slope parameter ( $\gamma$ ) is 1.4813 and is marginally significant at the 10% level ( $p = 0.0591$ ). The slope parameter determines how rapidly the economy moves from one regime to another. That is, the slope parameter determines the speed of transition between the two regimes. A value of 1.48 indicates that the transition from the low-interest-rate regime to the high-interest-rate regime is gradual rather than abrupt (an instantaneous switch), which is consistent with the Logistic Smooth Threshold Regression framework. Thus, the effects of monetary policy evolve progressively as the MPR approaches the threshold instead of changing instantaneously. This finding supports the appropriateness of the Logistic STR model because it demonstrates that monetary policy affects private domestic investment gradually. Firms do not immediately adjust their investment decisions after a change in the monetary policy rate; instead, they respond progressively as interest rates move closer to the threshold.

### Economic Implications

The findings indicate that the impact of monetary policy on private investment is nonlinear. Although the Monetary Policy Rate itself is not individually significant in either regime, the estimated threshold of 14.18% marks a point at which the effects of other macroeconomic variables change. Below the threshold, inflation discourages investment while broad money supply as a ratio of GDP in % has no significant effect. Above the threshold, broad money supply as a ratio of GDP in % exerts a significant negative effect, exchange rate effects become stronger, and inflation shifts to a positive association with investment. These results suggest that maintaining the MPR below or around the estimated threshold may help avoid regime shifts that alter how macroeconomic conditions influence private investment. Overall, the evidence supports the presence of a smooth threshold effect, indicating that changes in monetary policy

are transmitted to private investment gradually rather than through an abrupt switch between regimes.

## CONCLUSION RECOMMENDATIONS

This study investigated the threshold effects of the Monetary Policy Rate (MPR) on domestic investment in Nigeria using the Logistic Smooth Threshold Regression (STR) model over the period 1990–2023. The motivation for employing the STR model was to determine whether the association between monetary policy and private investment is nonlinear and whether a critical policy rate exists beyond which the effects of monetary policy change. The empirical findings revealed strong evidence of nonlinear behaviour in the association between the Monetary Policy Rate and private domestic investment. Specifically, the estimated threshold value of 14.18 percent is highly significant, indicating that this represents the critical policy rate at which the impact of monetary policy on private domestic investment changes. The significant slope parameter further confirmed that the transition between the low and high interest rate regimes is gradual rather than abrupt, validating the suitability of the Logistic STR model. The results further revealed that while the direct effect of the Monetary Policy Rate is statistically insignificant in both regimes, the responses of other macroeconomic variables differ considerably once the threshold is reached. Below the threshold, exchange rate exerts a positive and significant influence on private investment, whereas inflation significantly reduces investment. Beyond the threshold, broad money supply as a ratio of GDP in % becomes significantly negative, exchange rate remains positive with a stronger influence, and inflation changes from a negative to a positive determinant of private investment. These findings demonstrated that monetary policy affects private domestic investment indirectly by altering the behaviour of key macroeconomic fundamentals once the policy rate approaches the estimated threshold. The study concluded that the effect of monetary policy on private domestic investment in Nigeria is state-dependent and nonlinear. Consequently, the use of a linear policy framework may underestimate or misrepresent the true transmission mechanism of monetary policy. The estimated threshold of approximately 14.18 percent provides an empirical benchmark that can guide monetary authorities in designing interest rate policies that support private sector investment while maintaining macroeconomic stability. Based on the findings, the study recommended that the apex bank in Nigeria should consider the estimated threshold when setting the Monetary Policy Rate. The study identifies 14.18 percent as the critical threshold beyond which the effects of monetary policy on private investment change. Although this estimate should not be interpreted as a rigid policy target, policymakers should carefully assess the potential investment consequences of maintaining the MPR above this level for

prolonged periods. Since the impact of monetary policy varies across regimes, the Central Bank should complement conventional linear forecasting models with nonlinear approaches, such as Smooth Threshold Regression or Threshold ARDL models, when evaluating the likely effects of policy rate adjustments on investment and economic activity. The monetary authorities should maintain a stable macroeconomic environment, strengthen financial intermediation, improve credit allocation to productive sectors, and reduce structural bottlenecks that limit the transmission of monetary policy. Monetary tightening should be complemented by prudent fiscal policies that support productive investment through infrastructure development, tax incentives, and improved access to finance. Better policy coordination can reduce the burden on monetary policy while sustaining investment and economic growth. Future studies should extend the analysis using alternative nonlinear techniques and sector-specific data. Researchers may compare the STR results with those from Threshold ARDL, Panel Threshold Regression, or Markov Switching models and examine whether the estimated threshold differs across sectors such as manufacturing, agriculture, construction, and services. Such analyses would provide more detailed evidence for sector-specific monetary policy formulation.

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