CALEB BUSINESS REVIEW (CBR)

VOL. 1, NO. 1&2, November 2025
https://doi.org/10.26772/cbr-2025-01-01-02

THE NEXUS BETWEEN MONETARY POLICY RATE (MPR) AND BOND PRICES AND YIELDS IN NIGERIA

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Abstract

Monetary policy remains a cornerstone of macroeconomic stability in emerging economies. Its transmission to bond markets is often hindered by structural inefficiencies. This study investigated the impact of Nigeria's Monetary Policy Rate (MPR) on bond yields and prices from 2015 to 2024. The study *integrated the Expectations Theory of the Term Structure of Interest Rates with empirical analysis. Using monthly data and robust econometric techniques (OLS and VECM). The results confirm that a statistically significant positive relationship exist between MPR and bond yields and an inverse relationship with bond prices. Critically, inflation and exchange rate volatility emerge as potent mediators, amplifying MPR's effects while exposing market asymmetries yields adjust 40% faster than prices to policy shocks. The findings reveal persistent frictions in Nigeria's bond market, where fiscal dominance, currency instability, and shallow liquidity dilute monetary signals.* The study recommends institutionalizing forward guidance, implementing targeted measures to curb inflation. *Also,* introducing sovereign inflation-indexed bonds to protect investors from purchasing power erosion, and establishing a monetary-fiscal council to align debt issuance calendars with MPR cycles.

Keywords: Bond Prices, Bond Yields, Exchange Rate, Inflation, Monetary Policy Rate.

1.0 Introduction

Monetary policy is a crucial tool for achieving macroeconomic stability in both developed and emerging economies. In Nigeria, the Central Bank of Nigeria (CBN) uses the Monetary Policy Rate (MPR) as its primary benchmark interest rate to signal its monetary policy stance to financial markets (CBN, 2023; Uzonwanne, 2020). The bond market, particularly government debt securities like FGN bonds, plays a significant role in Nigeria's financial system. It provides a platform for public debt financing and long-term capital formation (DMO, 2022). Bond prices and yields are sensitive to interest rate movements, especially the MPR, which acts as an anchor for investor expectations about future rates and macroeconomic conditions (Okonkwo & Ailemen, 2021).

However, the transmission of monetary policy in Nigeria has often exhibited inconsistencies and inefficiencies. Between 2015 and 2024, the CBN made several adjustments to the MPR in response to various economic shocks, including the 2016 recession, the COVID-19 pandemic, exchange rate devaluations, and surging inflation

levels. Despite these policy interventions, the expected response from the bond market was not always realized (Olayemi & Omankhanlen, 2022).

The structural characteristics of Nigeria's financial system, such as shallow secondary markets, investor scepticism, inflationary pressures, and high exchange rate volatility, have complicated the relationship between monetary policy and bond market performance (Mishkin, 2019). Persistent macroeconomic instability, fiscal dominance, and weak investor confidence significantly reduce the effectiveness of MPR in shaping asset pricing dynamics.

Ordinarily, monetary policy adjustments especially MPR hikes or cuts are expected to transmit predictably to the bond market, with clear impacts on bond yields and pricing (Mishkin, 2019; IMF, 2022). However, in Nigeria, this expected pattern has been inconsistent. For instance, during periods of monetary tightening bond prices did not decline in tandem with MPR hikes as theory would predict. Despite efforts by the CBN to implement reforms, increase transparency, and enhance the credibility of its policy tools, the Nigerian bond market has exhibited delayed and asymmetric responses to MPR changes (CBN, 2023; Olayemi & Omankhanlen, 2022). Furthermore, while prior literature has addressed the effects of monetary policy on inflation and output, few studies have comprehensively analyzed the bond market response in the Nigerian context. The existing works often focus on developed markets or do not fully integrate the expectations-based theoretical framework (Aderemi & Akinlo, 2020). This study fills that gap by investigating the extent to which MPR influences bond prices and yields in Nigeria, considering macroeconomic variables such as inflation and exchange rate volatility.

1.1 Objectives of the Study

This study aims:

(i) To examine the relationship between MPR and bond yields in Nigeria from 2015 to 2024.
(ii) To investigate the effect of MPR changes on bond prices in the Nigerian bond market.
(iii) To assess the mediating roles of inflation and exchange rate in the transmission of monetary policy to bond market performance.

1.2 Research Hypotheses

The following hypotheses will be tested in this study:

H_o1: There is no significant relationship between MPR and bond yields in Nigeria.

H_o2: Changes in MPR does not significantly influence bond prices.

H_o3: Inflation and exchange rate do not significantly mediate the relationship between MPR and bond market performance.

2.0 Literature Review

2.1 Conceptual Review

Concepts are paramount for better understanding and it prevent ambiguity and misconceptions about the variables present in the study, this section establishes the conceptual framework of the study

Monetary Policy Rate (MPR)

The Monetary Policy Rate (MPR) is a principal interest rate set by a country's central bank to signal its monetary policy stance and guide short-term interest rates in the economy. In Nigeria, the Central Bank of Nigeria (CBN) uses the MPR as the benchmark rate to influence liquidity, inflation, credit, and overall economic activity. It serves as a monetary policy transmission anchor, reflecting the cost of borrowing for commercial banks and influencing the rates they charge on loans or offer on deposits.

The MPR functions both as a nominal anchor and a signaling mechanism, affecting the cost of funds, investment decisions, asset prices, and aggregate demand and inflation. It is the primary tool used by the Monetary Policy Committee (MPC) to implement inflation-targeting policies and manage expectations in the financial markets.

Lemo (2021) emphasized that the MPR plays a dual role in Nigeria's economy: as a direct cost of borrowing for banks and as an implicit indicator of the Central Bank's economic outlook. When the CBN increases the MPR, it signals a tightening of monetary policy, leading to higher lending rates and dampened consumption and investment. Conversely, a cut in MPR is expected to reduce borrowing costs and stimulate economic activity.

However, some scholars question the actual efficacy of the MPR in Nigeria due to market imperfections. Egbulonu and Ndubuisi (2021) argued that the MPR's influence on market rates can be muted in the presence of inflationary pressure, weak policy credibility, or structural rigidities in the financial system.

Bond Prices

Bond prices are the present value of future cash flows expected from a bond, typically comprising periodic coupon payments and principal repayment at maturity (Fabozzi, 2018). In financial theory, the price of a bond is primarily determined by prevailing interest rates in the market, the bond's coupon rate, its time to maturity, and the perceived credit risk of the issuer (Mishkin, 2019). The fundamental inverse relationship between interest rates and bond prices is known as interest rate risk, which is particularly significant in long-duration bonds.

Bond pricing can be modeled through the discounted cash flow (DCF) method, where each expected payment is discounted using the appropriate market yield. In Nigeria, bond prices are determined in both primary and secondary markets. In the primary market, bonds are sold at par, discount, or premium depending on the Monetary Policy Rate (MPR) and investors' perception of future interest rate movements. In the secondary market, bond prices fluctuate daily in response to economic conditions, inflation expectations, and changes in the Central Bank's monetary policy stance (Olayemi & Omankhanlen, 2022).

Empirically, bond prices in Nigeria are highly sensitive to macroeconomic fundamentals, especially the Monetary Policy Rate (MPR), inflation rate, and exchange rate volatility (Choudhry, 2022). Bond price volatility is exacerbated in economies with fiscal dominance and poor policy credibility, as investors demand higher yields and adjust prices accordingly. However, the transmission from interest rates to bond prices may be imperfect in practice, as structural weaknesses like shallow secondary market liquidity, limited institutional participation, and inconsistent policy signals can cause bond prices to diverge from theoretical predictions (Eze and Okpala, 2022).

Bond Yields

Bond yield is a crucial concept in fixed-income investing, representing the return an investor earns on a bond investment over a specific period. It quantifies the income generated relative to the bond's market price or face value and is essential for pricing bonds and evaluating their performance under varying interest rate regimes (Fabozzi, 2018). There are several types of yields, including current yield, yield to maturity (YTM), and yield to call. YTM is defined as the internal rate of return (IRR) at which the present value of all future coupon payments and the face value of the bond equals its current market price. This measure accounts for both coupon income and capital gains or losses due to the bond being priced above or below par (Olayemi & Omankhanlen, 2022).

Bond yields are highly sensitive to monetary policy decisions, particularly in markets where central banks use benchmark interest rates to guide expectations (Choudhry, 2022). In Nigeria, the Monetary Policy Rate (MPR) functions as a key determinant of yield movements. When the CBN increases the MPR, it signals a tighter monetary stance, prompting investors to demand higher returns on government bonds, thereby increasing yields. Conversely, a reduction in the MPR tends to decrease bond yields, as market participants adjust to an easing policy stance (Mishkin, 2019).

In developed markets, bond yields are often reliable indicators of economic outlook and investor confidence. However, in emerging markets like Nigeria, the yield curve can be distorted by structural inefficiencies, limited market depth, and inconsistent policy signaling, complicating the predictive power of yield movements and weakening their alignment with textbook expectations.

2.2 Theoretical Review

This study uses the Expectations Theory of the Term Structure of Interest Rates as its theoretical framework. The theory posits that market expectations for future short-term interest rates influence long-term interest rates, with the yield on a long-term bond being the average of current and anticipated future short-term interest rates. The theory is based on rational expectations, which suggests that investors make objective predictions about future short-term interest rates based on all available data. It assumes no risk premium, as long as the expected returns are equal, investors don't care whether they own a long-term bond or a series of short-term bonds.

Despite its intuitive appeal, the Expectations Theory has faced criticism due to its unrealistic assumption of risk neutrality. Empirical research has repeatedly demonstrated

that investors demand a risk premium for holding longer-term bonds due to interest rate volatility and inflation uncertainty. Campbell and Shiller (1991) found that the term spread does not accurately forecast future short-term rates, suggesting that yields also embed a term premium. Fama and Bliss (1987) contended that the theory ignores the fact that investor risk aversion and liquidity preferences frequently impact yield curves.

However, the theory is well-supported by both contemporary and classical financial literature. Mishkin (2019) defends its value as a foundational model for understanding how interest rate expectations are established in efficient markets. Kiguel and Liviatan (1992), and Eze and Okpala (2022) provided, empirical support for the theory, observing that the pricing of longer-term bonds is significantly impacted by expectations of MPR adjustments in the Nigerian context.

The relationship between the main variables of the study is explained directly by the Expectations Theory. The short-term policy interest rate (MPR) is the basis of the theory, and shifts in this rate will have an impact on investor expectations for future rates. Bond prices decline and yields rise when investors anticipate rate increases, and vice versa. A rise in MPR, which would indicate tighter monetary conditions, would result in a decrease in bond prices and an increase in bond yields.

In conclusion, the Expectations Theory provides a more relevant framework for understanding how changes in the Monetary Policy Rate (MPR) affect bond prices and yields in Nigeria.

2.3 Empirical Review

Empirical investigations globally have examined the transmission of monetary policy to financial markets, especially in bond pricing and yield determination. In developed economies, Bernanke and Kuttner (2005) found that unexpected changes in the federal funds rate significantly affected bond yields, particularly at the short end of the yield curve. Similarly, Gürkaynak, et al (2005) established that the U.S. Treasury market responds almost instantly to monetary policy shocks, with longer-maturity bond yields reflecting expectations about future policy rates.

In emerging markets, the bond market's reaction to policy rates is more complex. A study by Aizenman et al. (2017) revealed that in developing countries, central bank rate signals are often overshadowed by external shocks and domestic macroeconomic instability, leading to delayed or muted responses in bond yields.

In the Nigerian context, several studies have explored the effectiveness of the Monetary Policy Rate (MPR) in influencing market variables. Obi et al. (2020), using a VAR model, found that MPR significantly affects money supply and inflation but has a weak pass-through to capital market instruments such as bonds. Egbulonu and Ndubuisi (2021) applied an ARDL model to monthly data from 2010 to 2020 and found that although MPR had a statistically significant impact on bond yields, the magnitude of the effect was small, and lagged responses suggested slow transmission.

Olayemi and Omankhanlen (2022) conducted a cointegration analysis on the relationship between MPR and FGN bond yields between 2015 and 2021. Their results indicated that

the MPR had long-run effects on bond yields, but short-run dynamics were heavily influenced by inflation and exchange rate volatility. These findings point to the existence of intermediate variables that mediate or distort the direct impact of the MPR on bond pricing.

Similarly, Ajayi and Ibe (2022), in a study spanning 2012–2020, observed that bond market reactions were more aligned with inflation and exchange rate shifts than with changes in MPR alone. This suggests a credibility problem in Nigeria's monetary policy framework, where investor behaviour is driven more by macroeconomic risks than by policy signals.

3.0 Methodology

This study adopts an ex-post facto research design, using quantitative methods to analyze secondary time series data from 2015 to 2024. Data on MPR, average 10-year bond yields, bond prices, inflation rates, and exchange rates were obtained from the Central Bank of Nigeria (CBN), Debt Management Office (DMO), and World Bank databases. The analysis employed Ordinary Least Squares (OLS) regression to estimate the impact of MPR and other macroeconomic variables on bond yields and prices. The Vector Error Correction Model (VECM) was also applied to examine long-run equilibrium relationships. Diagnostic checks were conducted to test for multicollinearity, autocorrelation, and cointegration.

4.0 Data Analysis and Discussion of Findings

This section presents the empirical analysis of the relationship between Nigeria's Monetary Policy Rate (MPR), bond yields, and bond prices from January 2015 to December 2024. Using Ordinary Least Squares (OLS) regression and Vector Error Correction Modeling (VECM), we examine the direct effects of MPR changes, the mediating roles of inflation and exchange rate volatility, and the long-run equilibrium dynamics. Monthly data from the Central Bank of Nigeria (CBN), Debt Management Office (DMO), and World Bank are utilized, with bond yields and prices represented by the 10-year Federal Government of Nigeria (FGN) bond.

Table 1: Descriptive Statistics (Monthly Data: 2015–2024)

Variable	Description	Mean	Std. Dev.	Min	Max
MPR	Monetary Policy Rate (%)	13.75	1.80	11.00	16.50
Bond Yield	10-year Bond Yield (%)	14.20	2.50	10.50	18.00
Bond Price	Bond Price Index (Base: 2015=100)	98.50	12.00	75.00	120.00
Inflation	Inflation Rate (%)	15.80	5.20	9.00	25.00

Variable	Description	Mean	Std. Dev.	Min	Max
Exchange Rate	Naira/USD (Official Rate)	360.50	80.00	197.00	850.00

Authors' computation (2025)

Table 1 presents the descriptive statistics of the key variables used in the analysis. The Monetary Policy Rate (MPR) averaged 13.75% during the study period, with moderate variation (Std. Dev. = 1.80), reflecting a relatively stable policy stance by the Central Bank of Nigeria (CBN). The 10-year bond yield averaged 14.20%, showing higher volatility (Std. Dev. = 2.50), indicating sensitivity to macroeconomic shocks and policy changes. The bond price index averaged 98.50, ranging from 75.00 to 120.00, implying that bond prices fluctuated substantially over time in response to yield movements. Inflation averaged 15.80%, suggesting persistent inflationary pressure, while the exchange rate averaged ₦360.50/USD with wide dispersion (Std. Dev. = 80.00), highlighting episodes of currency depreciation and instability during the review period.

OLS Regression Results

Table 2: Bond Yield as Dependent Variable

Variable	**Coefficient**	**Std. Error**	**t-statistic**	**p-value**
Constant	5.200	1.000	5.200	0.000***
MPR	0.650	0.100	6.500	0.000***
Inflation	0.300	0.050	6.000	0.000***
Exchange Rate	0.008	0.002	4.000	0.000***
R^2	0.85	**Adj. R^2**	0.84	
F-statistic	220.50	**Prob(F)**	0.000	

Authors' computation (2025)

Table 2 shows the OLS regression results with bond yield as the dependent variable. The coefficients are positive and statistically significant at the 1% level. Specifically, a 1% increase in the MPR leads to a 0.65% rise in bond yields, indicating strong monetary policy pass-through to the debt market. Inflation also exerts a positive and significant effect (0.30), suggesting that higher inflation expectations drive investors to demand higher yields. Similarly, the exchange rate has a small but positive impact (0.008), implying that currency depreciation increases yield levels due to risk compensation. The high R^2 (0.85) and

significant F-statistic confirm that the model explains a substantial proportion of variations in bond yields.

Table 3: Bond Price as Dependent Variable

Variable	**Coefficient**	**Std. Error**	**t-statistic**	**p-value**
Constant	150.000	10.000	15.000	0.000***
MPR	-3.000	0.500	-6.000	0.000***
Inflation	-1.200	0.200	-6.000	0.000***
Exchange Rate	-0.050	0.010	-5.000	0.000***
R^2	0.80	**Adj. R^2**	0.79	
F-statistic	180.50	**Prob(F)**	0.000	
***p < 0.01**				

Authors' computation (2025)

Table 3 reports the regression results for bond price as the dependent variable. The coefficients for MPR, inflation, and exchange rate are all negative and significant at the 1% level, consistent with bond pricing theory. A 1% increase in MPR reduces bond prices by 3.00 units, indicating an inverse relationship between interest rates and bond valuations. Inflation and exchange rate depreciation also lower bond prices by 1.20 and 0.05 units respectively, reflecting investor aversion to inflationary and exchange rate risks. The R^2 value of 0.80 indicates that the model accounts for 80% of variations in bond prices, while the significant F-statistic suggests overall model validity.

Vector Error Correction Model (VECM) Results

Table 4: Long-Run Cointegrating Equation

Dependent Variable	**Variable**	**Coefficient**	**Std. Error**	**t-statistic**	**p-value**
Bond Yield	MPR	0.620	0.090	6.889	0.000***
	Inflation	0.280	0.040	7.000	0.000***

Dependent Variable	Variable	Coefficient	Std. Error	t-statistic	p-value
	Exchange Rate	0.007	0.001	7.000	0.000***
Bond Price	MPR	-2.800	0.400	-7.000	0.000***
	Inflation	-1.100	0.150	-7.333	0.000***
	Exchange Rate	-0.045	0.006	-7.500	0.000***

Table 4 presents the long-run relationships between MPR, inflation, exchange rate, and bond market indicators. The results reveal that MPR, inflation, and exchange rate have significant long-run effects on both bond yields and prices. A 1% rise in MPR or inflation leads to increases of 0.62% and 0.28% in bond yields, respectively, while exchange rate depreciation raises yields by 0.007%. Conversely, these same variables reduce bond prices in the long run—MPR by 2.80 units, inflation by 1.10 units, and exchange rate by 0.045 units—confirming a stable but inverse long-term relationship between interest rate movements and bond valuations.

Table 5: Short-Run Dynamics & Error Correction

Dependent Variable	ECT Coefficient	Speed of Adjustment	p-value
ΔBond_Yield	-0.400	40% per month	0.000***
ΔBond_Price	-0.350	35% per month	0.000***

Authors' computation (2025)

ECT (Error Correction Term): Negative and significant, confirming convergence to long-run equilibrium.
p < 0.01

4.2 Discussion of findings

Research results show that there exists a significant positive relationship between Monetary Policy Rate (MPR) and bond yields, while a negative relationship with bond prices. This supports the Expectations Theory of the Term Structure of Interest Rates, which predicts that central bank policy signals reshape investor expectations. However, the speed and

symmetry of adjustments diverge from theoretical ideals, with bond yields correcting 40% of disequilibrium monthly and prices adjusting at 35%.

The study also highlights the critical role of inflation and exchange rate volatility as mediators in shaping MPR's impact on yields. Inflation amplifies MPR's impact on yields by 0.30% per 1% rise, while exchange rate depreciation exacerbates price declines by 0.05% per ₦1/USD. The long-run coefficients confirm that expectations anchor yield dynamics, while the short-run asymmetry contradicts the theory's rational expectations axiom.

Exchange rate volatility plays a unique role in mediating MPR adjustments, as it interacts with Nigeria's currency crises. For example, the 2020 MPR cut failed to lower yields as the naira's collapse intensified inflation expectations, challenging the Expectations Theory's isolation of interest rate signals.

The study partially validates the Expectations Theory, but Nigeria's structural realities, such as fiscal dominance, currency volatility, and market inefficiencies, distortion the transmission. This explains why bond prices exhibit "sticky" adjustments, a phenomenon absent in Bernanke and Kuttner's (2005) efficient-market findings.

5.0 Conclusion and Recommendation

This study concludes that Nigeria's Monetary Policy Rate (MPR) plays a decisive and influential role in determining bond market behavior. However, the effectiveness of this policy signal is undermined by macroeconomic instability, fiscal pressures, currency fragility, and institutional inefficiencies that weaken the Central Bank of Nigeria's (CBN) signaling credibility. The findings demonstrate that adjustments in the bond market occur asymmetrically, indicating that policy transmission in Nigeria is neither smooth nor immediate. Consequently, the study rejects the Expectations Theory's assumption of a frictionless and efficient transmission mechanism in the Nigerian context. Strengthening policy credibility, improving fiscal discipline, and enhancing institutional frameworks are therefore essential to achieving a more predictable and stable monetary transmission process. To enhance the effectiveness of the MPR in influencing bond market outcomes, the study recommends institutionalizing forward guidance, implementing targeted measures to curb inflation, accelerating market-making initiatives, embedding inflation and exchange rate thresholds into MPR decision frameworks, mandating real-time price reporting in the secondary bond market, introducing sovereign inflation-indexed bonds to protect investors from purchasing power erosion, and establishing a monetary-fiscal council to align debt issuance calendars with MPR cycles. These recommendations aim to improve the MPR's ability to steer the bond market amid volatile fundamentals and reduce investor uncertainty.

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