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FIXED INCOME SECURITIES AND PROFITABILITY INDICATOR OF DEPOSIT MONEY BANKS IN NIGERIA

Emmanuel, Osekhuemen Odekhilan & Josiah, Mary PhD.

Department of Accounting. Igbinedion University, Okada

odekhilan.emmanuel@iuokada.edu.ng & mary.josiah@iuokada.edu.ng

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Abstract

This study examined the effect of fixed income securities on the profitability of deposit money banks in Nigeria, with return on assets used as the measure of bank profitability. The study focused on treasury bills, corporate bonds, government bonds and commercial papers as key explanatory variables. Annual time series data covering the period 1995 to 2024 were sourced from the Central Bank of Nigeria Statistical Bulletin and Banking Supervision Reports. The study adopted an *ex post facto* research design and applied the autoregressive distributed lag model and the error correction mechanism to analyse both the short run and long run relationships among the variables. Preliminary diagnostic tests including unit root tests, bounds cointegration test, serial correlation test, heteroskedasticity test and stability tests were conducted to ensure the reliability of the model. The findings revealed that treasury bills exerted a negative and insignificant effect on return on assets, while corporate bonds, government bonds and commercial papers exerted positive but statistically insignificant effects in the short run. The error correction term was negative and statistically significant, indicating the presence of a stable long run relationship and a high speed of adjustment to equilibrium following short run shocks. The study concluded that investments in fixed income securities contributed to income stability but had limited short run impact on bank profitability in Nigeria. The study recommended that deposit money banks should optimise their asset allocation strategies by reducing excessive exposure to low yield instruments and improving risk management practices to enhance profitability.

Keywords: Fixed Income, Treasury Bills, Risk Management, Corporate Bonds, Statistical Bulletin, Commercial Papers.

Introduction

Profitability means the money a bank keeps after paying all its costs, and it is usually measured by indicators like return on assets (ROA) and return on equity (ROE). Profitability shows whether a deposit money bank (DMB) is using its resources well to earn income and to reward owners, pay staff, cover risks, and build capital for future lending (Akarogbe, 2024). For Nigerian banks, strong profitability matters because it supports credit supply to the economy, protects depositors, and helps banks meet regulatory capital rules set by the Central Bank of Nigeria (CBN) (CBN, 2024). When banks make healthy profits they can absorb shocks, invest in technology, and expand services, which in turn supports economic growth and financial stability (Punch, 2025).

Many forces make profitability hard to sustain for banks in Nigeria today. High policy interest rates and inflation raise banks' funding costs and squeeze margins, while large regulatory requirements, like the high cash reserve ratio introduced recently, tie up funds that could otherwise earn returns (Finance in Africa, 2025; CBN, 2024). At the same time, competition, credit risk from borrowers, and shifts in deposit behaviour affect net interest income and non-interest income (Akarogbe, 2024). Because of these pressures, banks often look for safe, liquid investments that can still produce income; fixed income securities have become a common choice for this reason and are widely discussed as a tool to shore up earnings and manage liquidity (Osayi, 2024; ASP Journals, 2024).

Fixed income securities are debt instruments that promise regular interest payments and return of principal at maturity; common types held by banks include treasury bills, government bonds, corporate bonds and commercial paper (ResearchGate, 2024). These instruments influence bank profitability mainly through interest income and through portfolio and liquidity management: short-term securities like treasury bills give quick, low-risk returns and help meet daily cash needs, while longer-term government bonds provide steady interest income and the potential for capital gains or losses as yields change (Nwoye, 2025; Ekpenyong, 2025). By holding the right mix of fixed income securities, banks can smooth their earnings, reduce reliance on volatile lending income, and meet reserve or regulatory needs without cutting back lending sharply (Osayi, 2024; Research Gate, 2024).

Looking more closely at each type, treasury bills are short-term government paper that gives banks safe, liquid places to park funds; empirical studies in Nigeria report that treasury bill holdings often have a positive and significant link to banks' financial performance because they supply dependable short-term interest income and liquidity (kubanni thesis; ASP Journals, 2024). Government bonds are longer dated and generally pay higher coupons; they can raise interest income and provide collateral for repo operations, but they expose banks to interest-rate risk that can affect ROA when bond prices move (ResearchGate, 2024; Osayi, 2024). Corporate bonds may offer higher yields than government paper but carry credit risk; the net effect on profitability depends on credit quality and the premium over risk-free rates (ASP Journals, 2024). Commercial papers are short-term corporate obligations that can boost non-interest income if priced well, but they are riskier than treasury bills and so require strong credit assessment to avoid losses that would hurt ROA (Nwoye, 2025; Ekpenyong, 2025).

Because studies report mixed results and Nigeria's policy and macroeconomic setting keeps changing, more research is needed to understand how each fixed income instrument affects bank profitability now. Some recent Nigerian studies find treasury bills and commercial paper improve bank performance, while findings on corporate bonds are less consistent and government bond effects depend on rate movements (Osayi, 2024; ASP Journals, 2024; ResearchGate, 2024). At the same time, policy shifts such as changes to the cash reserve ratio and high policy rates alter liquidity and returns for fixed income holdings (Finance in Africa, 2025; CBN, 2024). Given these facts, the present study is important because it will use recent data to clarify how treasury bills, corporate bonds, government bonds and commercial paper each affect ROA for Nigerian DMBs, helping managers and regulators make better choices about asset mix, risk controls and policies that support sustainable bank profitability (Ekpenyong, 2025; Akarogbe, 2024).

Statement of the Problem

Despite the growing importance of fixed income securities in the asset portfolios of deposit money banks in Nigeria, concerns persist about the extent to which these instruments contribute to bank profitability. Nigerian banks increasingly invest in treasury bills, government bonds, corporate bonds

and commercial papers as safer alternatives to traditional lending, especially during periods of economic uncertainty and rising non-performing loans. Namunai and Adeniji (2020) reported that the expansion of banks' holdings of government securities improved balance sheet safety but produced limited contributions to return on assets, while Afolabi and Olayinka (2022) found that greater reliance on low risk instruments reduced interest income growth and weakened profitability indicators. Adewuyi and Adegoke (2023) also observed that although fixed income investments enhanced liquidity stability, their marginal returns were often insufficient to significantly improve asset based profitability measures.

In Nigeria, macroeconomic instability, fluctuating interest rates and evolving regulatory frameworks have further complicated banks' fixed income investment decisions. Obiora (2022) documented that increased concentration on treasury bills and government bonds crowded out private sector lending and compressed interest margins in Nigerian banks. Similarly, Iyoha (2023) established that heavy exposure to sovereign debt instruments improved risk resistance but negatively affected efficiency and profitability ratios when yields were capped by monetary policy. Okunlenu, Eze, and Nwankwo (2023) found that treasury bills and government bond investments strengthened liquidity management but had an insignificant or weak positive relationship with return on assets due to persistently low yields, while Worimegbe (2021) concluded that securities dominance in bank portfolios reduced the capacity of banks to generate higher earnings from core intermediation activities.

Furthermore, existing empirical studies have tended to focus on aggregated securities investments or broad macroeconomic determinants of bank performance, with limited emphasis on the disaggregated effects of individual fixed income instruments. Ike, Okafor, and Uche (2024) analysed investment portfolio diversification and bank performance without isolating the unique effects of treasury bills, corporate bonds, government bonds and commercial papers, while Ezenwafor, Okeke, and Nwafor (2024) examined financial asset structure and performance using composite measures that masked the differential impacts of specific securities. This lack of instrument specific evidence constitutes a critical gap because each fixed income security differs in maturity, risk and yield behaviour, which can influence return on assets in distinct ways. Therefore, this study tends to fill this existing gap, by providing disaggregated empirical evidence on how treasury bills, corporate bonds, government bonds and commercial papers individually affect the profitability of deposit money banks in Nigeria.

Objectives of the Study

The broad objective of this study is to examine the effect of Fixed Income Securities on the Profitability Indicator of Deposit Money Banks in Nigeria. Specifically, the study seeks to:

1. Investigate the effect of treasury bills on the return on assets (ROA) of deposit money banks in Nigeria.
2. Examine the effect of corporate bonds on the return on assets (ROA) of deposit money banks in Nigeria.
3. Analyse the effect of government bonds on the return on assets (ROA) of deposit money banks in Nigeria.
4. Examine the effect of commercial papers on the return on assets (ROA) of deposit money banks in Nigeria.

Research Questions

Based on the objectives of the study, the following research questions are formulated:

1. What is the effect of treasury bills on the return on assets (ROA) of deposit money banks in Nigeria?
2. How do corporate bonds affect the return on assets (ROA) of deposit money banks in Nigeria?
3. What is the effect of government bonds on the return on assets (ROA) of deposit money banks in Nigeria?
4. How do commercial papers influence the return on assets (ROA) of deposit money banks in Nigeria?

Research Hypotheses

In line with the research objectives and questions, the following null hypotheses are stated:

H_{01}: Treasury bills have no significant effect on the return on assets (ROA) of deposit money banks in Nigeria.
H_{02}: Corporate bonds have no significant effect on the return on assets (ROA) of deposit money banks in Nigeria.
H_{03}: Government bonds have no significant effect on the return on assets (ROA) of deposit money banks in Nigeria.

H_{04}: Commercial papers have no significant effect on the return on assets (ROA) of deposit money banks in Nigeria.

Theoretical Reviews

Portfolio Theory (Harry Markowitz, 1952)

Portfolio Theory explains how investors can combine different assets to achieve the best balance between risk and return, and although it was introduced many decades ago, recent studies continue to apply it when discussing modern financial investment decisions. The theory states that investors do not look at single assets in isolation but consider how assets behave together in a portfolio, such as how one security may offset the risk of another (AlNajjar & Clark, 2021). In simple terms, Portfolio Theory argues that holding different types of fixed income securities can reduce uncertainty and stabilise returns because not all assets respond in the same way to market changes. This makes the theory important in understanding how banks choose securities that can improve profitability.

Liquidity Preference Theory (John Maynard Keynes, 1936)

Liquidity Preference Theory states that investors prefer to keep their money in liquid assets unless they receive higher interest rates as compensation for giving up liquidity. Although introduced many years ago, modern researchers still use the theory to explain interest rate movements, bank investment behaviour and money market conditions (Adusei, 2021). The theory explains that people hold money for three motives: transactions, precaution and speculation, and banks behave similarly when deciding how much to invest in securities that differ in liquidity. In this way, the theory helps in understanding why banks prefer highly liquid instruments, such as treasury bills, especially during periods of uncertainty.

The theory assumes that investors demand higher returns when they invest in assets with longer maturities, which are less liquid. In the banking context, this means that banks require higher interest rates to invest in long term corporate or government bonds because these securities cannot be converted to cash quickly without losing value (Nyangarika & Magombe, 2022). When interest rates rise, banks are encouraged to shift part of their funds from short term securities into long term instruments to earn more profit, while low interest rates make banks prefer short term and more liquid securities. This behaviour explains why the structure of fixed income securities held by banks changes with economic conditions.

Theoretical Framework

This study is anchored on Portfolio Theory by Harry Markowitz. The choice of Portfolio Theory is justified because it best explains how deposit money banks decide on the mix of treasury bills, corporate bonds, government bonds and commercial papers in order to achieve the highest possible return with the lowest possible risk. The theory emphasises diversification across asset classes and aligns with modern banking practice, where profitability depends not only on lending activities but also on strategic investment in fixed income securities. Portfolio Theory also captures how banks' balance liquidity, risk and return in their portfolios, making it the most suitable theoretical foundation for examining how fixed income securities influence the return on assets of deposit money banks in Nigeria.

Empirical Review

Saleh (2024) investigated the effect of fixed income securities on the financial performance of deposit money banks in Nigeria with the objective of determining how investment in bonds, treasury bills, and other fixed-income instruments influences bank profitability. The study employed a quantitative research design, using panel data from twelve deposit money banks listed on the Nigerian Stock Exchange spanning the period 2010 to 2022. Data were analysed using descriptive statistics, correlation, and panel least squares regression to examine the relationship between fixed income securities and profitability indicators, including return on equity and earnings per share. Results showed that investment in fixed income securities had a positive and statistically significant impact on the profitability of the banks, indicating that banks that allocate more resources to these instruments achieve higher returns. The study concluded that fixed income securities contribute to stable and predictable earnings for deposit money banks and recommended that banks increase investments in such securities. However, the study did not differentiate the impact across individual fixed income components or examine sectoral variations, which the current study addresses by focusing specifically on industrial goods sector-linked banks and breaking down fixed income components for deeper insights.

Olowolaju (2018) examined the effect of non-interest income on the profitability of deposit

money banks in Nigeria, aiming to assess how revenue from fees, commissions, and trading income affects bank performance. The study adopted a quantitative design using panel data from fourteen listed banks for the period 2008 to 2016. Multiple regression analysis was applied to evaluate the relationship between non-interest income and profitability measures, including return on assets and return on equity. The results indicated that non-interest income positively influenced bank profitability, demonstrating that diversification of income sources enhances financial performance. The study concluded that banks should strategically expand non-interest income avenues to improve earnings. Nevertheless, the study did not investigate fixed income securities specifically as a component of asset management and their contribution to profitability, leaving a gap regarding how fixed income investments affect Nigerian banks. The current study fills this gap by focusing directly on fixed income securities as a distinct factor influencing profitability.

Olarewaju and Adeyemi (2015) investigated the causal relationship between liquidity and profitability of Nigerian deposit money banks, aiming to determine whether liquidity levels directly affect bank returns and vice versa. Using a quantitative approach, the study analysed secondary data from twenty deposit money banks over the period 2005 to 2014 and applied Granger causality tests within a panel framework to assess bidirectional relationships. Results revealed a significant bidirectional causality between liquidity measures and profitability indicators such as return on equity, indicating that effective liquidity management enhances profitability and profitable banks maintain stronger liquidity positions. The study concluded that both liquidity and profitability are interdependent and recommended that banks optimise liquidity management policies. However, the research did not explore specific asset classes such as fixed income securities and their role in influencing profitability, which is addressed in the current study by focusing on how investment in these securities affects bank earnings.

Muraina (2018) studied the determinants of listed deposit money banks' profitability in Nigeria, with the objective of identifying both bank-specific and macroeconomic factors influencing financial performance. The research employed a quantitative methodology using panel data from fourteen listed banks covering 2008 to 2016, and analysed the data using descriptive statistics, correlation, and panel regression. Findings revealed that capital adequacy, loan portfolio size, and investment in financial instruments positively affected profitability, while macroeconomic instability negatively influenced bank performance. The study concluded that strategic management of internal bank resources enhances profitability and recommended that banks focus on capital and investment optimisation. Nevertheless, the study did not isolate the effect of fixed income securities as a specific component of investment portfolios, leaving a gap that the current study fills by specifically examining fixed income securities and their relationship with profitability indicators in Nigerian deposit money banks.

Olaoye and Olarewaju (2015) assessed the determinants of deposit money banks' profitability in Nigeria, aiming to evaluate how internal bank-specific and macroeconomic indicators affect returns. The study employed a quantitative design using panel data from sixteen banks between 2005 and 2014 and applied multiple regression analysis to identify significant predictors of profitability such as capital ratio, loan size, investment in securities, and bank size. Results indicated that investment in securities and strong capital positions significantly increased profitability. The study concluded that banks should optimise their investment portfolios and maintain adequate capital buffers. However, the research did not disaggregate investment securities to examine fixed income components separately, creating a gap that the current study addresses by focusing specifically on fixed income securities and their influence on profitability.

Sanyaolu et al. (2019) investigated the determinants of profitability of Nigerian deposit money banks, focusing on bank-specific and macroeconomic factors over the period 2008 to 2017. Using data from eighteen banks, the study applied panel regression analysis to measure the impact of equity, loans, investment securities, and macroeconomic variables on profitability indicators such as return on assets and return on equity. The results showed that investment securities positively influenced profitability, but the study did not specifically examine fixed income securities or differentiate their contributions from other investment instruments. The study concluded that investment decisions significantly affect bank profitability and recommended strategic asset allocation. The current study fills this gap by isolating fixed income securities as a distinct investment category and analysing its specific

effect on profitability measures of Nigerian deposit money banks.

Alalade et al. (2020) investigated liquidity risk and profitability of listed deposit money banks in Nigeria, aiming to assess how liquidity constraints influence financial performance. Using panel data from fifteen listed banks covering 2010 to 2019, the study applied panel regression analysis to examine the relationship between liquidity risk measures and return on equity. Results indicated that higher liquidity risk negatively impacted profitability, while well-managed liquidity contributed positively. The study concluded that liquidity management is crucial for sustaining profitability. However, the study did not explore fixed income securities as a liquidity management tool or investment avenue, which is addressed in the current study by examining how fixed income investments contribute to both earnings stability and profitability in Nigerian deposit money banks.

Methodology

This study adopted an *ex post facto* research design to investigate the effect of fixed income securities on the profitability of deposit money banks in Nigeria. The study relied on time series secondary data covering the period from 1995 to 2024, sourced from the Central Bank of Nigeria Statistical Bulletin and Banking Supervision Reports. Return on assets was used as the proxy for bank profitability, while treasury bills, corporate bonds, government bonds and commercial papers served as the explanatory variables representing fixed income securities. The data were transformed into their natural logarithms to ensure normality and reduce heteroscedasticity. Augmented Dickey–Fuller unit root tests were employed to determine the stationarity properties of the variables, while the autoregressive distributed lag model was adopted to examine both the short run and long run relationships among the variables. The ARDL bounds test was used to test for cointegration, and an error correction mechanism was applied to determine the speed of adjustment from short run disequilibrium to long run equilibrium. Diagnostic tests, including serial correlation, heteroskedasticity, model stability and specification tests, were conducted to validate the robustness and reliability of the model, and all hypotheses were tested at the five per cent level of significance.

Model Specification

This study examines the effect of fixed income securities on the profitability of deposit money banks in Nigeria. Profitability is captured using **Return on Assets (ROA)**, while fixed income securities are represented by **Treasury Bills (TRBL), Corporate Bonds (COPB), Government Bonds (GOVB), and Commercial Papers (COMP)**. Following the mixed order of integration of the variables as revealed by the ADF unit root test, the study adopts the **Autoregressive Distributed Lag (ARDL)** framework.

Functional Form of the Model

The functional relationship among the variables is expressed as:

$$ROA = f(TRBL, COPB, GOVB, COMP) \quad (1)$$

Explicit Econometric Model

The linear form of the relationship is written as:

$$ROA_t = \beta_0 + \beta_1 TRBL_t + \beta_2 COPB_t + \beta_3 GOVB_t + \beta_4 COMP_t + \mu t \quad (2)$$

Where:

ROA_t = Return on Assets at time t
$TRBL_t$ = Treasury Bills
$COPB_t$ = Corporate Bonds
$GOVB_t$ = Government Bonds
$COMP_t$ = Commercial Papers
β_0 = Intercept
$\beta_1 - \beta_4$ = Coefficients of the explanatory variables
μ_t = Error term

Log-Linear ARDL Model

To stabilise variance and improve interpretation of elasticities, the ARDL model is specified in logarithmic form:

$$\Delta \ln ROAt = \beta_0 + \Delta\beta_1 \ln ROA_{t-1} + \Delta\beta_2 \ln TRBL_{t-1} + \Delta\beta_3 \ln COPB_{t-1} + \Delta\beta_4 \ln GOVB_{t-1} + \Delta\beta_5 \ln COMP_{t-1} + \lambda ECM_{t-1} + \mu t \quad (3)$$

Where:

Δ = First difference operator
ECM_{t-1} = Error correction term capturing the speed of adjustment
λ = Speed of adjustment coefficient
εt = White noise error term

Data Presentation, Analysis and Discussion

Descriptive Statistics

Table 1 Descriptive Statistics

	ROA	TRBL	COPB	GOVB	COMP
Mean	2.824333	2001.700	353.6203	6870.407	96.22067
Median	2.925000	1074.339	36.67500	2494.796	19.16500
Maximum	5.920000	8621.284	1400.434	43976.99	822.7000
Minimum	-9.300000	179.6280	2.100000	2.100000	0.490000
Std. Dev.	2.560392	1972.977	505.8321	10588.22	181.7285
Skewness	-3.616474	1.654641	1.208393	2.112406	2.712211
Kurtosis	18.09626	5.805862	2.821424	7.044427	10.27531
Jarque-Bera	350.2659	23.53025	7.340928	42.75803	102.9432
Probability	0.000000	0.000008	0.025465	0.000000	0.000000
Sum	84.73000	60051.00	10608.61	206112.2	2886.620
Sum Sq. Dev.	190.1125	1.13E+08	7420116.	3.25E+09	957732.6
Observations	30	30	30	30	30

Source: Eviews 10

Table 1 presents a concise summary of the descriptive statistics for Return on Assets and the fixed income variables. The mean ROA is 2.82 percent, indicating modest average profitability, while Treasury Bills and Government Bonds recorded high average values of 2001.70 and 6870.41 billion naira respectively, showing their dominance in banks' investment portfolios. Corporate Bonds and Commercial Papers had lower mean values of 353.62 and 96.22 billion naira. The negative minimum ROA of –9.30 percent reflects periods of loss, while the high maximum values of the securities show strong expansion over time. The skewness and kurtosis values indicate that most variables are positively skewed and leptokurtic, while the Jarque Bera probabilities suggest that the variables are not normally distributed.

Correlation Analysis

Table 3 Correlation Matrix

	ROA	TRBL	COPB	GOVB	COMP
ROA	1.000000				
TRBL	0.006882	1.000000			
COPB	0.027368	0.699650	1.000000		
GOVB	0.063452	0.947277	0.638662	1.000000	
COMP	-0.302465	-0.318740	-0.239703	-0.228420	1.000000

Source: Eviews 10

Table 3 presents the correlation matrix showing the relationships among ROA and the fixed income variables. ROA has very weak positive correlations with Treasury Bills, Corporate Bonds, and Government Bonds, with coefficients close to zero, indicating little direct linear association. In contrast, Commercial Paper shows a moderate negative correlation with ROA of –0.30, suggesting that higher investment in commercial paper is associated with lower profitability. Strong positive correlations exist among the fixed income variables themselves, particularly between Treasury Bills and Government Bonds at 0.95, indicating a close movement pattern. Overall, the results suggest that fixed income instruments move together strongly, while their direct association with bank profitability is generally weak.

Stationarity Test

Table 4: Augmented Dickey-Fuller (ADF) Unit Root Test

Variable	Level ADF t-Stat	Level Prob.	Level Stationarity	1st Diff ADF t-Stat	1st Diff Prob.	1st Diff Stationarity	Order of Integration
LNROA	-4.486441	0.0066	Stationary	—	—	—	I(0)
LNTRBL	-2.812665	0.2046	Not Stationary	-5.088440	0.0017	Stationary	I(1)
LNCOPB	-2.455957	0.3457	Not Stationary	-4.873912	0.0028	Stationary	I(1)
LNCOMP	-2.226665	0.4581	Not Stationary	-6.053582	0.0002	Stationary	I(1)
LNGOVB	-4.271237	0.0142	Stationary	—	—	—	I(0)

Source: Eviews 10

Table 4 shows that LNROA and LNGOVB are stationary at levels with p values of 0.0066 and 0.0142, indicating they are integrated of order zero I(0), while LNTRBL, LNCOPB, and LNCOMP are not stationary at levels but became stationary after first differencing with p values of 0.0017, 0.0028, and 0.0002 respectively, indicating they are integrated of order one I(1). Since the variables are a mixture of I(0) and I(1), the appropriate next step is to apply the Autoregressive Distributed Lag, ARDL bounds testing approach to examine the existence of a long run relationship among the variables before estimating both short run and long run effects.

Cointegration Test

Table 5 ARDL Bound Test (@5%)

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	3.767801	10%	2.2	3.09
K	4	5%	2.56	3.49

Source: Eviews 10

Table 5 shows that the ARDL F-statistic of 3.7678 is higher than the upper critical bound value of 3.49 at the 5 percent level, indicating that the null hypothesis of no long run relationship is rejected. This confirms the existence of cointegration among the variables, meaning that fixed income securities and bank profitability move together in the long run. Based on this result, the next step is to estimate the long run and short run ARDL models to determine the magnitude and direction of the relationships.

Inferential Statistics

Table 6 ARDL Shortrun & Error Correction Model
Dependent Variable: D(LNROA)
Method: Least Squares
Date: 12/07/25 Time: 14:40
Sample (adjusted): 1997 2024
Included observations: 28 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.041131	0.156078	-0.263529	0.7947
D(LNROA(-1))	-0.017404	0.275742	-0.063116	0.9503
D(LNTRBL)	-0.323659	0.571658	-0.566176	0.5773
D(LNCOPB)	0.149759	0.128567	1.164832	0.2571
D(LNGOVB)	0.045878	0.223353	0.205404	0.8392
D(LNCOMP)	0.011104	0.081777	0.135783	0.8933
ECM(-1)	-0.992855	0.370472	-2.679974	0.0140

R-squared	0.511126	Mean dependent var	-0.007893
Adjusted R-squared	0.371448	S.D. dependent var	0.686610
S.E. of regression	0.544353	Akaike info criterion	1.833882
Sum squared resid	6.222733	Schwarz criterion	2.166933
Log likelihood	-18.67434	Hannan-Quinn criter.	1.935699
F-statistic	3.659313	Durbin-Watson stat	1.886265
Prob(F-statistic)	0.012071		

Source: Eviews 10

Table 6 presents the ARDL short run and error correction results for deposit money banks in Nigeria. The short run coefficients of Treasury Bills, Corporate Bonds, Government Bonds, and Commercial Paper were not statistically significant, as their probability values were all greater than 0.05, indicating that changes in these fixed income securities did not exert a significant short run impact on return on assets. However, the error correction term ECM has a coefficient of -0.992855 and a p value of 0.0140, which is statistically significant and negative, showing that about 99 percent of short run deviations from long run equilibrium are corrected within one year. The high speed of adjustment confirms a strong long run relationship between fixed income securities and bank profitability. The overall model is statistically significant with an F statistic probability of 0.0121, and the R squared value of 0.51 indicates that about 51 percent of changes in bank profitability were explained by the model

.

Post Estimation Test

6 Residual Diagnostic Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.258114	Prob. F(2,19)	0.7752
Obs R-squared	0.740635	Prob. Chi-Square(2)	0.6905

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.159513	Prob. F(6,21)	0.9848
Obs*R-squared	1.220478	Prob. Chi-Square(6)	0.9759
Scaled explained SS	1.879562	Prob. Chi-Square(6)	0.9304

Source: Eviews 10

The results show that the model is free from serial correlation and heteroskedasticity. The Breusch Godfrey LM test has p values of 0.7752 and 0.6905, which are greater than 0.05, indicating no autocorrelation in the residuals, while the Breusch Pagan Godfrey test also shows p values above 0.05, confirming constant error variance. These outcomes indicate that the model is statistically reliable and the regression results can be confidently used for interpretation.

Stability Diagnostic Test

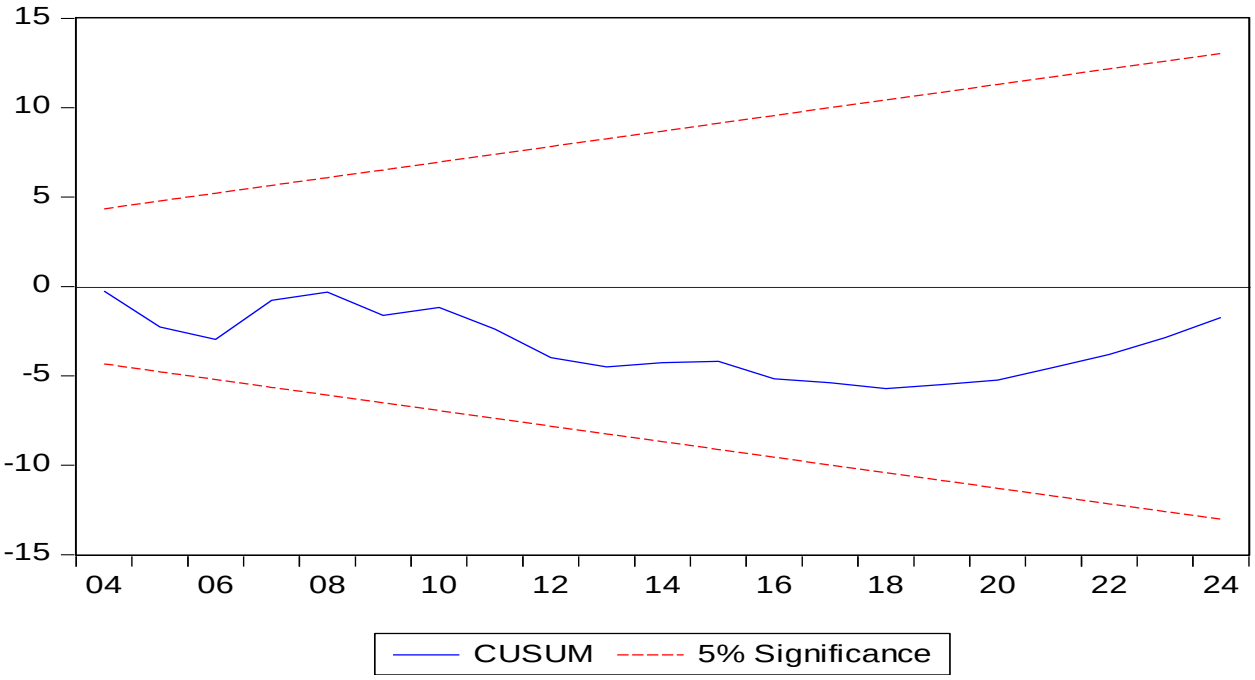

Fig 1 CUSUM Test

The CUSUM stability test indicates that the model is structurally stable over the study period, as the cumulative sum line remains within the 5 percent significance boundaries. This shows that there are no structural breaks in the model and that the estimated parameters are stable over time. Therefore, the regression results are considered reliable and suitable for policy and academic interpretation.

Table7 Ramsey Reset Test
Ramsey RESET Test
Equation: UNTITLED
Specification: D(LNROA) C D(LNROA(-1)) D(LNTRBL) D(LNCOPB) D(LNGOVB) D(LNCOMP) ECM(-1)
Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.907208	20	0.3751
F-statistic	0.823026	(1, 20)	0.3751
Likelihood ratio	1.129159	1	0.2880

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.245952	1	0.245952
Restricted SSR	6.222733	21	0.296321
Unrestricted SSR	5.976781	20	0.298839

Source: Eviews 10

The Ramsey RESET test results show that the model is correctly specified, as the probability values of the t statistic and F statistic are 0.3751 and are greater than the 5 percent level of significance. The likelihood ratio probability of 0.2880 also exceeds 0.05, indicating that no important variables were omitted and there is no evidence of functional form misspecification. This confirms that the model is appropriate and the estimated results are reliable for interpretation.

Test of Hypotheses

The hypotheses for this study were tested @5% significance level:

H_{01}: Treasury bills have no significant effect on the return on assets (ROA) of deposit money banks in Nigeria.

The ARDL short run result shows that Treasury bills have a t statistic of -0.566176 and a probability value of 0.5773. Since the p value is greater than 0.05, the null hypothesis is accepted. This means that in the short run, Treasury bills do not have a statistically significant effect on the return on assets of deposit money banks in Nigeria.

H_{02}: Corporate bonds have no significant effect on the return on assets (ROA) of deposit money banks in Nigeria.

The result for **corporate bonds** shows a t statistic of 1.164832 and a probability value of 0.2571. As the p value is greater than 0.05, the null hypothesis is accepted. This indicates that corporate bonds do not have a statistically significant short run effect on the return on assets of deposit money banks in Nigeria.

H_{03}: Government bonds have no significant effect on the return on assets (ROA) of deposit money banks in Nigeria.

The government bond variable recorded a t statistic of 0.205404 and a probability value of 0.8392. Since the p value exceeds the 0.05 significance level, the null hypothesis is accepted. This implies that government bonds do not significantly affect the return on assets of deposit money banks in Nigeria in the short run.

H_{04}: Commercial papers have no significant effect on the return on assets (ROA) of deposit money banks in Nigeria.

The commercial paper variable has a t statistic of 0.135783 and a probability value of 0.8933. As the p value is greater than 0.05, the null hypothesis is accepted. This shows that commercial papers do not have a statistically significant short run effect on the return on assets of deposit money banks in Nigeria.

Discussion of Findings

Treasury bills and Return on Assets

The findings from the ARDL short run and error correction model revealed that **Treasury bills** had a negative coefficient of −0.323659, indicating an inverse relationship with bank profitability measured by return on assets, although the effect was statistically insignificant. This implies that increased investment in Treasury bills tended to reduce short run profitability of deposit money banks, which may be attributed to the relatively low yields associated with risk free government instruments and the opportunity cost of reduced lending to the private sector. This finding is consistent with prior studies which reported that over concentration on low yield government securities can crowd out more profitable credit activities and weaken banks' earnings capacity (Afolabi & Olayinka, 2022).

Corporate bonds and Return on Assets

The results for **corporate bonds** showed a positive coefficient of 0.149759, suggesting that greater investment in corporate bonds was associated with improved profitability, although the relationship was statistically insignificant. This indicates that corporate bonds have the potential to enhance banks' returns through higher interest income and capital gains, but their overall impact remains weak due to the relatively underdeveloped nature of the corporate debt market in Nigeria. This outcome supports the findings of Worimegbe (2021), who observed that private sector debt instruments can improve financial performance, but their effectiveness is often constrained in emerging markets by low market depth and liquidity limitations.

Government bonds and Return on Assets

With regard to **government bonds**, the estimated coefficient was positive at 0.045878 but statistically insignificant, implying a weak positive relationship with return on assets. This suggests that while government bonds provide stable and predictable income streams, their conservative yield structure limits their contribution to profitability in the short run. This aligns with the findings of Okunlenu et al. (2023), who reported that investments in government securities tend to stabilise bank earnings but do not significantly enhance profitability due to their low risk, low return characteristics.

Commercial papers and Return on Assets

The coefficient of **commercial papers** was positive at 0.011104 but statistically insignificant, indicating a very weak positive effect on bank profitability. This implies that commercial papers have minimal influence on banks' earnings, possibly due to low participation and limited

development of the commercial paper market in Nigeria. This finding is consistent with the work of Iyoha (2023), who found that short term private debt instruments often have limited profitability effects in developing economies because of weak secondary markets and low investor confidence.

The error correction term was negative and statistically significant with a coefficient of −0.992855, indicating a strong speed of adjustment to long run equilibrium. This suggests that approximately 99 percent of short run disequilibrium in bank profitability is corrected within one period, reflecting the ability of Nigerian deposit money banks to quickly realign their investment portfolios in response to shocks in fixed income securities. This result supports the findings of Agyemang and Ansong (2021), who reported that strong regulatory frameworks and adaptive financial management practices enhance the speed of adjustment in financial institutions.

Overall, the findings indicate that although fixed income securities such as Treasury bills, corporate bonds, government bonds and commercial papers show varying directional effects on profitability, their short run impacts are generally weak and statistically insignificant. However, the significant error correction mechanism confirms the existence of a stable long run relationship, consistent with empirical evidence that effective portfolio restructuring and regulatory oversight are crucial in sustaining bank profitability in emerging economies (Ike et al., 2024; Majaf & Iyoha, 2023).

Conclusion

The study concluded that fixed income securities have limited short run influence on the profitability of deposit money banks in Nigeria. Although these instruments contribute to income stability, they do not significantly enhance return on assets in the short term. The significant error correction term indicates that banks are able to adjust quickly to deviations from long run equilibrium, suggesting that portfolio rebalancing and strategic asset allocation play critical roles in sustaining profitability.

Recommendations

Based on the findings, the following recommendations were made:

1. Deposit money banks should reduce excessive reliance on low yielding treasury bills and redirect part of their portfolios towards more profitable but well managed fixed income instruments.
2. Banks should also strengthen risk management frameworks to safely expand their investments in corporate bonds and commercial papers.
3. Regulators should continue to deepen the domestic bond and money markets to improve liquidity and transparency. Policy makers should encourage private sector participation in the debt market to enhance the profitability potential of fixed income investments.

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