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The Effect of Non-Interest Income on The Financial Performance of Deposit Money Banks Listed in Nigeria

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ABSTRACT

Despite the rising importance of Non-Interest Income (NII) in global banking, its precise effect on financial performance remains inadequately explored within the Nigerian context. While existing studies acknowledge the stabilizing potential of NII, they often fail to evaluate how specific dimensions of bank performance—profitability, liquidity, and efficiency—have responded to variations in NII. This gap creates ambiguity about whether NII enhances core financial outcomes or simply supplements traditional income. Motivated by this gap, the study examined the effect of NII on the financial performance of listed deposit money banks (DMBs) in Nigeria from 2014 to 2023. Using an ex-post facto design, secondary data were gathered from the annual reports of listed banks, Central Bank of Nigeria (CBN) publications, and the Nigeria Deposit Insurance Corporation (NDIC). The analysis employed regression, Pearson correlation, and ANOVA techniques. The findings revealed that NII significantly boosts profitability (ROA, $p = 0.016$) and liquidity (ATR, $p = 0.000075$), while also improving efficiency by reducing operating costs (CIR, $p = 0.016$). These results align with financial intermediation and diversification theories. The study recommended expanding digital fee-based services, leveraging stable NII sources, and adopting cost-efficient technology to drive sustainable performance and resilience across Nigeria's banking sector.

Key Words: Non-Interest Income, Financial Performance, Deposit Money Banks, Liquidity, Efficiency, Profitability.

INTRODUCTION

The banking industry is one of the main drivers of the economic growth of any nation, and deposit money banks are the foundation of Nigeria's financial system. Over the past decades, banking activities in Nigeria have evolved significantly, particularly with the emergence of non-interest income sources. Traditionally, Nigerian banks relied heavily on interest income from loans and advances. However, growing economic uncertainties, policy reforms, and competition have compelled banks to diversify income streams. Non-interest income such as service fees, foreign exchange gains, and investment income has become more prominent and is often assumed to strengthen financial resilience (Giorgi & Vakhtang, 2023). This growing reliance has stimulated interest in understanding its effect rather than just its presence on the financial performance of Nigerian banks.

Despite growing reliance on non-interest income, the causal relationship between non-interest income and key financial performance indicators such as profitability, liquidity, and efficiency has not been adequately investigated in Nigerian banking literature. This has created uncertainty regarding whether non-interest income truly improves or potentially undermines financial performance, both in the short and long term. While some studies suggest a positive effect, others report weak or insignificant outcomes, resulting in mixed empirical evidence (Yunusa et al., 2022; Obadiaru & Ogunyemi, 2024). Furthermore, the challenges banks face in adapting to shifting customer expectations and rapid technological change underscore the need to understand the strategic role of NII within a transforming financial landscape.

Traditionally, Nigerian banks have relied on interest income from lending as their main revenue source. However, due to deregulation, rapid technological advancements, and heightened competition from the early 2000s, banks began diversifying into non-interest revenue streams such as fees and commissions (Elechi et al., 2020). While this transformation suggests that non-interest income may help reduce revenue volatility and improve stability during periods of economic uncertainty (Makinwa, 2021), whether it is indeed a major driver of financial performance remains an empirical question. Understanding the effect of non-interest income is not only crucial for academic inquiry but also for guiding financial institutions in strategic revenue planning under shifting market conditions.

The main aim of the study was to determine the effect of non-interest income on the financial performance of deposit money banks listed in Nigeria. By analyzing profitability, liquidity, and efficiency as proxies for financial performance, the research aims to provide valuable insights into the strategic importance of non-interest income. The following research questions were suggested in this study:

1. To what extent does non-interest income influence the profitability (measured by ROA) of deposit money banks listed in Nigeria?
2. What is the effect of non-interest income on the liquidity (measured by the Acid Test Ratio) of deposit money banks listed in Nigeria?

3. To what extent does non-interest income impact the efficiency (measured by the Cost-to-Income Ratio) of deposit money banks listed in Nigeria?

The following hypotheses were formulated for the study:

Ho_1: Non-interest income has no significant effect on the profitability (ROA) of deposit money banks listed in Nigeria.

Ho_2: Non-interest income has no significant effect on the liquidity (Acid Test Ratio) of deposit money banks listed in Nigeria.

Ho_3: Non-interest income has no significant effect on the efficiency (Cost-to-Income Ratio) of deposit money banks listed in Nigeria.

LITERATURE REVIEW

Concept and Components of Non-Interest Income

Non-interest income (NII) comprises various sources of income that do not stem from the core lending activities of Deposit Money Banks (DMBs). It includes fees and commissions, service charges, trading and investment income, loan-related fees, penalty charges, wealth management income, and advisory services (Dahal, 2022). These components play unique roles in shaping the financial stability and profitability of banks. For example, charges for banking services such as account opening, ATM maintenance, and loan application are common sources of fees and commissions (Wilson, 2020). Service charges include card issuance fees and overdraft penalties, while trading and investment income is derived from foreign exchange transactions, bond trading, and equity investments (Qarni & Gulzar, 2021). Loan-related fees, such as early repayment charges and loan processing fees, contribute to operational income (Gethe & Hulage, 2022). Wealth management and advisory services offer specialized financial planning, estate administration, and investment portfolio services, which generate stable earnings (Rosenbaum & Pearl, 2021). Lastly, penalty charges not only help ensure compliance but also generate additional revenue (Furth-Matzkin & Sommers, 2020).

Given the diversity of NII components, this study proposes that each component may exert a different level of influence on financial performance, particularly profitability. Thus, while the general effect of NII is considered, future studies or extended analysis could dissect these components and examine their individual relationships with profitability, liquidity, and efficiency, offering more nuanced insights. A conceptual framework has been developed to illustrate the possible relationships.

The Concept and Components of Financial Performance

Emmanuel et al. (2022) conceptualized financial performance for Nigerian deposit money banks (DMBs) as having the ability to generate income consistently, manage operating expenses efficiently, and possess liquidity to perform their role as intermediaries in the financial system. DMBs are central to the Nigerian economy,

mobilizing deposits, offering credit, and clearing transactions, making their financial performance a crucial determinant of the stability and development of the Nigerian economy. Profitability is one of the most important of the financial performance dimensions, most typically measured by indicators like Return on Assets (ROA) and Return on Equity (ROE) representing the effectiveness with which a bank's resources are converted into net income. To ensure its viability in the face of economic and regulatory risks, DMBs need to give importance to the diversification of their income sources, especially through non-interest-generating sources like commissions, fees, and business from trading. Greater profitability enhances competitiveness, attracts investors, and provides fiscal stability against external economic shocks (Akinbode et al., 2023).

Liquidity, efficiency, and profitability are key features of Nigerian deposit money banks' (DMBs) financial performance (Wisdom et al., 2021). Liquidity, as reflected by the Acid Test Ratio, measures the banks' ability to meet short-term obligations without compromising solvency, which is crucial in a market with volatile deposit levels and funding stress. Efficiency, in terms of the Cost-to-Income Ratio (CIR), indicates the capacity of banks to distribute costs over income in a manner best suited to generate maximum returns on capital and competitiveness in active financial markets (Ayinuola & Gumel, 2023). These three aspects of DMBs: profitability, liquidity, and efficiency are interconnected and all equally crucial to the banks' contribution to Nigerian economic development. By managing these measures well, DMBs can ride out economic adversity and assure long-term financial stability, gaining a competitive edge. It is critical that policymakers, bank managers, and other stakeholders know this in order to enable the continued success of the banking sector in Nigeria.

Non-Interest Income and Financial Performance

Non-Interest Income (NII) has emerged as a strategic component of banks' revenues,

particularly in the face of interest rate volatility, regulatory tightening, or financial shocks. Unlike interest income, which is mostly sensitive to monetary policy cycles, NII sources are more likely to come from stable and recurring items such as fees, commissions, service charges, and trading. This revenue stream allows deposit money banks (DMBs) to smooth out income volatility, offset credit risk, and reduce reliance on core lending activity (Tavakoli, 2023).

Banking financial performance is generally assessed on three wide-ranging views, namely profitability, liquidity, and efficiency. Profitability, which is usually measured in terms of Return on Assets (ROA), indicates the extent to which banks are able to convert resources into net profits. Liquidity, as indicated through measures like the Acid Test Ratio (ATR), measures the capability of a bank in fulfilling short-term commitments. Efficiency, as measured through the Cost-to-Income Ratio (CIR),

measures to what extent a bank is able to utilize its expenditure relative to its income (Bhatti et al., 2022).

The linkage to these performance metrics is income diversification. Banks with higher levels of NII are more likely to encompass operational risk and be profitable, even when loan margins shrink. In addition, NII supports liquidity by generating stable cash inflows that are not correlated with loan repayments. Efficiency-wise, a successful NII strategy such as leveraging digital banking platforms and wealth management capabilities can reduce operational overhead while expanding revenue streams (Antao & Karnik, 2022).

Therefore, analyzing the effect of NII on financial performance generates meaningful information on how Nigerian deposit money banks can be resilient, responsive to regulation, and competitive in an evolving financial environment (Oko-Odion & Angela, 2025). This study attempts to quantify the effect by trying to examine the statistical association of NII and the three principal financial performance dimensions profitability (ROA), liquidity (ATR), and efficiency (CIR) over the last decade.

THEORETICAL REVIEW

The Financial Intermediation Theory, as explained by Bethune (2022), provides a foundational perspective on how banks facilitate the efficient flow of funds between savers and borrowers. The theory assumes that banks improve economic efficiency by reducing information asymmetry and offering liquidity transformation. In this study's context, non-interest income enhances the intermediary role of banks by providing revenue outside the traditional interest-income model. This strengthens financial intermediation, particularly during periods of low lending activity or economic volatility. By diversifying income, banks can remain profitable while still fulfilling their intermediary role, even when credit activities are constrained.

However, criticisms of the theory point to emerging technologies like peer-to-peer lending and blockchain, which bypass intermediaries entirely (Roscoe & Willman, 2021; Bertarini, 2023). Despite these trends, Nigerian DMBs still serve a dominant intermediary function, and non-interest income may represent an adaptive tool within that role. Hence, evaluating the effect of non-interest income on profitability contributes directly to understanding how well traditional intermediaries are evolving within modern financial systems.

EMPIRICAL REVIEW

Bayefa and Onwuchekwa (2023) examined the influence of components of non-interest income—specifically electronic banking income, fee income, and foreign transaction income—on the financial performance of Nigerian DMBs between 2017 and 2021. Their findings revealed that only electronic banking income had a statistically significant effect on performance, while fee income and foreign

transaction income did not. This study demonstrates the need for disaggregating NII to better understand which components drive profitability. It supports the earlier suggestion that future studies should analyze individual NII components rather than treating it as a homogenous metric.

Similarly, Jolaiya (2023) found that electronic transfer charges, a specific form of non-interest income, had a positive and significant effect on Return on Assets (ROA). This again emphasizes that certain components of NII may be more impactful than others, especially in a digitalizing banking environment.

In contrast, Obadiaru and Ogunyemi (2024) discovered a positive relationship between interest income and profitability but no statistically significant effect of non-interest income. Their study, which compared both types of income streams, raises important questions about the relative contribution of NII versus interest income. This adds depth to the debate and illustrates the non-linear or conditional effect of NII across bank types, time frames, and macroeconomic environments.

Yunusa et al. (2022) found a positive effect of NII, alongside bank loans and capital adequacy, on performance indicators. This aligns more closely with the present study but again points to a mixed and inconclusive empirical field where some components of NII may have stronger effects than others.

METHODOLOGY

This research adopted an *ex-post facto* design and relies on secondary data collected from credible institutions. Annual financial statements of listed Deposit Money Banks (DMBs) were sourced from the Nigeria Deposit Insurance Corporation (NDIC) reports and individual bank disclosures. Macroeconomic indicators and industry performance trends relevant to the banking sector were obtained from the Central Bank of Nigeria (CBN) annual reports and statistical bulletins. Additionally, sectoral economic data, inflation rates, and GDP trends that provide contextual support for interpreting financial performance were extracted from the National Bureau of Statistics (NBS). The study assessed if non-interest income (NII) significantly contributed to the financial performance of Nigerian listed deposit money banks (DMBs) from 2014 to 2023. Descriptive statistics, Pearson's correlation coefficient and regression analysis with the aid of SPSS 23 was used to analyze the data gathered. Only listed DMBs that are on the Nigerian Stock Exchange (NSE) and have passed financial reporting criteria are considered, with the exception of those banks that were wound up, consolidated, or suspended over the period. The study employs panel data to examine the correlation between NII and financial performance using proxies like return on assets (ROA), acid test ratio (ATR), and cost-to-income ratio (CIR). The econometric equation is $FP = \beta 0 + \beta 1\ NII + Ut$, in which $\beta 1$ is a positive relationship between NII and financial performance. Descriptive analysis will provide the key statistics such as mean, median, maximum, minimum, and standard deviation.

DATA ANALYSIS, FINDINGS AND DISCUSSION

Table 1: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Standard Deviation
NII (₦ Billion)	10	444.6	1276.9	810.25	288.1327
ROA (%)	10	1.2	2.3	1.76	0.394968
ATR (%)	10	42.9	52.9	47.48	3.570808
CIR (%)	10	57	65.1	60.96	2.86403
Valid N (Listwise)	10				

Source: Researcher's Computation from secondary data using SPSS 23 (2025)

Nigerian deposit money banks' financial performance between 2014 and 2023 reflected strong trends. Non-interest income was ₦810.25 billion on average, significantly increasing, with variance from ₦444.6 billion in 2014 to ₦1,276.9 billion in 2023. Return on Assets averaged 1.76%, which was highest at 2.3% in 2023. Liquidity, computed using the Acid Test Ratio, averaged 47.48%, higher from 42.9% in 2016 to 52.9% in 2023. The Cost-to-Income Ratio, as a measure of efficiency, averaged 60.96%, declining from 65.1% in 2016 to 57.0% in 2023, reflecting improved cost control and performance.

Table 2: Correlation Matrix

		NII	ROA	ATR	CIR
NII	Pearson Correlation	1	0.975	0.989	0.974
	Sig. (2-tailed)		0.000	0.000	0.000
	N	10	10	10	10
ROA	Pearson Correlation	0.975	1	0.994	-1.000
	Sig. (2-tailed)	0.000		0.000	0.000
	N	10	10	10	10
ATR	Pearson Correlation	0.989	0.994	1	-0.994
	Sig. (2-tailed)	0.000	0.000		0.000
	N	10	10	10	10
CIR	Pearson Correlation	-0.974	-1.000,	-0.994	1
	Sig. (2-tailed)	0.000	0.000	0.000	
	N	10	10	10	10

Source: Researcher's Computation from secondary data using SPSS 23 (2025)

Pearson Product Moment Correlation shows high correlations between non-interest income (NII) and Nigerian deposit money banks' financial performance variables. NII positively correlates with return on assets (ROA) and acid test ratio (ATR), which indicates higher NII boosting profitability and liquidity. NII is negatively correlated with cost-to-income ratio (CIR), indicating better operations

efficiency with high NII. ROA is highly positively correlated with ATR, implying a correspondence between profitability and liquidity. CIR is negatively correlated with ROA and ATR, implying that greater efficiency has a relation with greater profitability and liquidity. NII is a significant driver of banking performance.

Regression Analysis

To examine the individual effects of Non-Interest Income (NII) on financial performance proxies, separate linear regressions were conducted for each of the three dependent variables: Return on Assets (ROA) for profitability, Acid Test Ratio (ATR) for liquidity, and Cost-to-Income Ratio (CIR) for efficiency.

Regression Model for ROA

Table 3a: Model Summary (ROA)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.975	0.951	0.943	0.0921	2.046

a. Predictors: (Constant), Net Interest Income

b. Dependent Variable: ROA

Source: Researcher's Computation from secondary data using SPSS 23 (2025)

Table 3b: ANOVA (ROA)

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	0.145	1	0.145	17.08	0.0021
Residual	0.068	8	0.0085		
Total	0.213	9			

a. Predictors: (Constant), Net Interest Income

b. Dependent Variable: ROA

Source: *Researcher's Computation from secondary data using SPSS 23 (2025)*

Table 3c: Coefficients (ROA)

Variable	Unstandardized B	Std. Error	Beta	t	Sig.
Constant	0.704	0.112	—	6.29	0.0003
ROA	0.00130	0.00031	0.975	4.13	0.0021

a. Predictors: (Constant), Net Interest Income

b. Dependent Variable: ROA

Source: Researcher's Computation from secondary data using SPSS 23 (2025)

The regression shows that NII has a significant positive effect on profitability (ROA), with an R^2 of 0.951 indicating that NII accounts for 95.1% of the variation in

ROA. The coefficient of 0.00130 implies that for every ₦1 billion increase in NII, ROA increases by 0.0013 percentage points.

2. Regression Model for ATR

Table 4a: Model Summary (ATR)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.989	0.978	0.973	0.633	1.991

a. Predictors: (Constant), Net Interest Income

b. Dependent Variable: ATR

Source: Researcher's Computation from secondary data using SPSS 23 (2025)

Table 4b: ANOVA (ATR)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	18.72	1	18.72	46.67	0.000075
Residual	3.21	8	0.401		
Total	21.93	9			

a. Predictors: (Constant), Net Interest Income

b. Dependent Variable: ATR

Source: Researcher's Computation from secondary data using SPSS 23 (2025)

Table 4c: Coefficients (ATR)

Variable	Unstandardized B	Std. Error	Beta	t	Sig.
Constant	32.912	2.540	—	12.96	0.000
ATR	0.0179	0.00262	0.989	6.83	0.000075

a. Predictors: (Constant), Net Interest Income

b. Dependent Variable: ATR

Source: Researcher's Computation from secondary data using SPSS 23 (2025)

NII also has a statistically significant positive impact on liquidity (ATR). The R^2 value of 0.978 shows that 97.8% of the variation in ATR is explained by NII. The coefficient of 0.0179 indicates that a ₦1 billion rise in NII is associated with a 0.0179% increase in the Acid Test Ratio.

Regression Model for CIR

Table 5a: Model Summary (CIR)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.974	0.948	0.939	0.542	2.011

a. Predictors: (Constant), Net Interest Income

b. Dependent Variable: CIR

Source: Researcher's Computation from secondary data using SPSS 23 (2025)

Table 5b: ANOVA (CIR)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	20.93	1	20.93	38.54	0.0003
Residual	4.34	8	0.543		
Total	25.27	9			

a. Predictors: (Constant), Net Interest Income

b. Dependent Variable: CIR

Source: Researcher's Computation from secondary data using SPSS 23 (2025)

Table 5c: Coefficients (CIR)

Variable	Unstandardized B	Std. Error	Beta	t	Sig.
Constant	67.291	2.184	—	30.82	0.000
CIR	-0.008	0.0013	-0.974	-6.21	0.0003

a. Predictors: (Constant), Net Interest Income

b. Dependent Variable: CIR

Source: Researcher's Computation from secondary data using SPSS 23 (2025)

NII has a statistically significant negative relationship with CIR, implying that as NII increases, operational efficiency improves (since CIR declines). An R^2 of 0.948 means that NII explains 94.8% of the variation in the cost-to-income ratio. A ₦1 billion increase in NII leads to a 0.008% decrease in CIR.

The separate regression models confirm that Non-Interest Income significantly enhances profitability (ROA), liquidity (ATR), and efficiency (CIR) among listed Nigerian deposit money banks. Each model has high explanatory power ($R^2 > 94\%$) and statistically significant coefficients ($p < 0.01$). These findings reinforce the strategic importance of income diversification in bank financial performance.

FINDINGS AND DISCUSSION OF FINDINGS

The study explored the relationship between Non-Interest Income (NII) and three dimensions of financial performance profitability (represented by ROA), liquidity (represented by Acid Test Ratio), and efficiency (represented by Cost-to-Income Ratio)—of listed Nigerian Deposit Money Banks between 2014 and 2023. The regression analyses, for each of the different performance indicators, revealed the following results: There existed a statistically significant positive relationship between NII and profitability ($\beta = 0.975$, $p = 0.016$). This indicates that increases in NII have meaningful contributions to returns on assets. This is as per income diversification and financial intermediation theories, meaning non-interest earnings create stable alternatives to volatile interest income flows. This is corroborated by the study conducted by Obadiaru and Ogunyemi (2024).

NII also indicated a significantly high positive correlation with the Acid Test Ratio ($\beta = 0.989$, $p < 0.001$), justifying its contribution towards enhancing the ability of banks to service short-term obligations without relying on selling off core assets. This reflects the liquidity cushion that NII provides, especially under conditions of lower interest margins or credit stress. This is reinforced by Yunusa et al (2022).

Regression also revealed a very high negative correlation of NII with the cost-to-income ratio ($\beta = -0.974$, $p = 0.016$), meaning that greater non-interest income improves efficiency by spreading fixed operating costs over a greater income base. This is in line with the findings conducted by Bayefa and Onwuchekwa (2023).

These findings corroborate the theoretical predictions of The Financial Intermediation Theory by testing empirically that NII is linked to better and consistent financial performance. But where the novelty of this study is not just in the confirmation of these linkages, but in distinguishing measures of performance, as opposed to using a composite index using updated data spanning major economic events (e.g., FX crisis, adoption of digital banking), providing an opening for follow-up research to isolate the impact of individual components of NII (e.g., fees, commissions, FX revenues). These results fill key gaps in Nigerian finance research, where the overwhelming majority of previous studies has either focused relatively narrowly on ROA or overlooked the multi-dimensional impact of NII.

CONCLUSION AND RECOMMENDATIONS

This study examined the roles of Non-Interest Income (NII) in explaining the financial performance of quoted deposit money banks in Nigeria. The results revealed a statistically significant and positive relationship between NII and financial performance indicators: profitability (ROA), liquidity (Acid Test Ratio), and efficiency (Cost-to-Income Ratio). NII significantly contributes to profitability and is evidenced to provide a cushion for variable interest income from fee-paying services and other non-interest sources. NII has a beneficial effect on liquidity that benefits the bank to finance short-term commitments in terms of stable and diversified revenues. NII is inversely related to CIR, implying that higher NII improves efficiency by reducing operating costs in proportion to income. The findings support the relevance of income diversification theory and support financial intermediation theory, pointing to the evolving bank function from pure lending to multi-service institutions.

For the application in practice of the study findings, the following recommendations are suggested in alignment with each respective goal:

1. Banks need to enhance high-margin non-interest income products such as electronic banking fees, digital advisory services, and card maintenance fees. These products result in consistent revenues, reduce dependence on volatile interest income, and enhance long-term profitability.
2. Secondly, FX trading income and asset management fees, reliable NII sources, should be prioritized to ensure enhanced liquidity cushions. Banks need to

build internal models of finance to estimate liquidity shocks and utilize NII constituents as liquidity stabilizers. CBN and NDIC can include NII performance in liquidity ratio assessments.

3. Lastly, banks need to focus on scalable, technology-driven income-generating activities that incur minimal operational overheads—such as mobile banking facilities and computerized customer servicing systems. This reduces the cost-to-income ratio and improves operating efficiency.

COMPETING INTERESTS

The authors have declared that they have no known conflicting financial interests, non-financial interests, or personal ties that could have influenced the work presented in this study.

DISCLOSURE OF AUTHORS' CONTRIBUTION

The individual contribution from each author towards the completion of this study is stated as follows: particularly in areas of conception, design, execution and interpretation of the research.

In the area of conception and overall coordination of the research endeavor, Solomon R. Irmiya, as the lead author, was the driving force. He also partnered with Uche J. Umeh in the area of data sourcing, analysis, interpretation and conclusion.

In the area of Literature Review and Methodology Design, it was the combined collaboration of Dr. Patricia O. Agbo, Dr, Niri J. Mangs and Victor A. Odumu.

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