

INCOME PATTERNS AND LISTED COMMERCIAL BANKS' PERFORMANCE IN NIGERIA

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ABSTRACT

The study assessed the effect of income patterns of commercial banks in Nigeria on its performance. Specifically, the study ascertained the effect of non interest income on the Return on Equity of commercial banks. It further investigated the effect of interest income on Return on Equity of commercial banks. Relying on the ex-post facto research design, a total of 7 licensed commercial banks with international operational scope was sampled over a period of 12 years ranging from 2013-2024. Descriptive and correlational analyses were preliminarily conducted to summarise the data obtained and analyse the research questions. Hypotheses formulated were tested using panel estimated generalised least square regression analysis. The findings revealed that non-interest income has a significant effect on return on equity such that credit related fees had a positive and significant effect on ROE ($\beta = 0.0171$; $p = 0.0000$); letter of credit commission had a negative but significant effect on ROE ($\beta = -0.0129$; $p = 0.0000$); while electronic banking income and account Maintenance Income had positive and significant effect on ROE ($\beta = 0.0331$; $p = 0.0000$; $\beta = 0.0062$; $p = 0.0224$) of listed commercial banks in Nigeria respectively. It was further discovered that interest income has a positive and significant effect on Return on Equity such that investment securities income had a positive and significant effect on ROE ($\beta = 0.0798$; $p = 0.0000$); loan and advances to banks had a positive and significant effect on ROE ($\beta = 0.0045$; $p = 0.0002$); while loan and advances to customers had a positive but statistically insignificant effect on ROE ($\beta = 0.0122$; $p = 0.2071$) of listed commercial banks in Nigeria.. In conclusion, this shows that interest income and non-interest income impact banks' profitability and efficiency differently. Some fees and commissions boost return on equity while others do not. The study therefore recommended that the marketing and product development teams should intensify efforts to promote electronic banking services and credit-related fee products, while the risk management team should review and optimize letter of credit commission structures to improve Return on Equity.

Key words: Account maintenance income, Income Patterns, Interest Income, Loan & advances Income, Non-Interest Income, Return on Equity.

CITE AS: Ezenwafor, N.J., Nwoye, U.J., Okoye, E.I. & Uchegbu, C.U. (2025). Income patterns and listed commercial banks' performance in Nigeria, *Tansian University Journal of Arts, Management & Social Sciences*, 9(2), 98 - 125.

INTRODUCTION

In Nigeria where the financial sector is a major driver of economic activities, the performance of commercial banks is heavily dependent on its ability to generate substantial interest

income. The structure of the Nigerian economy, characterized by a high demand for credit in both the private and public sectors, underscores the importance of interest income to the financial health of commercial banks. As such, the financial performance of banks is typically evaluated through metrics such as Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin (NPM) and Net Interest Margin (NIM). These metrics provide insights into the banks' efficiency in generating profits relative to their assets, equity, and interest-bearing liabilities.

Non-interest income has gained prominence in recent years as commercial banks in Nigeria diversify their income sources in response to the volatile interest rate environment and increasing competition in the banking sector. The shift towards non-interest income is partly driven by regulatory changes and technological advancements, which have opened up new avenues for banks to offer innovative financial products and services (Ogunleye, Abayomi & Adejumo, 2017). Despite this shift, there remains a significant challenge in balancing the reliance on non-interest income with traditional interest-based revenue. Ogunleye et al. (2017) explored the growing importance of non-interest income in Nigerian banks, but their study was limited to analyzing the contribution of non-interest income to overall revenue without assessing its impact on specific performance metrics. Additionally, there is a lack of comprehensive research that considers the dynamic interplay between different income streams and their collective impact on bank performance.

For the purpose of this study, the independent variable, statutory income stream, was proxied with Interest income and Non-interest income which were both further decomposed such that interest income was proxied with Investment Security, Loan & Advance to Banks and Loan & Advance to Customers) while the non-interest income was measured with Credit related fees, Letters of credit commission & fees, E-Business income and Account Maintenance income. The dependent variable, performance, was measured with the Return on Assets of the sampled commercial banks.

Objectives

Broadly, the study evaluates the income patterns and the consequent performance of commercial banks in Nigeria. Specifically, it:

1. ascertain the effect of non-interest income on the Return on Equity of commercial banks.
2. investigate the effect of interest income on Return on Equity of commercial banks.

LITERATURE REVIEW

Statutory Income

Statutory income plays a vital role in the financial performance and stability of commercial banks, particularly those operating in regulatory environments with stringent compliance requirements like Nigeria. Statutory income encompasses various revenue streams that banks are legally mandated to generate or report, including interest income, non-interest income, income from government securities, and dividend income. These income streams are fundamental to the banks' ability to sustain operations, meet regulatory capital requirements, and provide returns to shareholders.

Interest income is the most significant component of statutory income for commercial banks. It is derived primarily from the banks' lending activities, where they extend loans and advances to individuals, businesses, and governments. This income stream reflects the core function of commercial banks as financial intermediaries, where they borrow from depositors at lower interest rates and lend to borrowers at higher rates. The spread between these rates constitutes the interest income, which is crucial for covering the operational costs of the bank, provisioning for loan losses, and generating profits. In Nigeria, where the demand for credit is consistently high due to a relatively low level of financial inclusion and an emerging economy, interest income remains a vital source of revenue for commercial banks. Recent studies have emphasized the importance of interest income in driving the profitability of Nigerian banks, particularly in a challenging economic environment where other income sources may be more volatile (Okafor & Okpara, 2020). However, the reliance on interest income also exposes banks to risks associated with interest rate fluctuations, credit risk, and economic cycles, which can significantly impact their profitability.

Non-interest income has gained increasing importance as part of statutory income, particularly as banks seek to diversify their revenue sources and reduce reliance on traditional interest-based income. Non-interest income includes fees, commissions, trading income, and other service-related charges. This income stream has become more prominent in the Nigerian banking sector, especially in the wake of regulatory changes and market competition that have squeezed interest margins. For instance, banks have expanded their fee-based services, such as payment processing, account maintenance, and advisory services, to generate additional income. The advent of digital banking and financial technology (fintech) innovations has further bolstered non-interest income, enabling banks to offer a wider array of services to customers at a lower cost. Research indicates that banks with a higher proportion of non-

interest income tend to exhibit greater stability in earnings, as this income is less sensitive to interest rate movements and economic downturns compared to interest income (Adenuga & Osinubi, 2018). However, the shift towards non-interest income also presents challenges, such as increased operational complexity and heightened competition from fintech companies.

Interest Income and financial Performance

Interest income is a cornerstone of the revenue structure for commercial banks, representing the earnings generated from the bank's core activity of lending. This income stream is derived primarily from loans and advances extended to individuals, businesses, and governments, making it one of the most significant contributors to a bank's overall profitability. In the context of commercial banks, particularly those operating within emerging markets like Nigeria, interest income is not only a measure of profitability but also an indicator of the bank's ability to fulfil its intermediary role in the economy.

The quality of a bank's loan portfolio is another critical determinant of its interest income. High levels of non-performing loans (NPLs) can erode interest income, as banks may need to make provisions for loan losses or write off bad debts. In Nigeria, the issue of NPLs has been a persistent challenge for the banking sector, particularly in times of economic downturn or when sectors that are major recipients of bank loans, such as oil and gas, face significant headwinds. The ability of a bank to effectively manage its credit risk, through prudent lending practices and robust risk assessment processes, is therefore essential for maintaining a steady stream of interest income. Banks that are able to keep their NPL ratios low are more likely to sustain higher levels of interest income, contributing to overall profitability (Adeola & Evans, 2017).

Interest income is also influenced by the competitive dynamics within the banking sector. In a highly competitive market, banks may be forced to lower their lending rates to attract customers, which can compress interest margins and reduce interest income. In Nigeria, the banking sector has witnessed increased competition, both from within the traditional banking space and from non-bank financial institutions and fintech companies that offer alternative lending platforms. This competition can put pressure on banks to innovate and find new ways to generate interest income, such as through the development of specialized lending products or the exploration of new market segments. However, it also necessitates careful management of pricing strategies to ensure that interest income remains sufficient to cover costs and generate profits (Ogunbiyi & Ihejirika, 2014).

Despite its centrality to bank profitability, interest income is subject to several risks. Interest rate risk, which arises from the potential mismatch between the interest rates on assets (loans) and liabilities (deposits), can have a significant impact on a bank's interest income. For instance, if a bank's liabilities are predominantly short-term and its assets are long-term, an unexpected increase in interest rates could raise the cost of funding faster than the returns on loans, thereby squeezing interest margins. Similarly, credit risk, which pertains to the possibility that borrowers will default on their loans, can directly reduce interest income through loan losses. Managing these risks is a critical aspect of ensuring that interest income remains a stable and reliable source of revenue for commercial banks (Ongore & Kusa, 2013).

Interest income is a fundamental component of the revenue structure of commercial banks, underpinning their profitability and operational viability. In the Nigerian context, interest income remains crucial given the high demand for credit and the central role of banks in financial intermediation. However, the generation of interest income is influenced by a complex interplay of factors, including monetary policy, loan portfolio quality, competition, regulatory environment, and risk management practices. As the banking sector continues to evolve, particularly with the advent of digital finance and changing regulatory landscapes, the ability of banks to adapt and optimize their interest income will be key to sustaining financial performance and ensuring long-term stability. In summary, this research work will further proxy this Interest income with such variables such as Investment income, Loan & Advances to banks and Loan & Advances to customers.

Ho₅: Interest income has no significant effect on the Return on Equity of commercial banks.

Investment Securities Income

Investment securities serves as a buffer against adverse economic conditions (Zinn, 2022). In times of economic uncertainty, for example, banks may choose to invest in safer, lower-yield securities, such as government bonds, to preserve capital and reduce risk. Furthermore, the return on investment securities plays a key role in determining a bank's profitability. Since the yields from investment securities are often lower than those from loans and advances to customers, firms typically rely on a mix of high-yield and low-yield securities to strike a balance between generating sufficient income and maintaining a manageable risk profile (Chen, 2020). The interest rate environment also impacts the returns on these securities. In a low-interest-rate environment, banks may face pressure to find higher-yield investments to maintain profitability, leading them to explore alternative investment strategies or higher-risk

securities. Investment securities income also interacts with a bank's broader financial goals, including its capital adequacy and risk management strategies. Banks must carefully monitor the performance of their investments to ensure they align with their overall objectives and that any risks associated with these securities are mitigated (Michael, 2024). Given that changes in interest rates, market volatility, and economic conditions can affect the performance of investment securities, banks must actively manage these investments to maximize returns while minimizing potential losses. This makes the management of investment securities income an important function within a bank's treasury and investment departments, requiring expertise in financial markets, risk assessment, and regulatory compliance.

Loan and Advances to Customers

The loan portfolio's overall performance is also an important factor in determining the income generated from loans and advances (Lamothe, Delgado, Solano & Fernández, 2024). Banks regularly monitor the repayment progress of their loan customers, adjusting their credit risk models and loan provisions as needed. If a borrower defaults on a loan, the bank may need to set aside reserves to cover potential losses, which can reduce the bank's overall profitability. Conversely, the repayment of loans and advances in a timely manner ensures that the bank continues to receive a steady stream of interest income. Banks must strike a balance between extending credit to qualified borrowers and maintaining a prudent lending strategy to safeguard their financial health (Moses & Dicky, 2024).

Loans and advances to customers also play a significant role in a bank's broader business model. Lending is often the primary method through which banks stimulate economic activity (Olisemeka, Ezenekwe & Nzeribe, 2024) by providing capital to borrowers who may use the funds for various purposes, such as purchasing homes, starting businesses, or expanding operations. This not only generates income for the bank but also supports economic growth by enabling individuals and businesses to invest in their future. The income derived from loans and advances contributes to the bank's profitability, helping to fund operations, pay staff, and return value to shareholders. However, as the financial environment changes, banks must continuously adapt their lending strategies to manage risks and maximize returns (Edunjobi & Odejide, 2024). Economic factors such as interest rate fluctuations, inflation, and changes in government policies can all impact the demand for loans and the ability of borrowers to repay. In addition, the rise of alternative lending platforms, fintech solutions, and increased competition from non-bank financial institutions has made it necessary for banks to innovate and offer more competitive loan products to retain market share. In this

changing business environment, the management of loans and advances to customers remains a core element of a bank's strategy for ensuring long-term profitability and financial stability.

Loans and advances to banks represent the funds that one financial institution lends to another, often in the form of short-term or interbank loans (Armantier & Copeland, 2015). These loans typically arise when a bank has surplus funds that it wishes to lend to other banks or financial institutions, or when a bank needs to borrow funds to meet liquidity requirements or regulatory obligations. The income generated from loans and advances to banks is primarily derived from the interest charged on these transactions. These loans can take various forms, including overnight loans, term loans, or repurchase agreements (repos), and are typically secured by collateral to reduce the risk of default (Haralayya, 2021).

Interbank lending is not only essential for banks to meet their liquidity needs, but it also plays a crucial role in stabilizing the financial system as a whole (Armantier & Copeland, 2015). For example, in times of economic uncertainty or financial stress, banks may become more cautious about lending to customers, leading to a reduction in the overall supply of credit. Interbank lending can serve as a buffer in such times, allowing banks to access liquidity even when external sources of funding may be limited. Additionally, these transactions help banks maintain compliance with regulatory liquidity requirements set by central banks or financial regulators, ensuring the overall stability of the banking sector. The income generated from loans and advances to banks, while not as significant as that from loans to customers, still represents an important component of a bank's interest income. This income is typically more stable and predictable, as interbank lending transactions are usually short-term and carry relatively low interest rates (Dietrich & Hauck, 2020). However, banks must manage these transactions carefully to ensure that they are not exposed to undue risk from lending to less creditworthy financial institutions. Finally, changes in the central bank's monetary policy, such as adjustments to interest rates or changes in reserve requirements, can affect the demand for interbank loans and, consequently, the income generated from these transactions. Therefore, managing loans and advances to banks is an essential aspect of a bank's liquidity management strategy and overall risk profile.

Non-Interest Income and Financial Performance

Non-interest income is typically categorized into several key areas: fees and commissions, trading income, and other income. Fees and commissions are perhaps the most common forms of non-interest income and can include charges for account maintenance, letters of credit

commission fees, E-Business fee, credit related fees and fees for advisory services among others. These income streams are often more stable and predictable than interest income, as they are less affected by changes in interest rates or economic cycles. For instance, even in times of economic downturn, customers still need to conduct transactions, maintain accounts, and access financial services, ensuring a steady flow of fee income for banks. Studies have shown that banks with a higher proportion of non-interest income tend to exhibit more stable earnings, as this income is less sensitive to fluctuations in the broader economy (Adesina & Ayo, 2021).

The shift towards non-interest income has important implications for the performance and strategic orientation of commercial banks. As banks increasingly rely on non-interest income, they may prioritize the development of fee-generating services and investment in technologies that facilitate such services. This can lead to greater innovation and efficiency within the banking sector, as banks seek to offer more value-added services to attract and retain customers. However, it also raises challenges, particularly in terms of risk management and customer satisfaction. For instance, an overemphasis on fee-based income could lead to customer dissatisfaction if fees are perceived as excessive or unfair, potentially driving customers to alternative service providers (Ogunleye & Akinwale, 2018). Moreover, the pursuit of non-interest income can influence the risk profile of a bank. While non-interest income is generally more stable than interest income, certain types of non-interest income, such as trading income, can introduce significant risks. Banks that heavily rely on trading income may be more exposed to market risks, and fluctuations in market conditions can lead to substantial earnings volatility. Additionally, the reliance on non-interest income may lead to a shift in the focus of bank management, with a greater emphasis on short-term revenue generation through fees and trading, potentially at the expense of long-term relationship building and lending activities (Ogunleye et al., 2017).

In the Nigerian context, the increasing contribution of non-interest income to the overall earnings of commercial banks reflects both the opportunities and challenges within the banking sector. On one hand, the diversification into non-interest income streams has provided banks with a more stable revenue base, reducing their vulnerability to interest rate fluctuations and economic cycles. On the other hand, it has also necessitated a more complex approach to risk management, as banks navigate the risks associated with new income sources. As the banking sector continues to evolve, driven by regulatory changes, technological advancements, and competitive pressures, the role of non-interest income is

likely to grow even further, making it a critical area of focus for bank management and regulators alike (Ajibola et al., 2018).

*H₀₂: There is no significant effect of non-interest income on the
Return on Equity of commercial banks.*

Credit Related Fees

Credit-related fees can also extend to credit cards (Mohamed, Shahdon, Sham, Omar, Zainuddin & Rasi, 2016). Banks may charge annual fees for the privilege of holding a credit card, in addition to fees for late payments, over-limit fees, or cash advance fees (PNBIndia, 2024). These charges help to offset the costs of managing accounts, maintaining customer service, and providing rewards or loyalty programs. Similarly, for loans such as personal loans or auto loans, banks may impose a processing fee to cover the administrative costs of underwriting and approving the loan.

From a broader perspective, credit-related fees contribute significantly to the overall profitability of banks, especially in a low-interest-rate environment where banks cannot rely solely on interest income. These fees ensure that banks remain financially viable, as they cover the infrastructure needed to support a large portfolio of credit clients, including systems for monitoring payments, servicing accounts, and managing defaults. However, while credit-related fees are an important part of a bank's income model, there has been growing concern over the transparency and fairness of such fees. Many consumers feel burdened by high or unclear fees, leading to increased regulatory scrutiny in many countries (Shy & Stavins, 2024; Motlhabane, 2017). In response, banks have begun to adopt clearer fee structures and more transparent communications with customers regarding credit-related fees. They also offer products with lower fees or fee-waiver options to retain customers in a competitive market. In some regions, regulators have put limits on certain types of credit-related fees, forcing banks to be more transparent about their charges and ensuring they do not take advantage of vulnerable borrowers. Despite these concerns, credit-related fees remain a crucial element of the financial ecosystem, providing both income for the bank and a tool for managing credit risk.

Letters of Credit Commission

The letter of credit commission is typically a one-time fee paid when the LC is issued, though it may include additional charges if the credit is amended, extended, or confirmed (Kagan, 2024). Other fees may also apply if the bank provides additional services, such as advising or

confirming the letter of credit for the seller. For example, if the buyer's bank issues a letter of credit and the seller's bank confirms it, the seller's bank may charge a separate confirmation fee. These fees help compensate the bank for the risks it takes in guaranteeing payment to the seller.

Letters of credit are crucial in international trade, as they provide security to both the buyer and the seller (Crozet, Demir & Javorcik, 2022). For the seller, the bank's guarantee of payment mitigates the risk of non-payment or fraud, particularly when trading with unfamiliar or foreign buyers. On the other hand, buyers benefit from the letter of credit by ensuring that the payment is only made after the goods are shipped or the agreed-upon conditions are met. This guarantees that the buyer is not at risk of paying for goods that are not delivered or that fail to meet the contractual terms. From the bank's perspective, issuing letters of credit is a valuable service that allows them to generate income while also playing a pivotal role in facilitating international trade. The commission earned from letters of credit helps banks strengthen their relationships with corporate clients and build credibility in the global trade finance market (Kagan, 2024). The fees associated with letters of credit are often higher for high-risk or complex transactions, but they also reflect the bank's role in mitigating trade-related risks. Thus, letters of credit and their associated commissions are a critical aspect of trade finance and non-interest income for banks involved in global commerce.

Electronic Banking Income

Another significant source of income in electronic banking is the maintenance fees for digital accounts. Many banks charge monthly or annual fees for maintaining online accounts, providing access to electronic services (Statrys, 2024), or for offering premium features such as higher transaction limits or enhanced security. These fees can vary depending on the level of service and the type of account held. For example, a basic checking account may not incur maintenance fees if the account holder maintains a certain balance (Gravier, 2024), but a premium account with additional benefits may come with a higher monthly fee. Banks also generate income through electronic banking by offering digital payment solutions, such as mobile wallets, contactless payments, and merchant payment processing services (Michael, 2024). Fees may be charged to businesses that use the bank's platform to accept electronic payments, or to customers who utilize mobile payment systems for transactions. The rise of digital payment methods has opened up new avenues for banks to earn fees, particularly as mobile banking becomes more widespread in many countries (ICIR, 2022).

Moreover, electronic banking allows banks to operate more efficiently, reducing the need for physical branches and enabling them to pass on some of the cost savings to their customers (Aduaka & Awolusi, 2020). This reduction in operational costs has made it more profitable for banks to offer digital banking services while simultaneously generating significant income from fees. However, the growing demand for digital services also creates competition among banks and fintech companies, driving them to continually innovate and enhance their digital offerings in order to attract and retain customers. In the future, electronic banking income is expected to continue growing, as more consumers embrace digital banking. With the rise of new technologies such as blockchain and artificial intelligence, banks are likely to develop even more advanced digital services, further expanding their revenue streams from electronic banking. As the industry evolves, banks will need to strike a balance between generating income through fees and offering competitive, user-friendly digital services that enhance customer experience.

Account Maintenance Income

Account maintenance income is influenced by the customer's account activity (FasterCapital, 2024). Some banks offer fee waivers for customers who maintain a minimum balance, set up direct deposits, or meet certain usage thresholds. These incentives are designed to encourage customers to keep their accounts active and to help banks maintain a stable and profitable customer base. In this way, banks can generate income from customers who maintain balances or conduct a minimum level of transactions each month, while also rewarding customers for loyalty and engagement. For banks, account maintenance fees are an essential part of their fee income structure, especially in an environment where interest rates are low and banks face pressure to maintain profitability. These fees help ensure that banks can continue to offer a range of financial products and services to customers while covering the costs of operating their accounts. However, account maintenance fees can sometimes be a point of contention for customers, especially if they feel the fees are excessive or not clearly communicated (FasterCapital, 2024). This has led to increased regulatory oversight and a push for greater transparency in how fees are disclosed and applied. Ultimately, account maintenance income allows banks to offer services that are accessible to a broad range of customers. It provides a stable revenue stream while helping financial institutions maintain the infrastructure needed to support their customers' banking needs.

Return on Equity (ROE)

ROE, on the other hand, measures the profitability relative to shareholders' equity. It is a crucial metric for investors as it indicates how effectively a bank is using the equity capital invested by shareholders to generate profits. The formula for calculating return on equity is:

$$ROE == \text{Net Income} / \text{Total shareholders' equity}.$$

A higher ROE suggests that the bank is efficiently leveraging its equity base to produce income, which can lead to increased dividends for shareholders and higher share prices. The importance of ROE in the Nigerian banking sector has been highlighted in recent research, with findings suggesting that banks with higher ROE tend to have better market valuation and investor confidence (Ogunbiyi & Ihejirika, 2021). However, achieving a high ROE can be challenging, particularly in a volatile economic environment where fluctuations in market conditions, regulatory changes, and economic downturns can erode profitability. Nigerian banks have, therefore, sought to optimize their capital structure and improve operational efficiency to maintain or enhance their ROE.

Theoretical Review

Modern Portfolio Theory (MPT)

This theory was developed by Harry Markowitz in 1952. Modern Portfolio Theory (MPT) is a framework for constructing an investment portfolio that maximizes expected return for a given level of risk, or equivalently, minimizes risk for a given level of expected return. The theory suggests that investors can achieve optimal diversification by holding a portfolio of assets that are not perfectly correlated. MPT emphasizes the trade-off between risk and return, encouraging the inclusion of a variety of asset classes, such as equities (for dividend income), government securities, and other investments, to achieve a balanced and efficient portfolio. MPT is relevant to this study as it provides a theoretical basis for understanding how commercial banks manage their investment portfolios to generate statutory income. Banks, like other investors, seek to optimize their income streams by diversifying their investments across different asset classes, including loans, equities, and government securities. This theory explains the rationale behind banks' decisions to invest in dividend-paying stocks, government securities, and other income-generating assets to enhance their overall financial performance while managing risk.

The theory is perfect for this study because it aligns with the study's focus on how different statutory income streams contribute to the financial performance of commercial banks. MPT

provides a framework for the risk-return trade-offs associated with different income sources, such as interest income, non-interest income, and dividend income. The study can leverage MPT to explore how banks balance these income streams to achieve optimal financial performance while managing associated risks. The alignment between MPT and the study is evident in the emphasis on diversification and risk management in generating stable and profitable income streams.

Empirical Studies

Schreiber (2024) examined the influence of US banks' revenue diversification on profitability, capital, and credit risk by size. The study covered 1990 to 2019. Regression analysis was used to test the hypotheses. Through a simple decomposition of Return on Capital (ROC), the study shows how popular revenue diversification measures reflect both the ROC and risk-adjusted ROC. Substantial differences were found between size groups concerning the impact of revenue diversification measures on profitability, capital, and credit risk in both comparative statics and dynamic business cycles. Medium-sized banks showed insensitivity to these measures compared to large and small banks. A similar 'smile' pattern emerged regarding pairwise conditional correlations between profitability, capital, and credit risk.

Ndungu (2023) investigated the impact of revenue diversification on the financial performance of deposit-taking SACCOs in Mombasa, Kenya. The study focused on six licensed SACCOs, analyzing data from 2018 to 2022. Secondary data, primarily from audited financial statements, were used to examine variables such as revenue diversification, liquidity, firm size, management efficiency, firm age, and financial performance. Data analysis was conducted using SPSS version 26. The findings revealed a robust positive relationship between revenue diversification and financial performance, underscoring the benefits of diversified revenue streams. The study recommended that SACCOs promote and incentivize diversification strategies to enhance financial performance and ensure long-term sustainability.

Sharma and Sharma (2022), analyzed the impact of income diversification on the financial performance and risk profile of public sector banks in India between 2003 and 2016. Using secondary data and panel data regression, the study concluded that income diversification positively affects bank performance. However, an increase in non-interest income also elevates the risk profile of banks. The findings provide valuable insights for bank management

and regulators, emphasizing the strategic role of income diversification in balancing value creation and risk mitigation.

Githaiga (2022) examined whether revenue diversification influences the financial sustainability of microfinance institutions (MFIs). Using panel data from 443 MFIs across 108 countries between 2013 and 2018, the study employed a two-step system generalized method of moments estimation model. The findings revealed a significant positive effect of revenue diversification on financial sustainability, highlighting its importance for the long-term stability of MFIs.

Uniamikogbo, Okoye, and Amos (2021) investigated the effect of income diversification on the financial performance of deposit money banks (DMBs) in Nigeria. Using Tobin's Q as a proxy for financial performance, the study analyzed data from eight banks classified as Domestic Systematically Important Banks by the Central Bank of Nigeria, covering 2008–2018. Findings showed a significant positive effect of commission income on Tobin's Q, while foreign exchange income and firm age had significant negative effects. The study recommended minimizing reliance on foreign exchange income to optimize performance.

Apee (2021) examined the effect of corporate diversification on the financial performance of commercial banks listed on the Nairobi Securities Exchange (NSE). The study, covering the period 2014–2019, employed a panel survey research design and random effects. Findings revealed a negative and significant relationship between corporate diversification and performance, with high Herfindahl-Hirschman Index values indicating over-diversification. The study recommended that banks adopt more dynamic competitive strategies to enhance performance while maintaining a clear corporate purpose.

Suleiman and Gunu (2021) examined the effect of income diversification on the financial performance of quoted manufacturing firms in Nigeria. Specifically, the study explored the impact of product income segment diversification and non-product income segment diversification on the financial performance of these firms. An ex-post facto research design was employed, utilizing secondary data from 42 of the 63 quoted manufacturing firms in Nigeria over an 11-year period (2007–2017). Structural equation (SEM) was used for data analysis. The findings indicated that both product and non-product income segment diversifications significantly affect the financial performance (measured by ROA and ROCE) of the firms. The study concluded that financial performance in quoted manufacturing firms is significantly influenced by diversification in both segments. It recommended that firms

strategically diversify their income sources in both product and non-product segments to enhance financial performance.

Teimet, Lishenga, and Iraya (2020) assessed whether the revenue diversification index significantly affects returns on assets (ROA) for commercial banks in Kenya. The study used balanced panel data from the Central Bank of Kenya for 42 banks between 2009 and 2018. The Hirschman-Herfindahl model was used to calculate the diversification index, and regression analysis evaluated the relationship between diversification and ROA. The study adopted the autoregressive distributed lag (ARDL) model to explore the long-run equilibrium between variables. Findings showed a significant positive relationship between ROA and both interest and non-interest income diversification indices. A long-run U-shaped relationship was identified, suggesting that diversification influences performance up to a certain threshold, after which benefits diminish. The study concluded that moderate diversification enhances performance, but excessive diversification can be detrimental.

Suu, Luu, Pho, and McAleer (2020) explored the factors affecting the net interest margin (NIM) of commercial banks in Vietnam between 2008 and 2018. Analyzing secondary data with 308 observations, the study found that operating expenses and credit risk positively impact NIM, while risk aversion, management quality, income from trading, and deposit proportions have negative impacts. The results provide actionable insights for bank management on factors influencing interest margins and suggest appropriate supervisory policies for commercial banks in Vietnam.

Ammar and Boughrara (2019) examined the effects of revenue diversification on bank performance, focusing on the shift toward non-interest income sources. Using a sample of 275 banks from 14 MENA countries between 1990 and 2011, the study applied the GMM system. Results showed that overall diversification improves profitability, with trading-related business lines making the most significant contributions. However, diversification into non-interest activities increased insolvency risk, complicating the benefit-cost trade-off.

Somoye, Ilo, and Yunusa (2019) explored the impact of interest income on the performance of deposit money banks (DMBs) in Nigeria. The study utilized data from the annual reports of 15 selected DMBs covering 2012–2017. Findings from a random effects model indicated that interest income and capital adequacy significantly drive profitability. The study recommended maintaining adequate capital levels and stable interest income through effective loan management to enhance profitability.

METHODOLOGY

This research adopted the *ex-post-facto* research design with express focus on the Nigerian banking industry. When picking a bank, one thing to consider is how big the bank is, because that affects what services it can provide and how many places you can access it. Based on this rationale, the best 7 commercial banks were sampled because of their international domain of operations. Moreso, these were consistently active and provide complete financial data from years 2013 - 2024. The sample is representative of the larger population of banks in that category, providing insights into the overall performance trends within the sector. These commercial banks were Access Bank, Fidelity Bank, First City Monument Bank, First Bank of Nigeria, Guaranty Trust Bank, United Bank of Africa, and Zenith Bank plc.

The study employed a multiple regression model to evaluate the relationship between statutory income streams and the performance of commercial banks. The dependent variables (financial performance), was represented with Return on Equity, while the independent variables such as: Interest income and Non-interest Income were used to measure the statutory Income stream of commercial banks in Nigeria. Interest income was measured with Investment Security, Loan & Advance to Banks and Loan & Advance to Customers) while the non-interest income was measured with Credit related fees, Letters of credit commission & fees, E-Business income and Account Maintenance income.

In a similar study conducted by (Uniamikogbo, Okoye & Akonye, 2020) and (Hartini & Universitas, 2023), the market value added (MVA) was used to measure performance, hence the following model:

$$MVA_{it} = a_0 + a_1EB_{it} + a_2FEE_{it} + a_3FSIZE_{it} + U_{it} \dots\dots\dots \text{Eqn 1}$$

$$TOBINQ_{it} = a_0 + a_1LNNB_{it} + a_2ESG_{it} + a_3LNTA_{it} + a_4NPLTLK_{it} + U_{it} \dots\dots\dots \text{Eqn 2}$$

Where

MVA == Market Value Added	TobinsQ == dependent variables
EB == E-banking income	it == at time
FEE == Fee income	ESG == independent variables
FSIZE == Firm Size	
a == coefficients	
U == Error term	

The present study adapted the above models and further modified them by decomposing the interest income and non-interest income into sub proxies to suit the intent of the present study.

Below are the models as estimated for the study:

$$ROE_{it} = a_0 + a_1IS_{it} + a_2LAB_{it} + a_3LAC_{it} + U_{it} \dots\dots\dots Eqn 3$$

$$ROE_{it} = a_0 + a_1CRF_{it} + a_2LOCC_{it} + a_3EBI_{it} + a_4AMI_{it} + U_{it} \dots\dots\dots Eqn 4$$

Where:

- ROE = Return on Equity
IS = Investment securities
LAB = Loan and Advances to Banks
LAC = Loans and Advances to Customers
CRF = Credit Related Fees
LOCC = Letter of Credit Commission
EBI = E-Banking Income
I = Number of Banks
t = Period covered in the Investigation
a = Constance Coefficients
U = Error term

The following decision rule guided the outcome of the analyses conducted:

- where the t-statistic is greater than the critical value, reject the null hypothesis and conclude that the independent variable has a significant effect on the dependent variable.
- where the t-statistic is less than or equal to the critical value, fail to reject the null hypothesis and conclude that the independent variables have a significant effect on the dependent variable.

DATA ANALYSES

Descriptive Analysis of Data

Table 1 Descriptive Analysis

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
Loan and Advances to Banks (₦'000)	84	0	183258000	13053623.19	31427014.893
Loan and Advances to Customers (₦'000)	84	4887000	1631109000	236347643.69	276819318.320
Investment Security (₦'000)	84	789999	1267731000	124512717.29	198898144.998
Credit Related Fees (₦'000)	84	0	162407000	11351805.58	20709880.801

Account Maintenance income (₦'000)	84	0	69315000	11616413.89	13010385.854
Letter of Credit Commission (₦'000)	84	0	59863000	3798483.26	8624638.358
E-Banking Income (₦'000)	84	1504463	178611000	24405611.65	26871281.271
ROE	84	.00	.48	.1606	.09822
Valid N (list wise)	84				

Source: Analysis Output Using Statistical Software (SPSS V. 26) (2025)

Loan and Advances to Banks (LAB): The minimum income from loans and advances to other banks was ₦0, while the maximum was ₦183,258,000. The mean income was ₦13,053,623.19, with a relatively large standard deviation of ₦31,427,014.893. This shows considerable variation in interbank lending activities. Some banks might not have participated in interbank lending at all during some periods, while others may have engaged heavily, leading to substantial earnings. The high spread also reflects different liquidity positions and strategies adopted by the banks.

Loan and Advances to Customers (LAC): Loan and advance income from customers had a minimum value of ₦4,887,000 and a very high maximum of ₦1,631,109,000. The average stood at ₦236,347,643.69, making it the highest among the interest income components. The very high standard deviation of ₦276,819,318.320 indicates extreme variability, suggesting that while this was a major revenue stream for most banks, the scale of lending varied widely depending on bank size, customer base, and risk tolerance. This variable clearly represents a core component of income for the commercial banks under study.

Investment Security (IS): Income from investment securities ranged from ₦789,999 to ₦1,267,731,000, with a mean value of ₦124,512,717.29. The standard deviation is ₦198,898,144.998, which is quite large and points to wide differences in the level of investment in securities across the banks. This suggests that some banks made extensive use of securities as part of their income-generation strategy, while others maintained a more conservative approach. The high mean and wide range reflect the importance and variability of capital market investment income in the sector.

Credit Related Fees (CRF): Credit-related fee income showed a minimum of ₦0 and a maximum of ₦162,407,000. The average income from this source was ₦11,351,805.58, with a standard deviation of ₦20,709,880.801. The minimum value of zero suggests that some banks did not earn income from credit-related fees during certain periods. The variability may arise from differences in credit product offerings and customer demand, highlighting the uneven distribution of non-interest income among banks.

Account Maintenance Income (AMI): Account maintenance income ranged from ₦0 to ₦69,315,000, with a mean value of ₦11,616,413.89 and a standard deviation of ₦13,010,385.854. This indicates that account-related fees were a moderate but consistent source of non-interest income. The presence of zeros implies that not all banks may have charged or reported this fee uniformly. The variability may reflect differences in customer volume or bank policies on service charges.

Letter of Credit Commission (LOCC): Income from letters of credit commissions had a minimum of ₦0 and a maximum of ₦59,863,000. The mean was ₦3,798,483.26, with a standard deviation of ₦8,624,638.358, showing a significant disparity in usage. The low mean compared to the maximum suggests that only a few banks actively earned large commissions from international trade facilitation, likely due to specialization or market focus in trade finance.

E-Banking Income (EBI): Electronic banking income ranged from ₦1,504,463 to a high of ₦178,611,000. The mean income was ₦24,405,611.65, and the standard deviation was ₦26,871,281.271. This high variability highlights the growing but uneven adoption of digital banking channels across banks. Banks with stronger digital infrastructure and customer engagement in online services likely earned more from this stream, reflecting the modernization of banking services.

Return on Equity (ROE): ROE values ranged from 0.00 to 0.48, with a mean of 0.1606 (16.06%) and a standard deviation of 0.09822. The relatively high average return shows strong profitability relative to shareholder equity for many banks. However, the wide range indicates that while some banks delivered impressive returns to shareholders, others had negligible or no return, possibly due to lower earnings or higher equity bases.

Test of Hypotheses

Hypothesis One

H₀: There is no significant effect of non-interest income on the Return on Equity of commercial banks.

H_i: There is a significant effect of non-interest income on the Return on Equity of commercial banks.

Table 2 Regression Analysis output

Dependent Variable: ROE

Method: Panel EGLS (Cross-section SUR)

Date: 05/11/25 Time: 12:30

Sample: 2013 2024

Periods included: 12

Cross-sections included: 7

Total panel (balanced) observations: 84

Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CRF	0.017081	0.002426	7.039445	0.0000
LOCC	-0.012884	0.001054	-12.22556	0.0000
EBI	0.033086	0.005268	6.280147	0.0000
AMI	0.006174	0.002650	2.329537	0.0224
C	-0.165296	0.044101	-3.748090	0.0003

Weighted Statistics

R-squared	0.921241	Mean dependent var	1.884684
Adjusted R-squared	0.917253	S.D. dependent var	3.333352
S.E. of regression	1.019249	Sum squared resid	82.07060
F-statistic	231.0138	Durbin-Watson stat	1.583645
Prob(F-statistic)	0.000000		

Source: Analysis Output Using Statistical Software (Eviews V. 12) (2025)

The result of test of hypothesis one is shown above based on the individual non-interest income components and the overall validity of the model. Table 2 shows that the Adjusted R-squared is 0.9173, which means that 91.73% of the variation in Return on Equity (ROE) among the commercial banks over the period is explained by the four non-interest income variables—Credit Related Fees (CRF), Letters of Credit Commission (LOCC), Electronic Banking Income (EBI), and Account Maintenance Income (AMI). This is a very strong model fit, indicating that the selected non-interest income sources have substantial explanatory power over ROE. Furthermore, the Prob(F-statistic) is 0.000000, which means the model is

significant at the 5% level, confirming that at least one of the predictors has a significant effect on ROE. The Durbin-Watson statistic of 1.584 falls within the acceptable range, suggesting there is no serious autocorrelation problem, thus enhancing the model's credibility.

The constant term (C) has a coefficient of -0.165296 with a p-value of 0.0003, which means it is significant at the 5% level. This indicates that when all non-interest income variables are held at zero, the baseline Return on Equity is -16.53%. This negative baseline may suggest that, without these streams of income, banks would struggle to generate returns on shareholders' equity, highlighting the importance of non-interest income in maintaining profitability.

The coefficient of Credit Related Fees (CRF) is 0.017081 with a p-value of 0.0000, indicating a positive and significant effect on ROE at the 5% level. The marginal effect shows that for every additional unit increase in credit-related fee income, ROE increases by 1.71%, assuming other variables remain constant. This implies that revenue from lending-related services—such as loan processing, facility fees, or credit card services—plays a critical role in enhancing shareholders' returns.

Letters of Credit Commission (LOCC) has a coefficient of -0.012884 and a p-value of 0.0000, indicating a negative and significant effect on ROE at the 5% level. The marginal effect implies that a unit increase in income from LOCC is associated with a 1.29% decrease in ROE, holding all else constant. This unexpected negative effect may be due to the associated costs, risks, or limited demand for trade finance services, which may outweigh the commission income received, thereby reducing overall profitability.

Electronic Banking Income (EBI) has the highest coefficient in the model at 0.033086, with a p-value of 0.0000, meaning the effect is positive and significant at the 5% level. The marginal effect indicates that a unit increase in digital banking income leads to a 3.31% rise in ROE, other factors held constant. This shows that investments in electronic banking platforms—such as mobile and internet banking—substantially boost shareholder value, reflecting lower transaction costs and higher customer engagement.

Account Maintenance Income (AMI) has a coefficient of 0.006174 and a p-value of 0.0224, which means the effect is positive and significant at the 5% level. The marginal effect indicates that a unit increase in income from maintaining customer accounts raises ROE by 0.62%, all else being equal. Though the smallest in magnitude among the variables, it still shows that recurring income from account services contributes meaningfully to equity returns.

Thus, since p-value (0.0000) is less than 0.05,the study concluded that non-interest income has a significant effect on return on equity: credit related fees have a positive and significant effect on ROE ($\beta = 0.0171$; $p = 0.0000$); letter of credit commission has a negative but significant effect on ROE ($\beta = -0.0129$; $p = 0.0000$); electronic banking income has a positive and significant effect on ROE ($\beta = 0.0331$; $p = 0.0000$); account Maintenance Income has a positive and significant effect on ROE ($\beta = 0.0062$; $p = 0.0224$) of listed commercial banks in Nigeria.

This finding is corroborated by Abu, Awad, and Ellis (2024), who established a strong positive relationship between non-interest income and profitability in MENA banks, especially digital and service-based components. Adedeji and Adedeji (2018) found similar outcomes in Nigerian DMBs. Sharma and Anand (2018) also reported that medium and large banks in BRICS benefit from non-interest income in terms of equity returns. However, Jawad, Naz, and Shamsi (2021) warned that non-interest income could heighten risk-taking, affecting equity in the long term, particularly through volatile instruments like trade-related commissions.

Hypothesis Two

Ho: Interest income has no significant effect on the Return on Equity of commercial banks.

H_i: Interest income has a significant effect on the Return on Equity of commercial banks

Table 3: Regression Analysis outcome

Dependent Variable: ROE

Method: Panel EGLS (Cross-section SUR)

Date: 05/11/25 Time: 12:36

Sample: 2013 2024

Periods included: 12

Cross-sections included: 7

Total panel (balanced) observations: 84

Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IS	0.079846	0.007583	10.52912	0.0000
LAB	0.004535	0.001147	3.953965	0.0002
LAC	0.012169	0.009567	1.272011	0.2071
C	-0.583528	0.086780	-6.724227	0.0000

Weighted Statistics

R-squared	0.721199	Mean dependent var	2.579363
Adjusted R-squared	0.710744	S.D. dependent var	4.314916
S.E. of regression	1.022772	Sum squared resid	83.68503
F-statistic	68.98087	Durbin-Watson stat	1.497196
Prob(F-statistic)	0.000000		

Source: Analysis Output Using Statistical Software (Eviews V. 12) (2025)

The regression model in Table 3 investigates the effect of interest income—broken down into Investment Securities income (IS), Loan and Advances to Banks (LAB), and Loan and Advances to Customers (LAC)—on the Return on Equity (ROE) of commercial banks. The model reports an Adjusted R-squared of 0.7107, meaning that approximately 71.07% of the variation in ROE is explained by the included interest income components. This shows a strong explanatory power, indicating that interest income is a substantial driver of equity returns in Nigeria’s commercial banking sector.

The Prob(F-statistic) is 0.000000, confirming that the overall model is significant at the 5% level. This means the combination of the interest income variables reliably explains changes in ROE, and the results are not due to random chance. The Durbin-Watson statistic of 1.4972 is slightly below the ideal value of 2, suggesting mild positive autocorrelation, but not to an extent that would invalidate the regression estimates or significance levels.

The constant term (C) is -0.583528 with a p-value of 0.0000, indicating it is highly significant. This implies that in the absence of all interest income sources (i.e., if IS, LAB, and LAC were zero), the expected Return on Equity would be -58.35%, suggesting that banks heavily rely on interest income to remain profitable for shareholders. The large negative value underscores the critical importance of these income streams in maintaining positive equity returns.

The coefficient for Investment Securities income (IS) is 0.079846 with a p-value of 0.0000, indicating a positive and significant effect on ROE at the 5% level. The marginal effect shows that a unit increase in income from investment securities results in a 7.98% increase in ROE, all else being equal. This strong positive effect suggests that investments in bonds, treasury bills, and other financial instruments significantly enhance shareholder returns, likely due to their combination of yield and relatively lower risk.

For Loan and Advances to Banks (LAB), the coefficient is 0.004535, with a p-value of 0.0002, indicating a positive and significant effect on ROE at the 5% threshold. The marginal effect means that a unit increase in interbank lending income results in a 0.45% increase in ROE,

assuming other variables remain constant. Though modest, this supports the idea that banks' short-term lending to other financial institutions contributes positively to overall profitability and shareholder value.

The coefficient for Loan and Advances to Customers (LAC) is 0.012169, but with a p-value of 0.2071, making it statistically insignificant at the 5% level. The marginal effect implies that a unit increase in income from customer loans would lead to a 1.22% increase in ROE, but this result lacks statistical support and may not hold in the broader population. The lack of significance could reflect variability in loan performance, credit risks, or costs associated with loan recovery, which dilute its direct benefit on equity returns.

Since p-value (0.0000) is less than 0.05, the study concludes that interest income has a positive and significant effect on Return on Equity though: investment securities income has a positive and significant effect on ROE ($\beta = 0.0798$; $p = 0.0000$); loan and advances to banks has a positive and significant effect on ROE ($\beta = 0.0045$; $p = 0.0002$); loan and advances to customers has a positive but statistically insignificant effect on ROE ($\beta = 0.0122$; $p = 0.2071$) of listed commercial banks in Nigeria.

Somoye, Ilo, and Yunusa (2019) strongly support this, having found that interest income significantly drives ROE in Nigerian banks. Similarly, Sharma and Sharma (2022) confirmed that public sector banks in India see ROE improvements from interest-bearing assets. Obadiaru and Ogunyemi (2024) also found significant ROE effects from interest income. However, Vuong and Nguyen (2020) noted that while state-owned banks benefit from interest income, excessive exposure to customer loans increases credit risks and weakens ROE—a point echoed in the Nigerian context.

CONCLUSION AND RECOMMENDATIONS

Banks need to understand which income streams really add value and which might hold them back. the study shows that interest income and non-interest income impact banks' profitability and efficiency differently. Some fees and commissions boost return on equity but may not help much with return on assets. This means banks' ability to generate profits from their assets is not always directly tied to the income they earn through different channels. Hence, banks need to carefully balance where their income comes from to maintain both efficiency and value for shareholders. Based on these, it was recommended that:

- a. The marketing and product development teams should intensify efforts to promote electronic banking services and credit-related fee products, while the risk management

team should review and optimize letter of credit commission structures to improve Return on Equity.

- b. The credit risk and lending units should prioritize expanding loans and advances to banks and investment securities that have demonstrated a significant positive effect on return on equity.

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