



Effect of Net Interest Margin on Financial Performance of Deposit Money Banks in Nigeria

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Abstract: *The study investigated the effect of net interest margin on financial performance of deposit money banks in Nigeria. The researcher developed four specific objectives, four research questions and four hypotheses that guided the study. The research design employed was ex post facto. This design is selected and implemented due to the researcher's lack of control over the various elements of the design. The data for this study is preexisting, therefore it is utilized for a secondary data analysis. The study's population comprised twenty-two (22) designated deposit money banks in Nigeria. This study employed the judgmental sampling technique. The sample size is made up of two (2) DMBs which includes United Bank for Africa Plc, Fidelity. The data for this study were obtained from the published financial statements of the chosen publicly traded deposit money banks in Nigeria. This study employed an estimated technique that involved the use of descriptive statistics and Ordinary Least Squares (OLS) regression analysis. The E-view-9 software was utilized to carry out the analysis. The study established that net interest margin is statistically significant and has a positive effect on operating income (OI). The researchers suggested that Banks should monitor and manage the duration gap between assets and liabilities, considering potential interest rate changes and the bank's risk appetite. Banks should explore opportunities to diversify income sources by offering a broader range of financial products and services, such as wealth management, insurance, and asset management.*

Keywords: *Net Interest Margin, Operating Income, Financial Performance.*



1. INTRODUCTION

The financial performance of Deposit Money Banks (DMBs) in Nigeria is a critical measure of the country's banking sector health and economic stability. It encompasses various key indicators such as profitability, asset quality, liquidity management, capital adequacy, efficiency, regulatory compliance, and market positioning. DMBs' ability to generate sustainable profits, manage risks effectively, maintain adequate liquidity and capital levels, operate efficiently, comply with regulatory requirements, and compete in the market reflects their overall financial health and resilience (Alnabulsi et al., 2023). Monitoring and assessing these factors are essential for stakeholders to evaluate the strength, stability, and long-term viability of Nigeria's banking sector, which plays a pivotal role in supporting economic growth and development.

Taking into account the company's operations, operating income is a statistical metric that reveals the proportion of revenue that will ultimately be turned into profits (Barauskaite & Streimikiene, 2020). It takes into account the two main categories of costs: operating expenses and cost of products sold. Expenses like labour, raw materials, and overhead that are directly tied to making a product are all part of the cost of goods sold. Selling, administrative, and general operating expenses are incurred before taxes and interest expenses. Investors can benefit from analysing operating income rather than profit or net income due to the exclusion of taxes and other one-time factors. Operating income growth is a good sign for a firm since it means that expenses, manufacturing costs, and overhead are being well-managed (FastARfunding, 2020).

The net interest margin analysis is the difference in the amount that the banks or the financial institutions generate from the money income that they make from lending out funds to investors and the amount of expense that they need to incur for paying its lenders (Jufri, 2021). This value is expressed as a percentage relative to its assets. It indicates how profitable the business is and how financially viable it is so that it can continue for many years to come. It is also a metric to help investors determine the financial stability of the institutions so that they can decide to invest their money or take their services (Jufri, 2021; Sunny, 2020). A positive value of the net interest margin for banks indicates that the business is profitable and is operating efficiently (Sunny, 2020).

1.2 Statement of the Problem

The Nigerian banking crisis demonstrated that risks are inherent to the banking industry and that these risks vary across asset types. The steep decline in stock market indexes has had a negative impact on the asset quality of most banks (Edor, 2021). Earlier, the CBN had stated that certain banks were experiencing difficulties with liquidity. As a result of reacting to the perceived risk of lending to one another, banking operations were impeded. The entire financial system and economy were hit hard by the resulting shortages in liquidity and credit as well as a substantial decline in public trust in banks (Dordum et al., 2021).

According to a report by the Central Bank of Nigeria (CBN, 2019), inadequate risk management was the cause of the failure of many Nigerian banks in the past. The banking sector is still feeling



the effects of this situation. Edor (2021), Inegbedion et al. (2020), Alnabulsi et al. (2023), and Ademola and Ismaila (2022) are only a few examples of the studies that have examined the relationship between net interest margin and the financial performance of Nigerian deposit money institutions. When looking at how net interest margin affected the bottom lines of Nigerian deposit money institutions, these research found conflicting findings. Hence, this study determined effect of net interest margin on financial performance of deposit money banks in Nigeria. Specifically, the study sought to:

Determine the effect of net interest margin on operating income of DMBs in Nigeria.

Research Hypothesis

H₀₁: There is no significant effect of net interest margin on operating income of DMBs in Nigeria.

2. RELATED WORK

2.1 Conceptual Review

Net Interest Margin: Net Interest Margin is a popular profitability ratio used by banks, which helps them determine the success of firms in investing in comparison to the expenses on the same investments and is calculated as Investment income minus interest expenses (this step is referred to as netting) divided by the average earning assets (Res et al. 2019; Ini et al., 2016). The investment income includes the interest on loans, securities or any other asset that earns interest, while the expenses include the interest that the banks pay on its liabilities or borrowings. A lower value of the ratio indicates that the financial institution has to earn higher income to compensate for its expenses (Shrivastava et al, 2019). This ratio talks about the NIM, meaning how much interest an investor receives over how much she pays out. Here's the formula. Net Interest Margin = (Interest Received-Interest Paid)/Average Invested Assets. Net interest income is the net result of subtracting interest paid on liabilities from interest earned on assets. Net interest margin (NIM) is the ratio of net interest income to the average amount of interest-earning assets, expressed as a percentage. Mushafiq et al. (2021) defined net interest margin as the disparity between the interest income earned by banks or other financial institutions and the interest paid to their lenders, such as deposits, in relation to the value of their interest-earning assets.

Financial Performance

According to the Minority Business Development Agency (MBDA) (2020), a company's financial strength is determined by its ability to generate revenue, maintain cash flow, demonstrate financial proficiency, and provide a return on investment to its owners. The liquidity of funds is crucial for the success of a business, and the cash flow ratio is used to assess financial stability. Financial stability is essential for the growth and expansion of a business, as well as for the financial gains of its shareholders (Osho & Olusolaomole, 2022). The funding strategy of a company can impact its valuation, and financial stability directly affects liquidity. Strict oversight of cash flow is important for developing financial resilience (FastARfunding, 2020). The valuation of a company can be based on its ongoing business activities or its worth in the event of a complete sale of assets.



Sufficient capital allows a business to expand its asset portfolio and potentially enhance financial performance and value. The stock price of a company is an indicator of its financial well-being and market worth (Osho & Olusolaomole, 2022). The primary goal of a company is to maximize the wealth of its shareholders, and the market value of its shares reflects this wealth. Tobin's Q is a metric used to assess the influence of d

Operating Income

Operating income is a financial metric that quantifies the portion of a company's revenue that will ultimately translate into profits (Edwards, 2016). Operating income is the net revenue of a company after deducting all operational expenses and depreciation. Operating expenses, also known as expenses of operation, refer to the expenditures necessary to maintain the ongoing operations of a business. These expenses may encompass rent, utilities, employee wages, cost of goods sold (COGS), inventory, and equipment expenses - all essential for the regular functioning of the business. To compute operating income: The formula for operating income is calculated by subtracting the sum of operating expenses and depreciation from the gross income.

2.2 Theoretical Review

Shiftability Theory: Harold G. Moulton's theory of asset shiftability, established in 1915, underscores the significance of ensuring that bank assets can be readily transferred without loss of value, particularly during times when liquidity is required. This principle holds particular relevance in the context of short-term market investments such as treasury bills and bills of exchange, which can be swiftly sold by banks to generate funds. Moulton's theory suggests that for deposit money banks in Nigeria, maintaining assets that can be easily shifted to the central bank, acting as the lender of last resort, is crucial for safeguarding against liquidity crises. Inegbedion et al. (2020) and Ironkwe and Osaat (2019) support this notion by highlighting the importance of marketable bank assets such as commercial paper, prime bankers acceptances, and treasury bills in ensuring liquidity reserves. Moreover, the theory posits that the marketability of bank securities serves as a form of liquidity, allowing banks to mitigate the risks associated with significant withdrawals of deposits. In the context of Nigeria's deposit money banks, the effect of net interest margin on financial performance is integral to this discussion.

2.3 Empirical Review

In a study conducted by Edor (2021), an examination of Nigerian deposit money banks revealed a notable correlation between risk management practices and financial performance. According to the analysis, which utilized data from five banks, funds that were managed at a higher level resulted in superior performance. The results emphasize the significance of cautious risk management for banks in safeguarding investor interests.

The study conducted by Inegbedion et al. (2020) on Nigerian commercial banks revealed that profitability is significantly impacted by liquidity risk in the short term, and by credit, capital adequacy, leverage, and liquidity risks in the long term. The study indicates that implementing



efficient risk management practices, specifically in these domains, can improve the profitability of banks, decrease layoffs and unemployment rates, and alleviate social problems.

The study conducted by Malik et al. (2022) revealed a noteworthy positive correlation between the utilization of earning management practices and the occurrence of financial distress in commercial banks. The researchers employed Modified Altman's Z-score and panel regression to examine the correlation. The study indicates that higher liquidity decreases the likelihood of experiencing financial distress, whereas factors such as size, leverage, and asset quality increase the probability of financial distress.

In his 2018 study, Kumar examined the financial risk and performance of companies in the 21st century by analyzing their income statements and financial condition over a period of 17 years. The study identified the financial crisis as a pivotal moment, signifying a favorable financial position and effective risk management.

According to Ini et al. (2016), credit risk, loan and advances growth, staff operating cost, GDP growth, inflation rate, and money supply growth have been identified as important factors influencing interest margins in Nigeria. The cost of staff has the most significant influence, with fixed effects being the next most influential factor. The study proposes strategies to minimize personnel expenses, including adjusting compensation, managing employee turnover, implementing redundancy measures, automating processes, and outsourcing non-essential tasks, in order to enhance efficiency and maintain competitive profit margins.

Imola's 2017 study on Romanian banks discovered inverse relationships between interest rate risk and return on asset, liquidity risk and ROA, and direct relationships between ROA and credit risk, suggesting significant revenue generation.

Yusuf's (2019), discovered that Islamic banks' performance and capital risk management strategies were negatively affected from 2004-2018. This was primarily due to insufficient liquidity, credit, and operational risk management techniques.

2.4 Literature Gap

Previous studies on this topic showed mixed results on the effect of net interest margin and financial performance of deposit money banks in Nigeria (Edor 2021; Inegbedion et al. 2020). Hence, their studies lack consensus results. This inconsistent results could be as result of differences in scope (content, geographical and unit of analysis), sample size, population and or data analysis techniques. Previous studies used ROA and ROE to measure financial performance (Yusuf, 2019; Imola 2017). The present study used net interest margin as a predictor variable; operating income as dimensions of financial performance as against the norm. This model is very novel and robust. Our study also concentrated on two commercial banks (United Bank for Africa Plc, Fidelity Bank Plc) with respect to Nigeria. Hence, we affirm that this study has contributed to the body of knowledge.



3. METHODOLOGY

According to Oladimeji (2017), a research design is the structure or plan of study used to collect and analyze data. The study employed an ex post facto research design, chosen because the elements of the design were not under the control of the researcher and the data already existed. The population for the study consisted of 22 listed deposit money banks in Nigeria. The study used judgment sampling technique to select two DMBs, United Bank for Africa Plc and Fidelity Bank Plc, as the sample size. Data were collected from the published financial statements of the selected banks, obtained from the Nigerian exchange group website. The data analysis method used descriptive statistics and Ordinary least square (OLS) regression analysis with the help of E-view-9 software. The statistical tests included the coefficient of determination R², Durbin-Watson (DW), F-ratio, and t-test, with a significance level of 5% (0.05).

Model Specification

The model is expressed as follows:

$$OI_{it} = \beta + \log \beta_1 \log NIC_{it} + \epsilon_{it}$$

Where:

OI = Operating income

NIM = Net Interest Margin

T = Time period under study

Log = Natural log of the variables

β = constant.

4. RESULT AND DISCUSSION

4.1 Data analysis

Data analysed here were the properties of Net Interest Margin and financial performance (Operating income) of deposit money banks in Nigeria.

Table 4.1 Descriptive Statistics

	NIM	OI
Mean	5.256206	4.904421
Median	5.314297	4.914475
Maximum	5.537177	5.337070
Minimum	4.694842	4.421291



Std. Dev.	0.215745	0.244521
Skewness	-1.253585	-0.309326
Kurtosis	4.002781	2.470409
Jarque-Bera	7.595284	0.690830
Probability	0.022424	0.707927
Sum	131.4052	122.6105
Sum Sq. Dev.	1.117105	1.434974
Observations	25	25

Source: Eview9 output computed by the author

Table 4.1 above contains descriptive statistics for two different variables: NIM (Net Interest Margin), and OI (Operating Income). The mean of NIM is approximately 5.256. The mean of OI is approximately 4.904. The maximum NIM value is approximately 5.537. The maximum OI value is approximately 5.337. The minimum NIM value is approximately 4.695. The minimum OI value is approximately 4.421. The standard deviation for NIM is approximately 0.216. The standard deviation for OI is approximately 0.245. Skewness measures the asymmetry of the data distribution. A negative skewness value indicates a left-skewed distribution. The NIM data is moderately left-skewed. The OI data is slightly left-skewed. Kurtosis measures the "tailedness" of the data distribution. A higher kurtosis value indicates heavy tails. The NIM data has heavy tails. The OI data has moderately heavy tails. The Jarque-Bera test is a test for the normality of the data. It tests whether the data follows a normal distribution. For all variables (NIM, OI), the Jarque-Bera test statistic is greater than zero, which suggests that the data may not follow a perfectly normal distribution. These values provide the sum of all data points and the sum of squared deviations from the mean, respectively. There are 25 observations for each of the four variables. In summary, the data describes the central tendency, dispersion, skewness, kurtosis, and normality of the four variables: NIM, and OI. It's important to consider these statistics when analyzing and interpreting the characteristics of the data and making decisions or inferences about these financial metrics. The data will require further statistical analysis in consonance with the specific goals of this analysis.

Decision Rule

If the p-value is very small (typically less than 0.05), you have evidence to reject the null hypothesis in favor of the alternative hypothesis. If the p-value is larger than 0.05, you do not have enough evidence to reject the null hypothesis, and you do not conclude that there is a significant effect or difference.



Test of Hypothesis 1

H₀₂: There is no significant relationship between loan loss provision and operating income of DMBs in Nigeria.

Table 4.3: Panel regression analysis of LLP, NIM effect on operating income.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.048186	0.616530	-0.078157	0.9384
NIM	0.964888	0.106708	9.042299	0.0000
R-squared	0.857840	Mean dependent var		4.898478
Adjusted R-squared	0.845478	S.D. dependent var		0.241489
S.E. of regression	0.094928	Akaike info criterion		-1.763237
Sum squared resid	0.207259	Schwarz criterion		-1.618072
Log likelihood	25.92208	Hannan-Quinn criter.		-1.721434
F-statistic	69.39467	Durbin-Watson stat		1.128411
Prob(F-statistic)	0.000000			

Source: Eview9 output computed by the author

The data in table 4.3 as provided above showed the results of a panel least squares regression analysis with the dependent variable "OI" (Operating Income) and the independent variable, including "C" (a constant term), and "NIM" (Net Interest Margin). The coefficient for NIM is 0.964888 with a standard error of 0.106708. The t-statistic is approximately 9.04, and the p-value is very close to zero (0.0000), indicating that NIM is statistically significant. The R-squared value is 0.857840, which suggests that the independent variable (NIM) explain a substantial portion (approximately 85.78%) of the variation in the dependent variable, Operating Income (OI). The Adjusted R-squared, which takes into account the number of independent variables, is 0.845478. This adjusted value is still relatively high, indicating a good fit of the model. This measures the standard deviation of the residuals (the differences between the actual and predicted values of OI). A lower S.E. of regression indicates a better fit of the model to the data. The F-statistic tests the overall significance of the model. In this case, the F-statistic is 69.39467, and the associated p-value is very close to zero (0.0000). This indicates that the model as a whole is statistically significant. The Durbin-Watson statistic is used to detect the presence of autocorrelation in the residuals. In this case, it is approximately 1.128411. Values close to 2 indicate no significant autocorrelation, so this value suggests that there is little autocorrelation in the residuals.

In summary, the regression analysis indicates that Net Interest Margin is statistically significant and has a positive effect on Operating Income (OI). The model, as a whole, is statistically significant and explains a substantial proportion of the variation in OI. The high R-squared and adjusted R-squared values suggest that the model fits the data well.



4.2 Discussion of Findings

The study found that the net interest margin (NIM) is a statistically significant predictor of operating income. The study corroborated with Ini et al. (2016) who also found that interest margins were significantly influenced by credit risk, growth in loans and advances, staff operating cost, GDP growth, inflation rate, and money supply growth. Inegbedion et al. (2020) indicated that the profitability of banks is notably affected in the short term by liquidity risk and in the long term by credit risk, capital adequacy risk, leverage risk, and liquidity risk. Malik et al. (2022) discovered a notable and favorable correlation between DLLP, NDLLP, and financial distress as measured by the Altman Z-score. Ademola and Ismaila (2022) found that the financial performance of a company is significantly affected by credit risk and liquidity risk. Kumar (2018) found that the organization's financial risk was in a favorable financial position due to the implementation of an effective risk management strategy. Imola (2017) emphasized the importance of efficient credit risk management for preserving financial stability and profitability.

5. CONCLUSION AND RECOMMENDATIONS

The study examined how the net interest margin impacts the financial performance of deposit money banks in Nigeria. The study examined how risk management impacts the financial performance of deposit money institutions in Nigeria. The study utilised an ex post facto research design due to the lack of control over the design elements and the pre-existence of the data. The survey included a population of 22 deposit money banks listed in Nigeria. The findings indicate that net interest margin (NIM) is a statistically significant predictor of operating income. In agreement with our findings and in corroboration with previous researchers in this study area, the study specifically established that net interest margin is statistically significant and has a positive effect on operating income (OI). In line with the findings, the researcher suggested that;

1. Banks should monitor and manage the duration gap between assets and liabilities, considering potential interest rate changes and the bank's risk appetite.
2. Banks should explore opportunities to diversify income sources by offering a broader range of financial products and services, such as wealth management, insurance, and asset management.

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