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# The Effect of Non-Interest Income on the Performance of Selected Deposit Money Banks in Nigeria



## Dr. Ogbonna Udochukwu Godfrey

Department of Banking and Finance, College of Management and Social sciences, Rhema University Aba, Nigeria

ABSTRACT: This paper investigated the effect of non-interest Income on the performance of 6 selected deposit money banks in Nigeria, between 2015 to 2019. A panel regression model was used to determine the effect of non-interest income of the DMBs' profitability. The variables used are: fee income, commission income, e-income, and foreign transaction income which also influence the profitability of banks were considered in the model for the study using Tobin-Q as the independent variable. The analyses was done using a panel regression model on the EViews 10+ software. The coefficients reveal that with fee income as a ratio of total non-interest income (F-IN/TINC) has a positive effect on bank financial performance with slope coefficient of 6.0995 and significant at 5% (p=0.000), while that of E-income as a ratio of total non-interest income (E-IN/TINC) has a positive effect on bank financial performance with slope coefficient of 6.6879 with p value of 0.0002). Similarly, foreign transaction income as a ratio of total non-interest income (F-IN/TINC) has a positive effect on bank financial performance with slope coefficient of 6.0995 p-value of 0.000. This implies that increases in Fee based -income, E-based income and foreign transactions-based income will result in an improvement in bank financial performance. However, the operating income as a ratio of total non-interest income (OP-IN/TINC) has a negative effect on bank financial performance with slope coefficient of 2.6035 with p-value of 0.000 at 5% critical value. The study therefore recommends among others that deposit money banks should be actively involved in customer analysis and market research in order to develop those products and services that will continually satisfy majority of their customers so as to generate high non-interest income from such service.

KEY WORDS: Tobin-Q, non-interest income, profitability

## 1. INTRODUCTION

The core purpose of a bank business model is to create money and this is done through lending. By implication, the primary source of income of banks is interest earned from loans and advances and of course cash as its primary source of asset. However, the quest to diversify to other means of generating income for the banking sector, led to the exploration of non-traditional means of raising fund for the sector. Non- interest income is a new concept that came up when Islamic banking was established in Nigeria. Prior to the introduction of technology into the operations of the banking system, Interest income and commission on turn-over have been the major contributors to the profitability of Nigerian banks. However, with the introduction of liberalized banking, banks have been involved in different activities such as investments, trading and money transfer through which non-interest income is earned. Furthermore, the failure of businesses led to reduced income from loans and advances and with the insistence of Central Bank of Nigeria on banks making adequate provisions on non-performing facilities, interest income has reduced drastically leaving non-interest income to take a pride of place in the overall income of banks. In recent times, banks have realized the dynamism of their operations and have been forced to think out of the box to make money from other sources that is different from interest on loans and advances.

Some of these non-traditional incomes include Fee income, which is revenue taken in by financial institutions from account related charges on services rendered to customers. Fee income is made up of overdraft charges, excess over the limit fees, wire transfer fees, monthly service charges, and account search fees. Commission income refers to fees earned by brokers and agents in making a sale or closing a deal. Fee based income like cash management and tax collection services helps banks mobilize funds at zero cost. Operating income are earnings reported by banks or bank holding company, after deducting normal operating expenses, but before taking gains or losses and charge-offs and additions to the reserve account for possible loan losses. Operating income refers to earnings before federal income taxes are paid. It provides investment analysts with useful

information for evaluating a bank's operating performance without regard to interest expenses or tax rates, because the primary business of a bank or financial institution is by nature financial, the operating income of a bank includes profits and losses derived from financial transactions excluding the purchase or sale of securities. Foreign transaction incomes are proceeds from returns on foreign investment and export of goods and services which are in foreign currencies. E-incomes are incomes that reports several different types of business owners and business activity. It helps banking services, electronic payment systems are found to benefit banks by extending banks customers base, reducing operating cost, enhancing customer services and improving banks competitive advantages. These various non-traditional income variables have been attractive to banks following the quest to diversify income generation. Hence our study is aimed at studying the effect of non-traditional income also non-interest income on the performance of deposit money banks in Nigeria.

#### 2. LITERATURE REVIEW

#### 2.1 Conceptual Clarifications

#### 2.1.1 Non-Interest Income

Non-interest income is a financial concept that is usually associated with the banking sector. Stiroh (2004) opined that non-interest income is charged as a way of generating revenue and ensuring liquidity in the event of increase default rate in loans and advances. Non-interest income makes up a significant portion of most banks' revenue as there exists a close relationship between non-interest income and bank characteristics, market conditions, technological progress and bank performance. In this view, well managed banks make relatively good revenue from non-interest income. Therefore, having products that attract a significant amount of fees contribute to the financial performance of a commercial bank. This suggest that non-interest income business can improve the total income, since banks can expand the source of income by diversification.

## 2.1.2 Profitability

Profitability is the ability of a given instrument to earn a return from its use. Profit means the left over after cost has been deducted from revenue; where revenue is more than cost. The term ability indicates the power of a firm to earn profits. The ability of an enterprise also denotes its earning power or operating performance. A bank is said to be profitable if it can accrue financial gains from the capital invested into the operational activities of the bank. Adeusi(2014) see banks that are successful as those that make enough profits for the period. For banks to be profitable, they have to assume a reasonable level of risk. Osuagwu (2014) opined that bank profitability is an important ingredient of financial development, its relevance spans through banking firm's performance to macroeconomic stability. At the firm level, a higher return to a large extent reduces bank fragility. At the macro level, increased profitability makes for a sustainable banking sector that can finance economic growth and development.

#### 2.2 Empirical Review

Segun (2018), investigated the effect of non-interest income on the profitability of Deposit money Banks (DMBs) in Nigeria. Five Deposit money banks were selected. The study concluded that non-interest income has positive and significant effect on the profitability of deposit money banks in Nigeria. The study recommended that there should be active involvement of deposit money banks in customer market research and analysis in order to develop those products and services they will continually satisfy majority of their customers with such that high non-interest income can be generated. They also recommended that deposit money banks should engage more efficient and effective technology for ease of banking transactions that will satisfy customers thereby creating willingness to pay for such services.

Okello and Muturi (2018), Looked at the influence of non-interest income on financial performance of commercial banks. Diversification into non-interest income was born because of non-performance and declining revenue in financial services industry. The variables used for their study were: Commission on loans and advances, foreign exchange trading income. Investment income, transactions and account income. The authors recommended that banks can rely on non-interest items such as commission on loans and advances, foreign exchange trading income and transactions and account related income as reliable sources of income for the banks. The study also recommended that banks should look for more alternative sources of income other than their core activities. Craigwell and Maxwell (2006), Study on non-interest income and financial performance at commercial banks examined the trends in non-interest income of commercial banks as well as investigated the determinants of non-interest income and its impact on commercial bank financial performance. The study recommended that banks should look for other means of generating income.

Sanusikhadijat (2018), Examined the effect of non-interest income on the financial performance of banks in Nigeria. Sanusikhadijat recommended that Deposit money banks should put more emphasis on the internal factors to financial performance. These internal factors include capital adequacy, assets quality, management efficiency, earnings ability and

liquidity management. The study further recommended that while it is good for banks to increase in size which will lead to better financial performance, it is important that the source of funding of banks is properly understood alongside its associated costs. Gu and Kim (2004) contend that non-interest income can increase the total level of income of commercial banks in several ways, but it can create challenges for banks. They concluded that non-interest income increases volatility of bank earnings and operating risk such that overall income can increase in the initial stage, but the marginal income of non-interest income will decrease while the rising operating costs will eventually decrease the net income. It means that excessive focus on non-interest income generation at the expense of interest income generating sources may not be highly desirable because of its minimal benefit to banks profitability in the long run.

De Young and Rice (2004) reported that the potential diversification benefit from the shift into non-interest income sources of bank revenue in Us commercial banks has not only contributed to higher levels of bank revenue over time but also led to the belief that it can reduce the volatility of banks profit and can reduce risk.

Mndeme (2012) Showed that increased default rates make it imperative for banks non-interest income to shore-up profitability. He found that non-interest income is largely unaffected by economic and financial market cycles while it is usually not controlled by law or regulation in Kenya. Brunnermeier (2015) found that non-interest income is good for the banking sector. Non-interest income is one of the most important variables that impact on banks' profitability. Oniang o (2015) showed that increased default rates make it imperative for banks to source for non-interest income to show-up profitability. Saunders, studied with a larger sample of US banks found non-interest income to be associated with higher profitability across all banks groups Perhaps the negative influence of non-interest income on bank performance may be explained by managerial diseconomies where transaction costs outweigh the benefit.

#### 3. METHODOLOGY

#### 3.1 Preamble

The study purposefully made use of data from six deposit money banks for a period of five years (2015-2019) giving us a total number of thirty observations. The selection criteria was banks that are large and have national presence all over the country. A panel regression model was used to determine the effect of non-interest income of the DMBs' profitability. However, other variables such as fee income, commission income, e-income, foreign transaction income which also influence the profitability of banks were considered in the model for the study. Finally, all statistical estimation was done using EViews 10+ software.

## 3.2 Model Specification.

The regression model adopted for this study is as follows:

TQ = f(FI)

TQ = Y = f(X)-----(Basic Model)

TQ = Y = 80 + 81X1 + 82X2 + 83X3 + 84X4 + e

TQ = \$0 + \$NI + e

 $TQ = \beta_0 + \beta_1 FI + \beta_2 CI + \beta_3 EI + \beta_4 FTR + e$  ----- (1)

Where:

TQ = Tobin Q

FI = Fee income

CI = Commission income

EI = E income

FTR = Foreign Transaction income

e = Error term

 $\beta_0$  = Regression Constant term and,

 $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ ,  $\beta_4$  = Regression coefficients of the variations to determine the volatility of each variables to banks profitability in the regression model.

## 3.3 Measurement of Variables

| Variables  | Abbreviations | Descriptions                                 |
|------------|---------------|--|
| Fee income | FI            | This is the revenue taken in by financial    |
|            |               | institutions from account related charges to |
|            |               | customers, which include overdraft charges,  |
|            |               | late fees, monthly service charges, etc      |

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| Commission income          | СІ  | This refers to fees earned by brokers and agents in making a sales or closing a deal. It is the primary revenue account of real estate brokers, stock brokers, and insurance agencies. |  |
|----------------------------|-----|--|--|
| E income                   | El  | This is a type of income that reports several different types of business owners and business activities.  |  |
| Foreign Transaction income | FTI | It is the proceeds from the export of goods and services of a country, and the return form investments, denominated in convertible currencies.   |  |

## 3.4 Apriori Expectation

It is expected that  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ ,  $\beta_{470}$ 

## 4. DATA ANALYSIS AND RESULT

## 4.1 Descriptive Statistics

**Table 1: Descriptive Statistics** 

|             | F-IN/TINC | FCT-IN/TINC | E-IN/TINC | OP-INC/TINC | TOBIN-Q  |
|-------------|-----------|-------------|-----------|-------------|----------|
| Mean        | 0.533511  | 0.140705    | 0.4172    | 0.308132    | 1.0395   |
| Median      | 0.12675   | 0.146236    | 0.24198   | 0.036751    | 1.38167  |
| Maximum     | 1.393531  | 0.325086    | 0.68709   | 0.61118     | -1.001   |
| Minimum     | 0.35987   | 0.006876    | 0.02556   | -2.6318     | 4.3125   |
| Std. Dev.   | 0.800646  | 0.089721    | 1.319654  | 12.16898    | 11.151   |
| Skewness    | -5.71334  | 0.192853    | -2.47376  | 0.171403    | 7.13584  |
| Jarque-Bera | 3334.015  | 26.17972    | 215.1478  | 442.4107    | 5850.477 |
| Prob        | 0.000     | 0.0000      | 0.000     | 0.000       | 0.000    |

Source: Researchers compilation (2021)

Table 1 shows the descriptive statistics of the variables, it is observed that the mean for fee income as a ratio of total income (F-IN/TINC) is 0.5335 which is the highest across all classes of non-interest income examined in the study and this implies that banks earn a considerable size of their non-interest income from fee-based income with a minimum and maximum ratio of 0.3598 and 1.3935 respectively and standard deviation stood at 0.8007. The Jacque-Bera-statistic stood at 3334.015 and the pvalue of 0.00 which indicates that the data is normally distributed at 5% level of significance (p<0.05) and as such selection bias is unlikely in the sample. It is observed that the mean foreign currency transaction income as a ratio of total income stood at 0.140 with a maximum and minimum value of 0.325 and 0.0068 respectively. The Jacque-Bera-statistic is 26.179 and the p-value of 0.00 and indicates that the data is normally distributed at 5% level of significance (p<0.05) and as such selection bias is unlikely in the sample. It is observed that the E- income as a ratio of total income stood at 0.4172 with a maximum and minimum value of 0.687 and 0.0256 respectively. The standard deviation is 1.3296 with a Jacque-Bera-statistic of 215.1478 and p-value of 0.00 which indicates that the data is normally distributed at 5% level of significance (p<0.05) and as such selection bias is unlikely in the sample. Operating income as a ratio of total non-interest income stood at has mean value of 0.308 with a maximum and minimum value of 0.611 and -2.632 respectively. The standard deviation is 12.1689 and the Jacque-Bera statistic of 442.4107 and p-value of 0.00 indicates that the presence of outliers is unlikely in the data. Tobin Q used as the measure for financial performance has mean value of 1.0395 with a maximum and minimum value of 1.382 and -1.001 respectively. The Jacque-Bera statistic of 5850 and p-value of 0.00 indicates that the presence of outliers is unlikely in the data.

#### 4.2 Test of Correlation

**Table 2: Pearson Correlation Results.** 

|             | E-IN/TINC | F-IN/TINC | FCT-IN/TINC | OP-INC/TINC | TOBIN-Q |
|-------------|-----------|-----------|-------------|-------------|---------|
| E-INC/TINC  | 1.0000    |           |             |             |         |
| F-IN/TINC   | 0.3127    | 1.0000    |             |             |         |
| FCT-IN/TINC | 0.6322    | 0.5410    | 1.0000      |             |         |
| OP-INC/TINC | 0.1691    | 0.1605    | 0.0762      | 1.0000      |         |
| TOBINQ      | 0.4388    | 0.1255    | 0.2429      | 0.0507      | 1.0000  |

Source: Researcher's compilation (2021)

Table 2 above presents the Pearson correlation coefficient result for the variables. The positive correlations suggest that increases in one variable is associated with increases in the other and vice-versa. Also, negative correlations suggests an inverse association between the variables, though it should be noted that correlations do not necessarily suggest functional dependence between the variables. As observed, TOBIN-Q is positively correlated (r=0.1255) with fee income as a ratio of total non-interest income (F-IN/TINC) and with foreign currency transaction income as a ratio of total non-interest income (FCT-IN/TINC) with a coefficient of 0.2429. As observed, TOBIN-Q is also positively correlated to E- income as a ratio of total income with a coefficient of 0.4388 and finally, TOBIN-Q is also positively correlated with Operating income as a ratio of total non-interest income with a coefficient of 0.0507.

**Table 3. Variance Inflation Factor Test.** 

| Variable    | VIF  |
|-------------|------|
| E-INC/TINC  | 1.35 |
| F-IN/TINC   | 1.17 |
| FCT-IN/TINC | 2.83 |
| OP-INC/TINC | 1.11 |

Source: Researcher's compilation (2021)

## **4.3 Variance Inflation Factor Test**

The variance inflation factor (VIF) explains how much of the variance of a coefficient estimate of a regressor has been inflated, as a result of collinearity with the other regressors. Essentially, VIFs above 10 are seen as a cause for concern. As observed, none of the variables have VIF's values more than 10 and hence none gave serious indication of multicollinearity.

Table 4. Non-Interest Income and Tobin-Q Regression Result

| Variable    | Predicted | TOBINQ    |  |
|-------------|-----------|-----------|--|
|             | Sign      |           |  |
| С           |           | -796.373* |  |
|             |           | (109.574) |  |
|             |           | {0.000}   |  |
| F-IN/TINC   | +         | 6.0955*   |  |
|             |           | (0.9962)  |  |
|             |           | {0.000}   |  |
| E-IN/TINC   | +         | 6.6879    |  |
|             |           | (11.9690) |  |
|             |           | {0.0002}  |  |
| FCT-IN/TINC | +         | 113.7933* |  |
|             |           | (11.9766) |  |
|             |           | {0.000}   |  |
| OP-INC/TINC | -         | -2.6035*  |  |
|             |           | (0.3030)  |  |
|             |           | {0.000}   |  |

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| AR(1)              | 0.07916  |
|--------------------|----------|
|                    | (0.0597) |
|                    | {0.1920} |
| Model parameters   |          |
| $R^2$              | 0.5368   |
| Adj R <sup>2</sup> | 0.3158   |
| F-statistics       | 2.4286   |
| Prob(F)            | 0.000    |
| DW                 | 2.1051   |

Source: Researcher's compilation (2021): ( ) standard error { } p-value \* sig @ 5% and \*

## 4.4 Regression Analysis

Table 4. shows the estimation results for the effect of non-interest income on bank financial performance using Tobin q measure. As observed, the R<sup>2</sup> is 53.68% which implies that the dynamic lead model explains about 53.68% of the systematic variations in the dependent variable. The F-stat is 2.42. (P-value = 0.00) is significant at 5% and suggest that the hypothesis of a significant linear relationship between the dependent and independent variables cannot be rejected. It is also indicative of the joint statistical significance of the model. The D.W statistics value of 2.1 confirms the absence of first order serial correlation in the model. The analysis of coefficients reveal that fee income as a ratio of total non-interest income (F-IN/TINC) has a positive effect on bank financial performance with slope coefficient of 6.0995 and significant at 5% (p=0.000). This implies that increases in foreign transaction-income will result in an improvement in bank financial performance. The analysis of coefficients reveals that with E-income as a ratio of total non-interest income (E-IN/TINC) has a positive effect on bank financial performance with slope coefficient of 6.6879 and significant at 5% (p=0.0002). This implies that increases in E-income will result in an improvement in bank financial performance. The analysis of coefficients reveal that with foreign currency transaction as a ratio of total noninterest income (FCT-IN/TINC) has a positive effect on bank financial performance with slope coefficient of 113.79 and significant at 5% (p=0.000). This implies that increases in E-income will result in an improvement in bank financial performance. In the case of other operating come, The analysis of coefficients reveal that with operating income as a ratio of total non-interest income (OP-IN/TINC) has a negative effect on bank financial performance with slope coefficient of -2.6035 and significant at 5% (p=0.000).

**Table 5. Regression Diagnostics** 

| - Constant                     | 1       |
|--------------------------------|---------|
| B-G LM test for serial Corr    |         |
| F-statistic                    | 0.6242  |
| Obs*R-squared                  | 1.5578  |
| Prob.                          | 0.5435  |
| Prob. Chi-Square               | 0.4589  |
| Heteroskedasticity Test: White |         |
| F-statistic                    | 0.36912 |
| Prob (f)                       | 0.57821 |
| Scaled explained SS            | 12.337  |
| Prob. Chi-Square               | 0.5239  |
| Ramsey Reset Test              |         |
| t-statistic                    | 0.9269  |
| f-statistic                    | 0.9269  |
| Likelihood                     | 0.9172  |

**Source:** Researcher's compilation (2021)

#### 4.5 Diagnostic Tests

The regression diagnostics is presented in the table above and the Breush-Goffery LM test for serial correlation test for the presence of stochastic dependence between the errors across time and as can be observed, the probability value of the F-stat (0.5435) confirms that the null hypothesis of no serial correlation in the residuals is accepted at 5% level. The white test for Heteroskedasticity also shows that the p-value (0.578) of the F-stat (0.369) confirms that the null hypothesis of homoscedastic

errors is accepted at 5% level and finally, the Ramsey specification test also confirms that the appropriateness of the functional specification of the model.

#### 4.6 Discussion of Findings

#### 4.6.1 Fee income and affect financial performance.

The coefficients reveal that with fee income as a ratio of total non-interest income (F-IN/TINC) has a positive effect on bank financial performance with slope coefficient of 6.0995 and significant at 5% (p=0.000). This implies that increases in Fee based -income will result in an improvement in bank financial performance. Hence the study rejects the hypothesis that fee income does not significantly affect financial performance.

#### 4.6.2 Commission income and financial performance.

In the case of other operating come, The analysis of coefficients reveals that with operating income as a ratio of total non-interest income (OP-IN/TINC) has a negative effect on bank financial performance with slope coefficient of -2.6035 and significant at 5% (p=0.000). Hence the study rejects the hypothesis that Commission income does not have significant effect on financial performance.

#### 4.6.3 E-income and financial performance.

The analysis of coefficients reveals that with E-income as a ratio of total non-interest income (E-IN/TINC) has a positive effect on bank financial performance with slope coefficient of 6.6879 and significant at 5% (p=0.0002). This implies that increases in E-income will result in an improvement in bank financial performance. Hence the study rejects the hypothesis that E income does not have significant effect financial performance.

## 4.6.4 Foreign transaction income and financial performance.

The analysis of coefficients reveals that foreign transaction income as a ratio of total non-interest income (F-IN/TINC) has a positive effect on bank financial performance with slope coefficient of 6.0995 and significant at 5% (p=0.000). This implies that increases in foreign transaction-income will result in an improvement in bank financial performance. Hence the study rejects the hypothesis that foreign transaction income does not significant affect financial performance.

On the overall, the findings of the study appear similar to those found by Segun (2018), which examined the effect of non-interest income on the profitability of Deposit money Banks (DMBs) in Nigeria between 2006 and 2015. The study concluded that non-interest income has positive and significant effect on the profitability of deposit money banks in Nigeria. Okello and Muturi (2018), Looked at the influence of non-interest income on financial performance of commercial banks, Craigwell and Maxwell (2006), which examined non-interest income and financial performance at commercial banks and Sanusikhadijat (2018) which examined the effect of non-interest income on the financial performance of deposit money banks in Nigeria.

## 5. SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Summary of Findings

The summary of the study as discussed above is that increases in Fee-based income, E-income and foreign transaction income results in an improvement in bank financial performance, while commission income though exhibited a negative slope coefficient shows a significant effect on financial performance of banks.

## 5.2 Conclusion

Non-interest income is a financial concept that is usually associated with the banking sector. It refers to the mixture of diverse components that differs in terms of their relative importance. These include deposit service charge, credit card fees, and fees associated with electronic funds transfer. Increases in non-interest income tend to be associated with higher profitability, higher variation in profits, and a worsened risk-return tradeoffs for the average commercial bank during specific periods of times. The study investigated the effect of non-interest income on the performance of deposit money banks in Nigeria. The study made use of the ex-post facto research design owing to its capability to address the objectives of our study. The study purposefully made use six deposit money banks data for a period of five years (2015-2019) given us a total number of thirty observations. The selection criteria were on fact that the banks that are large and have national presence all over the country. A panel regression model was used to determine the effect of non-interest income of the DMBs' profitability. However, other variables such as fee income, commission income, e-income, foreign transaction income which also influence the profitability of banks were considered in the model for the study. The result reveals that; fee income as a ratio of total non-interest income (F-IN/TINC) has a positive effect on bank financial performance and significant at 5% (p=0.000). Secondly, the operating income as a ratio of total non-interest income (OP-IN/TINC) has a negative effect on bank financial performance and significant at 5% (p=0.000).

Thirdly, E-income as a ratio of total non-interest income (E-IN/TINC) has a positive effect on bank financial performance and significant at 5% (p=0.0002) and finally, fee income as a ratio of total non-interest income (F-IN/TINC) has a positive effect on bank financial performance and significant at 5% (p=0.000).

#### 5.3 Recommendations

The study therefore recommends that, deposit money banks should be actively involved in customer analysis and market research in order to develop those products and services that will continually satisfy majority of their customers so as to generate high non-interest income from such service. Furthermore, Banks should deploy more effective and efficient technology that will ease banking transactions which the consumers will be willing to pay. Similarly, Bank Customers should not be overburdened with fees but can be spread over all customers so as to retain the loyalty of a majority of them.

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