

Somoye, Russell Olukayode Christopher; Ilo, Bamidele M.; Yunusa, Lateef Adewale

Article

Interest income and deposit money banks (DMBs) performance in Nigeria

Economic Review: Journal of Economics and Business

Provided in Cooperation with:

Faculty of Economics, University of Tuzla

Suggested Citation: Somoye, Russell Olukayode Christopher; Ilo, Bamidele M.; Yunusa, Lateef Adewale (2019) : Interest income and deposit money banks (DMBs) performance in Nigeria, Economic Review: Journal of Economics and Business, ISSN 2303-680X, University of Tuzla, Faculty of Economics, Tuzla, Vol. 17, Iss. 2, pp. 15-26, <https://er.ef.untz.ba/index.php/er/article/view/73>

This Version is available at:

<https://hdl.handle.net/10419/307814>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.


You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by-nc-nd/4.0/>

INTEREST INCOME AND DEPOSIT MONEY BANKS (DMBs) PERFORMANCE IN NIGERIA

Russell Olukayode Christopher Somoye¹, Bamidele M. Ilo², Lateef Adewale Yunusa³ 

ABSTRACT

The role of deposit money banks (DMBs) as a critical component of the financial intermediary component of the financial systems for the benefit of their shareholders and the economy at large has become more pronounced in recent times. Banks help link both the surplus spending unit and the deficit spending unit for a fee which is interest income. Interest income is generated from the traditional activities of banks as a reward for their intermediation. This study thus, examined the impact of interest income on the performance of DMBs in Nigeria.

The study employed data from the annual reports and accounts covering the period 2012-2017 of fifteen (15) selected interest charging DMBs out of the twenty-one (21) listed banks on the Nigerian Stock Exchange as on 31st December, 2018.

The results obtained from the random effect model indicate that interest income and capital adequacy contribute and significantly drive the profitability of the Nigerian DMBs.

The study therefore recommends that DMBs should maintain an adequate level of capital and a stable interest income through effective management of loans and advances in order to increase the income generated from lending and consequently improve their profitability for the benefit of their shareholders.

Keyword: bank performance, deposit money banks, interest income, return on asset, loans and advances.

JEL Classification: E43, G21, G51

1. INTRODUCTION

The existence of banks in the economy is important due to their intermediation role.

Banks intermediate by matching the deficit and surplus units in the economy for value. The intermediation role played by banks forms the traditional function of banks which generate interest income. Interest income is basically gotten from the money lent by banks to their customers and the income from investments. The interest income is the difference between the interest from loans and investments and the interest paid by a bank to depositors or other banks.

However, due to the deregulation that took place in the Nigerian financial system, the Nigerian banking sector was faced with increased competition, restructuring, volatility and recapitalization, which forced many banks to look outside the traditional activities which generate only interest income and venture into non-traditional activities which generate non-interest income to the bank. Karayaka and Er (2013) believe that the establishment of Islamic bank which forbid interest also forced banks to venture into non-traditional activities which generate non-interest income. non-interest income was viewed to be volatile compared to interest income by previous researchers (Sun, Wu, Zhu and Stephenson, 2017; Ramadhani, 2015; Gichure, 2015).

The increasing level of inflation in Nigeria has called the attention of many investors to the resultant effect on the deposit rate. Reduction in the deposit rate forced many investors to withdraw their deposits from banks and opt for investments that pay higher returns, for example mutual funds, the process known as disintermediation (Edward & Mishkin, 1995), which has forced banks to venture into non-

1 Department of Banking and Finance, Olabisi Onabanjo University, Ago-Iwoye, Nigeria. E-mail: olukayodesomoye@hotmail.com

2 Department of Banking and Finance, Olabisi Onabanjo University, Ago-Iwoye, Nigeria. E-mail: bammyinspiration@gmail.com

3 Department of Banking and Finance, Olabisi Onabanjo University, Ago-Iwoye, Nigeria. E-mail: yunusateef@gmail.com

traditional services. This is an indication that most banks are diverting from their core intermediation function due to the withdrawal of depositor's funds from deposit money banks (DMBs). In order for banks to survive adequate level of deposit must be maintained, which will be issued as loan to the deficit sector for a fee known as interest income.

Increasing level of competition in the financial system has reduced the performance of many banks because both the depositors (surplus) and the borrowers (deficit) now have the option of choosing from many sources of financing and investment. This event has reduced the level of the amount of credits the bank can advance and increase the cost incurred due to the divestment of depositor's fund from DMBs (Edward & Mishkin, 1995). Similarly, in the USA, commercial banks are now losing much of their businesses to securities market and finance companies (Allen & Santomero, 2001) and for these banks to retain their lost position due to competition, they need to reduce the interest on loan and increase interest paid on deposit. Unfortunately, this may result in the reduction in the bank margin. The Federal Reserve Bank (2013) reported that the interest income of banks in the USA dropped from 4.44% in 1992 to 2.66% in 2013. The Central Bank of Nigeria (CBN) reported that the interest income of banks in Nigeria decreased from 61.29% in 2008 to 31.00% in 2011 and rose to 67.27% in 2018.

Contrarily, the Nigerian Stock Exchange (NSE) reported that 13 out of all the commercial banks quoted on the exchange experienced increase in their net interest income as a result of increase in the return of fixed income securities in 2017. The interest income increased by 11% from ₦ 1.799 trillion in 2016 to 2.013 trillion in 2017 (NSE, 2017). Apart from the income earned from loans and advances, banks should invest their idle funds in other investment windows that guarantee safety of their funds in order to diversify their sources of interest income and reduce their risk exposure on non-interest income which is viewed to be volatile due to the unavoidable risk (Davies & Tuori, 2001).

The level of participation in non-traditional activities by banks varies among banks due to

difference in size (Roger, 1998). Banks carry out their traditional activities without the recruitment of staff with special knowledge and technical know-how. However, in order to participate in non-interest income activities, banks need to recruit staff with special knowledge and high modern technical know-how. Roger and Sinkey (1999) identified bank size as one of the determinants of bank involvement in non-traditional activities which is not applicable to the traditional activities. Flamini, McDonald and Schumacher (2009) examined the determinant of bank performance in Sub-Sahara Africa, they reported that large bank size leads to higher return on assets. On the contrary, Athanasoglou, Brissimis and Delis (2005) reported in their study that liquidity, credit risk, capital, operating expenses management, foreign ownership and market share are all significant determinants of bank profitability except bank size.

Loan was identified by Bashir (2003) to impact bank profitability positively. Karakaya and Er (2013) also found a positive relationship between loan and financial performance. Contrarily, loan disbursed by banks to their customers are expected to increase the bank's profitability. In Nigeria, the default rate of customer is high because some banks failed to adhere strictly to the canons of lending, which gives room to default by the borrower and reduces the bank's profitability due to increase of debt in the bank's portfolio. This situation is similar to the findings of Li (2007) where he discovered that credit risk impacts profitability negatively.

However, Davies and Tuori, (2001) asserted that engagement of banks in non-traditional activities increases their profitability and at the same time increases the exposure of DMBs to systematic risk. The high level of risk is attached to non-traditional activities that banks engage in, for instance, the increasing level of cybercrime perpetrated by hackers on bank database due to the adoption of the USSD transfer, internet banking and so on. Many years after banks extended from their core intermediation function to non-traditional function, consensus is yet to be reached on the main driver of DMBs performance, should the interest income be

considered as the driver of DMBs performance?

Empirically, to the best of our knowledge, few studies have been conducted in the area of interest income and DMBs performance in Nigeria. Based on the above identified problems, this study will add to the existing knowledge by investigating the impact of interest income on DMBs performance in Nigeria using information from Nigeria.

2. LITERATURE AND EMPIRICAL REVIEW

2.1. Conceptual review

Profitability was viewed as the ability of an investment to generate return from its usage (Nimalathasan, 2009). The risk banks face in the course of intermediation can be minimized by the profit generated by banks (Qin & Pastory, 2012). Studies like (Ramadhani 2015; Karakaya & Er, 2013; Sanya & Wolfe, 2011) have used return on assets (ROA) and return on equity (ROE) to proxy profitability. Bolda and Verma (2007) posited that the factors influencing banks' profitability are non-interest income, asset size, capital structure, operating expenses, provision, and contingencies.

Bank income is the financial gain that accrues to a bank for a particular period. Basically, bank income comes from two broad sources; interest income or fund based income and non-interest income or non-fund based income (Singh & Dubey, 2015).

Interest income is the financial gain that a bank generates from carrying out its traditional banking activities which are mobilization of deposit, granting of loan and investments. Banks most times keep their deposit in short term investment like loans, treasury bills, certificates of deposit, and other money market instruments. The money invested into these instruments generates income which is known as interest income. Other financial institutions like pension companies and insurance companies invest the funds generated from policy holders and customers into interest paying bonds (Singh & Dubey, 2015). The main components of interest

income are income from credits and income from investment.

Non-interest income of a bank comes from engaging in activities other than the traditional activities i.e. non-traditional activities aimed at increase in the revenue generated. The conventional belief of bankers is that income from non-traditional activities of banks is more stable than income from traditional activities of banks and that the fee-based activities of banks reduce banks' risk through diversifications (Singh & Dubey, 2015).

Nevertheless, Rose and Hudgins (2008) asserted that interest income is one of the most fast-growing sources of income for DMBs. Contrarily, Stiroh (2006) posited that US banks recently have more preference for non-interest income like fees, fiduciary income, service charges, trading revenue, etc. They documented that the whole of the banking industry in the USA earned 42% of its net operating revenue from non-interest sources in 2004, a marked increase from 20% in 1980 and 32% in 1990.

DeYoung and Roland (2001) identified three good reasons why non-interest income may increase bank volatility. Firstly, loans given by banks to individuals and corporate organisations are based on the previous relationship between the bank and the customer. Secondly, a bank that moves the focus of its product mix from traditional asset-based interest-generating activities to non-traditional fee-based activities increases its degree of operating leverage. Thirdly, a large percentage of non-interest-based activities requires banks to keep little or no fixed assets and regulatory capital but interest-based activities like portfolio lending require banks to hold fixed assets and regulatory capital.

2.2. Theoretical framework

Financial intermediation is the transfer of funds from the surplus spending unit to the deficit spending unit through financial intermediaries. The financial intermediaries are financial institutions that attract excess fund from the investors and make it available to the deficit unit. The main source of input for the financial intermediary are the deposit

gotten from the depositors and the loans and advances granted as the finished goods of the financial intermediary. In order for DMBs to attract more deposit, the deposit rate needs to be elevated, which will increase the credit ability of DMBs. The deposit represents liability in the bank's statement of financial position and the loans and advances represent an asset to the banks.

The financial intermediation theory encompasses the information asymmetry theory and the agency theory but this study is hinged on the information asymmetry information theory because of its importance. Information is believed to be costly due to the inability of the surplus unit to identify the deficit unit which makes the surplus fund to be unproductive to the surplus spending unit. The fact that the surplus spending unit has excess cash at hand does not confer the power to identify the deficit units. The banks however solve the asymmetry information problem by linking the surplus and deficit unit for a fee.

Information asymmetry is a situation where one party in a transaction has more information than the other party. The asymmetry information is advantageous to the financial intermediaries due to the monopoly of information problem, moral hazard and adverse selection problem which, if not well managed, could lead to market imperfection. The asymmetry information could lead to adverse selection and moral hazard (Scholtens & Van Wensveen, 2003).

Adverse selection problem occurs when the borrower of non-profitable project with high risk obtains a loan from the bank and the bank with imperfect information finances a non-profitable project (Berger & Udell, 2002). Moral hazard problem usually occurs after the acquisition of the loan when the borrower invests in a non-profitable project which may lead to a loss to the bank financing such project. In recent time, banks have been able to reduce both adverse selection and moral hazard problem by creating a good relationship with their customers. Banks provide surplus spending unit with insurance of their funds against the risk inherent in intermediation activities, which could affect the

surplus spending unit liquidity position (Diamond & Dybvig, 1983).

2.3. Empirical review

The sources of bank income are majorly two, interest income and non-interest income, which contribute to the performance of banks. Fredriksson, Maresch and Moro (2017) examined the impact of both sources of income on the revenue banks can generate from their clients. Long term loan was found to have a significant impact on bank revenue while short term loan and other non-fund based products and services were found not to have impact on the revenue generated by banks. The conclusion of the study is that it is only long-term loan that has significant contribution on the bank's performance.

Fund based income was discovered to contribute to the effective functioning of an organization which was found to be stable while non-fund based income was discovered to be increasing but appears to be volatile in respect to the systemic risk (Jaffar & Mabwe, 2014). Big banks were also found to have constant non-fund based income compared to small banks.

Karakaya and Er (2013) investigated the relationship between non-fund based income and bank performance from 2005 to 2010 and also considered some variables that impact on bank performance in their study. They found bank size, capital adequacy and credits to contribute to the performance of banks positively while general expenses decrease bank performance.

The result of the study of Al-Tarawneh, Abu Khalaf and Al Assaf, (2017) conforms to the results of Karakaya and Er (2013) who revealed that bank size, loan, and capital adequacy impact bank performance positively while overhead expenses was found to impact bank performance negatively. Al-Tarawneh, Abu Khalaf and Al Assaf, (2017) further asserted that non-interest income helps improve the equity capital of banks.

Singh and Dubey, (2015) made a comparison on private sector banks and foreign banks operating in India as regards to non-fund

based income, which was done with the aid of descriptive statistics. The results revealed that foreign banks generate more non-fund based income than private banks in India.

Ramadhani (2015) examined the impact of non-interest income on bank performance in the Tanzania banking sector. Interest income was found to contribute positively to bank performance while non-interest income was found not to be reliable because it may affect bank performance negatively. The study further suggested that diversification will further strengthen the banking sector performance in Tanzania.

Gichure (2015) investigated the relationship between non-interest income and the financial performances of commercial banks in Kenya and discovered that a negative relationship exists between non-interest income and financial performance of banks in Kenya. This negative relationship could be attributable to volatility of the return and net interest income.

Damankah, Anku-Tsedee and Amankwaa (2014) examined the factors that determine the performance of banks that engage in non-interest earning activities in Ghana. It was discovered that small banks engage in non-interest earning activities more than big banks. Customers' deposit, exposure to risk, interest income and liquidity were found to be among the determinants of bank performance in Ghana.

Trivedi (2015) examined the impact of moving to new income stream and the consequent rising diversification on performance for banks in India. The study found that foreign banks and new private banks perform better than public banks in terms of generating income from non-interest activities. The study concluded that public banks need to generate more income from non-traditional activities and choose sources of non-traditional activities that have a stable and positive impact on the bank performance.

Kristianti and Yovin (2016) investigated the internal factors that influence the performance of government and private banks in Indonesia. The data for this study was sourced

from the financial statement of banks from 2004 to 2013. The findings of the study revealed that the performance of government banks is influenced by net interest margin, operational efficiency and non-performing loans. The performance of private banks is influenced significantly by capital adequacy and operational efficiency.

Sun, Wu, Zhu and Stephenson (2017) examined the relationship between non-interest income and performance of banks in China. The data for this study was sourced for sixteen (16) listed banks in China from 2007 to 2013. The findings revealed that there is an inverse relationship between non-interest income and bank performance. The result further revealed that there is a non-linear relationship between these two variables. The study concluded that the ratio of non-interest income should be increased in order to improve the performance of banks.

3. METHODOLOGY

This study adopts *ex-post facto* research design since it is based on quantitative description of historical financial data. The review of financial data was done in order to ascertain the causes and relationship among the variables specified.

The study employed descriptive and inferential statistics in estimating the relationship between interest income and DMBs performance in Nigeria. The descriptive statistics helped to describe and understand the characteristics of the variables used in the study while inferential statistics assisted in establishing a causal relationship between the variables. The data was obtained from the annual reports and accounts of the selected fifteen (15) DMBs that charge interest in Nigeria out of twenty-one (21) listed banks on the NSE as on 31st December, 2018, which covers the period of 2012-2017. The study thus employs panel data with fifteen (15) cross-sectional observations with a time span of six (6) years. The selection of data analysis thus focuses more on selection of a representative sample and data currency. The

panel data analysis including pooled regression, fixed effect and random effect was carried, out of which random effect was selected as the model for the analysis based on the outcome of the Hausman test.

3.1. Model specification

The model was adopted from the work of Al-Tarawneh, Abu Khalaf and Al Assaf (2017) and Karayaka and Er (2013). Thus, the model was restated below and adjusted in line with the objective of this study.

$$ROA_{i,t} = \alpha_{i,t} + \beta_1 IntIncome_{i,t} + \beta_2 CapRatio_{i,t} + \beta_3 Overhead_{i,t} + \beta_4 Loan_{i,t} + \beta_5 Size_{i,t} + \varepsilon_{i,t}$$

Where: ROA = Return on asset is measured by net income divided by total assets

IntIncome = Interest income is measured by interest income to total assets

CapRatio = Capital adequacy is measured by the equity ratio

Overhead = Overhead is measured by operating income divided by overhead

Loan = Loan is measured by loan divided by total assets

Size = Size is measured by the natural logarithm of total assets

Panel regression was conducted by the study in order to determine the impact and significance of the individual independent variab-

les on the dependent variable. The Hausman test was also conducted, which dictated the right model to be used between the fixed effect model (FEM) and the random effect model (REM).

3.2. A priori expectation

The *a priori expectation* shows the expected signs and significance of the coefficient values of the parameter under review on the part of the empirical evidence and theoretical assertion.

4. RESULTS AND DISCUSSION OF FINDINGS

4.1. Descriptive statistics of the variables

The results of the descriptive statistics are presented in Table 2 that presents the mean and other descriptive statistics of the variables in order to improve our understanding of the characteristics of each variable.

Table 2 above shows the descriptive statistics of the data used in this study. The ROA has an average mean value of 0.01705, implying an average industry asset efficiency of 1.71 per cent with a standard deviation of 1.55%,

Table 1. *A priori expectation*

Variable	Acronym	Expected Sigs
Interest Income	Intincome	(+)
Capital Adequacy Ration	CapRatio	(+)
Overheads	OverHead	(-)
Bank Loan	Loan	(+)
Bank Size	Size	(+)

Source: Authors' compilaton

Table 2. *Descriptive statistics*

Variables	Mean	Median	Maximum	Minimum	Std Dev.	Obs
ROA	0.01705	0.0157	0.0571	-0.0559	0.0155	90
INTINCOME	0.0899	0.0880	0.1578	0.0033	0.0219	90
CAPRATIO	0.1515	0.1342	0.9730	0.0034	0.1330	90
LOAN	0.4640	0.4891	0.6903	0.0027	0.1154	90
OVERHEAD	4.3315	2.5600	64.5799	-3.5988	7.3836	90
SIZE	12.1164	12.0824	12.8365	11.1945	0.3693	90

Source: Authors' computation

suggesting a significant level of variability in the profit performance of Nigerian banks. The interest income ratio is 0.0899 and it implies that an average bank earns an average of ₦ 8.99 interest on every ₦ 100 asset of the bank or generates about 9 per cent interest on the value of assets deployed for its operations. Banks are well capitalized with a capital adequacy ratio of 15.15 per cent which is higher than the 15 % minimum requirement set by the CBN for banks with international subsidiaries and 10% for banks without international subsidiaries. This also signifies that the depositor's funds are protected which ensures stability in the Nigerian banking system.

4.2. Correlational analysis

Table 3 shows the correlation between pairs of the variables employed in the study. It shows that surprisingly interest income and loans are negatively related to ROA with the correlation coefficient of -0.1988 and 0.0578 respectively.

Overhead (-0.2438) is negatively related to ROA while capital, and bank size are positively associated with the performance of banks. The implications are that while interest income, loans and overhead move in the opposite direction with ROA, bank capital and size

Table 3. *Correlation matrix of relationship among specified variables*

Variables	ROA	INTINC	CARPATIO	LOAN	OVERHEAD	SIZE
ROA	1.0000					
INTINC	-0.1988	1.0000				
CARPATIO	0.2101	-0.4738	1.0000			
LOAN	-0.0578	0.5604	-0.5727	1.0000		
OVERHEAD	-0.2438	0.1974	-0.0395	-0.0286	1.0000	
SIZE	0.2712	-0.2735	-0.3038	0.2505	-0.0540	1.0000

Source: Authors' computation

The banks commit about 46.40 per cent of their assets to loans, which suggests that less than 50% of the bank's assets are deployed to customers as loans. Such a low level of investment in loans may limit the interest earning capacity of the banks and their overall performance. This result is an evidence that Nigerian banks have not been advancing the expected level of credit to their customers to the extent that the CBN has continued to compel banks to improve on their lending to the economy. The CBN recently specified 60% as the minimum loan-deposit ratio for Nigerian banks. It is better for the banks to increase their loan in order to increase interest income. Bank size has an average value of 12.11647, which implies that the average assets of banks in Nigeria is ₦1,307, 585,211,014. The minimum and maximum values of bank assets are 11.19453 and 12.83658, which means that the minimum and maximum value of assets of banks in Nigeria are ₦156,505,642,576 and ₦6,864,043, 071, 126 respectively.

follow the same direction with the profit performance of banks.

4.3. Regression results and Hausman's test

The results of the panel data regression analysis are presented in Table 4. It contains the analysis based on the pooled regression, fixed effect and random effect regression outputs. This approach has been adopted in order to guide our model selection and arrive at a model choice that best suits the data employed in the study. The choice of the final model between the FEM and the REM has been made based on the outcome of the Hausman test as presented in Table 5.

The Hausman test result in Table 4 helps identify the best model between the FEM (Alternative Hypothesis) and the REM (Null Hypothesis). The Hausman's chisquare statistics of 4.266025 is not significant at 5 %. This implies that there is no correlation between the error term and one or more

Table 4. *Impact of interest income on bank performance in Nigeria*

Variables	Pooled	Fixed Effect	Random Effect
Constant	-0.2446 (-3.2792) [0.0015]	14.0	20.0
Constant	-0.2446 (-3.2792) [0.0015]	-0.5961 (-2.4060) [0.0190]	-0.1712 (-1.7738) [0.0797]
IntIncome	0.1324 (1.2270) [0.2232]	0.0691 (0.7515) [0.4551]	0.1102** (1.2027) [0.0325]
CapRatio	0.0456* (3.0101) [0.0034]	0.1217* (3.9405) [0.0002]	0.0579* (3.8004) [0.0003]
Loans	-0.0076 (-0.4013) [0.6892]	0.0486* (2.7903) [0.0069]	0.0235 (1.4160) [0.1605]
OverHead	-0.0005** (-2.4330) [0.0171]	-0.0002 (-0.9069) [0.3678]	-0.0003 (-1.7526) [0.0833]
Size	0.0089* (3.5132) [0.0007]	0.0203** (2.3357) [0.0226]	0.0058 (1.6976) [0.0933]
R ²	0.2278	0.7281	0.1923
Adj. R ²	0.1814	0.6277	0.1442
F-Statistics	4.9443	7.2527	3.9993
Prob(F-Stat.)	0.0005	0.0000	0.0026
D.W stat.	1.2205	2.5445	2.1618

Source: Authors computation

N.B: () and [] are t-values and p-values respectively.

* and **: significant at the 1 % and 5% respectively

independent variables. Thus, the FEM result is not reliable based on the Hausman test results. Hence, the REM as against the FEM is considered more appropriate for discussion of the results of this study. The REM also performed better than the pooled model and the FEM in terms of the autocorrelation test with Durbin Watson statistics of 2.1618, which is very close to the acceptable value of 2.0000 compared to the scores of the other models.

4.4. Discussion of regression results

The random effect regression result depicts that interest income has a positive significant impact on ROA, which means the higher the interest generated from the loans and advances granted by the banks, the better the performance of the banks. This result conforms with the *a priori expectation* of this study as well as with the study of Ramadhani (2015); Damankah, Anku-Tsede & Aman-kwaa (2014).

Table 5. Hausman's test

Test Summary		Chi-Sq Statistic	OVERHEAD	SIZE
Period random		4.2660	5	0.5118
Variable	Fixed	Random	Var(Diff)	Prob.
INTINCOME	0.1161	0.1324	0.0004	0.4327
CAPRATIO	0.0500	0.0456	0.0000	0.3889
LOAN	-0.0036	-0.0075	0.0000	0.4407
OVERHEAD	-0.0005	-0.0005	0.0000	0.6848
SIZE	0.0092	0.0089	0.0000	0.5096

Source: Authors' computation

Capital adequacy ratio has a positive significant impact on ROA implying that higher the equity capital maintained by the banks, the better the performance of the banks. This result aligns with that of Al-Tarawneh, Abu Khalaf and Al Assaf (2017) and Karayaka and Er (2013).

Bank size has a positive insignificant effect on ROA indicating that the more the assets owned by the banks, the higher the performance of the banks. This result is line with the *a priori expectation* and the study of Al-Tarawneh, Abu Khalaf and Al Assaf (2017) and Karayaka and Er (2013).

Bank loan has a positive but insignificant effect on ROA, which simply means that the more loan disbursed by the banks to the deficit sector, the better the performance of the banks which could be viewed from the interest generated on loan and advances. This result is line with the *a priori expectation* and the prior study of Al-Tarawneh, Abu Khalaf and Al Assaf (2017) and Karayaka and Er (2013).

The non-significance of bank loan on performance of banks although positive tends to suggest that the performance of Nigerian banks may not strongly depend solely on lending but perhaps on non-interest incomes derived from other bank services such as fee income.

Overhead has a negative insignificant effect on ROA, which means the higher the amount spent by the banks on their ongoing operations, the lower the performance of the banks. This result is line with the *a priori expectation* and the prior study of Al-Tarawneh, Abu Khalaf and Al Assaf (2017) and Karayaka and Er (2013).

Hence, the null hypothesis which states that interest income has no significant impact on DMBs performance should be rejected. Therefore, interest income has a significant impact on DMBs performance in Nigeria.

5. CONCLUSION AND RECOMMENDATIONS

The objective is to examine the effect of interest income on DMBs performance in Nigeria from 2012-2017. The panel regression estimation technique was used to determine the effect of the independent variables on ROA of the banks. The Hausman test was conducted in order to identify the more appropriate model between the FEM and the REM. Based on the Hausman test, the REM was selected as the right model to be used because it is capable of illustrating more consistent estimates as opposed to the FEM.

Based on the regression results, it could be concluded that interest income and capital adequacy ratio are the major variables that contributed significantly to the performance of DMBs in Nigeria. Although loans and bank size have enhanced the performance of the banks, their impacts are not so significant. The study thus concluded that interest income is a very critical factor driving the performance of DMBs performance in Nigeria.

Based on the findings, the study therefore recommends that DMBs should maintain a stable interest income through effective management of loans and advances in order to increase the income generated from the traditional banking activities as this forms the core function of DMBs in an economy. DMBs should also ensure the maintenance of a high and stable capital base as this will help to

accommodate potential asset losses associated with granting of loans and advances in the pursuit of interest income in order to maintain a high and acceptable business performance for the benefit of their shareholders.

REFERENCES

1. Allen, F., & Santomero, A. M. (2001). What Do Financial Intermediaries Do? *Journal of Banking & Finance*. 25(2), pp. 271-294.
2. Al-Tarawneh, A., Abu Khalaf, B.K. & Al Assaf, G. (2017). Noninterest Income and Financial Performance at Jordanian Banks. *International Journal of Financial Research*. 8(1), pp. 166-171.
3. Athanasoglou, P. P., Brissimis, S.N. & Delis, M.D. (2005). Bank-Specific, Industry-Specific and Macroeconomic Determinants of Bank Profitability. Working Paper No. 25, Bank of Greece.
4. Bashir, A. (2003). Determinants of Profitability in Islamic Banks: Some Evidence from the Middle East. *Islamic Economic Studies*. 11(1), pp. 31-57.
5. Berger, A. N. & Udell, N.G. (2002). Small Business Credit Availability and Relationship Lending: The Importance of Organisational Structure. *Economic Journal*. 112, pp. F32-F53.
6. Damankah, B. S., Anku-Tsedee, O. & Amankwa, A. (2014). Analysis of Non-Interest Income of Commercial Banks in Ghana. *International Journal of Academic Research in Accounting, Finance and Management Science*. 4(4), pp. 263-271.
7. Davis, E. Philip & Klaus Tuori (2001) The Changing Structure of Banks' Income, An Empirical Investigation. Pp. 1-31.
8. DeYoung, R. & Roland, K. P. (2001). Product Mix and Earnings Volatility at Commercial Banks: Evidence from a Degree of Total Leverage Model. *Journal of Financial Intermediation*. 10(1), pp. 54-84.
9. Diamond, D. & Dybvig, P. (1983). Bank Runs, Deposit Insurance and Liquidity. *Journal of Political Economy*. 91, pp. 401-419.
10. Edwards, F. R. & Mishkin, F. S. (1995). The Decline of Traditional Banking: Implications for Financial Stability and Regulatory Policy. *Economic Policy Review*. 1(2), pp. 27-45.
11. Federal Reserve Bank of New York. (2013). Quarterly trends for consolidated U.S. banking organizations: *Fourth quarter 2013*. Retrieved from http://www.newyorkfed.org/research/banking_research/QuarterlyTrends2013Q4.pdf.
12. Fredriksson, A., Maresch, D. and Moro, A. (2017). Much Ado About Nothing? Interest and Non-Interest Products and Services: Their Impact on Small Banks' Margins. *Cogent Economics & Finance*. 5(1), pp.1-14.
13. Gichure, K. S. (2015). The Relationship Between Non-Interest Income and Financial Performance of Commercial Banks in Kenya. Masters Dissertation, pp 1-69.
14. Jaffer, K. & Mabwe, K. (2014). Changing Bank Income Structure: Evidence from Large UK Banks. *Asian Journal of Finance and Accounting*. 6(2). Pp. 195-215.
15. Karakaya, A., & Er, B. (2013). Noninterest (Nonprofit) Income and Financial Performance at Turkish Commercial and Participation Banks. *International Business Research*. 6(1), pp. 106-118.
16. Kristianti, R. & Yovin (2016). Factors Affecting Bank Performance: Cases of Top 10 Biggest Government and Private Banks in Indonesia in 2004 – 2013. *Review of Integrative Business and Economics Research*. 5(4), pp. 371-378.
17. Li, Y. (2007). Determinants of Banks' Profitability and Its Implication on Risk Management Practices: Panel Evidence from the UK in the period 1999-2006, (Doctoral Dissertation). United Kingdom: The University of Nottingham.
18. Nigerian Stock Exchange (2017). *The Nigerian Stock Exchange Annual Report 2017, building a credible future together*.
19. Nimalathasan B. (2009). Profitability of Listed Pharmaceutical Companies in Bangladesh. An Inter & Intra Comparison of Ambee & Ibn Sina companies Ltd. *Annals of University of Bucharest, Economic and Administrative*. 3, pp. 139-148.
20. Ramadhani, K. M. (2015). Impact of non-interest income on banking performance in Tanzania. *International Journal of Economics, Commerce and Management*. 3(5), pp. 75-92.
21. Rogers, K. & Sinkey, J. (1999). An Analysis of Nontraditional Activities at US Commer-

- rcial Banks. *Review of financial economics*. 8, pp. 25-39.
22. Sanya, S. & Wolfe, S. (2011). Can Banks in Emerging Economies Benefit from Revenue Diversification? *Journal of Financial Services Research*. 40, 79–101.
 23. Saunders, A., Schmid, M. & Walter, I. (2016). Non-interest Income and Bank Performance: Does Ring-Fencing Reduce Bank Risk? Working papers on finance no. 2014/17 Swiss institute of banking and finance (s/bf – hsg).
 24. Scholtens, B., & Van Wensveen, D. (2003). The Theory of Financial Intermediation: An Essay on What it Does (not) explain. SUERF-The European Money and Finance Forum Vienna.
 25. Singh, A.K. & Dubey, S. (2015). A Comparative Study of Non-Fund-Based Income of Indian Private Sector Banks and Foreign Banks Operating in India. *International Research Journal of Indian Languages*. 3(5), pp. 44-51.
 26. Stiroh, K. (2006) A Portfolio View of Banking with Interest and Noninterest Activities. *Journal of Money, Credit and Banking*. 38, pp. 1351-1361.
 27. Sun, L. Wu, S. Zhu, Z. & Stephenson, A. (2017). Noninterest income and performance of commercial banking in China. *Hindawi Scientific Programming*, pp. 1-8.
 28. Trivedi, S. R. (2015). Banking Innovation and New Income Stream: Impact on Bank Performance. *The Journal for Decision Makers*. 40(1), pp. 28-41.
 29. Qin, X., & Pastory, D. (2012). Commercial Banks Profitability Position: The Case of Tanzania. *International Journal of Business and Management*. 7(13), pp. 136–144.
 30. Rogers, K.E. (1998). Nontraditional Activities and the Efficiency of US Commercial Banks. *Journal of Banking & Finance*. 22, pp. 467-482.
 31. Rose, P.S., & Hudgins, S.C. (2008). *Bank Management and Financial Services*. (7th Ed.), McGraw-Hill Inc. New York.

