ASSESSMENT OF PROFITABILITY DETERMINANTS IN NIGERIAN BANKS

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Abstract
Performance of financial institutions including Deposit Money Banks (DMBs) has substantial consequences on capital allocation, firm expansion, industrial growth and economic development. Therefore, efficiency and profitability of banks are of interest not just at the individual bank level, but also important at a broader macroeconomic level. The problem that motivated the study was the observation of fluctuating profits and sometimes losses in some banks. The study was restricted to listed Nigerian deposit money banks from 2006-2016. The study adopted an ex-post facto research design using panel regression analysis and ordinary least squares to explain the relationship between the research variables. Eleven years panel Secondary data from CBN statistical bulletins, NGE and SEC reports and individual bank’s books were used for the study. From Random Effects Model of the analysis, the study found a positive and significant relationship between Bank size and Return on Assets, negative and significant relationship between loans and return on assets, positive and non-significant relationship between deposits and return on assets, and positive and significant relationship between Interest and Return on Assets of the sampled Deposit Money Banks (DMBs).

Based on the findings, this study recommends that the banks should work on increasing their size, efforts should be made to improve the nature of loan practices by reducing loan defaults to the minimum, remain indifferent about their deposit policies and maintain their interest rate policies.

Keywords: Deposit Money Banks, Size, Loans, Deposits, Interest Rates, Profitability

INTRODUCTION
Banks, as part of the financial system have a strategic role to play in the nation’s economic development. This is hinged on their basic function as financial intermediaries, mobilizing vital savings from surplus economic units and channeling same to deficits units; thus, it is imperative that the banking system be healthy in order to fulfill its many expectations. The main role of the financial system is to channel the funds from savers to borrowers. If this process is done efficiently, then the profitability should improve, the flow of funds should increase, too, and there should be better quality services for customers. Indeed, financial intermediation determines, among other factors, the efficient allocation of savings, as well as the return on savings and investments. Banks mobilize, allocate and invest the greatest part of the economic agents’ savings. Accordingly, their performance has substantial consequences on capital allocation, firm expansion, industrial growth and economic development. Therefore, efficiency and profitability of banks is of interest not just at the individual bank level, but also is important at a broader macroeconomic level (Aremu & Mejabi, 2013).

The Banking industry is one of significant sectors of the financial system in most countries (San & Heng, 2013). Banks plays a crucial role of promoting the growth of economy by mobilizing savings and using the
mobilized savings in financing the most productive sectors of the economy (Alkhazaleh & Almsafir, 2014). As such, commercial banks are important to the financial sector, particularly in developing economies where capital markets are not well developed and strong. In economies where the capital markets are still developing, banking institutions serve as a vital source of financing to enterprises (Ntow & Laryea, 2012). Therefore, good performance of the bank is usually measured as per its profitability levels and has been essential to shareholders, customers as well as for banks continued survival and expansion (Nkegbe & Yazidu, 2015).

In the developed nations, financial markets and the banking system work in unison to achieve this main purpose: but in developing countries financial markets are usually underdeveloped and undersized so in that case the banks fill in the gap between borrowers and savers and provide the profitable and secure funds channeling. Taking in to consideration that savings and investments are among the most important determinants of economic growth, the health of the general economy of a country is in a great way dependent on the well-functioning financial system (Alemu, 2015).

There are plenty aspects of banks which could be analyzed, but this study focuses specifically on bank profitability. Profitability is a reflection of how banks are run, given the environment in which they operate. More precisely, it should mirror the quality of a bank’s management and the shareholder’s behavior, the bank’s competitive strategies, efficiency and risk management capabilities. Profits affect bank’s cost of raising capital in both ways, as a direct contributor to equity financing and as indicator for external investor’s assessment of the financial strength of the bank. Moreover, even if solvency is high, poor profitability weakens the bank’s capacity to absorb negative shocks, which will eventually affect solvency. Overall, healthy and sustainable profitability is vital in maintaining the stability of the banking system and contributes to the state of the financial system. Therefore, the determinants of bank performance have attracted the interest of academic research as well as of bank management, financial markets and bank supervisors (Aburime, 2007).

Profitability of banks is important since the soundness of an industry is closely connected to the soundness of the whole economy (Lipunga, 2014). The financial strength of a banking institution is unquestionably associated to its profitability, thus, the most important need of any bank’s management and leadership is to make profits on a continuous basis since this will guarantee bank’s continuous existence. As such, achieving profitability goal is vital to any bank (Adeusi, Kolapo & Aluko, 2014). The banking sector profitability is also central as the well-being of the industry is closely associated with the wellness of the whole economy in general (Alkhazaleh & Almsafir, 2014). Thus, a proficient and productive banking sector is able and better placed to endure negative economic shocks (Ally, 2014).

The Nigerian banking industry as regulated by the Central Bank of Nigeria is made up of Deposit Money Banks usually referred to as Commercial Banks and other Financial Institutions which includes Micro-Finance Banks, Finance Companies, Bureau De Change, Discount Houses and Primary Mortgage Institutions. (Bosede, Olusegun & Olubunkola, 2013)

Commercial banks as financial intermediaries are undisputedly a catalyst for economic growth because of the role of credit in boosting a nation’s gross domestic product. The literature on the bank-lending channel has long shown that economic activity is seriously hampered if the commercial banks, the most prominent agents in the credit markets, cannot execute their lending function properly (Dietrich & Wanzenried, 2010). Their prominent role is to intermediate funds from the surplus units to the deficit units of the economy so as to achieve economic balance. By and large, the efficiency of a bank largely depends on the extent to which it has performed in the intermediation process either locally or globally. Banks through their intermediary role accrue profits and on the other hand, might incur losses if not efficient and effective in their operations (Adeusi, Kolapo, & Aluko, 2014).

There is no gainsaying that the strength of a bank is undoubtedly linked to its profitability, hence, the primary desire of the bank’s management is to continually make profit as this would assure their continued existence and foster buoyancy for the nation. It is noteworthy that bank managers should understand the key factors that affect bank profitability and these factors could be internal and external determinants. The internal determinants originate from bank accounts (balance sheets and/or profit and loss accounts) and therefore could be termed micro or bank-specific determinants of profitability while the external determinants are variables that are not related to bank management but reflect the economic and legal environment that affects
the operation and performance of financial institutions (Athanasoglou, Brissimis & Delis, 2005). The determinants of bank profitability vary from bank to bank because of difference in shareholder and managerial decisions and activities. Previous studies suggest that capital size, size of deposit liabilities, size and composition of bank’s credit portfolio, interest rate policy, exposure to risk, management quality, labour productivity, bank size, bank age, ownership, ownership concentration, and structural affiliation among others influences bank profitability (Adeusi, Kolapo & Aluko, 2014).

The focus on the determinants of profitability for the Nigerian commercial banking sector is underscored by the fact that Nigeria financial system consists also of the banking industry; and because of the nature of her financial system, the success of these banks measured in terms of their profitability to an extent determines the level of financial development which is a major prerequisite for economic growth. In this vein, the Central Bank of Nigeria (CBN) over the years has introduced various reforms with the aim to enhance banks’ profitability and stability. The importance of bank profitability at both the micro and macro levels has made bank managements and bank regulatory authorities to develop considerable interest on the factors that determine bank profitability (Athanasoglou, Brissimis & Delis, 2005).

Effective and efficient operations of the financial sector are very critical in any economy because the financial sector especially commercial banks serve as a fuel for running economic activities. Therefore, more attention has been focusing on how well banks are running. This calls for numerous studies on what drives bank profitability within a country, a region, and at the global level. Similarly, studies have been carried out on the Nigerian banks because of special features of the country and its past experience. Nigerian banking industry experienced different reforms in order to ensure that the country has a strong banking industry that enhances its economic activities. This motivation led to the 2005 bank consolidation that reduced the number of commercial banks through mergers and acquisitions (Akinkunmi, 2017). The objective of this study is to examine the determinants of commercial banks’ profitability in Nigeria years after the consolidation of the industry.

Statement of the Problem
A profitable banking sector is better able to withstand negative shocks and contribute to the stability of the financial system and national economy. Prior to the years 2004 and 2005 when Nigerian banks witnessed a consolidation exercise with a regulatory option of mergers and acquisitions by the Central Bank of Nigeria (CBN), there had been an issue of instability and bank failures due to insufficient capital base, hence the need for the exercise. This exercise brought about a landmark change in the number of Nigerian banks as the banking system shrank to only about twenty five banks from a whooping eighty-nine before the consolidation exercise (Ani, Ugwunta, Ezeudu, & Ugwuanyi, 2012).

The consolidation exercise was aimed at improving operational efficiency, profitability, stability of the banks and national economy ultimately. After over a decade, the Nigerian banking industry including Deposit Money Banks (DMBs) are now stronger and have attained more stability as a result of the consolidation; but what constituted the problem of this study was the observation by the researcher of fluctuating profits and sometimes losses in the industry, even after consolidation. For example, the cases of former Bank PHB, Afribank, Spring Bank, and most recently Diamond Bank. This study therefore sought to ascertain the determinants of Bank Profitability of Deposit Money Banks after consolidation of the industry, particularly in Nigeria using panel data from 2006 to 2016. The overall objective of the study was to make an attempt at determining what internal factors account the most for profitability in Nigerian Deposit Money Banks. This study therefore proposed the following null hypothesis in a bid to attain the research objectives and answer the research questions;

\[ H_0_1 \] There is no significant relationship between Bank size and Profitability of DMBs in Nigeria.
\[ H_0_2 \] There is no significant relationship between Bank Loans and Profitability of DMBs in Nigeria.
\[ H_0_3 \] There is no significant relationship between Bank Deposits and Profitability of DMBs in Nigeria.
\[ H_0_4 \] There is no significant relationship between Bank Interest Rates and Profitability of DMBs in Nigeria.

This study holds great significance to management and ownership of Nigerian Deposit Money Banks, Government and its regulatory bodies, and Academia as findings from this research may provide needed information to support iron clad decisions regarding policies that concern the governing or regulation of Deposit Money Banks in Nigeria. The outcome of the study will also contribute to the field of knowledge in
the area of bank profitability and also serve as a foundation for further studies to researchers that may want to make further inquiry into the same phenomenon.

This study attempted to determine the kind of relationship that exists between internal determining factors (particularly Total Assets/Bank size, Bank Loans, Bank Deposits and Interest Rates) and profitability of DMBs in Nigeria using Return on Assets (ROA) as a proxy for profitability; to ascertain which of these factors account most for DMBs profitability years after consolidation of the industry in Nigeria.

The study made use of available panel data of 2006-2016. The time period was selected because it covers available data from the year after the consolidation, to 31st December, 2016. Furthermore, this study was restricted to only internal factors that can determine profitability in banks (particularly bank size measured by total assets, Bank Loans, Bank Deposits and Interest Rates), not considering external and macroeconomic factors. This is because it would take longer time and resources to cover wider periods and variables, for instance the considering industry before consolidation, or waiting for more years of panel data to conduct a larger study, or including all possible determinants like external and macroeconomic factors may not be feasible as no single study can adequately cover all.

**LITERATURE REVIEW**

**Concept of Profitability**

Profitability connotes a situation where the income generated during a given period exceeds the expenses incurred over the same length of time for the sole purpose of generating income (Sanni, 2006). The fundamental requirements here are that the income and the expenses must occur during the same period of time (Matching Concept) and the income must be a direct consequence of the expenses. The period of time may be one week, three months, one year etc. It is not immaterial whether or not the income has been received in cash nor is it compulsory that the expenses must have been paid in cash (Sabo, 2007).

The term profit can take either its economic meaning or accounting concept which shows the excess of income over expenditure viewed during a specified period of time. On one hand, profit is one of the main reasons for the continued existence of every business organization. On the other hand, profit is expected so as to meet the required return by owners and other outsiders. Alemu (2015) clarified profitability ratio as a class of financial metrics that are used to assess a business’ ability to generate earnings as compared to its expenses and other relevant costs incurred during a specific period of time. Accordingly, the term profitability is a relative measure where profit is expressed as a ratio, generally as a percentage. Profitability depicts the relationship of the absolute amount of profit with various other factors. Similarly, Koller (2015) in Alemu, (2015) argued that profitability is the most important and reliable indicator as it gives a broad indicator of the ability of company to raise its income level. In practice, executives define profits as the difference between total earnings from all earning assets and total expenditure on managing entire asset-liabilities portfolio (Kaur & Kapoor, 2007 in Alemu 2015).

**Return on Assets**

Bank profitability can be measured through various factors; return on assets (ROA) is one of the important measures (Kupiec & Lee, 2012). Return on asset is primarily a measure of profitability. It can be presented by dividing net income of the bank by the total asset. It shows what earnings have been produced from the invested capital or asset. This ratio is connected with bank profit and the total assets. In other words, the return on assets (ROA) shows percentage of how a bank’s assets are generating returns. When the ratio is higher, the management is efficiently utilizing its assets and vice versa. As highlighted by Athanasoglou et al (2008); and Sufian and Habibullah (2012), some scholars suggested that ROA is the key ratio for the evaluation of bank profitability given that ROA is not distorted by high equity multipliers. ROA is the major ratio that indicates the profitability of a bank. It is a ratio of net income to its total asset (Khrawish, 2011). It measures the ability of the bank management to generate income by utilizing company assets at their disposal. In other words, it shows how efficiently the resources of the company are used to generate the income. It further indicates the efficiency of the management of a company in generating net income from all the resources of the institution (Khrawish, 2011). Wen (2010), stated that a higher ROA shows that the company is more efficient in using its resources. This ratio is calculated by profit before tax (PBT) to total assets of the bank and it is expressed as a percentage.

The Return on Assets is defined by the following formula.
Profit before Tax

Return on Assets Ratio = \[ \frac{\text{Profit before Tax}}{\text{Total Assets}} \times 100 \]

This ratio indicates how many dollars of earnings the bank derive from each dollar of assets they control. This is useful device for comparing the organizations within the same industry. The annual reports of Malaysian banking sector shows the total assets in the balance sheet which comprises cash and short term funds, reverse repurchase agreements, deposits and placements with banks and other financial institutions, financial investments at fair value through profit or loss, derivative financial instruments, financial investments available for sale, financial investments held-to-maturity, loans, advances and financing, other assets, deferred tax assets, tax recoverable, statutory deposits with central banks, investment in associates, investment in jointly controlled entities, property, plant and equipment, investment properties, prepaid lease payments, goodwill and intangible assets, all these values are related to group financial statement (Khrawish, 2011).

Concept of Bank Profitability Determinants

Factors that influence commercial bank’s profitability are divided into internal and external. Internal factors are those factors which bank’s managers can control whereas external factors are those outside or beyond bank’s management control. External factors that influence profitability of commercial banks are related to legal and economic environment and comprises of factors like interest rates, inflation, recession, boom, regulations, market growth and market structure (Staikouras & Wood, 2011). The internal factors reflect the management policies of the banks and decisions made about the sources of funds, expenses and liquidity management (Onuonga, 2014). Information on bank specific factors that influence commercial banks profitability can be obtained from financial statements.

Bank Size

Bank Size is regarded as the natural logarithm of total assets. The relationship between the Bank size and profitability can be measured by economies of scale. In most studies of bank profitability determinants, the total asset is used a measure for bank size. Bank size is usually used to account for potential economies or diseconomies of scale in the banking sector. Additionally, bank size is associated with diversification which may impact favorably on risk and product portfolio. Economies of scale will reduce the cost of gathering and processing information so that a positive effect of bank size is associated with profitability (Boyd 1993).

Deposits

Deposit is the money placed with a bank or other financial institution. Deposits are generally made into either a checking or savings account, although many other types of accounts exist where deposits can also be made or deposit is a claim of customer over the bank on his account. A deposit will often be made into a savings account for the purpose of wealth storage, but such a deposit will usually only earn a relatively low interest rate. On the other hand, a deposit made into a checking account allows the funds to be made available for use through the writing of a cheque.

Other types of deposits to different types of accounts include: Term, Time, Call, Counter, Bank, Security, Current, Demand, Direct and Fixed Deposits (Hellman, Murdock & Stiglitz, 2000). A deposit is generally required upon the opening of almost all fiduciary accounts at banks and other financial and credit institutions. Banks mobilize deposits by making finances and by investing in various financial markets. Basically deposit mobilization is related to the creation of credits. The banks would have special campaigns where they would interact with a lot of people and invite them to make deposits with their bank, Nada (2010).

Loans

Commercial banks might supply lending on short, medium and long-run basis jointly of the various services rendered by commercial banks to their customers (Athanasoglou et al, 2005). Commercial banks offer loans and advances to numerous people, business organizations furthermore as government thus enabling them to begin investment and numerous development activities as a mean of aiding their growth particularly causative toward the economic development of a country normally (Han, 2008). According to Chantapong (2005) commercial banks choices on whether or not to lend out loans are influenced by numerous factors which are the prevailing rate, volume of deposits, level of domestic and foreign investment, the liquidity
magnitude relation, status and public recognition. Lending practices round the world may be back derived from the amount of amendment in industries that enlarged the rate of production activities thereby transfer regarding the necessity for big capital to fund comes. Several leaders of business at this era were notable to converge with the explosion within the monetary needs and so they turned to the banks for finance (Athanasoglou et al, 2005)

**Interest Rates**

Interest rates have remained a subject for critical assessment with diverse implications for savings mobilization and investment promotion. Generally, interest rates are the rental payments for the use of credit by borrowers and return for parting with liquidity by lenders (CBN 1997). In the Nigerian economy, the minimum rediscount rate (MRR) now monetary policy rate (MPR) is the official interest rate of the Central Bank of Nigeria (CBN), which anchors all other interest rates in the money market and the economy. Historically, the interest rate regime in Nigeria has been very stochastic. In August, 1987 the CBN liberalized the interest rate regime and adopted the policy of fixing only its minimum rediscount rate to indicate the desired direction of interest rate. This was modified in 1989 when the CBN issued further directives on the required spreads between deposit and lending rates. In 1991, the government prescribed a maximum margin between each bank’s average cost of funds and its maximum lending rates. Later, the CBN prescribed savings deposit rate and a maximum lending rate. Partial deregulation was, however, restored in 1992 when financial institutions were required to only maintain a specified spread between their average cost of funds and maximum lending rates. The removal of the maximum lending rate ceiling in 1993 saw interest rates rising to unprecedented levels in sympathy with rising inflation rate which rendered banks’ high lending rates negative in real terms. In 1994, direct interest rate controls were restored. As these and other controls introduced in 1994 and 1995 had negative economic effects, total deregulation of interest rates was again adopted in October, 1996. Over the years, the MRR/MPR has been reduced, increased, reduced and increased and presently as at February 2014 stands at 12% for private sector deposits and 75% for public sector deposits.

**Empirical Framework**

**Determinants of Bank Profitability**

A study by Maigua and Mouni (2016) investigated the effect of interest rate determinants on banks’ performance. A sample size of 26 banks was used in the study and multiple regression analysis to analyze data. The study results found that inflation rates, discount rates and exchange rates positively affected the banks’ performance whereas reserve requirement ratio negatively influenced the banks’ performance. It was concluded that exchange rates, inflation rates and high discount rates lead to banks’ higher performance whereas high levels of reserve requirement lowered the banks’ performance.

Alemu (2015) examined determinants of commercial banks profitability of eight banks in Ethiopia from for 10 years from 2002 - 2013. The study used multiple linear regressions and the fixed effect regression model to analyze data. The study established that size of banks; capital adequacy and gross domestic product have a positive and statistically significant relationship with profitability of banks. The findings of the study also revealed that liquidity risk, operational efficiency, funding cost and banking sector development have a negative and statistically significant relation with profitability of banks. Finally, the study found that the relationship between efficiency of management, efficiency of employee, inflation and foreign exchange rate was statistically insignificant.

Kusi, Adu and Sai (2015) investigated bank profitability in Ghana using periods before, during and after the globe financial crises utilising the five-step Du-Pont model for the first time, during 2006-2012. They found that bank deposits and branch networking were not significant on bank profitability.

Maredza (2014) complemented his particular work by exploring the internal determinants of bank profitability, but with more focus on the impact of bank efficiency. The author applied a two-step methodology framework to a panel of four small and four large banks for the period 2005-2011, and stated that bank size was found to be an important driver of bank profitability in South Africa.

Chinoda (2014) explored the internal factors that influence bank profitability in Zimbabwe. The study sampled five commercial banks, which were randomly selected and used secondary data from the banks financial reports. Using the general linear regression model the study found that size of the bank; liquidity, gross domestic product and inflation had a positive correlation with profitability (ROA) while operating
expenses had a negative association with profitability of commercial banks in Zimbabwe. The study recommended that inflation control policies should be given priority to foster financial intermediation.

Lipunga (2014) evaluated the determinants of profitability of listed banks in Malawi for a period of 5 years from 2009 and 2012 using external (market) and internal measures of profitability. The study employed multivariate regression and correlation analysis where Earning Yield (EY) and return on assets (ROA) were used to determine the internal and external determinants of profitability. Regression analysis results established that size of the bank, management efficiency and liquidity had a statistically significant effect on return on assets whereas capital adequacy had insignificant impact. Additionally, the research established that earnings yield significantly influences by size of the banks, management efficiency and capital adequacy while liquidity had an insignificant impact on earnings yield.

Abebe (2014) assessed the internal and external determinants of financial performance Ethiopia’s banks using panel data of banks for a period between the year 2002 and the year 2013. The study employed the fixed effect regression model. The regression results established that capital structure, income diversification, operating cost had a significant negative relationship with performance while bank size had a positive significant relationship with profitability measured using ROA. The study also established that various macroeconomic variables had insignificant effect on financial performance of Ethiopians commercial banks save for tax rate, which had a negative and significant relationship with profitability.

Rono, Wachilonga and Simiyu, (2014) assessed the relationship of interest rate spread on performance of Kenyan quoted banks. The study employed a descriptive design and secondary from published annual reports from the year 2007 to 2012. Using the Pearson product moment correlation the study found that commercial banks adopt different interest rate spreads to cover their costs and earn profit. The research findings also found that there was a significance correlation between interest rate spread and ROA, interest spread and ROE, while the study found an insignificant correlation between interest rate spread and non-performing loan expense.

Aremu and Mejabi (2013) applying the econometric analysis of Cointegration and Error Correction Technique sought to find out what factors really determined profitability in the banking sector of the Nigerian economy using First Bank of Nigeria PLC as a case study. Results from the study revealed that contrary to views of some authors, Bank Size (Natural Logarithm of Total Asset and Number of Branches) and Cost Efficiency did not significantly determine bank profitability in Nigeria. However, Credit Risk (Loan Loss Provision-Total Assets) and Capital Adequacy (Equity-Total Assets) was found to be significant drivers which affected bank profitability both in the long run and short run respectively. Also, while Liquidity affected bank profitability in the short run; Labor efficiency (Human Capital ROI and Staff Salaries-Total Assets) only affected bank profitability in the long run. But as for the external or macroeconomic variables which determined bank profitability, only Broad Money Supply growth rate was found to be a significant driver both in the long run and in the short run.

Studies like that of Mwenda, (2005) that showed worrying trends in the loan defaults among banks. Further bank specific factors like, terms of credit, interest margin, size, credit orientation, rapid growth of loan, guidelines on borrower admitance, risk assessment and monitoring are observed to be having significance on the occurrence of non-performance due to loan defaulting. Malla, (2013) in his study to establish the effect of loan default on financial performance of commercial banks in Kenya. However none has been done on loan policy and its influence on financial performance of Commercial Banks in Eldoret town.

Kyalo (2013) examined the factors influencing profitability of banks in Kenya for a 3 years period from 2010 – 2012. Secondary data collected from the 44 banks in Kenya was used in the study. Using the regression model the study established that capital invested has a significant influence on ROE while operational efficiency, GDP and inflation have insignificant effect on ROE on equity. The study recommended that commercial banks in Kenya should put more focus both the bank specific factors and the external environment together to come up with effective strategies to enhance their financial performance. From the review of empirical works above, it can be observed that previous studies were carried out in different places, at different times using varying methodologies to test the profitability of the industry tested by different proxies like ROA, ROE, ROI, etc as affected by various internal, external or macroeconomic factors. The present study however wishes to contribute to academic empirical knowledge by providing more recent findings and recommendations on the determinants of bank profitability in Nigeria after consolidation.
of the industry with particular focus on the effect of bank size, loans, deposits and interest rates as they affect returns on assets (profitability) of the banks.

**Theoretical Framework**

**Financial Intermediary Theory**

The modern theory of financial intermediation analyzes, mainly, the functions of financial intermediation, the way in which the financial intermediation influences the economy on the whole and the effects of government policies on the financial intermediaries (Gup & Kolari 2005). The financial intermediation theory highlights the role of financial intermediaries in economy, most of the studies performed highlight their role in achieving a durable economic growth, and the impact of regulations on financial intermediation, accentuating the role of the central bank in the regulation, supervision and control of financial intermediaries (Gup & Kolari 2005).

The theory regarding financial intermediation was developed in the 60s starting with the works of Gurley and Shaw (1960). The financial intermediation theory is based on the theory of informational asymmetry and the agency theory. In principle, the existence of financial intermediaries is explained by the existence of the following categories of factors: high cost of transaction, lack of complete information in useful time; and the method of regulation (Gup & Kolari 2005).

The main and most used factor in the studies regarding financial intermediation is constituted by the argument regarding informational asymmetry. This asymmetry can be of type: ex ante generating the so called problem of adverse selection; concomitant generating the moral hazard; or ex post leading to the need of applying some costly verification and auditing procedures or even the forced execution of the debtor. The informational asymmetry generates imperfections of the market, deviations from the theory of perfect markets in an Arrow -Debreu sense (Meon & Well, 2010).

Commercial banks act as intermediaries between those who have money (that is, savers or depositors), and those who need money (that is, borrowers). As financial intermediaries, commercial banks enhance economic efficiency and economic growth by allocating capital to its best possible uses (Gup & Kolari 2005). The function of the financial system is to pool savings. Financial intermediaries can thus help improve firm’s productivity, by reducing the transaction costs associated with the mobilisation of savings from different economic agents. Reduction of information costs makes financial intermediaries useful to improve the allocation.

**METHODOLOGY**

This study employed the ex-post facto research design. This is because the study was making an enquiry into the effect of one variable on the other using secondary data, particularly time series panel data to ascertain the effect of the independent variable on the dependent variable. The dependent variable for this study was bank profitability, proxied by Return on Assets (ROA); while the independent variable was profitability determinants which was further broken down into bank size, loans, deposits and interest rates. The population for this study was all banks in Nigeria. The sample for the study was all Deposit Money Banks (DMBs) listed on the Nigerian stock exchange.

Data collected and analysed for this study included secondary data that was sourced from Central Bank of Nigeria’s (CBN) Statistical Bulletin, Nigerian Stock Exchange (NSE) records and the listed firm’s published financial statements for the period of 2006-2016. Panel data on profitability of the firms for the period was collected, extracted and analysed for the study.

The technique for data analysis to be adopted for this study involved the use of empirical analysis tools including descriptive statistics using ordinary least squares (OLS) panel regression techniques and to determine the relationship between the research variables. This is because regression analysis is concerned with the study of the dependence of one variable on other variables and is most suitable for this study. The panel regression was carried out using the STATA for windows statistical package software to link the variables used in the study and determine the kind of relationships that exist between them.
Model Specification
The following regression model was estimated for the study.
ROA = β₀ + β₁BS + β₂LN + β₃DP + β₄IR + e
Where:
ROA = Return on Asset (Dependent variable), proxy for Bank profitability; BS = Bank size (Independent variable); LN = Loans (Independent variable); DP = Deposits (Independent variable); IR = Interest Rate (Independent variable); β₀ = Constant term; β₁, β₂ and β₃ = Determination parameters; e = Error term

FINDINGS
Bank Size and Return on Assets

H₀₁ There is no significant relationship between Bank size and Profitability of DMBs in Nigeria.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Fixed Effect</th>
<th>Random Effect</th>
<th>Pooled OLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank Size</td>
<td>0.6529(0.423)</td>
<td>1.004**(0.088)</td>
<td>1.0923*(0.041)</td>
</tr>
<tr>
<td>F Stat</td>
<td>5.51*(0.0013)</td>
<td>25.05*(0.0000)</td>
<td>9.68*(0.0000)</td>
</tr>
<tr>
<td>_cons</td>
<td>-6.5516(0.376)</td>
<td>-9.869** (0.063)</td>
<td>-10.7101*(0.026)</td>
</tr>
<tr>
<td>R²</td>
<td>16%</td>
<td>16%</td>
<td>16%</td>
</tr>
</tbody>
</table>

*p<0.05, **p<0.10

Source: Researcher’s Computation 2019

The study found a positive and significant relationship between Bank size and Return on Assets with a coefficient value of 0.6529, p-value > 0.05 at 0.423, disagreeing with the null hypotheses one of the study and agreeing with the alternative hypothesis H₁ that there is a significant relationship between bank size and return on assets of listed deposit money banks in Nigeria. This result implies that the bank size is positively related with profitability of the listed banks in Nigeria. In other words, the greater size of the banks, the higher their profit and vice versa since the positive relationship significant. This indicates that a large bank size is more effective for increased profitability. This finding is line with the work Marezda (2014).

Furthermore, the F-stat is 25.05 with a p-value of 0.0000 which shows that the model is in good fit. The R² value of 16% shows that the model explains about 16% of the dependent variable (Bank Profitability, measured by Return on Assets), the remaining 84% may be explained by other factors.

Loans and Return on Assets

H₀₂ There is no significant relationship between Loans and Profitability of DMBs in Nigeria.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Fixed Effect</th>
<th>Random Effect</th>
<th>Pooled OLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loans</td>
<td>-0.1404*(0.0000)</td>
<td>0.1521*(0.0000)</td>
<td>0.1559*(0.0000)</td>
</tr>
<tr>
<td>F Stat</td>
<td>5.51*(0.0013)</td>
<td>25.05*(0.0000)</td>
<td>9.68*(0.0000)</td>
</tr>
<tr>
<td>_cons</td>
<td>-6.5516(0.376)</td>
<td>-9.869** (0.063)</td>
<td>-10.7101*(0.026)</td>
</tr>
<tr>
<td>R²</td>
<td>16%</td>
<td>16%</td>
<td>16%</td>
</tr>
</tbody>
</table>

*p<0.05, **p<0.10

Source: Researcher’s Computation 2019

The analysis found a negative and significant relationship between loans and return on assets with a coefficient value of 0.1521, p-value < 0.05 at 0.0000, disagreeing with null the hypotheses of the study, therefore the study accepts the alternative hypotheses that there is a significant relationship between loans and return on assets of listed deposit money banks in Nigeria. This result implies that loans have been negatively affecting profitability of the listed deposit money banks. In other words, the greater loans, the lower their return on assets as a measure of profitability and vice versa. The results indicate that increased loans is less effective in attaining higher return on assets (ROA). This is in line with findings from the work of Malla (2013).
Furthermore, the F stat is 25.05 with a p-value of 0.0000 which shows that the model is in good fit. The $R^2$ value of 69% shows that the model explains about 16% of the dependent variable (Bank Profitability, measured by Return on Assets), the remaining 84% may be explained by other factors.

**Deposits and Return on Assets**

$H_0^3$ There is no significant relationship between Deposits and Profitability of DMBs in Nigeria.

**Panel Regression for Hypothesis Three**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Fixed Effect</th>
<th>Random Effect</th>
<th>Pooled OLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deposits</td>
<td>0.0343(0.423)</td>
<td>-0.0133(0.946)</td>
<td>0.0012(0.995)</td>
</tr>
<tr>
<td><em>F Stat</em></td>
<td>5.51*(0.0013)</td>
<td>25.05*(0.0000)</td>
<td>9.68*(0.0000)</td>
</tr>
<tr>
<td>_cons</td>
<td>-6.5516(0.376)</td>
<td>-9.869**(0.063)</td>
<td>-10.7101*(0.026)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>16%</td>
<td>16%</td>
<td>16%</td>
</tr>
</tbody>
</table>

*p<0.05, **p<0.10

Source: Researcher’s Computation 2019

The study found a positive and non-significant relationship between deposits and return on assets of the sampled deposit money banks with a coefficient value of -0.0133, p-value > 0.05 at 0.946 agreeing with the null hypothesis three of the study. This result implies that deposits is positively but non-significantly related with return on assets of the listed deposit money banks in Nigeria. In other words, the greater the deposit in the banks, the greater their return on assets as a measure of profitability and vice versa, may not necessary be the case as the positive relationship is found to be non-significant. This is in contrast with the works of Chirwa (2003) which posits that deposits positively and significantly influence commercial bank profitability in both long-run and short-run.

Furthermore, the F-stat is 5.51 with a p-value of 0.0013 which shows that the model is in good fit. The $R^2$ value of 16% shows that the model explains about 16% of the dependent variable (Bank Profitability, measured by Return on Assets), the remaining 84% may be explained by other factors.

**Interest Rate and Return on Assets**

$H_0^4$ There is no significant relationship between Interest Rate and Profitability of DMBs in Nigeria.

**Panel Regression for Hypothesis One**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Fixed Effect</th>
<th>Random Effect</th>
<th>Pooled OLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Rate</td>
<td>0.6529(0.423)</td>
<td>1.004**(0.088)</td>
<td>1.0923*(0.041)</td>
</tr>
<tr>
<td><em>F Stat</em></td>
<td>5.51*(0.0013)</td>
<td>25.05*(0.0000)</td>
<td>9.68*(0.0000)</td>
</tr>
<tr>
<td>_cons</td>
<td>-6.5516(0.376)</td>
<td>-9.869**(0.063)</td>
<td>-10.7101*(0.026)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>16%</td>
<td>16%</td>
<td>16%</td>
</tr>
</tbody>
</table>

*p<0.05, **p<0.10

Source: Researcher’s Computation 2019

The study found a positive and significant relationship between Interest and Return on Assets with a coefficient value of 0.6529, p-value > 0.05 at 0.423, disagreeing with the null hypotheses one of the study and agreeing with the alternative hypothesis $H_1$ that there is a significant relationship between interest rate and return on assets of listed deposit money banks in Nigeria. This result implies that the interest rate is positively related with profitability of the listed banks in Nigeria. In other words, the greater the interest rate, the higher their profit and vice versa since the positive relationship significant. This indicates that a high interest rate is more effective for increased profitability. This finding is line with the work Marezda (2014). Furthermore, the F-stat is 25.05 with a p-value of 0.0000 which shows that the model is in good fit. The $R^2$ value of 16% shows that the model explains about 16% of the dependent variable (Bank Profitability, measured by Return on Assets), the remaining 84% may be explained by other factors.

**RECOMMENDATIONS**

This study recommends that the banks should work on increasing their size as the analysis found a positive and significant relationship between Bank size and return on assets (profitability), meaning the larger the
bank size, the higher the profit is likely to be. The DMBs need to increase their total assets so that they can better take advantage of economies of scale, produce more and be more profitable, since bank size according to this study, is a major determinant of profitability.

The study also recommends in line with the finding on loans that identifies a negative and significant relationship between loans and return on assets. The study recommends that efforts should be made to improve the nature of loan practices by reducing loan defaults to the minimum. The study opines that the nature of loans has been the cause of some banks running into problems possibly due to loan defaults.

The banks can remain indifferent about their deposit policies as the study found a positive but non-significant relationship between deposits and return on assets. However, the banks may choose to find ways to improve the effects of deposit ratio become significant to profitability possibly by increasing the level of deposits exponentially.

This study also recommends in line with the findings on interest rates that the banks can maintain their interest rate policies as the analyses showed a positive and significant effect of the present interest rate policy.

REFERENCES


