Impact of Fixed Asset Investment on Banks Financial Performance in Nigeria

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ABSTRACT

The study examined the impact of fixed assets investments on financial performance of selected banks in Nigeria. Specifically, the impact of cost of maintenance and repairs, additions and impairments on Return on Assets (ROA) of banks were used for this study. Ex-post Factor research design was used for the study. Secondary data were collected from annual reports and accounts of Deposit Money Bank of eight selected banks over the period of eleven (11) years (2002 – 2014). The eight (8) banks were selected using random sampling technique. Multiple regression were employed to analyze the relationship between the dependent variable (ROA) and independent variables – cost of maintenance and repairs, additions and impairments of fixed assets. The findings of the study show that cost of maintenance and repairs have a negative and significant impact on return on assets of banks. Also the results of the study revealed a negative and statistically significant relationship between additional acquisition of fixed assets and return on assets (ROA) of banks. Furthermore, the study shows a negative and significant relationship between impairments of fixed assets and return on asset (ROA). The implications of the findings is that increase in the cost of maintenance and repairs of fixed assets leads to decrease in return on assets of banks. The findings also implied that as additional acquisition of fixed assets and impairments of fixed assets increase, return on assets of the banks decreases. Based on the findings, it is recommended that the central bank should ensure adequate monitoring and evaluation of banks with respect to the stipulated maximum amount a bank can invest on fixed assets.

Keywords: Fixed Assets Investment, Performance, Deposit Money Bank, Nigeria Economy

1. Introduction

Fixed assets constitute an essential part of the overall resources that are available for organizational use. Fixed asset investment plays vital roles in carrying out corporate activities and also enhances the capacity of an organization in providing goods and services. These may include investment in items such as Machinery, Information and communication Technology, Buildings, Motor Vehicle, Furniture and Fittings, Office Equipment etc. In accounting books or works, fixed assets also imply “real”, “tangible” or “physical capital”. Banking industry is one of the core industries that utilize fixed assets. Proper investment in fixed assets is therefore essential for banks to enable them provide the services needed by their customers. Ronda (2010), opined that acquiring fixed assets may be one of the company's goals for the fiscal year, but the question is, how one acquires fixed assets. Strategies for the acquisition and investing in fixed assets differ depending on the nature of the item. Alexander and Britton (1999) stated that investment in fixed asset can be done through direct (cash) purchase, through hire purchase (HP), through purchase on credit and through leasing. Outright (cash) purchase involves full payment of a fixed asset while credit sale agreement postpone payment of a capital item at a later date.
specified in the agreement, the investor assumes ownership in both cases.

Acquisition of fixed assets through hire purchase permits installment payments; of which ownership is obtained on the last installment payment. Leasing on the other hand permits a user of fixed asset to use rental payments to obtain the services of fixed assets; the user may or may not assume ownership of the fixed asset at the end of the lease term.

The Banking sector roles in the development of Nigerian economy cannot be overemphasized. In the words of Soludo (2009), Nigerian banks account for over 90 percent of financial system assets and dominate the stock market. The active participation of banks in Nigerian economy dates back to late 1800, when Nigeria’s first bank, the African Banking Corporation was established in 1892. Generally the assets of a bank are classified as being either financial or non-financial. Financial assets include bank deposits, bonds and shares while non-financial or tangible assets include items such as machinery and equipment, buildings, information technology and stockpiles of inventory.

The factors that determine bank profitability could either be internal or external. Internal factors are factors related to banks specifically. Among these factors are capital size, interest rate policy, deposit liabilities size, asset quality, credit portfolio composition and size, productivity of labour, level of information technology, quality of risk management level, size of bank, ownership and the like. Scholars over the years have often used CAMEL framework as a proxy for bank specific factors (Dang, 2011). The word CAMEL means capital Adequacy, Asset Quality, Management Efficiency, Earning Ability and Liquidity.

Asset quality is among the specific variable that affects the profitability of a bank. The bank assets include among others, current asset credit portfolio, fixed asset, and other investments. Banks have historically relied on a reasonable investment in premises and equipment to successfully conduct business. Banking operation is characterized by intense usage of fixed assets such as information technology equipment, communication equipment; note counting machines, furniture and fixtures, motor vehicles and even buildings. Such intense usage lead to high maintenance costs evidenced by a high repairs and maintenance costs. The high repair and maintenance cost is often due to charges for maintenance agreements, purchase of consumables, sudden machine breakdowns, minor (uncapitalized) replacements, staff inefficiency in the use of equipment and so on. Machine choice becomes a critical issue when contribution to operating performance is considered. The extent to which these operating variables impact on banks profitability is not known, hence this study.

2. Objective of the study
The general objective of this study is to determine the impact of fixed asset investment on the financial performance of selected banks in Nigeria. The specific objectives however include:

i. to determine the impact of fixed assets maintenance and repairs costs on Return on Assets (ROA) of banks in Nigeria
ii. to ascertain the impact of additional acquisition of fixed assets on ROA of banks in Nigeria.
iii. to determine the impact of impairment of fixed assets on ROA of banks in Nigeria.

3. Review of Related Literatures Conceptual Review
Fixed assets are essentially Long term assets of a firm and usually include buildings and other real estate acquisitions, furniture, equipment, vehicles and ICT infrastructure which may include hardware and software (Investopedia, 2013). Fixed assets may be tangible or intangible. Olatunji and Adegbite (2014) observe the direct Linkage between investment in fixed assets and performance noting not only that fixed asset investment enhances the ability of firms to generate profit, but equally stress the importance of fixed assets on the daily operations of banking firms.

According to Magoulios (2006), the totality of the cost of economy involved in the purchase of new plants and machinery with the aim of increasing the stocks of raw materials and products for new homes is referred to as investment on a macroeconomic Level. Philippa (2005) defines investment as a commitment of certain amount of money, in the present year, whose returns is increased earnings in the future. Trujillo (2014), opines that investment in fixed assets like buildings, motor vehicles, bank equipment and so on determines the operational effectiveness of most industries. These fixed assets are normally shown on the balance sheets and

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accounts a large portion of a company's value. Fixed assets investments are very important in maintaining an effective operation of a company. Productivity and profitability of a company depend on how it maintains its fixed assets operations (Trujillo, 2014). According to Noah (2016), a key driver of economic growth is investment in fixed asset. Emekewu (2005), opines that investment in fixed assets entails expenditure in items whose benefit is expected to exceed a year. This entails a sacrifice of present consumption for future benefits. According to SNA (2003), ordinary maintenance and repairs of assets entails all the activities that must be carried out by the owners and/or users of fixed assets periodically, to enable them make use of the assets more than their expected useful life. Cost of maintenance and repairs of fixed assets is also referred to as the costs incurred in making fixed assets to get back to its original condition. “Capital addition” in banking refers to investment of funds, which could be in the form of purchase of buildings, Land, ICT and other fixed assets. According to Micheal, (2003). “Additions” or “Capital addition in a business entity entails the cost of buying new assets to add to already existing fixed assets. It involves the addition of new parts that is expected to increase output and hence increase profit and performance. The life and productivity of a fixed asset is increased by capital additions. The betterment of the fixed assets of the bank industry or a business firm is achieved through capital addition (Watts, 2003). This acquisition to addition assets can be in the form of adding new part that could be reasonably expected to increase the useful life or potential of the fixed assets, and/or adding new assets to increase production.

The introduction of asset impairment accounting all over the world system dates back to the mid-1990s. Assets impairment occurs when there is an abrupt or sudden fall in the service of an asset, such as motor vehicle, factory or property. This sudden decline in service utility of an asset could be as a result of physical breakdown of the asset, obsolescence due to technology innovation or legal code changes. An asset is said to be impaired when its recoverable amount is less than its carrying amount in the statement of financial position. Impairment means that the asset has suffered a permanent loss in value. Recoverable amount is the higher of an assets fair value less cost of disposal and its value in use. In this study, we use value in use in the calculation of recoverable amount. Value in use is the value that represents the present value of the expected future cash flows from use of assets discounted at 10%. We discounted the PBT for the various years to represent the expected future cash flows. The ROA is used as an effective measure in determining the efficiency of fixed asset utilization. The return on Asset (ROA) ratio is a good measure for determining the effective use of fixed assets, since investments implies sacrificing the present situation for a future benefit and hence, involve some risks.

Financial Institutions Performance Measures

The measures of bank performance can be classified into three according to practitioners and academics. These include: traditional measures, economic measures and market-based measures. The traditional measures of bank performance include: return on assets (ROA), return on equity (ROE) or cost to income ratio being the most popularly used. Also net interest margin is used as a performance measures, Kimball (1998) . Again, Ongor and Kusa, (2013) asserted that the ROA measures how efficient the bank management is in utilizing the available company assets to generate income. According to Kumbirai and Webb (2010), the ratio (ROA) indicates how much net income is generated on each unit of assets, thus the higher the ROA, the more the profitable the bank. Hence, ROA is given as the net income for the year divided by total assets, usually the average value over the year.

Relationship between fixed assets investment and bank performance

The relationships between fixed assets and bank performance have been identified and examined by previous studies. This relationship differs from one study to another. Some of the studies found a positive relationship between investment in fixed assets and bank performance, Okwor (2012) and Olatunji (2014) whereas Abubakar, Nasir and Haruna (2013) found a negative relationship between fixed asset and bank performance. SNA (2003), states that owners or users of fixed assets carry out maintenance and repairs periodically for them to be able to make use of these assets above its expected useful life and hence make reasonable profit. Carl (2010), also states that the generation of profit by most companies is dependent on their investment on fixed assets. New and highly
maintained equipment are necessary for increased productivity and efficiency of business firms, which will eventually result in higher profit. Banking industry is among the business firms that invest on fixed assets. An analysis of fixed assets indicates that adequate maintenance and repairs of fixed assets, increases the current and future income of business firms (Carl, 2010). Proper repair and maintenance of fixed assets help business firms including banking industry to prevent losses due to deterioration and misuse (Carl, 2010). The inability of the banking industry to properly maintain malfunctioning assets as well as not replacing obsolete and irreparable assets will result to decrease in productivity and hence decrease in profitability of the bank. According to Farlane (2012), business firms engage in repair and maintenance of fixed assets in order to avoid making huge expenses for the purchase of new assets. On the other hand, frequent repairs and maintenance of old equipment is usually a waste of resources and often reduces the profitability of a business firm. The accounting standard-setter for the U.S Government (2011), in its statement of Federal Financial Accounting standard 40, states that any activity aimed at keeping fixed assets in good and acceptable condition is referred to as maintenance and repairs. Among these activities are replacement of parts, systems or components; preventive maintenance and all other activities required to keep the assets in acceptable condition. When maintenance is deferred, it can result to poor service to the public, inefficient operations, increased safety hazards, low profitability and higher costs in the future (ASS, 2011). Carl (2010) opines that proper analysis of fixed assets will help managers to identify underused assets and determine if the fixed assets with low usage should be reallocated, sold or used. The repair and maintenance expense to fixed assets ratio is a good indicator of how well a company is managing its fixed assets.

“Capital addition” in banking refers to investment of funds, which could be in the form of purchase of buildings, Land, ICT and other fixed assets. According to Watts, (2003), “Additions” or “Capital addition in a business entity entails the cost of buying new assets to add to already existing fixed assets. It involves the addition of new parts that is expected to increase output and hence increase profit and performance. The life and productivity of a fixed asset is increased by capital additions. The betterment of the fixed assets of the bank industry or a business firm is achieved through capital addition (Watts, 2003). This acquisition to addition assets can be in the form of adding new part that could be reasonably expected to increase the useful life or potential of the fixed assets, and/or adding new assets to increase production. Watts (2003), states that unlike repairs and maintenance additions or improvement of already existing assets can enhance the capacity or function of a capital asset or prolong its life span and hence increases productivity and performance. However, Abubakar, Nasir and Haruna (2013), studied the impact of additional sustained investment of ICT on bank performance in Nigeria. The result of the study revealed that the relationship between additional investment in ICT and bank performance is inverse.

Asset impairment occurs due to an abrupt drop or fall in the fair value of given asset below its stated costs. According to Randall and David (2002), impairment loss results to the reduction of the profit of a business firms report for the period, but has no immediate impact on the balance sheet of the firm. The profitability of a business firm including banking industry can drastically decline if the asset impairment is very large. Sooriyakum and Velmampy (2013) observed in their study that impairment loss has a negative and significant impact on reported profits of selected production firms of Colombo stock exchange (CSE), in Sri Lanka. In Accounting Tool, (2016), it is stated that the recoverability of an asset should be tested whenever the situation indicates that its carrying amount may not be recoverable. Such situations include; Cash flow: when there are losses on historical and projected operation or cash flow related to the asset; Cost: When the cost of acquisition or construction of the asset is very high; Disposal: There is more than 50% likelihood that the asset will be sold or otherwise disposed off before the end of its original estimated useful life; Legal: If the assets value is drastically affected by a significant change in legal factor or the business climate; Market price: The asset's market price reduces drastically; Usage: The manner of usage of the assets or it's physically condition adversely changes. Reinstein and Lander (2004), Martin (2008), assert that companies including banks should periodically assess impairment in respect to the concept of economic value, not dependent on
any legal aspect. Riedl (2004), opined that the purpose of impairment of fixed assets is to make the book value be in line with the ability of the assets to yield future benefits. Wei-kang, Yee and Hua (2015), state that in order to improve operating performance of firms, managers should recognize asset impairments. According to finance train (2016), the impact of asset impairment of firm in the initial period following asset impairments are: the asset turnover ratios of the firm will increase due to the lowered value of equity caused by impairment, as a result of the written-down expense (assuming all needed write-downs have taken place), lower profit margin will be recorded, and there will be a reduction in the book value of equity.

Empirical Review
The performance of banks has been largely affected by investment in fixed assets. Examining the effect of investment in fixed assets on the profitability of selected banks in Nigeria, Olatunji and Adeghite (2014) utilized data from the annual reports of selected banks in Nigeria. They analyzed the relationship between the dependent variable (Net Profit) and independent variable (building, land, etc) using Pearson product moment correlation and multiple regression models. The outcome of the study showed that the relationship between the dependent variable (Net profit) and the independent variables (building, information communication and technology, machinery, household, land and fixtures and fittings) is significant having an adjusted R² at 96%. It was finally concluded that investment in fixed assets have a positive and strong statistical impact on the profitability of banking sector in Nigeria and hence, banks should increase their investment in fixed assets in order to improve bank profitability.

Okwo, Ugwunta and Nweze (2012) employed data obtained from the Nigerian Brewery sector for a period of eleven years to determine the impact of fixed asset investment on the profitability of Nigerian Brewery Industry. To ascertain the extent of the relationship between the level of investment in fixed assets and the stated profit of Nigerian brewery industry, regression statistical model was employed. A positive relationship between fixed assets investment and the operating profits of selected brewery firms in Nigeria was observed, though, the result is not statistically significant. It was finally concluded that there is no strong positive impact of fixed assets investment on profitability of brewery firms in Nigeria.

Abubakar, Nasir and Haruna (2013) also examined how Information and Communication Technology would impact on performance of selected banks in Nigeria. Data were obtained from annual reports of selected banks over the period of eleven years (2001-2011). Fixed and Random Effects Models were used for the analysis of the data. The results of the study reveal that additional sustained investment in ICT and bank performance/profitability are inversely related. The researchers therefore suggested that more emphasis should be made on policies that will promote proper utilization of ICT equipment rather than additional investments.

The effect of research and development (R & D) on the performance of firms in US was carried out by Mishra and Cobeli (2003), over a period of thirteen years (from 1990-2002). A comparison was made between the study and the impact on investment on performance of firms. A cross-sectional regression model of improved time series was employed in analyzing the relationship between the outcome of investing one dollar in research and development and investing one dollar on non-current assets in chemical as well as pharmaceutical industry in the USA. The results of the study show that R & D intensity is positively related to all the variables that measure the performance of a firm, amongst which are: net margin, operating margin, return on assets, sales, and so on. The result also reveals that Research and Development has twice impact on firm's market value when compared to the effect of fixed asset investment on the market value of the firm. Hence, their conclusion was that additional investment in research and development will provide a unique and continuous competitive advantage for a firm than additional fixed asset investment.

Sveltana and Aaro (2012) examined the extent to which investment in fixed assets is related to the return on assets of selected companies in the European Union Member States. A sample of 8,074 companies was used for the study which was carried out over a period of nine years (2001-2009). The study employed multiple regression analysis to analyze the relationship between the dependent variable (ROA) and the independent variable...
(Level of Investment on fixed asset). The results reveal a strong positive statistical relationship between the level of fixed asset investment and return on asset.

Holden and El-Bannany (2006) studied how investment in IT would impact on bank profitability in the UK over a period of twenty (20) years, that is, from 1976-1996, using evidence from accounting data. The study employed multiple regression model for the analysis of the relationship between investment in IT and bank profitability in the UK. The result of the study, showed that investment in IT systems proxied by number of automated teller machines has a positive impact on bank profitability. Hence, the use internet to bring about banking transactions has aided in the lowering of transaction costs and thereby increases bank profitability.

Paradogans (2007), studied the financial performance of large and small firms in Greece for a period of five years (1995-1999). 3035 sampled firms constituted the sources of data for the study. The multiple regression model was employed for the analysis of the data. The result of the study revealed that the independent variables (firm size, managerial efficiency, debt structure and investment in fixed assets) have significant impact on the dependent variable (firm's profitability).

Lin (2007), examined the impact of ICT on banking industry performance in the U.S. Utilizing a cross-sectional data of 155 banking firms in the U.S, for the period of five years (1995-1999) and using Multiple linear regression model for analyzing the performance of banks in the U.S, the result of the study reveals that ICT contributes to the overall value – creation performance of banks in the U.S.

Beccalli (2007), carried out a study to determine how Investment in Information and Communication Technology (ICT) would impact on the performance of banks in Europe. Data were collected from a sample of 737 European banks over a period of seven years (1994-2000). The data was analysed using simple correlation coefficients. The results of the study revealed a negative and statistically significant correlation between ICT and profitability of European banks.

Abata (2014) studied the impact of asset quality on performance of six largest banks quoted in Nigeria stock exchange. The study utilized secondary data obtained from the annual reports of the commercial banks for a period of fifteen years (1999-2013). The data was analysed using Pearson correlation and regression tool of the SPSS 17.0. The result of the study revealed a statistical relationship between asset quality and bank performance.

The impact of debt to equity ratio on profitability of firms was carried out by Eriotis, Frangouli, and Neokosmides (2000) bearing in mind the level of market power as well as the degree of investment by the firm. Panel data was used for the different industries covering a period of twelve years (1995-1996). The results of the study reveal that firms that prefer to raise capital on their own to finance their investment activities prove to be more profitable than firms who borrowed capital to finance their investment activities. Again, competition was preferred by firms to cooperation and finally, the investment in fixed assets was used by firms as a strategic variable to increase profitability.

The research on the impact of asset and liability management on profitability of banks in public versus private commercial banks in Bangladesh was carried out by Sayeed and Hogue (2009). In their own view, one of the primary concern of a modern economy is the profitability of banks. The function of the bank as a business entity is both to accept payments or liabilities as well as give debt securities and also provide or invest in assets. Banks therefore, earn income from their investment in assets where they incur cost for their liabilities. Therefore, the management of assets and liabilities of banks affect their profitability. They examined how external variables like level of market concentration as well as inflation rate, in conjunction with assets and liabilities impact on the performance of selected banks in Bangladesh. Sixteen banks were used for the study. The banks were classified into public and private banks. The statistical cost Accounting (SCA) model was employed to analyze the use of total income, it was revealed that all the assets have significant impact on the total income of both the private and public banks. Again, all the liabilities have a significant coefficient. Six out of the eleven dependent variables, have a positive and significant impact on the income to assets ratio of selected commercial
banks. Again, all the assets of the selected commercial banks show a positive and significant coefficient whereas three coefficients out the four liabilities are not significant. This implies that the selected commercial banks are receiving insignificant or no return from these liabilities like the private banks.

Muhammad and Muhammad (2010), studied whether investment in ICT influences the organization performance of manufacturing and banking industries in Pakistan. The study used primary data collected through in-depth interviews and field surveys of 48 manufacturing and 24 banking industries in Pakistan covering the period of 12 years (1994 to 2005). The data were tested using multiple linear regression avoided and ration analysis. The result showed that ICT has positive impact on organization performance of all sampled organizations.

The impact of assets, loans, equity and deposits on the profitability (ROA) of Pakistani banks was carried out by Javaid, Anwar, Zaman and Ghafoor (2011) for a period of five years (2004-2008) using the pooled ordinary least square (POLS) method of analysis. The results show a significant relationship between the independent variables and the dependent variable (ROA). Nevertheless, it was also observed that increase in total assets might not necessarily result on increase in profitability of banks in Pakistan. Again, increase in loan increases profitability though it does not have significant impact. On the other hand, the impact of equity and deposits on profitability are significant.

Athar and Madhul (2013) examined the relationship between noncurrent assets and firms' profitability in Pakistan. Data was collected for a period of ten years from non financial firms listed on KSE. The data was analyzed using multiple regression analysis. The results of the study revealed a positive and significant relationship between noncurrent assets and firms' profitability.

From the above studies, it can be seen that none of the authors who carried out performance evaluation of different commercial banks discussed how fixed assets can impact on profitability of banks using cost of maintenance, additions and impairment as independent variable. The researcher therefore intends to look critically at this angle and discuss.

**Theoretical Framework**

The theory underlying this study is the throughput Accounting theory of constraints, propounded by Tiyahu. M. Goldratt in 1986. The Theory of Constraints is based on the precept of using scientific principles and Logic in guiding human based organizations in carrying out their decision-making processes. The main aim of the TOC is to assist organizations in achieving their goals, as well as helping them to continue doing so through changing times. In a nutshell, TOC is a recipe for change. The TOC is based on the assumption that every organization has, at any given time, at least one limiting factor (or constraint) that reduces its performance and prevents it from attaining its goals. This could be in term of adequate fixed assets investment. Inadequate investment in fixed Assets may constrain management from achieving the level of their desired profitability. For the organization to successfully improve its performance, FAI constraints have to be identifies and managed in order to enhance banks profitability. This therefore makes the theory very suitable for this study.

**4. Methodology**

This study employed in this study is ex-post facto research design. Ex post facto research design is basically concerned with how to perform impact analysis on already existing data. It is relevant for this study since it is used to find out if one or more already existing conditions could have possibly caused subsequent differences in groups of subjects. We equally used a Population of this study encompassed all the twenty-one (21) commercial banks quoted on the Nigerian stock exchange as at 2016 which was later reduced to manageable size of 8 banks using random sampling. Secondary data was collected from the annual report of banks.

**Analytical Method**

Generally, a study like this requires multiple regression model which according to CAMEL frame work is put in the form shown below:

\[ y = B_0 + B_1 x_1 + B_2 X_2 + \ldots B_n X_n + \epsilon \]  

Where:

- \( y \) = Dependent variable
- \( x \) = Independent variable
- \( B_0 \) = Constant
- \( B_1, B_2, \ldots, B_n \) = Coefficients
- \( \epsilon \) = Error term

In this study, 

\[ P = F (CM + AF + IMP) \]  

\[ P = b_0 + b_1 CM + b_2 AF + b_3 IMP + \epsilon \]
where CM, AF and IMP values are zero.
B = regression coefficient associated with each CM, AF and IMP while?
= an error term normally distributed
about a mean of 0. E is assumed to be 0 for the purpose of computation.

5. Result of the Study
The results of the analysis are presented in order of the research questions and research hypotheses.

Descriptive Test
Table 1: Descriptive Statistics of the significance of components of fixed assets on return on assets of selected banks in Nigeria

<table>
<thead>
<tr>
<th>Variables</th>
<th>Observation</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>11</td>
<td>0.8427</td>
<td>0.14333</td>
<td>0.59</td>
<td>1.05</td>
</tr>
<tr>
<td>CM</td>
<td>11</td>
<td>-0.0373</td>
<td>0.41771</td>
<td>-0.87</td>
<td>0.46</td>
</tr>
<tr>
<td>IMP</td>
<td>11</td>
<td>0.1664</td>
<td>0.16530</td>
<td>-0.10</td>
<td>0.46</td>
</tr>
<tr>
<td>AF</td>
<td>11</td>
<td>-0.1055</td>
<td>0.66351</td>
<td>-2.01</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Source: Researcher’s computations

The descriptive statistics of the analysis presented in Table 1 above shows that return on assets (ROA) as the dependent variable had a mean value of 0.8427 with a standard deviation of 0.14333; it had a maximum value of 1.05 and a minimum value of 0.59. Maintenance of fixed assets (CM) had a mean of -0.0373 and a standard deviation of 0.41771 with a negative minimum value of -0.87 and a positive maximum value of 0.46. The table also shows that impairments of fixed assets (IMP) and acquisition of additional fixed assets (AF) had mean values of 0.1664 and -0.1055 with standard deviations of 0.16530 and 0.66351 respectively. Impairment of fixed assets had a negative minimum value of -0.10 and a positive maximum value of 0.46 while acquisition of additional fixed assets had a negative minimum value of -2.01 and a maximum value of 0.40.

Correlation Test
Table 2: The relationship between Fixed Assets and Return on Assets of sampled commercial banks in Nigerian

<table>
<thead>
<tr>
<th>Correlations</th>
<th>ROA</th>
<th>CM</th>
<th>AF</th>
<th>IMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Pearson</td>
<td>-0.88</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.021</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Pearson</td>
<td>-0.698</td>
<td>0.820</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.17</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Pearson</td>
<td>-0.635</td>
<td>0.776</td>
<td>0.99</td>
<td>1</td>
</tr>
<tr>
<td>Correlation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.036</td>
<td>0.005</td>
<td>0.003</td>
<td>1</td>
</tr>
<tr>
<td>N</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).
Source: Researcher’s computations using SPSS Version 20

Table 2 shows the correlation between the variables studied in the sampled commercial banks in Nigeria. The table shows that all the predictor variables (cost of maintenance and repair of fixed assets, additional acquisition of fixed assets, impairment of fixed assets) have negative relationship with return on assets. Cost of maintenance and repair of fixed assets (CM) has a correlation coefficient of -0.680 while additional acquisition of fixed assets (AF) and impairment of fixed assets (IMP) have correlation coefficient values of -0.608 and -0.635 respectively. These values are high and indicate strong relationship between return on assets of banks and the variables.

Regression test for Research Hypotheses
Research Hypothesis 1
Cost of fixed asset maintenance (CM) has no significant impact on return on assets of banks in Nigeria?

Table 3: Model Summary of Linear Regression Result for Cost of Maintenance and repairs

<table>
<thead>
<tr>
<th>Model Summary</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.680</td>
<td>.462</td>
<td>.402</td>
<td>.22370</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), CM

Table 3 above presents the results of the regression analysis of the impact of the cost of maintenance and repairs of fixed assets on the return on assets (profitability) of banks in Nigeria. It can be seen from the Table that the value of R which represents the simple correlation and considered to be one measure of the quality of the prediction of the dependent variable is 0.68. This value indicates a
good degree of correlation between the dependent variable (ROA) and the independent variable (CM) at 68%. Also, the table shows that the coefficient of determination $R^2$ which is the proportion of variance in the dependent variable that can be explained by the independent variable gives the value 0.462. The value 0.462 for $R^2$ presumes that the independent variable used in this model (cost of maintenance and repairs) is able to explain the variation of return on assets (ROA) of banks in Nigeria up to 46.2% for the period observed.

Table 4: Impact of cost of maintenance and repairs of fixed assets on return on assets

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Unstandardized</th>
<th>Standardized</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>.737</td>
<td>.072</td>
<td>10.242</td>
<td>.000</td>
</tr>
<tr>
<td>CM</td>
<td>-.287</td>
<td>.103</td>
<td>-.680</td>
<td>-2.780</td>
</tr>
</tbody>
</table>

a. Dependent Variable: ROA

Researcher's computations using SPSS Version 20

The table 4 above shows the effect of cost of maintenance and repairs of fixed assets return on assets (profitability). It can be seen that the constant in the model is 0.737 while the coefficient of the independent variables (cost of maintenance and repair, CM) in the model is -0.287. This implies that a unit increase in the cost of maintenance of fixed assets (CM) reduces the bank return on assets (ROA) by 0.287 units. This result indicates that cost of maintenance and repairs of fixed assets has a negative effect on return on assets of Nigerian banks for the period observed.

Table 5 is the ANOVA table from the regression test showing the significance of the effect of cost of maintenance and repairs of fixed assets on return on assets (profitability) of banks in Nigeria. As can be seen from the table, the F statistics has the value of 7.731 with the corresponding p-value of 0.021 which is less than 0.05 (the level of significance) and indicates that the results are statistically significant at 5% level of significance. This implies that the independent variable, cost of maintenance and repairs of fixed assets can be used to reliably predict the dependent variable, return on assets of banks in Nigeria.

Research Hypothesis 2

Additional acquisition of fixed assets has no significant impact on return on assets of banks in Nigeria?

Table 6: Model Summary of Linear Regression Result for additional acquisition of fixed assets

<table>
<thead>
<tr>
<th>Model Summary</th>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>.698a</td>
<td>.487</td>
<td>.430</td>
<td>21826</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), AF
Source: Researcher’s computations using SPSS Version 20

The Table 6 above shows the impact of additional acquisition of fixed assets on return on assets of banks in Nigeria. From the table, it can be seen that the value of the simple correlation $R$ and the coefficient of determination $R^2$ are 0.698 and 0.487 respectively. The value 0.698 for $R$ is relatively high and indicates a good level of prediction of the dependent variable (return on assets) by the independent variable (additional acquisition of fixed assets) while the value 0.487 for the coefficient of determination, $R^2$ shows that up to 48.7% of the variability in the dependent variable, ROA can be explained by the independent variable, AF.
Table 7 presents the regression result on the effect of additional acquisition of fixed assets return on assets (profitability). The table shows that the constant in the model is 0.770 while the coefficient of the independent variables (additional acquisition of fixed assets, AF) in the model is -0.463. This implies that a unit increase in additional acquisition of fixed assets (AF) reduces the bank return on assets (ROA) by 0.463 units. This reveals a negative relationship between additional acquisition of fixed assets and return on assets of commercial banks in Nigeria.

Table 8: Significance of the effect of additional acquisition of fixed assets on ROA of banks

<table>
<thead>
<tr>
<th>ANOVAa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>Regression</td>
</tr>
<tr>
<td>Residual</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

The result of the regression test presented in Table 8 shows the ANOVA statistics for the significance of the effect of additional acquisition of fixed assets on return on assets (profitability) of banks in Nigeria. The table shows that with the mean squares of 0.408 for regression and 0.048 for residual, the F statistics has the value of 8.558, with 0.017 as the corresponding p-value which is not up to 0.05 (the significance level) and indicates that the results are statistically significant at 5% level of significance. This result reveals that the independent variable, additional acquisition of fixed assets can be used to reliably predict the dependent variable, return on assets of banks in Nigeria.

Research Hypothesis 3
Impairment of fixed assets has no significant effect on bank return on assets in Nigeria?

Table 9: Model Summary of linear regression result for the impact of impairments of fixed assets on return on assets

<table>
<thead>
<tr>
<th>Model Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

The results of the regression analysis presented in Table 9 above reveals a simple correlation, R value of 0.635 between the dependent variable, return on assets (ROA) and independent variable, impairments of fixed assets (IMP). This is above average and indicates a good level of prediction of the return on assets of banks (ROA) by the independent variable, impairments of fixed assets (IMP). The table also reveals that the value of the coefficient of determination, R² is 0.404. This implies that impairment of fixed assets is able to explain up to 40.4% of the variability of the dependent variable, ROA of banks in Nigeria for the period observed.

Table 10: Effect of impairments of fixed assets on ROA

<table>
<thead>
<tr>
<th>Coefficientsa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>(Constant)</td>
</tr>
<tr>
<td>1</td>
</tr>
</tbody>
</table>

The Table 10 above shows the effect of impairments of fixed assets on return on assets (profitability) of banks in Nigeria. It shows that the coefficients of the variables in the model are 0.819 and -0.715 for the constant and the independent variable, IMP respectively. These values indicate that every one unit increase in the impairment of fixed assets (IMP) is associated with a 0.715 decrease in the return on assets of banks in Nigeria for the period observed. This result means that return on assets is negatively affected by impairment of fixed assets of banks in Nigeria.

Table 11: Significance of the effect of additional acquisition of fixed assets on ROA of banks

<table>
<thead>
<tr>
<th>ANOVAa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
</tr>
<tr>
<td>Regression</td>
</tr>
<tr>
<td>Residual</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

The Table 11 above shows the ANOVA statistics for the significance of the effect of additional acquisition of fixed assets on return on assets (profitability) of banks in Nigeria. The table shows that the mean squares of 0.338 for regression and 0.055 for residual, the F statistics has the value of 6.089, with 0.036 as the corresponding p-value which is not up to 0.05 (the significance level) and indicates that the results are statistically significant at 5% level of significance.
Table 11 shows the ANOVA statistics from the result of the regression test for the significance of the effect of impairments of fixed assets on return on assets (profitability) of banks in Nigeria. The table shows that the mean squares for regression and residual are 0.338 and 0.055 respectively. This yields F-ratio of 6.089 with the corresponding value of P as 0.036. This is not up to 0.05 (the significance level) and indicates that at 5% level of significance the results are statistically significant. This implies that impairments of fixed assets which is the independent variable can be used to reliably predict the dependent variable, return on assets of banks in Nigeria.

**Conclusion**

A very pertinent question has been “what makes banks invest in fixed assets?” Obviously, banks may not be aware of the impact of poor management and inappropriate investment in fixed assets, but rather the quest to make improve efficiency and hence increase profitability pushes them to continuous investment in fixed assets. A very important contribution of this research is the relationship between these variables, cost of maintenance and repairs, additional acquisition of fixed assets and impairment of fixed assets and bank return on assets which were examined simultaneously. This study utilized a database of eight (8) out of twenty-one (21) commercial banks quoted on the Nigerian Stock Exchange, Post Consolidation. Eighty-eight observations between 2003 to 2013 were made. The main aim of this study therefore, is to determine the return on assets of banks with special emphasis on the effects of three variables. The study was guided by three research questions.

1. What is the impact of cost of maintenance and repairs on return on asset?
2. What is the impact of additional acquisition of fixed assets on return on assets?
3. What is the impact of impairment of fixed assets on return on assets?

From the findings, the following conclusions are drawn. There is a negative and significant relationship between cost of maintenance and repair of fixed assets and return on assets. The negative and significant relationship found between cost of maintenance and repairs and return on assets shows that as cost of maintenance and repairs increases, return on assets decreases and vice versa. The study also concludes that banks profitability decreases as a result of frequent maintenance or high cost of maintenance of assets. On the impact of additional acquisition of fixed assets on return on assets, results reveal that there is also a negative and significant relationship between additional acquisition of fixed assets and return on assets. However, the result is contrary to some previous views that there is a positive relationship between additions and return on assets. The study then concludes that over investment or too much addition of fixed assets reduce banks profitability. The results of the regression analysis show that impairment of fixed assets is negatively and significantly related to return on assets of banks in Nigeria. The return on assets of banks decreases as the impairment loss of fixed assets increases. This significance of the relationship implies that impairments loss is one of the major factors or variables that influence return on assets of banks in Nigeria.

Even though this research work has helped to broaden our knowledge on bank profitability and how this has been influenced by the three predictor variables examined, it is of necessity to constantly study and investigate other variables that influence return on assets since changes in time can influence the sensitivity of other factors/variables. This research work show that in additions to other variable that influence the profitability of banks, the three variables studied are highly significant.

**Recommendations**

Based on the findings, of the study, it is therefore recommended:

1. That managers should ensure that the cost of maintenance and repairs of fixed assets is reduced to the barest minimum by ensuring proper usage and efficient management of these assets.
2. That the central bank should ensure adequate monitoring and evaluation of banks with respect to the stipulated maximum amount a bank can invest on fixed assets (which is 25% of its shareholders' fund unimpaired by loss). This will go a long way in ensuring that banks do not overinvest in fixed assets.
3. That bank operating managers should ensure that their choice of investment on fixed assets is based on quality and utility, rather than on the price and pressure from manufacturers. This will help to reduce the impairment loss of the fixed assets and hence, increase profitability of banks in Nigeria.
References