



Investment in Fixed Assets and Firm Profitability: Empirical Evidence from the Nigerian Banking Sector

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Abstract

The study examined the effect of investment in fixed assets on profitability of selected Nigerian banks. It also analyzed the significant components of fixed assets investment of selected Nigerian Commercial Banks. Data were obtained from annual reports and accounts of selected Nigerian commercial Banks. Pearson product moment correlation and multiple regressions were employed to analyze the relationship between the dependent variable (Net profit) and independent variables (Building, Land, Leasehold premises, fixtures and fitting, and investment in computers.). Findings show that there is a significant relationship between dependent variable (Net Profit) and the independent variables (Building, information communication and technology, machinery, leasehold, land and fixture and fitting) with the adjusted R^2 @ 96%. Therefore, investments in fixed assets have strong and positive statistical impact on the profitability of banking sector in Nigeria. In order to improve bank profitability through efficient management of fixed assets, Nigerian banks should increase fixed assets investments in form of ICT. Fixed assets utilization and productivity needs to be monitored to boost profitability for shareholders' satisfaction.

Keywords: Net profit, Fixed assets, Commercial banks, Investment, Nigeria, Correlation.



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1. Introduction

No organization can be sustained without some investment in fixed asset. Investment in fixed assets like land, building, plant and machinery, fixtures, fittings and motor vehicle enhances the productive capacity of firms. Profits can be generated by investing in such assets to ensure long term profitability. This category of assets does not change frequently and they are purchased to produce and sell more. Assets have significant role in determining the efficiency and the profit ratio of a firm. Since a firm acquires plant and machinery and other productive fixed assets for the purpose of generating sales. Therefore, efficiency in the use of fixed assets should be judged in relation to sales. Pandey (1999) opined that fixed assets turnover ratio measures the efficiency with which a firm is utilizing its investment in fixed assets. It also indicates the adequacy of sale in relation to investment in fixed assets. Generally, a high fixed assets turnover ratio indicates efficient utilization of fixed assets in generating sales, while a low ratio indicates inefficient management and utilization of fixed assets.

Banking sector just as firms in the brewery and other industries require a large amount of fixed asset investment in large capital equipment while, service companies and computer software producers need a relatively small amount of fixed assets. Effective organization of fixed assets is one of the most important parts of the entire corporation and in creating value for shareholders. The main purpose of any firm is to reduce the cost of production in order to maximize their profit. But, maintaining liquidity of the firm also is an important objective. The problem is that increasing profits at the expense of fixed asset can bring serious problems to the firm. Yet, some organisations find it difficult to increase their investment in fixed asset.

The main objective of this study is to examine the effect of investment in fixed asset on profitability of selected Nigerian banks. It also analyses the significant components of fixed assets investment of Selected Nigerian Commercial Banks, examines the relationship between fixed assets values and Return on Investment (ROI) and determines the effect of fixed assets investment on Net profits of sampled Nigerian commercial banks.

2. Literature Review

Prior studies reported that investment in fixed assets may have an important effect on the firm's profitability. Eriotis *et al.* (2000) investigated the relationship between debt to equity ratio and firm's profitability taking into consideration the level of a firm's investment and the degree of market power. The study used panel data for various industries, covering a period 1995-96. They concluded that firms which prefer to finance their investment activities through self-finance are more profitable than firms which finance investment through borrowed capital. According to them, firms used their investment in fixed assets as a strategic variable to affect profitability.

Ibam (2007) argued that a company's investment in fixed asset is dependent, to a large degree, on its line of business. Some businesses are more capital intensive than others. According to Ibam (2007) fixed asset turnover ratio looked at asset over time and compares the ratio to that of competitors. This gives the investor an idea of how effectively a company's management is using fixed asset. It is a rough measure of the productivity of a company's fixed assets with respect to generating sales. The higher the number of times turned over, the better. However investors look for consistency or increasing fixed assets turnover rates as positive balance sheet investment qualities (Ibam, 2007). Sayeed and Hogue (2009) studied the impact of assets and liability management on profitability of public and private commercial banks in Bangladesh. According to them, banks' profitability is almost always of concern in modern economy. Banks are in business to receive deposits or liabilities and to issue debt securities on the one hand and create or invest in assets on the other hand. Thus commercial banks incur cost for their liabilities and earn income from their assets. Thus profitability of banks is directly affected by management of their assets and liability. Their study examined how assets and liability management together with external variable such as degree of market concentration and inflation rate impact the profitability of selected commercial banks in Bangladesh. The study also dealt with the impact of Assets and Liability Management (ALM) on the profitability of the sixteen Bangladesh commercial banks classified into private and public. The results show that the use of total income the dependent variable for private and public banks show evidence that all of the assets have significant contribution to total income of the private banks.

Berger and DeYoung (1997) indicated that most research on bank efficiency is mainly weighted on cost efficiency; Zheng *et al.* (1997) as stated in Alayemi (2013) also emphasized the cost efficiency of small and mid-sized banks in Taiwan. It was not until recently that profit efficiency began to be noticed. The study of profit efficiency considers both the cost efficiency and earning efficiency. Berger and DeYoung (1997) pointed out that while conducting research on cost efficiency, profit must be assumed to reach its maximum level under the pre-determined bank inputs and outputs. However, the above assumption may be inconsistent with reality due to the ignorance of quality problems. For instance, higher quality banks may have higher costs that induce cost inefficiency. However, the higher quality banks may generate higher earnings and profits, thus it makes profit efficiency. Beneish *et al.* (2001), and Fairfield, Whisenant and Yohn (2003), among others have identified a rather strong negative relationship between investment intensity and profitability. Gautam (2008) found out that high fixed cost can deplete a company's profit especially if sales fall. The revelation that other variables do not have significant impact on profit after tax may be explained by the fact that companies probably adjust selling prices of their products to take care of changes in variable cost other than fixed cost.

Okwo *et al.* (2012) studied the investment in fixed assets and firm profitability, evidence from the Nigerian Brewery Industry. A cross sectional data was gathered for the analysis from the annual reports of the sampled brewery firms for a period of 1995 to 2009. The four brewery firms that constitute the sample were those quoted on the Nigerian Stock Exchange and their inclusion in the analysis is based on the availability of data for the sample period. The brewery firms that constitute the sample are: Nigerian Breweries Plc, Guinness Nigeria Plc and International Breweries Plc, Champion Breweries Plc. The result of the tested hypothesis showed that the level of investment in fixed assets does not strongly and significantly impact on the level of reported profit of breweries in Nigeria.

Khalid (2012) examined the relationship between the asset quality management proxies and profitability nexus. Using the return on assets and profitability ratios as proxies for bank profitability for the period 2006-07 to 2010-11, operating performance of the sample banks is estimated with the help of financial ratios. Also multiple regression model was employed to examine if bank asset quality and operating performance are positively correlated. The results showed that a bad asset ratio is negatively associated with banking operating performance, after controlling for the effects of operating scale, traditional banking business concentration and the idle fund ratio.

3. Methodology

Net profit is the explained variable in this model, while the explanatory variables are book values of Building, Land, Leasehold premises, fixtures and fitting, and investment in computers.

3.1. Method of Data Collection

The data was obtained from annual reports accounts of twenty (13) Nigerian commercial Bank.

3.2. Sample size

Thirteen Nigerian Commercial Banks were purposively selected for the survey and analysis. The duration of the research was basically from 2000-2012. This study employs annual data on the effect of investment in fixed asset on profitability of selected Nigerian banks from the period of 2000 to 2012.

4. Data Analysis Techniques

Regression analysis technique was used to measure the effect of independent variables on dependent variable. While Pearson Product Moment correlation was used to measure the relationship between the dependent variable and independent variables. Regression models in the following variables:

$$Y = f(X_1, X_2, X_3, X_4, X_5, \mu)$$

A regression model relates Y to a function of X and μ

Where:

Y - Dependent variable, i.e Profitability

X1 – X5 - Independent variables i.e investment in fixed assets by description

μ . - Error term

3.1. Model Specification

$$r = \frac{n\sum wc.sf - \sum wc \sum sf}{\sqrt{(n\sum wc^2) - (\sum wc)^2} \cdot \sqrt{(n\sum sf^2) - (\sum sf)^2}} \quad 1$$

n = no of observations.

Where r = Coefficient of correlation showing the degree of relationship between the dependent variable and independent variable.

$$NP = a_0 + a_1BDG + a_2ICT + a_3MACH + a_4LEASEH + a_5LAND + a_6FF + \mu \quad 2$$

Where:

NP – Net profit

BDG – Building

ICT – Investment bin computer

MACH – Machinery

LEASEH – Leasehold Premises

LAND – Land

FF – Fixtures and Fitting

5. Presentation and Analysis of Data

The analysis of the effect of investment in fixed asset on profitability of selected Nigerian banks from the period of 2000 to 2012 is presented below.

Table-1. Descriptive Analysis of the significance of components of fixed assets investment of Selected Nigerian Commercial Banks

	Observation	Mean	Standard deviation	Minimum	Maximum
Bank	13	10.5	5.91608	1	20
NP	13	5.35e+07	4.30e+07	3102597	1.34e+08
BDG	13	1.44e+07	1.15e+07	3516916	3.47e+07
ICT	13	7798724	4532298	1000324	1.60e+07
MACH	13	1.18e+07	1.08e+07	781571	3.45e+07
LEASEH	13	8065366	6947649	678882	2.09e+07
LAND	13	6076165	4042935	1333600	1.38e+07
FF	13	9320967	7362425	525236	2.02e+07

Source: Researcher's Computation using STATA 10

The descriptive statistics of the analysis is presented in Table 1 above shows that bank as the dependent variable. Bank had a mean value of 10.5 with a standard deviation of 5.91608, it had a maximum value of 1.34e+08 and a minimum value of 3102597. Net profit had a mean of 5.35e+07 and standard deviation of

4.30e+07 with positive maximum and minimum value of 3102597 and 1.34e+08 respectively, which signifies that for every 1% increase in bank fixed assets investment, net profit increases by up to 5.3%, this implies that there is a positive relationship between Bank fixed assets and Net profit of Nigerian banks.

The impact of building and other assets can be seen as shown in the Table 1, information and communication technology, Machinery, leasehold, land and fixture and fitting with mean values of 7798724, 1.18e+07, 8065366, 6076165 and 9320967 respectively and standard deviations of 4532298, 1.08e+07, 6947649 and 7362425 having positive maximum values of 1.60e+07, 3.45e+07, 2.09e+07, 1333600 and 525236 and positive minimum values of 1000324, 781571, 678882, 1.38e+07 and 2.02e+07. This implies that 1% increase in bank fixed assets triggers a rise in net profit of up to 5.35. It can be deduced from the analysis that there is a positive relationship between bank's profits and the investment in fixed assets, therefore null hypothesis is rejected.

Table-2. The relationship between Fixed Assets and Net Profit of sampled Nigerian commercial banks

	NP	BDG	ICT	MACH	LEASEH	LAND
NP	1.0000					
BDG	0.8710**	1.0000				
ICT	0.1118**	-0.1282	1.0000			
MACH	0.9254**	0.8662*	0.2180	1.0000		
LEASEH	0.9408**	0.9620*	0.0852*	0.9529*	1.0000	
LAND	0.8992**	0.8541*	0.2461*	0.9809*	0.9343*	1.0000
FF	0.8765**	0.8506*	-0.0335*	0.7340	0.8534*	0.7514*

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed).

Source: Researcher's computation using STATA Version 10

The table 2 shows the relationship between fixed assets and Net Profit of sampled Nigerian commercial banks. The result in table 4.2 shows that net profit (NP) has positive relationship with investment in building (BDG), coefficient 0.8710. This result implies that an increase in Investment in building contributes to increase in net profit. Investment in computer (ICT) has positive relationship with net profit with coefficient of 0.1118. This result implies that an increase in Investment in computer (ICT) leads to increase in net profit. In the same vein, machinery (MACH) also has positive correlation with net profit, coefficient 0.9254. This result implies that the increase in machinery (MACH) influences increase in net profit. Investment in leasehold premises (LEASEH) also has positive significant relationship with net profit with coefficient of 0.9408. Furthermore, the result also shows that land (LAND) also has positive correlation with net profit, coefficient 0.8992. This result implies that the increase in land (LAND) affects increase in net profit. Fixture and Fitting (FF) also influence increase in net profit in that FF has a positive correlation with return on investment with a coefficient of 0.8765. The table also revealed that all the predictor variables have a positive relationship with net profit hence return on investment.

Table -3. The effect of fixed assets investment on Net profit of sampled Nigerian commercial banks

NP	Coefficient	Std. Err.	t	P>[t]	95% Conf. Inter.
BDG	-1.06132	1.51416	-0.70	0.056	-4.332465 2.209824
ICT	-.4405003	.927785	-0.47	0.043	-2.444858 2.209824
MACH	5.345736	2.023779	2.64	0.020	.9736268 9.717845
LEASEH	.2840708	4.048585	0.07	0.045	-8.462365 9.030507
LAND	-6.68098	3.688471	-1.81	0.093	-14.64944 1.287478
FF	3.316814	.8135801	4.08	0.001	1.559181 5.074447
constant	1.64E+07	8809607	1.86	0.085	-2616294 3.54E+07
Prob> = 0.0000	R ² = 0.9611	Adj R ² = 0.9432	F(3,26) = 38.32		Root MSE = 36815

Source: Researcher's computation using STATA Version 10

The table 3 above shows the effect of Fixed Assets on net profit. A unit increases in building (BDG) reduces Net Profit (NP) by 1.1 units. This shows the negative effect of investment in building on Net Profit of Nigerian commercial banks. Also a unit increase of investment in computer (ICT) reduces Net Profit (NP) by 0.4 unit. This also suggests that an inverse effect of ICT on NP. Conversely, there is a positive relationship between investment in machinery (MACH) and Net Profit because a unit increases in MACH increases Net Profit by 5.3 units. The result is significant. A unit increases in leasehold (LEASEH) increases Net Profit by 2.8 units. This indicates that leasehold (LEASEH) has positive effect on Net Profit. Conversely, a unit increases in investment in land (LAND) reduces net Profit in Nigerian selected bank by 6.6 units. This also suggests the inverse effect of LAND on NP. A unit increase in investment in fixture and fitting (FF) increases net profit by 3.3 units. This indicates that there is positive relationship between fixture and fitting (FF) and Net Profit.

Given the coefficient of determination (R²) as 0.9611 which is 96% supported by high value of adjusted R² as 94%, it presumes that the independent variables incorporated into this model have been able to explain the variation of net profit to 94%. That is, there is a significant relationship between dependent variable (Net Profit) and the independent variables (Building, information communication and technology, machinery, leasehold, land and fixture and fitting). The F Probability statistic also confirms the significance of this model. This hypothesis is to determine the effect of fixed asset investment on net profit. From the decision rule above, because the p-value for the alternative hypothesis equals 0.0000 p<0.1, therefore the null hypothesis is rejected while the alternative hypothesis is upheld.

6. Summary and Conclusion

The effect of fixed assets investment on profitability of sampled Nigerian commercial banks was examined. Results show that investment in fixed assets has significant positive relationship to the performance of the sampled banks which implies that for every increase in net profit through years 2000 to 2012 resulted from an increase of 5.35% of investment in Building, 1.14% in information communication, 7.79% in machinery, 8.06% in leasehold, 6.07% in land and increase of 9.32% in fixture and fitting. There is also positive correlation between net profit and fixed asset quality of banks, when it was analyzed independently while it gave a positive relationship when analyzed together with other performance indicators.

Investment in computer also has positive significant relationship with return on investment. Similarly, freehold land and building also exert negative effects on ROI indicating that the usage and not ownership has effect on return on investment.

In the same vein, machinery also has positive correlation with return on investment. This result implies that the increase in machinery also leads to increase in return on investment. Investment in leasehold premises also has positive significant relationship with return on investment with the value of 0.9408. Fixture and fitting also leads to increase in net profit that is there is a positive correlation with return on investment. The higher the level of investment in fixed assets, the higher the profit of selected Nigerian banks.

In conclusion, investments in fixed assets have strong and statistical positive impact on the profitability of banking sector in Nigeria. In order to improve bank profitability there should be efficient management of fixed assets. Nigerian banks should improve the level of fixed assets investments in terms of ICT and the fixed assets should be utilized effectively and productively in order to boost their profitability for their shareholders' satisfaction.

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