Global Financial Crisis and the Profit Efficiency of First Bank of Nigeria PLC; a Stochastic Frontier Analysis

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Abstract:
This study examines the Impact of Financial Crisis on the Profit Efficiency of First Bank of Nigeria Plc. The study makes use of data covering the period 1981-2017. The objective of the research work is to analyse the trend in efficiency of First Bank of Nigeria Plc before, during and after the financial crisis. The study rests on the Minsky Financial Instability Hypothesis theoretical framework and uses the translog Stochastic Frontier profit function with one output (Loans), two inputs (price of funds and noninterest expense) and two netputs (fixed assets and equity) to formally examine the impact of the Global Financial Crisis on the profit efficiency of this bank. This study also employs the Multivariate Regression Analysis to examine the relationship between the profit efficiency of the bank and some contextual variables. To achieve this objective, the study uses the Ordinary Least Square to examine the potential determinants of the bank's Profit efficiency. The result of the translog profit function shows that the bank made a significant progress during the crisis period while that of the OLS shows that the Global Financial Crisis does not have a statistically significant impact on the profit efficiency of the bank. Looking at the other determinants of the profit efficiency of the bank, the result shows that variations in the dependent variable has been largely explained by the independent variable as shown by R-square of 0.9628. Also, total asset, bank's diversification, capital strength all have positive effect on the profit efficiency of the First Bank of Nigeria while Bank's loan intensity and the Gross Domestic Product have negative impact. The study concludes that Global Financial Crisis did not have impact on the efficiency of First Bank of Nigeria Plc. It is therefore essential that the regulatory and supervisory authorities (CBN and NDIC) formulate and implement monetary policies that are effective in helping the banks to improve their operations, thereby leading to efficiency in resource allocation and utilization.

Keyword: Financial Crisis, Banking Sector, Profit Efficiency, Stochastic Frontier.

Introduction:
Financial crisis occurs when some financial institutions or assets suddenly lose a part of their value. In the 19th and early 20th Century, many financial crises were associated with banking panics which led to many recessions. Other instances of financial crisis include stock market crashes and currency crisis. On the other hand, economic crisis involves a situation of setback or slow growth in overall economic activity combined with rising unemployment. The recent global crisis happened in an economic environment characterized by various imbalances caused by the outbreak of the financial crisis of 2007-2009. In comparison, there could
hardly be any economic crisis without financial crisis because finance is the hub and lubricant of every economy (Ndugbu, 2010). Globalization and technological advancement have made the financial arena exposed to global financial crisis. Generally, banks occupy a strategic position in the economic equation of any country such that its (good or poor) performance invariably affects the economy of the country. Since the creation of Central Bank of Nigeria (CBN) in 1958 and subsequent commencement of operations in 1959, Nigeria has recorded three major periods of crises; (1987-89, 1993 -95, and 2008 - 09) ultimately resulting in the closures of over 300 financial institutions (Nnanna, 2012).

Many seek the roots of the current financial crises in the rapid development of financial innovations and the increasing focus of banks on non-traditional commission and fee-based banking operations. There are however, substantial benefits from financial innovation development. Financial innovations have increased the efficiency of the financial system in that they have improved the ability to spread risk, reduced transaction costs and the level of asymmetric information. Moreover, the liquidity created by financial innovations improves the ability of banks in providing resources to the real sector. The nexus of providers of off-balance sheet vehicles, derivatives, securitization and interbank market such as investment banks, hedge funds, mortgage originators, which is now commonly called the “shadow banking system”, is opaque. Information about the actual value of the claims along the chain from the underlying mortgages to the investor in a residential mortgage-backed security (RMBS), a collateralised debt obligation (CDO) or other instrument holding tranches of CDOs or a structured investment vehicles (SIV) have been lost due to challenges in understanding the core assets involved (Gorton & Rosen, 2009).

The immediate cause of the global financial crisis was the bursting of the United States housing bubble, which peaked in approximately 2005-2006. They maintained, that high default rates on “Sub-prime” and adjustable rate mortgages (ARM) began to increase quickly thereafter. An increase in loan incentives such as easy initial terms and a long-term trend of raising housing prices encouraged borrowers to assume difficult mortgages in the belief that they would be able to quickly refinance at more favourable terms. Refinancing means borrowing money in order to pay a debt. As interest rates began to rise, the housing prices started to drop moderately in 2006 – 2007 in many parts of the United States of America. Refinancing then became more difficult. As a result, defaults and foreclosure activities increased astronomically because the easy initial terms have expired while some prices failed to appreciate as anticipated and ARM interest rates rose even higher (Soludo, 2009).

Previous studies such as (Almanaseer, Assaf, Berger, Roman & Tsionas 2017; Huber, 2018 ) focused on the cost efficiency and this suggested that research on the profit efficiency has been scarce. Basically, profit maximization requires a firm to choose an input and output bundle such that the output bundle generates the maximum revenue possible from the corresponding input bundle. Hence the need for a paper of this nature at this time. The broad objective of this research paper is to examine the impact of the recent global financial crisis on the efficiency of First Bank Plc in Nigeria..

**Literature Review:**

Stijn & Weetle (2014) examined how crisis has affected global financial integration and banking structures and networks and how they relate to development in cross border banking. It employed PROBIT and OLS. The study covered current and past active commercial banks, saving banks and bank holding companies that reported financial statement to bank scope at least one year between 1995 and 2003 in 137 commercial countries. The result shows that global financial integration is not becoming fragmented but rather is going through some important structural transformation with a greater variety of players and a more regional focus.

Almanaseer (2014) examined empirically the impact of the global financial crisis on the Islamic banks’ profitability. Using pooled data for 24 Islamic banks operating in Bahrain, Kuwait, Qatar, Saudi Arabia and UAE over the 2005-2012 period the current study . The study finds that the financial crisis does not have significant impact on Islamic banks profitability. Favorable macro-economic conditions, bank size and equity capital are important factors in increasing Islamic banks’ profitability.

Salah, Tribe&Kabir(2015) This study compares the impact of changing market concentration and power on the efficiency of the major banks in the US and Canada using the Stochastic Frontier Cost and Profit function A significant negative impact of the GFC is observed on bank efficiency. Overall, Canadian banks posted better efficiency scores than their US counterparts. We find that market power had a positive impact and market
concentration a negative impact on profit efficiency however both have positive impact on cost efficiency. Market power has helped to lower the loan losses, interest margin, and increase profit from high-income client to achieve an optimal level of performance (from the banks’ perspective). It has also played a role in improving bank stability. The paper contributes by integrating competition measures into the study of efficiency, demonstrating that inclusion of efficiency allows a more precise estimation of the frontier.

Alin & Silviu (2016) looked at financial crisis and bank efficiency of European banks. The study used the frontier technique to highlight the differences in the impact of Global Financial Crisis on the efficiency of 783 commercial banks from the EU, during the period 2004 to 2010. The result showed that crisis has a significant and positive impact on both the cost and profit inefficiencies of the commercial banks. In terms of cost efficiency, the most affected by the crisis are the large publicly traded banks operating in old members of the EU while for the profit efficiency, the Global Financial Crisis seems to have a lower impact on the large public banks. S Andrew & Syvanus (2013) examined the impact of Global Financial Crisis on the performance of the banking sector in South Africa. It covered four largest South African Commercial Banks from 2000-2010. The study employed the DEA and TOBIT model. The First stage analysis showed that most of the efficiency and productivity measures clearly deteriorated during the period 2008-2010 which coincided with the Global Financial Crisis. The Second stage analysis showed that the financial crisis was the main determinant of bank efficiency.

Ajlouni (2013) used both approaches of Malmquist Data Envelopment analysis and financial ratio to analyse efficiency in Jordan Islamic Banks. Analysis during the period (2005-2009) found that Jordanian Islamic banks are constantly efficient in terms of their inputs producing actual outputs, but still both banks did not show significance variation of performance.

Madhanagopol & Chandrasekeran (2014) explored the relationship between Global economic crisis (GEC) and productivity growth of Indian banking sector using data envelopment analysis based malmquist index (DEA-MI) for the study period 2005 to 2012, which are partition into three different period viz., pre-crisis, crisis and post-crisis. The empirical result showed that total factor productivity (TFP) for pre and crisis regressed by 7 and 0.6% respectively and post by a slight progress of 0.3%. Comparing technical and technological efficiency changes over the study periods, during pre-crisis, improvements in productivity of Indian banking sector was influenced by technological innovation whereas it went down and technical efficiency influenced the productivity in crisis and post-crisis periods.

Denizier, Dinc & Tarimcilar (2014) examined the banking efficiency in a pre and post-liberalization environment by drawing on the Turkish experience. It also examined the scale effect on efficiency by ownership. The result shows that liberalization programs were followed by an observable decline in efficiency. Another finding of the study is that the Turkish banking system had a serious scale problem during the study period.

Oyedokun (2014) examined the main determinants and the changes in capital base to the efficiency of commercial banks in Nigeria. Using Econometric techniques to carry out the analysis, the result showed that capital base requirement was ineffective in reducing distress in the banking industry and that bank capital is a major determinant of bank performance and efficiency.

Nnanna (2014) examine the impact of the financial crisis on the banking sector of Nigeria at a macro level by prescribing a new regulatory framework, promoting regulatory neutrality, eliminating information asymmetry, reinforcing good corporate governance practice in the financial system and finally providing a guideline in regaining the public’s confidence

Martina & David (2015) examines the impact of Nigerian banking reforms on the performance and efficiency in two-time periods (pre and post consolidation periods). These authors adopted a non-parametric (Data Envelopment Analysis) approach and their findings revealed varying levels of efficiency in both periods. They also reported that some banks still remained inefficient but there was a general improvement in efficiency in the post consolidation period, howbeit, this improvement was not entirely attributed to the consolidation policy as two immediate years after the consolidation exercise still recorded poor levels of efficiency among many banks.

Haruna (2015) examined the determinants of financial performance of listed mega banks in Nigeria for a period of seven years. The result of this random effect regression analysis provides evidence that capital adequacy, bank
size, cost income ratio and income diversification have significant impact on financial performance of the banks under study.

Methodology:

Theoretical Framework

Boom-Bust Cycle Theory:

Joseph Schumpeter (1961) developed a model with a boom-bust cycle which can also lead to a financial crisis. Starting from an equilibrium situation some entrepreneurs start with an innovation (a new technology, a new product, a new organization, etc.). A stock of inventions is always available. It is the entrepreneur which selects some of them and triggers economic development. Entrepreneurship, which is very close to the Keynesian category of “animal spirits” (Keynes 1930), plays the key role during an expansion process. According to Schumpeter, capitalist development cannot take place without credit. Credit is created by the banking system and this gives the entrepreneur the financial power to get the physical inputs to implement the innovation Schumpeter (1911). “The essential function of credit in our sense consists in enabling the entrepreneur to withdraw the producers’ goods which he needs from their previous employment, by exercising a demand for them, and thereby to force the economic system into new channels.” (Schumpeter 1911)

Schumpeter then assumes a kind of herding behaviour of firms following the innovative entrepreneurs. The “followers” imitate the innovation to get some of the extra profits which can be earned in the new market. They are also forced to do so by competition. If they do not follow they will sooner or later be eliminated by the market. Driven by high investment and credit expansion a boom phase develops which at a certain point comes to end and gives way for a contraction. This expansion phase, where firms invest into the new innovation or take credit to reorganize and get more productive is accompanied by a second, often bigger and more visible phenomenon. Prosperity is accompanied by speculation. Companies speculate on the further expansion and increase orders and inventory. Speculation in the narrow sense may occur and lead to a bull market. Private households may take consumption loans, etc. The general expansion also leads companies to increase capacities (without increasing productivity) in anticipation of continuing high demand.

Model Specification:

Following the theoretical framework above, the translog stochastic profit frontier is employed in this study and specified as:

\[
P^* = f(w,q,z).
\]

Where

\( P \) is the profit function, \( w \) stands for input, \( q \) stands for output and \( z \) stands for netputs

Equation (3.2) can now be specified as a simple baseline stochastic cost frontier that is closely related to the linear regression

\[
\ln P^* = f(\ln w, \ln q, \ln z; \beta) + v + u,
\]

(3.2)

Empirically, the specification of Equation (3.3) requires one to assume a functional form. This is specified in equation 3.1

\[
\ln P = a_0 + \sum a_1 \ln W + \sum b_1 \ln Q + \frac{1}{2} \sum \sum a_2 \ln W \ln W + \frac{1}{2} \sum \sum b_2 \ln Q \ln Q + \sum \gamma \ln W \ln Q + \sum \delta_1 \ln Z + \frac{1}{2} \sum \sum \delta_2 \ln Z \ln Z + \sum \sum \eta \ln Z \ln Q + \sum \varphi \ln Z \ln W + V + U
\]

(3.3)

where:

\( P \) is defined as profit before tax;
\( W \) is a vector of input prices;
\( Q \) is a vector of variable outputs; and
\( Z \) is a vector of fixed netputs.
These model is estimated by using maximum likelihood estimation; the methodology was advanced by Battese and Coelli (1995). The unknown parameters such as $\alpha$, $\beta$, $\gamma$, $\delta$, $\eta$, and $\varphi$ are estimated. $\alpha_0$ is the constant term; $\alpha_1$, $\beta_1$ and $\delta_1$ are the first partial derivatives; $\alpha_2$, $\beta_2$ and $\delta_2$ are the own second partial derivatives while $\gamma$, $\eta$ and $\varphi$ are the cross second derivatives.

**Regression Analysis:**

Also this study employs the Regression Analysis to examine the relationship between the profit efficiency of banks and the contextual variables. The study

A linear regression model is also specified in the following form:

$$\text{LN(PE)}_t = \alpha + \beta_1 \text{LN(TA)}_t + \text{LN(LLRGL)}_t + \text{LN(NIITA)}_t + \text{LN(ETA)}_t + \text{LN(LOANSTA)}_t + \text{LN(GDP)}_t + \text{LN(INFL)}_t + \text{GFC}_t$$

**Definition of Variables:**

**Variables used as input and output for profit efficiency:**

For the profit function, the dependent variable is the total profit of the selected bank. This study specifies one output: Loans (NIM); two inputs: price of funds and price of non-interest expenses; and two netputs, namely fixed assets and equity. The price of funds is computed by dividing total interest expenses by the total amount of deposits and short term funding, while the price of non-interest expenses is defined as the ratio of overhead cost to fixed assets. All variables are expressed in real terms using the consumer price index (CPI) with 2010 as the base year.

**Variables used in the regression analysis:**

**Dependent:**

\(\text{LN(PE)}\) (Profit Efficiency) Natural log of the profit efficiency derived from the SFA method.

**Independent:**

**Bank specific factors:**

\(\text{LNTA}\) (Size) The natural log of the accounting value of bank \(j\)'s total assets in year \(t\).

\(\text{LN(LLRGL)}\) (Credit risk) Natural log of loan loss reserves/gross loans. An indicator of credit risk, which shows how much a bank is provisioning in year \(t\) relative to its total loans.

\(\text{LN(NIITA)}\) (Diversification) A measure of bank’s diversification towards non-interest income, computed as the natural log of non-interest income over total assets.

\(\text{LN(ETA)}\) (Capitalization) A measure of bank’s capital strength in year \(t\), calculated as the natural log of equity/total assets.

\(\text{LN(NIETA)}\) (Overhead expenses) Calculated as the natural log of non-interest expense/total assets and provides information on the efficiency of the management regarding expenses relative to assets in year \(t\).

\(\text{LN(LOANSTA)}\) (Liquidity) A measure of bank’s loans intensity calculated as the natural log of total loans divided by total assets.

**Macroeconomic conditions:**

\(\text{LN(GDP)}\) (Economic growth) The natural log of gross domestic products.

\(\text{LN(INFL)}\) (Inflation) The natural log of the rate of inflation.

\(\text{GFC}\) (Dummy post global financial crisis) A binary variable that takes a value of 1 for the post global financial crisis period, 0 otherwise.

**Estimation Technique:**

This paper makes use of the Stochastic Frontier Approach (SFA) which specifies a functional form for the cost, profit or production relationship among inputs, outputs and environment factors and allows for random error. SFA employs a composed error model in which inefficiencies are assumed to follow an asymmetric distribution, usually the half- normal, while random errors are assumed to follow a symmetric distribution.
usually the standard normal (Aigner, Lovell, & Schmidt 1977). Greene (2005) and others have argued that alternative distributions for inefficiency may be more appropriate than the half-normal, and the application of different distributions sometimes do matter to the average efficiencies found for financial institutions (Mester 1996, Berger & Humphrey 1997).

Despite these potential problems with measuring the levels of efficiency, one positive aspect of the SFA approach is that it will always rank the efficiencies of the firms in the same order as their cost function residuals, no matter which specific distributional assumptions are imposed. That is, firms with lower cost for a given set of input prices, output quantities, and any other cost function will always be ranked as more efficient. This property of SFA has intuitive appeal for a measure of performance for regulatory purpose a firm is measured as high in the efficiency rankings if it keeps costs relatively low. This is likely to prove helpful in meeting consistency conditions, which are primarily based on rank orders.

**Results and Discussion:**

This section presents the result of the data analysis on impact of financial crisis on the Profit efficiency of First Bank of Nigeria Plc. The profit efficiency was estimated using the stochastic frontier approach and a linear regression was used to examine the relationship between the profit efficiency of the bank and the contextual variables, in other words examining the potential determinants of the bank’s profit efficiency. This section is divided into two, namely the Stochastic Frontier Analysis and Regression Analysis.

**Trend Analysis:**

![Trend of Variables](image)

**Source:** Authors’ Computation 2019; underlying data are obtained from the published annual reports of the First Bank of Nigeria Plc and Central Bank of Nigeria (CBN) Statistical Bulletin, 2018.

Figure 3 shows the trends of the all the variables considered in the second model of the study. The trend analysis covers the period of study between 1981 and 2017. The PE and TA graph show relatively increasing trends through the period of the study. The LLRGL, NITA and ETA graphs show undulating trends with successive crests and troughs through the period. LOANSTA graph exhibited a downward trend from the beginning of the study period. It stabilized rose keenly and dropped sharply and increased steeply again. As expected, the GDP exhibited an increasing trend all through the period of the study. Obviously, inflation shows relative inconsistent trend with several rising and falling.
Stochastic Profit Frontier Model:

Table 4.2: Results of Trans-log Stochastic Frontier Model

| Stoc. frontier normal/half-normal model | Number of obs=36 |
|---------------------------------------|------------------|
| Log likelihood-32.120                 | Wald chi2(9)=277.280 |
| lnP                                   |                 |
| Coef.                                | Std. Err.        | Z      | P>z | [95% Conf.Interval] |
| lnTLN                                 | 5.980           | 2.451  | 2.440 | 0.015 | 1.176 | 10.783 |
| lnPOF                                 | 4.200           | 6.031  | 0.700 | 0.486 | -7.621 | 16.020 |
| lnPONIE                               | -7.241          | 9.001  | -0.800 | 0.421 | -24.883 | 10.402 |
| lnTLNsqHf                             | -0.252          | 0.131  | -1.930 | 0.054 | -0.509 | 0.004 |
| lnPOFsqHf                             | 0.663           | 2.479  | 0.270 | 0.789 | -4.196 | 5.522 |
| lnPONIEsqHf                           | 4.071           | 4.040  | 1.020 | 0.309 | -3.776 | 11.918 |
| lnTLNlnPOF                            | -0.502          | 0.280  | -1.790 | 0.073 | -1.052 | 0.047 |
| lnTLNlnPONIE                          | -0.033          | 0.284  | -0.120 | 0.908 | -0.590 | 0.524 |
| lnPOFlnPONIE                          | 5.309           | 2.360  | 2.250 | 0.024 | 0.684 | 9.935 |
| _cons                                 | -45.603         | 22.170 | -2.060 | 0.040 | -89.055 | -2.151 |
| lnssig2v                               |                 |       |      |      |      |      |
| _cons                                 | -1.060          | 0.311  | -3.410 | 0.001 | -1.670 | -0.450 |
| lnssig2u                               |                 |       |      |      |      |      |
| lnFAS                                 | -0.459          | 32.051 | -0.010 | 0.989 | -63.277 | 62.359 |
| lnTEQ                                 | -0.225          | 18.127 | -0.010 | 0.990 | -35.753 | 35.302 |
| _cons                                 | 4.745           | 139.534 | 0.030 | 0.973 | -268.737 | 278.227 |
| sigma_v                                | 0.589           | 0.092  |       |      | 0.434 | 0.798 |

The trans-log profit frontier models are estimated with one output, two inputs, the square of the outputs and inputs, their mixed products and two netputs. The results of the profit model are presented in Table 2.

The output variable, total loans has a positive coefficient (5.980) and significant at 5% level of significance, this implies that the output variable has a positive relationship with profitability of the bank. In other words, an increase in total loans increases the profit efficiency of the bank. A unit increase in the total loans will increase the profit efficiency by 5.980 percent. In addition, the price of funds (lnPOF) with a positive coefficient of (4.200) is not statistically significant at 5%. This means that lnPOF has no significant effect on the profitability of the bank, but is positively related to the profitability of the bank. Results that reveals that lnPONIE has a negative coefficient of (-7.241) and it is not significant at 5%. This is a confirmation that this variable has no significant effect on the model. Similarly, lnTLNsqHf also has a negative coefficient of (-0.252) but not statistically significant. The variable lnPOFsqHf has a coefficient of 0.663, however, it is not significant at 5% level. More so, lnPONIEsqHf report reveals a positive coefficient of 4.071, conversely, not statistically significant, which has not statistical impact in the model. The value of lnTLNlnPOE variable has a negative value of (-0.502) and also not statistically significant as well. A unit increase in this variable can cause a decrease in the profitability of bank. In the same manner the negative variable of lnTLNlnPONIE of (-0.033) result is not also statistically significant. Its implication is that it makes no economic or statistical means.

The square of the output variable, total loans with coefficient (-0.252) is found negative but not significant. This is an indication that increase in this variables decreases the profit efficiency of the bank. In other words, a unit increase in the square of total loans decreases the profit efficiency of the bank by 0.252 percent. In addition, the mixed product of price of funds and price of non-interest expenses is found positive (5.309) and significant at 5% level of significance. This indicates a positive relationship between this variable and profit efficiency of the bank. Specifically, an increase in the mixed product of price of funds and price of non-interest
expenses increases the profit efficiency of bank, in other words, a unit increase in this variable increases the profit efficiency of first bank by 5.309 percent.

Lastly, the coefficient of LnFAS and LnTEQ with negative values of (-0.459 and -0.225) reported in the table below depicted revealed that the variables are not significant at 95% confidence level, which statistical decisions cannot be rely upon. Conversely, their negative coefficient above implies an inversely relationship with the profitability of the bank. This means that a unit increase in their values will cause about (0.459 and 0.225) units decrease of the profitability of the bank.

The result of the Stochastic Frontier Model where only the output variable and mixed product of price of funds and non-interest expense have positive and significant effect on the profitability of the bank with a coefficient of 5.980 and 5.309 at 5% level of significance. All other variables like price of funds, price of non interest earnings were not significant. In other words, an increase in Total Loans brought about an increase in the profit efficiency of First Bank. This shows that the recent Global Financial Crisis did not have effect on the efficiency of First Bank of Nigeria.

Discussion of Findings:

With respect to the profit efficiency equation, the study used two categories of variables for analysis, they are the bank specific variables and macro economic variables. The profit efficiency was estimated using the Stochastic Frontier approach, result of the Stochastic Frontier Model where the only the output variable and mixed product of price of funds and non-interest expense has a positive and significant effect on the profitability of the bank with a coefficient of 5.980 and 5.309 at 5% level of significance. All other variables like price of funds, price of non interest earnings were not significant. In other words, an increase in Total Loans brought about an increase in the profit efficiency of First Bank. The positive relationship could be due to the recapitalization that preceded the Global financial crisis. That is the bank became strong enough to withstand the Global Financial Crisis due to the recapitalization of banks that occurred before the crisis.

Furthermore, Profit efficiency is ability to achieve maximum profits for a given set of output and the estimated values in logarithm are bounded between 0 and 1. The higher the profit efficiency score is, the more profit efficient the bank will be. If the score is 1, it means the most profit efficient bank. Considering the Profit efficiency scores in the three periods, the results of the descriptive analysis revealed that the average profit efficiency during the crisis was higher than before the crisis. Results of descriptive analysis revealed that the average profit efficiency score of the bank for the whole study period is 0.9422. This implies that the bank earn 94% of its potential profits that could be earned by a best practice bank and 6% are lost to inefficiency. However, before the crisis, an average profit efficiency of 0.9235 is recorded. The average value of the bank’s profit efficiency during the crisis is seen as 0.9797. The period after the crisis records a higher mean value of 0.9859. Generally, a cursory look at the average values profit efficiency scores in the three period show that the bank’s efficiency increased irrespective of the crisis. This implies a continuous increase in profit efficiency score regardless of the period which can also be tethered to the recapitalization of bank that occurred before the crisis.

This conforms with previous studies like Ghulam & Zaheer (2018), and Ajlouni which revealed that that Jordanian Islamic banks are constantly efficient in terms of their inputs producing actual outputs, but still both banks did not show significance variation of performance.

From the trend analysis, the trend of the profit efficiency increased and exhibited stability towards the end of the period even during the Global Financial Crisis. Results from analysis carried out revealed that Global Financial Crisis does not have significant impact on the profit efficiency of First Bank of Nigeria Plc. that is, First Bank of Nigeria maintained its efficiency level even during Global Financial Crisis. This can be depicted from the trend of the profit efficiency graph in Figure 2. This conforms with the work of Chen, Matousk & Wanke (2018) which showed that the overall efficiency of the Chinese Banks remain the same even during and after the crisis.

Finally, from the result of the Ordinary least square, the coefficient of the effect of global economic crisis is found negative that is it has a declining effect on the profit efficiency of the bank. However, it is not statistically significant. This implies that the effect of global economic crisis on the profit efficiency of First Bank Nigeria is not statistically significant although it possessed the expected negative sign. The insignificant effect could be due to the recapitalization that preceded the Global financial crisis. That is the bank became
strong enough to withstand the Global Financial Crisis due to the recapitalization of banks that occurred before the crisis. This goes in line with the previous study like Almanaseer (2014) where the result revealed that financial crisis does not have significant impact on the profitability of Islamic banks.

Looking at the other determinants of the efficiency of First Bank of Nigeria Plc, the results of the Ordinary Least Square shows that variations in the dependent variables has largely been explained by the independent variables.

A country's development level measured through the level of real GDP, has a negative and significant effect on the profit efficiency of the bank.

In addition to, total asset, bank's diversification, capital strength all have positive effect on the profit efficiency of the First Bank of Nigeria while Bank's loan intensity and the Gross Domestic Product have negative impact. This agrees with the work of Haruna (2015), Almanaseer (2014), Oyedokun (2014) which revealed that favourable macro economic conditions, bank diversification, and capital strength are major determinants of banks' profit efficiency.

**Conclusion and Recommendations:**

The banking industry is the backbone of financial intermediation through the mobilization and channeling of financial resources. Banks in performing their pivotal role in the economy, facilitate financial settlement through the payment system, influence money market rate and provide a means for international payment. The efficiency and success of this financial intermediation is affected by any of this crisis. Most of the previous studies looked at the cost efficiency of banks but cost efficiency may not be sufficient to describe the overall performance of the bank’s financial performance. The reason is that cost efficiency only considers how to minimize the cost, but it does not take into account the revenue gained from the provision of higher quality services. In this regard, the problem could be solved by examining the profit efficiency of banks. This study attempts to address the question; whether the Global Financial Crisis has impact on the profit efficiency of First Bank of Nigeria Plc.

In carrying out this research, attention is focused on the profit efficiency effect of the recent global financial crisis on First bank of Nigeria Plc by comparing the efficiency before the crisis with in-crisis and post-crisis efficiency. The reason for choosing First Bank is that the bank has been in existence for long and has not merged with or acquired any bank. It made use of extensive data covering 1980-2017. The profit efficiency was estimated using the stochastic frontier approach and a linear regression was used to examine the relationship between the profit efficiency of the bank and the contextual variables, in other words examining the potential determinants of the bank’s profit efficiency. A cursory look at the average values profit efficiency scores in the three period show that the bank’s efficiency increased irrespective of the crisis.

Also, from the result of the Ordinary least square, the coefficient of the effect of global economic crisis is found negative that is it has a declining effect on the profit efficiency of the bank. However, it is not statistically significant. This implies that the effect of global economic crisis on the profit efficiency of First Bank Nigeria is not statistically significant although it possessed the expected negative sign. That is the bank became strong enough to withstand the Global Financial Crisis due to the recapitalization of banks that occurred before crisis. The study, therefore, concludes that Financial crisis did not have impact on the efficiency of First Bank of Nigeria Plc. Based on the findings of this study, the following recommendations were made;

Fixed assets acquisition by the banks should be watched closely by them as the continuous increase in fixed asset may reach a point where it will start to retard the efficiency of the banks. The effect of new technologies on banking operations should be examined from time to time in relation to their effect on productivity in utilization of resources to achieve efficiency and productivity.

It is essential that the regulatory and supervisory authorities (CBN and NDIC) formulate and implement monetary policies that are effective in helping the banks to improve their operations, thereby leading to efficiency in resource allocation and utilization. The banks should also see to it that they adopt the monetary policies in a way to improve their operations. Individual banks facing solvency problems should receive support when their failure would...
threaten overall Nigerian money market stability either directly or because, in the judgment of the authorities, their failure would undermine market confidence.

Banking supervision should also insist on high-frequency data to continually assess bank liquidity and solvency and conduct credit risk diagnostics and stress testing. Supervision should be as comprehensive as possible, covering foreign currency risk management practices, lending standards and funding reliability. It should extend to all deposit-taking and creations, including non bank money market operation. The Government through the CBN should review the Capital base of banks at least every five years so that banks will be financial strong enough to withstand shocks and crisis.

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